LUND UNIVERSITY • CENTRE FOR EAST AND SOUTH-EAST ASIAN STUDIES

Farming on the Fringe

Enhancing China's Food Security through Community Supported Agriculture

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Abstract

Amid the many food safety scandals and rapid urbanization, China's peri-urban areas have recently witnessed the emergence of alternative food systems (AFSs). Situated in a context different from that of the West, their impact has remained poorly understood and under researched. This paper explores how Community Supported Agriculture (CSA) can enhance food security in China's cities. Based on Polanyi's notion of embeddedness this thesis analyses the impact of CSA on consumer-farmer relations and on a wider socio-spatial context. The findings show that reciprocal interactions facilitated through the CSA model have improved food safety by generating trust between consumer and farmer. In its wider relational context, CSAs have provided urban citizens with more choice and influence while contributions to enhance environmental resources for future food demands are also evident. While CSA remains bound by a number of challenges and limitations, it is suggested that certain features of the model can be adopted in response to prevailing issues in China's food systems as well.

Keywords: *CSA, AFS, food security, urbanization, China*

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Abbreviations

AFN	Alternative Food Network
AFS	Alternative Food System
CAD	Comprehensive Agricultural Development
CSA	Community Supported Agriculture
FAO	Food and Agriculture Organization of the United Nations
FCN	Food Community Network
FIES	Food Insecurity Experience Scale
HRS	Household Responsibility System
IFOAM	International Federation of Organic Agriculture Movements
PGS	Participatory Guarantee System

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1 The Seeds

1.1 Background

During my exchange semester at the University of Fort Hare in South Africa I attended a guest lecture by a food security specialist from the Food and Agriculture Organization (FAO). While his lecture was mostly about how food security could be improved and how it should be measured, my interest was about his conceptualization of 'food security'. After the class, I asked him how the concept was different from food sovereignty, a term favored by opponents the global, industrialized food system. My question provoked an almost sensitive response: 'the only argument that those who argue for food sovereignty have is that the food is locally produced and therefore emissions in transport might be reduced'. His answer contradicted my own view: during research for my bachelor thesis on urban agriculture in Bangkok, I learned that locally produced food can make important ecological and socio-economic contributions to the food system.

Community Supported Agriculture (CSA) is an operation model that promotes locally produced food. It diverts from the conventional agriculture system by reconfiguring the relation between producer and consumer: they partner together to share the risks and benefits of the farm operations (Ernst and Woods 2013). While the concept has taken ground in the United States during the 1980s, CSA has only very recently sprouted in China. While much remains unknown about CSA in the Chinese context, this study aims to explore the possible contributions an alternative food movement as CSA can have to China's food security. Is the CSA model solely about reducing 'food miles' in the food system, or can it bring about other important contributions as well?

1.2 Research problem, demarcation and relevance of the study

China's level of urbanization remains unprecedented, which is witnessed by the many changes taking place in the urban fringe, such as the construction of new subway lines, massive train stations, golf courts, and high-end condominiums. While the expansion of build-up areas surrounding the Chinese city is evident, it comes with certain implications to food security that have been well documented in literature: the rapid loss of farmland (e.g. Hsing 2010; Lin 2009), environmental degradation (Huang

McBeath and McBeath 2010) and the changing and more demanding diets of urban citizens (Veeck 2013). In addition to shocks in the global food market and China's continuous food safety scandals, urbanization has added new challenges to food security that are particularly evident in China's cities.

The purpose of this study is to look at the contribution of CSA in making urban food systems more resilient. Demarcation is needed because the development of CSAs and alternative food systems (AFSs) have been traditionally approached from many different perspectives, among others: as a sustainable farming practice (Blay-Palmer 2010), a business opportunity (White 2013), or as a justice movement (Allen 2010). This study focusses on the social and spatial dimensions and uses food security – including food availability, access and stability – to measure and operationalize the contribution of CSA to the urban food system.

Given that it is expected that the trend of urbanization in China will continue for the next decades, the study's relevance is mostly grounded in exploring the potential role of CSA for China's cities and their residents. The study is furthermore relevant as it explores solutions to issues that prevail in the conventional food system of China, such as food safety issues. Similar to other studies on AFSs, the significance of the study will not be about the actual output of food produced, but instead about exploring alternative approaches of how food systems can be organized. Since AFSs and CSAs have been mainly conceptualized within the western context, and only a handful of studies on CSA in China exist, this study is also relevant as it explores the emergence of CSA in a non-western setting.

1.3 Research Questions

In line with the primary purpose of this study, the main research question is as follows:

- In what ways can the model of Community Supported Agriculture contribute to food security in the Chinese urban food system?

Three sub-questions help to guide this research question and are in accordance with the secondary aim of this research, which is to explore how the CSA model can help to mitigate prevailing issues in China's conventional food system. The sub-questions are:

1. What are the main problems with China's food regime and why is there a need for more resilient food systems?
2. How does Community Supported Agriculture affect consumers and farmers, and a wider social and spatial context?
3. Where can the model of CSA be adopted in response to food security issues in China's conventional food system?

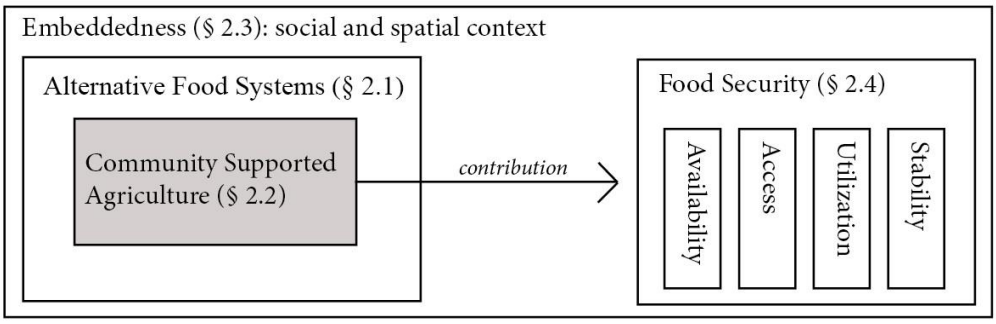
1.4 Disposition

This thesis is structured as follows. The next chapter provides the theoretical foundation on which this thesis is based. It places CSA in the wider scholarship on AFS, explains the theoretical concept of embeddedness, and lastly elaborates on the concept of food security. Chapter 3 describes the methodology of the thesis, including the research methods and considerations that guarantee the quality and ethics of this study. Chapter 4 discusses the context in which this study is situated, and elaborates on China's urbanization, the contemporary issues and constrains in China's food system, and the responses that have emerged from it. Chapter 5 presents the main empirical findings of this thesis, which are derived from the survey and interviews, and structures these according to the main pillars of food security. In chapter 6, a discussion of the main findings is provided that relates to the main research question of how the model of CSA can contribute to food security, using the theory of embeddedness to guide the discussion. The final chapter summarizes the thesis and elaborates on the outlook of the CSA movement in China. The chapter is concluded by final remarks and suggestions for future research.

2 The Roots

On a fundamental basis, food is an absolute necessity for human survival and this has made the study on food a compelling focus for research and practice. Besides seeing food as the critical basis for nourishment, food relates to a wider social context as well. For example, food can be regarded as a cultural expression, an economic opportunity, or a human right (Blay-Palmer 2010). This has made the scholarship on food a fertile ground for endless analysis, encompassing a wide spectrum of different disciplines. As demonstrated in this chapter, the fluid character of food is particularly relevant to the theoretical framing of this thesis. This chapter discusses the theoretical foundation of the thesis and follows the outline that is illustrated in Figure 1. CSA in this study is placed within the wider scholarship on alternative food systems (AFSs) [1], and both terms are explained in the first part of this chapter. The second part describes the two main theoretical concepts upon which this thesis rests, which are embeddedness and food security.

Figure 1 *Theoretical concepts presented in this chapter*



2.1 Framing Alternative Food Systems

Food systems is an overarching term to describe the holistic food process, which entails everything that is needed to deliver food from the farmer to the costumer. Elements of the food system include seeding, cultivation, packaging, distribution, and consumption. While the term 'systems' is often accredited for its comprehendness (Blay-Palmer 2010:24), using it as a theoretical concept requires caution. Setting system boundaries can be challenging as drawing these too expansive would require an exhausting amount

[1] The term Alternative Food Systems (AFSs) is in this thesis used as an all-compassing term to describe similar terms used in the literature, such as alternative food networks (AFNs) or alternative supply chains (ASCs).

of effort to examine all linkages, while drawing the boundaries too narrow would risk missing critical links (ibid: 26-27). Furthermore, drawing system boundaries can be subjective to one's own understanding if something is part of the system or part of the context.

As the word 'alternative' reveals, AFSs arise in a context where there is another prevailing food system – often dichotomously described as the dominant, mainstream, or conventional system[2]. The contemporary 'global' food system is largely controlled by a set of global agencies which have all actively sought to promote food security through economic reforms (Schanbacher 2010). The discourse is predominantly informed by a neoliberal ideology, which motivates the emphasis on market-oriented measures such as trade liberalization and privatization in the food system. In the light of recent events such as the global financial crisis that culminated into a 'global food crisis', a growing number of observers and food activists have questioned the sustainability of this global food system (e.g. see Allen 2010; DeLind 2011; Koscica 2014). Advocates in the scholarship of AFS have criticized the relocalization of food production, wherein traditional food production sites have been pushed away into the remote hinterland or have been replaced by foreign food imports (Allen, 2010). Others have claimed that the food system has failed to create a just system and has led to a marginalization of small-scale peasants (Gibson 2012:199). In addition to this, it has been argued that the current food system is diminishing biodiversity as well as cultural diversity by actively promoting the development of mono-cropping and large-scale farms (ibid:59). This is why some actors in civil society, aiming to reconfigure the conventional food system, have used the local level as a space for change by initiating AFSs.

A growing body of literature on AFS has recognized civil society as an important driver for change (Blay-Palmer, 2010:6). While AFSs can take many different forms, Si, Schumilas, and Scott (2015) have identified three principles shared between AFSs: (i) a constitution of food markets that redistribute value through the network against the logic of large-scale farming, (ii) an attempt to re-establish 'trust' between food producers and consumers, and (iii) an articulation of new forms of political association and market governance. These principles, which have largely arisen out of dissatisfaction with the conventional food system, suggest that the way in which AFSs operate is narrowly tied with their wider context. Examples of the major types of AFSs

[2] In this thesis thereafter the term 'conventional' will be used.

are farmers' markets, buying clubs, community gardens and CSA (Allen, 2010). With different labels such as sustainable, just, real, local, or organic, the AFSs take different forms and are driven by different motivations and practices.

2.2 Making Sense of Community Supported Agriculture

Community Supported Agriculture is a type of AFS that promotes a direct form of farm marketing practices. The concept has taken ground in the United States during the 1980s, and contemporary empirical studies remain to be heavily drawn from the European and North-American context (e.g. see Flora and Bregendahl 2012; Galt 2013; White 2013). More recently, coinciding with the introduction of CSA farms in China, the concept has started to receive more scholarly attention outside the Western context as well (Shi et al. 2011; Si et al. 2015). Due to multiple and confusing definitions of CSA, the concept of CSA is vulnerable to misinterpretation and misunderstanding (Galt, 2011) and although a strict definition of CSA remains absent, some major characteristics help to frame CSA.

The economic model of CSA is supported by a community of individuals who support the farm operations so that the farm becomes community-owned or driven. While the 'supportive' aspect can entail physical labor, it is mostly through a subscription basis that members participate in. They make an advance payment in forms of shares to cover the anticipated cost (Ernst and Woods 2013:2). In return, members receive shares of the farm and enjoy deliveries on frequent intervals that come directly from the farm. In this model, the members share the risks – such as a poor harvest – but gain from a successful harvest (Ernst and Woods 2013:7). Other features of the organizational structures of CSA remain highly flexible (Flora and Bregendahl 2012:330), some farms for instance also distribute working shares (Chen 2013)

Another shared characteristic of CSA is that communication plays a defining role to inform subscribers or attract new members. More recently, the Internet including social media, blogs, and digital newsletters are frequently made use of by CSAs (Ernst and Woods 2013). Regarding the farming operations, most CSA farms have eliminated or minimized the use of chemical inputs, and instead place a greater emphasis on an organic, seasonality, and environment-friendly production process that is supported by human or animal capital (White 2013:2). This usually implies that the price of CSA products are significantly higher than similar agricultural products.

Another characteristic is the emphasis on the local. CSA producers actively promote a shortened food chain which directly links the producers and consumers of food (Flora and Bregendahl 2012:330). Members are encouraged to visit the farm and to pick up their shares, while other farms distribute their products through central pick-up points or farmers' markets (Ernst and Woods 2013:2). This is not only an effort to reduce the food miles, but also to establish trust between farmer and customer. A final characteristic are the consumers who CSA products. Ernst and Woods (2013:6) identify two categories of customers: upper-middle class consumers with above-average incomes and some interest in buying higher quality or local food, and secondly consumers who value the idea of local food enough to invest a substantial amount in it for the whole season. These characteristics have been found in the Chinese context as well (Shi et al. 2011:556).

2.3 Embeddedness

Embeddedness is used in this research as a theory to examine and explain how CSAs contribute to food security. The concept was first introduced by Karl Polanyi (1944) who argued that economic relations are constructed and influenced by the wider social-institutional environment (Penker 2006). The Polanyian idea states that economic practices have become 're-embedded' in social practices and networks (Winter 2003). Rather than seeing the market as the sole instrument that determines economic transactions, Polanyi (1944) claims that social institutions such as religion and the government are equally important. Granovetter (1985) has provided further interpretation to Polanyi's ideas and emphasized the role of social relations in generating trust, where trust is regarded by Granovetter as an absolute necessity for economic relations to take place (Winter 2003). Moreover, Granovetter (1985) claims that trust has the ability to replace more formally arranged institutions to a certain extend as well. By placing an emphasis social relations, the theory of embeddedness contrasts with the more utilitarian approaches that focus on the economic rationality of actors (Migliore et al. 2014:552).

While the theory is not free from criticism, most notably for over-emphasizing social relations (e.g. Sayer 2001) and failing to explain how social relations affect economic exchange (e.g. Uzzi 1997), the theory has become popular in studies on food systems and in particular on AFSs. Situated in the offset of the predominating conventional food system (Bowen 2011:326), embeddedness in studies on AFSs has

been applied to analyze and emphasize how economic relations are influenced by consumer-producer relations and the wider relational context. For instance, AFSs can be 'socially embedded' through their intimate consumer-farmer ties (e.g. Sage 2003) or 'spatially embedded' through their interaction with the local environment (e.g. Bowen 2011). Embeddedness in particular helps to identify the non-economical considerations of actors, as Sage (2003:48) puts it: "[to] offset purely personal financial incentives against social criteria involving collective, community or environmental benefits". In this regard, embeddedness is also helpful to distinguish AFSs from the conventional food system (Migliore et al. 2014:551)

Migliore et al. (2014), in a study on food community networks (FCNs), make an important distinction between 'internal' (or relational) and 'external' (or structural) forms of embeddedness. Regarding the process of internal embeddedness, the first proposed hypothesis is that *"Relational mechanisms are established in which groups of consumers and farmers are directly affected by reciprocal interactions, giving rise to links of reciprocity and trust"* (Migliore et al. 2014:551). Within AFSs, reciprocal interactions are usually achieved through short production chains and personal relationships (Galt 2013:347). In line with Granovetter (1985) thought, the hypothesis assumes the importance of non-economical relations between consumers and producer. The concept of internal embeddedness is used in this research to examine reciprocal interactions in the CSA model and how this contributes to food security.

Regarding external embeddedness, the second hypothesis proposed by Migliore et al. (Migliore et al. 2014:551) is that *"Structural mechanisms are established in which the behavior and results of whole groups of people affect and promote a broader relational context"*. The hypothesis assumes that through structural mechanisms, such as marketing or non-farming activities directed at a wider audience, AFSs are effective in reaching out to their wider context. This may lead to the diffusion and spillover effects of new connections with outside actors. This research approaches external embeddedness from two perspectives that directly relate to the relational context of CSA: (i) *socially*, that regards CSA as part of a broader social movement and looks at its wider societal influences; and (ii) *spatially,* that regards CSA as a local food system and looks at its interaction with its direct surroundings. These two perspectives aim to

analyze how the model of CSA contributes to food security in relation to its wider socio-spatial[3] context.

2.4 Measuring Food Security

2.4.1 Definitions

Ever since the term food security has gained a prominent place in the development policies in the 1970s, the concept has been constantly revised and extended (Ecker and Breisinger 2012). This has led to that the concept comes with a high level of ambiguity, which can also be explained by the multi-disciplinary nature of the concept. The specific notion of food security seems to be largely dependent on the researcher's own background (Gibson 2012:7). Rather than following a definition drawn from a specific discipline, this thesis adopts the most widely recognized definition that has been set by the FAO (2009). During the World Summit on Food Security in 2009, the definition of food security was stated as follows: *"Food security exists when 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 2009). Although not everyone would agree on this definition, and much of the definition remains enough leeway for conflicting interpretations, the definition is powerful as it carries all the different elements that surround the concept (Ecker and Breisinger 2012).

2.4.2 The Four-Pillar Model

The four-pillar model is effective in breaking down food security in its major components. In this model, food security rests on four separate but interrelated 'pillars': (i) availability, (ii) access, (iii) utilization, and (iv) stability (FAO 2009). Availability refers to the available quantity and appropriate quality of food. The availability, provided by farms and markets, is mostly measured in terms of physical access where an adequate infrastructure plays an essential role (Gibson 2012:9). Some observers have added the criteria that the availability of food needs to be within a 'reasonable' proximity too (ibid:9). In middle- and high-income countries, the most pressing issue regarding the availability of food is not about securing adequate food supplies, but rather dealing with changes in the composition of food. Economic growth is often

[3] Socio-spatial is in this thesis used a term to describe the simultaneous interaction between society and its spatial environment

accompanied with changing dietary patterns wherein people substitute cereals for high-value food (ADB 2011:46), which in turn poses challenges to the 'caring capacity' of the earth.

Closely related to the availability of food is the access to food. This pillar is mostly about people's economic access to acquire an adequate amount of appropriate food intakes, which is often an issue for poor and vulnerable groups (Koscica 2014:177). Access to food are facilitated by different distribution means and channels, including purchase, production, exchanging goods, welfare systems or food aid programs (Gibson 2012). In most urban environments, access to food is often almost entirely arranged by domestic and international markets.

A third pillar is the utilization of food. Utilization looks at the absorption process of food, and most importantly stresses the nutritious value of food. Furthermore, utilization is narrowly related with health concerns that relate to the safety of food (Gibson, 2012). Especially when non-food inputs such as pesticides or additives are added during the food production process (Huang McBeath and McBeath 2010), the utilization of healthy and safe food is not always guaranteed.

The final pillar is stability or vulnerability, which has only recently become included in the discourse on food security. There are many arguments to include a temporal dimension into food security: besides the seasonality aspect of food production, food production has to cope with shocks – such as droughts, floods and market fluctuations – as well as with changing environmental conditions (Headey and Ecker 2013). The turmoil caused by the most recent global food crisis has indicated that stability is an important dimension to consider, especially as food prices are predicted to remain highly volatile (ibid). Indeed, following the definition suggesting that food security only exists when people have food "at all times", the availability, access and utilization of food security is far from something fixed over time and space.

2.4.3 Levels of Food Security: a conceptual framework

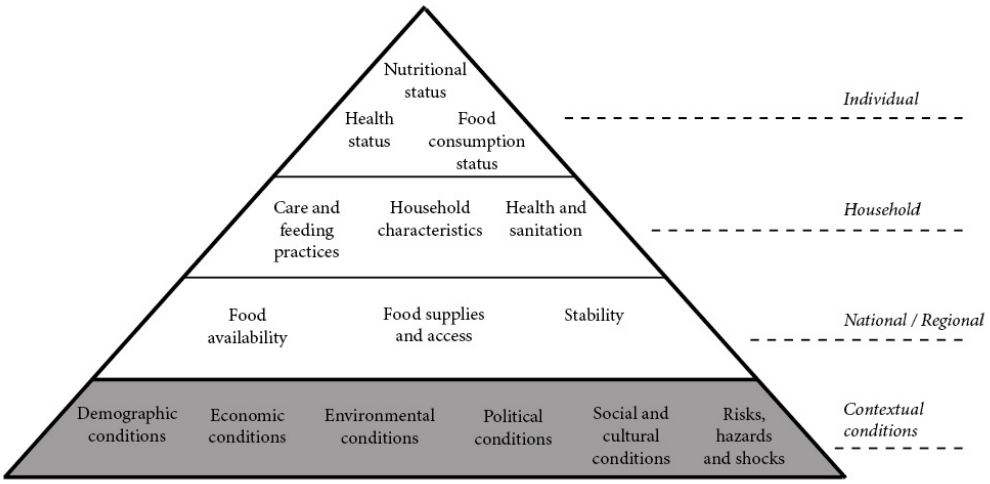
Food security can be measured through a set of different indicators. The concept has traditionally relied on mostly positivistic determinants, such as calorie deprivation, food price indexes and the prevalence of undernourishment[4]. However, more recent approaches have aimed to include people's own perception and experience of food security, also referred to as subjectivity measures (Headey and Ecker 2013). The Food

[4] For a complete list of indicators, see 'the suite of indicators' by the FAO et al. (2013:16-28)

Insecurity Experience Scale (FIES) is a recent example that employs these new measures (Ballard et al. 2013).

The concept of food security encompasses different levels, ranging from the individual to the global level (Pinstrup-Andersen 2009). The conceptual framework that has been developed by the FAO (2002) frames the levels of food security into three larger groups: the individual, the household and the national/regional level. The individual and household level are usually approached and measured from the perspective of the beneficiary, for instance whether individuals have access to sufficient food and whether these are nutritious (Pinstrup-Andersen 2009). The regional level, in which this study is situated, is frequently approached from the supply side of food (ibid:5). Accordingly, measuring food security at the regional level is concerned with the question how food systems organize the availability, access and stability of food. Finally, all three levels are influenced by a set of six underlying conditions, which contribute to the complex character of food security. When measuring and contextualizing food security, the underlying factors comprised by demographic, economic, stability, environmental, political and social factors need to be taken into account. The analytical framework that emerges from above is illustrated in Figure 2.

Figure 2 *Analytical framework of food security, adopted from FAO (2002) and Gibson (2012)*



2.4.4 Terminology in China: Food Security versus Grain Security

The final theoretical consideration of this chapter relates to the specific context in which this study is situated. Food security is not a term frequently used in China. Given that central plans in China have traditionally concentrated on the production of grain,

'grain security' (*liangshi anquan)* has been the long-standing equivalent of food security (Christiansen 2009:549). However, recent changes in the Chinese diet – reflected by a huge increase in the consumption of meat and vegetables – have motivated various scholars to argue that the term grain security may no longer be the most appropriate term (Huang McBeath and McBeath 2010:39). At the same time, China's food system has since the reform period become more internationalized and embedded in the global food markets, and approaching the food structure solely in terms of grain may therefore no longer be appropriate (Sun 2014:301). It is for these reasons that the more recent English-written literature on China's food regime have adopted the term food security (e.g. see Chen and Duncan 2008; Huang McBeath and McBeath 2010; Scott et al. 2014; Sun 2014).

3 The Tools

3.1 Methodological Positioning

Studies on food systems and alternative food systems in particular are characterized by a high variation of different approaches and theories, navigating through a spectrum of different disciplines. This makes the field of this study pluralistic in both epistemological and theoretical approaches, and therefore it is important to elaborate on the methodological considerations of this study first.

This study follows the constructionist ontology that claims that reality is a product of social interaction and therefore constantly in a state of revision (Bryman 2012:32). The study follows the idea that food systems are constantly shaped by different actors and are not influenced solely by structural and material factors, but also by more personal constructs such as meanings, beliefs and values (Goodman et al. 2012). By doing so, this study adopts the 'ontological rapprochement' suggested by Guthman and DuPuis (2006). Rather than approaching food systems strictly from a single perspective, Guthman and DuPuis (2006) have advocated for a hybrid form of theoretical approaches in food systems research. This is in line with Granovetter's (1985) take on embeddedness, that seeks a middle ground between economic theory that 'under-socializes' and sociological theory that 'over-socializes' behavior. The epistemological stance of this study is interpretivism. Contrary to positivism, interpretivism rejects the idea that the world can be studied as 'it really is' and instead argues that research is largely influenced by subjectivity and the researcher's own bias (Bryman 2012:27). This is particularly relevant for this research, because the emergence of AFSs can be explained from different stances, while actors are informed by both structural and epistemic values. The aim of this thesis is therefore not to reveal a definite truth, but rather to present a reality as perceived by the respondents.

The theoretical perspective that derives from the considerations above, and that builds the epistemological-theoretical foundation of this thesis, is critical realism. Critical realism posits that parts of the social world need to be understood as being socially constructed and are therefore differently interpreted and measured, but also instills that there is an objective reality independent of our minds (Jessop 2005). A critical realist position is taken because it allows for a holistic look at the structural forces, material values and subjective meanings of food. This is useful as both the

consumers and farmers have constructed different subjectivities to the concepts of food security and food systems. At the same time however, the more fundamental and rational values of food can be illustrated by the price and nutrition of food.

3.2 Research Methods

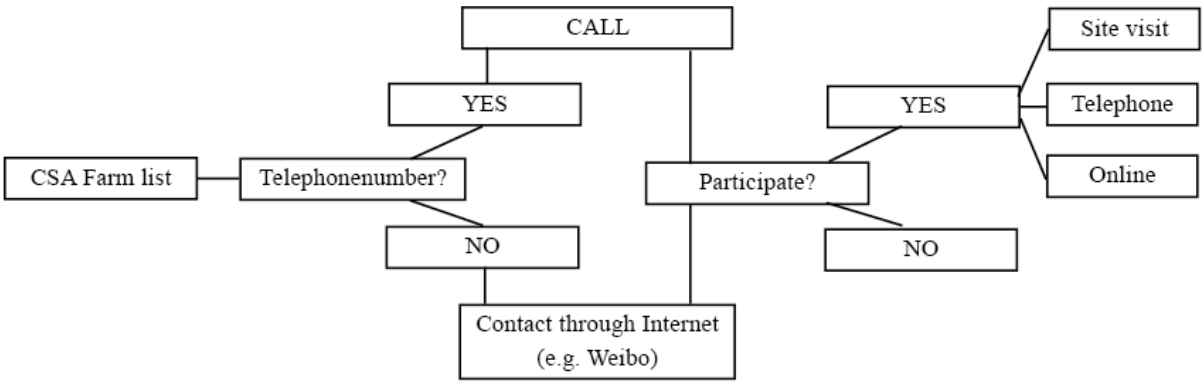
3.2.1 Data Collection; Survey and Semi-Structured Interviews

The main research method employed in this research is the survey method and semi-structured interviews. Surveys have traditionally been collected by either an interviewer visiting a respondent or through self-administered questionnaires (Leeuw and Hox 2008:138). However, communication technologies have significantly improved the methods to distribute and collect surveys, most notably because of the Internet. Internet surveys employ the computer interface with absence of an interviewer, which has certain advantages over the traditional paper-and-pencil method: responses are directly put into a database, respondents can complete the survey in their own time, place and pace, and the interviewer's absence greatly reduces the cost of the research (Velhovar and Manfreda 2008:179). With these new opportunities taken into account, this research uses a mixed-method of data collection concerning the survey because "sometimes the best results are gained by employing more than one data collection method" (Leeuw and Hox 2008:139). Accordingly, data from the survey was collected through three different methods; the Internet survey, the telephone survey and a site visit. Out of practicality reasons, the survey is chosen as an appropriate method. As I do not speak sufficiently Chinese, surveys are effective as they can be pre-translated, easily interpreted, and require significantly less time from an interpreter compared to an interview. Furthermore, farms are mostly located in the peri-urban areas where access with public transport is difficult, which would require much time and money for a site-visit. Recognizing the limitations of the survey, the data derived from the survey is complemented with data gained from semi-structured interviews with key stakeholders. This allows for additional qualitative insights that could not be obtained through the survey.

3.2.2 Sampling and respondents

While official figures remain absent, it has been estimated that the total population size consists of about 500 CSA farms in China[5]. My copy of a CSA farm list (December 2014) which I received from a professor that includes 122 farms was proven particularly helpful to find and contact farmers. Although the list included only the name and district of the farm, contact details were found through online searches This was possible as most of the listed CSA farms are active Internet users and many have an account on the Chinese micro-blog Weibo. The CSAs were notified by telephone in case a telephone number was found, in other cases respondents were contacted directly by Weibo or e-mail. CSAs were accordingly asked to participate in the survey, and interested participants were asked for their preferred method. The process is illustrated in Figure 3. In total a number of 15 CSAs were willing to participate in this study, listed in Table 1.

Figure 3 *Sampling process of the survey*



In addition to the surveys with CSAs, data was obtained trough open and semi-structured interviews with key stakeholders in the Chinese CSA movement: including two representatives from the Rural Reconstruction Centre (the main initiator of CSA in China). Two representatives from a Beijing-based environmental NGO are also included. The interviews took approximately 90 minutes and are listed in

[5] This number was mentioned by two key stakeholders of Chinese CSAs

Table 2. In addition, during my ten-week stay in Beijing, I interned at Landesa which is a NGO that supports the land rights of farmers. Although no formal interviews were arranged, the continuous feedback and suggestions I received during my internship have significantly contributed to the quality of the survey design and hence my findings.

Table 1 *Respondents included in the survey*

#	*Date*	*Location*	*Method*	*Position of respondent*
1	03-04-2015	Beijing	Internet survey	-
2	03-05-2015	Beijing	Internet survey	Manager
3	03-07-2015	Kunshan	Telephone survey	Marketing director
4	03-07-2015	Beijing	Internet survey	Operations manager
5	03-08-2015	Beijing	Internet survey	-
6	03-08-2015	Fuzhuo	Internet survey	Coordinator
7	03-09-2015	Beijing	Internet survey	Sales manager
8	03-09-2015	Chengdu	Internet survey	Farmer
9	03-09-2015	Zhejiang	Internet survey	Farm owner
10	03-09-2015	Beijing	Internet survey	-
11	03-14-2015	Beijing	Site visit	Manager
12	03-14-2015	Beijing	Telephone	Farm owner
13	03-20-2015	Chengdu	Internet survey	Leader
14	03-22-2015	Beijing	Telephone	Farm owner
15	03-26-2015	Beijing	Internet survey	Farmer

Table 2 *Respondents included in the interviews*

#	*Date*	*Position of respondent*
1	24-02-2015	Rural Reconstruction Centre
2	24-03-2015	Founder of the first CSA farm in China
3	31-03-2015	Rural Reconstruction Centre
4	01-04-2015	Beijing-based environmental NGO

3.2.3 Interpretation of the data

The questions have been operationalized using the pillar model and analytical framework presented in section 2.4.2 and 2.4.3. The questions were accordingly structured into the three relevant 'pillars' of food security. The data collected from the 27 questions of the survey (see Appendix) informed the descriptive statistics presented in chapter 5. Questions that used the likert-scale were given weights in accordance with the number of scales used (either 3 or 5), for example:

Answer	***Strongly disagree***	***Disagree***	***Neutral***	***Agree***	***Strongly agree***	***I don't know***
Weight given	1	2	3	4	5	0

The average weights (ranging from 1 to 5, with 0 excluded) per question were then calculated and summarized, and where possible compared with other questions. The open questions in the survey have been translated into English by an interpreter, and were accordingly analyzed using the textual data analysis software Atlas.ti. The semi-structured interviews were all conducted in English, and in once case with assistance of an interpreter, and were then transcribed and analyzed using Atlas.ti.

3.3 Quality, limitations and ethics

3.3.1 Quality criteria

To guarantee the academic quality of this study, the methodology is guided by the three key criteria for the evaluation of social research as identified by Bryman (2012): reliability, replication and validity. Reliability is relates to the consistency of the measurement, which is adhered to through the closed-character of the survey. All respondents have been given the same questions, although the problem of different interpretations can not be avoided and reliability might be weakened because of the absence of a test-retest. To guarantee the quality of the questions, the survey has been piloted once and critically reviewed by an expert from Landesa. The criteria of replication checks whether the study can be replicated by another researcher (Bryman, 2012:177). The survey can be duplicated by other researchers and partly transferred outside the Chinese context. The final criteria is validity and relates to the integrity of the research findings and conclusions (ibid:170). I strived for validity by following the

notions of 'reflective methodology' by Alvesson and Sköldberg (2009), mostly by being aware of my personal bias and how this affected my interpretation of the questions.

3.3.2 Limitations

Despite efforts to conform with the above-mentioned criteria and guarantee the quality of this paper, some limitations remain. Undertaking research with Chinese farmers brings about difficulties that are not always easily resolved within the setting of a master thesis bound by time and financial limitations. In addition, my proficiency in Chinese is only at an elementary level. Issues arise from the data collection methods and in particular the Internet survey, of which the limitations are well understood: invited participants may refuse participation altogether, terminate participation during the process, or answer questions selectively (Leeuw & Hox, 2009:182). Furthermore, the self-administered aspect can be troublesome as it may lead to misinterpretation of the questions and greatly reduces the potential to receive feedback or related information outside the survey. These shortcomings have been partially reduced by sending out reminders, conducting a pilot of the survey, and adding an extra field in the survey where participants could leave any remarks and comments. In addition, the findings of the survey have been discussed with key stakeholders to get extra insights and avoid misinterpretation of the data.

3.3.3 Ethics

While I initially wanted to focus on land expropriation in the peri-urban areas, I felt that this would be perceived a topic too sensitive in the Chinese context. I shifted to CSA as I felt this topic is less sensitive and my impression was that practicers are enthusiastic to share their ideas, presumingly in stark contrast to a farmer that just lost his land. The ethical considerations have been dealt with as described by The Swedish Research Council and the Thesis Guidelines (revised January 16, 2015). Informed consent and confidentiality comprised the two major concerns throughout my research. I have always remained honest in my intentions and stated clearly in advance what I wanted to know and what my position was. Participants were granted absolute confidentially and were informed to leave any questions blank they did not feel comfortable with. Respondents of the interviews have been informed in a similar fashion and names are enclosed for confidentially matters.

4 The Soil

This chapter describes the situatedness of this research and reviews the recent literature that has been devoted to China's (alternative) food systems and food security. With China as the most populous country on earth, the issues discussed in this chapter are not only of relevance of domestic concerns but also have significant implications on global food security and environmental sustainability (Veeck 2013:43). This chapter uses urbanization, one of China's most profound changes in the last decades, as a starting point to describe the changes that have taken place in the socio-spatial context. Urbanization has significantly impacted the way how food systems are organized, and has added new challenges to food security, which are discussed in detail in the second part of this chapter. The last section provides an overview of the limited number of current studies on CSA in China.

4.1 Urbanizing China

One of the most remarkable components of China's development trajectory is its large scale and high pace of urbanization. During the post-Maoist era China entered a new phase and underwent a restructuring of its centrally planned economy towards a more international orientated and competitive market economy. The associated accumulation of capital and urban growth was facilitated by a 'spatial fix' (Harvey 2001), consisting of a massive wave of rural migrants that were willing to work for low wages in the city. The term 'state-led urbanization' is frequently used to point at the consistent role of the state in China's urbanization project, wherein most notably the local authorities have taken on a leading and sometimes controversial role (Ong 2014:16). In 2011, for the first time in history, China's urban population exceeded its rural counterparts (ibid:162). China now hosts several 'megacities' and has recently overtaken Tokyo as the largest and most populated urban area in the world: the Pearl River Delta (World Bank 2015:67).

While economic and urban growth have been spatially concentrated along the eastern coast for many years, recent developments such as China's 'new urbanization' policy (CDRF 2013) aim to stimulate urban growth in the more inland or 'second-tier' cities as well. As pointed out by Hsing (2010), three main trajectories can be identified in China's urbanization path; an inward contraction in the inner-city, an outward expansion of cities into the 'urban fringe', and a conversion and lease-out of farmland

at the more remotely located 'rural fringe'. It is the second trajectory on the urban fringe in which this study is situated (see Figure 4). As China's cities continue to grow in both economic activity and population, the urge to expand geographically exerts great pressure on the surrounding areas. A characterizing feature of China's urbanization path is that population density in urban areas has remained virtually constant, which hints at a high amount of urban sprawl (World Bank 2015:67). It is particularly in the peri-urban areas where urban sprawl has encroached into the land of farmers. Alarming is that land 'grabbings' have generated an increasing number of landless farmers (van Westen 2011:55). With their land taken away as an outcome of coercive urbanization, farmers are frequently resettled in high-density areas, or 'concentrated villages' (Ong 2014). Whilst the rise of the city in China is evident, urbanization has induced deep and irreversible changes on China's socio-spatial context.

It is therefore also that China's urbanization path in the peri-urban areas – characterized by massive losses of farmland and the expropriation of farmers – have raised critical concerns. One of the major concerns is that of food security. With decreasing amounts of farmland, China's self-sufficiency policy has become harder to sustain, especially in the urban areas (Lang and Miao 2013:6). For current farmers that operate in the proximity of the city, the potential of expropriation informs a weak sense of land security. This makes farmers reluctant to make medium or long-term investments, ultimately resulting in lower land efficiency gains (Landesa 2011). Where agricultural land in the hinterland of the city has been lost, urbanization has put strains on food security. With more than half of the Chinese population now living in cities, it is important to examine new ways that can make urban food systems more resilient. Before doing so, the current issues in China's food system need to be understood first.

Figure 4 *A typical image of China's urban fringes (here: Beijing) (author's photo)*

4.2 Contemporary Issues with China's Food Security

There is a wide consensus in literature that China has been successful in securing its availability of food (Zhou 2010:251). With the exception of the Great Famine around 1960, China has since the 1950s – and especially after 1978 – been successful in securing food supplies by placing an emphasis on local self-sufficiency (Christiansen 2009:551). This policy goal is still maintained today and targets to satisfy 95 percent of domestic consumption for a number of crops and stable foods (Hyde and Syed 2014:22). Part of the success can be ascribed to a technical fix, which led to mechanized agriculture, intensified use of chemical fertilizers, and improved irrigation and farm equipment (Christiansen 2009:553). These efforts were often accompanied with innovative agricultural programs and reforms. Illustrative are the Comprehensive Agricultural Development (CAD) programs – an all-entailing program including high-quality inputs, technologies and extension services – that have been successful in increasing the average yields and improving the quality of agricultural fields (Veeck 2013:44). At the same time, post-Maoist China marked a move away from strict collective farming practices and replaced it with the Household Responsibility System (HRS). The HRS provided peasant households with more responsibilities, and stimulated farmers' incentives by allowing for more individual gains (Christiansen 2009:554). These innovations have resulted that for the majority of Chinese people having an adequate amount of food to eat is no longer an issue. However, there are still other remaining and emerging issues in China's food systems that are closely tied to urbanization. Four major issues are identified below.

4.2.1 Food Safety Issues

China has been the focus of many food safety issues and scandals in recent years, revealed in Chinese media as well as in academic publications (e.g. Veeck et al. 2010). As explained above, the availability of food has been significantly improved but this has been partly achieved by an intensification of chemicals and inorganic fertilizers. According to Wu and Zhu (2015:27–31), Chinese farmers continue to apply excessive and inefficient amounts of chemical fertilizers during the production process. This has resulted in excessive amounts of harmful substances in food, posing a long-term threat to the quality and safety of edible products for human health (ibid:27-31). Issues have also been raised in the non-farming processing of food and in particular the use of additives during the processing and circulation of food. The (abusive) use of prohibited

additives has become notorious in China. The use of melamine in a baby formula for instance, is one of the many scandals revealed by Chinese media (Hyde and Syed 2014:28). These concerns about food safety have been used to explain an increasing preference by Chinese consumers for organic products (Shi et al. 2011:556) and foreign foods (Hyde and Syed 2014:28).

The issues concerning food safety have been recognized by the central authorities as a serious problem, but despite numerous efforts – such as the state-led initiatives to promote 'organic', 'green' and 'hazard-free' food – the state's actual commitment and regulatory capacity remains limited (Scott et al. 2014). Looking at the organization of China's food system, the far majority of China's farmers (89 percent, which is equivalent to some 240 million farmers) operate in small-scale farms with an average size of only 0.6 hectares (ibid:159). The network of distribution channels, producers and operators also remains widely scattered (Wu and Zhu 2015:27). This makes it an impossible task for authorities to supervise and inspect each food production and procession site. Furthermore, the ill-organized structure also makes it hard for extension workers to introduce more effective and less hazardous farming techniques.

4.2.2 Population growth and dietary changes

By merely looking at the demographics – where China's population is expected to grow for at least the next 20 years (Veeck 2013:45) – it becomes evident that an increasing demand for food is to be expected. However, other factors have also incremented changes in China's food consumption structure. These have not only led to higher demands of food, but also to more demanding consumption patterns which are an outcome of an increased average disposable income (Huang McBeath and McBeath 2010:41). The Chinese diet consists of a wide variety of edible agricultural products, such as staple foods, vegetables, fruits, livestock and aquatic products. Demand for these products have all increased over the last years, characterized by a general shift from a strict staple-food diet to a more diversified diet (Wu and Zhu 2015:9). The changing diet preferences are most evident for the urban population, whose diet now includes higher proportions of meat, fruits and vegetables (Christiansen 2009:550). It is exactly these products that pose new challenges to the food system, as they require large amounts of other resources, such as water, land and cereal (Wu and Zhu 2015:2).

If China's income and urbanization levels will continue to grow, these trends will likely pose more stress on the food system.

4.2.3 Dwindling land and water resources

The availability of water and land resources is one of the largest constraints to sustain demands in the food system. According to Mai (2008), China's per capita averages of both water (2200 m3) and land (0.1 ha) in China are far below the world per capita averages (respectively 7300 m3 and 0.25 ha). Already in 1995, Lester Brown estimated that if the trend of farmland loss would continue, together with rising food demands, China would not be able to feed itself by 2030 (Brown 1995). Brown's thesis provoked a strong reaction within China, where central leaders criticized the local leaders for abandoning the principle of local self-sufficiency (Lang and Miao 2013:9). The central government acted accordingly by implementing strict rules to limit the rapid conversion of prime farmland around urban centers (ibid:9). One of the policies now states that urban authorities have to make up the equivalent of the lost agricultural land elsewhere. However, as noted by Yang and Li (2000), a lot of this land is marginal and does not adequately replace food production in comparison to the lost prime agricultural land.

Increased competition for water resources, especially surrounding the urban areas, also poses serious constrains to food security (Veeck 2013:47). In many of China's regions, water resources have already reached a critical level (Cai and Miro 2014). Several structural issues have made the efforts of water conversation difficult. As an outcome of rural development initiatives, Chinese farmers pay very little for their water and so there a few incentives to conserve water, while changing these reduced prices might be in direct conflict with national policies such as self-sufficiency (ibid:48).

As noted by Cai & Miro (2014), achieving food security implies a tradeoff with the environment. There is a pressing need to allocate the dwindling resources more effectively, and to understand their role in China's development trajectory. Together with rising water shortages, it appears to most observers that China is losing too much prime agricultural land, making food security problems almost inevitable in the future. As a 'spatio-temporal fix', to put it in Harvey's (2003) words, China has already started looking outwards to secure resources, for instance reflected by its engagement in enormous land deals on the African continent (Hall 2011).

4.2.4 Environmental pollution

Food systems rely much on the eco-system, where environmental conditions – including soil, water and air – determine much of the quantity and quality of food. Several observers have pointed at China's rapid environmental degradation[6]. China's geographical areas have suffered seriously from land degradation, including soil degradation, deforestation, salinity, reduced fertility and sand storms (Huang McBeath and McBeath 2010:53). Soil heavy metal pollution is one of most severe polluters regarding land degradation, which not only poses a threat to the ecological environment but also to the safety of the edible products (Wu and Zhu 2015:31). China satisfies most of its energy needs with coal, which have caused significant air pollution in and around the cities (Huang McBeath and McBeath 2010:59). In turn, the pollution of air has posed threats to agricultural production and moreover to human health (ibid:59). Water pollution is another serious problem regarding the production of food. Pollution in water has been caused by industrial contaminants that are dumped into rivers and lakes, chemical pesticides that run-off from crop fields, and human waste and garbage that is disposed into the waterways (ibid:63). Taken together, environmental pollution poses a serious threat to food security as agriculture is highly dependent on the quality of the eco-system, but also because pollution can endanger the safety of food.

4.3 Responses in the Urban Context: Community Supported Agriculture

Dissatisfaction with the conventional food system has motivated individuals and groups in China's civil society to initiate alternative food systems (Scott et al. 2014:163). A frequently used terminology in literature to describe agricultural movements in the urban environment is 'urban agriculture' or 'urban farming', which have only recently become more visible in China (Cheng and Shi 2014:136). An example in Minhang (Shanghai) has shown that these can be successful in delivering various benefits, such as creating jobs, enhancing food safety, and improving the quality of farmland (Cai et al. 2011). Examples as these in the Chinese context remain rare in the English-written literature, and in particular for CSA. This can be explained as the first CSA has only emerged in 2008 and furthermore because the concept remains largely conceptualized

[6] This has also been claimed by a Beijing-based environmental NGO included in this research

within the Western context. Therefore, the remainder of this section briefly discusses the main findings found in the small number of previous studies on CSA in China[7].

It is widely recognized that the first Chinese farm to adopt the CSA model is Little Donkey Farm (Shi et al. 2011), located in the north-west of Beijing's peri-urban areas. The farm and its initiator, Shi Yan, have received much scholarly and media attention since then, while Shi Yan herself has also contributed several academic articles (Shi et al. 2011; Cheng and Shi 2014). Similar to CSAs in other countries, Shi et al. (2011) have recognized the Chinese urban middle class as an important driver to CSA as they comprise both the consumers and producers. Consumers with a middle-class background tend to have an expanded discretionary income and therefore have more resources to spend on food (Shi et al. 2011:555). Furthermore, consumers and producers of CSA products to be well-educated, and have been playing roles in similar movements that relate to environmental protection and food safety concerns (Cheng and Shi 2014:146).

The study by Cheng and Yan (2014) describes the characteristics of eight CSA farms situated in Beijing. It is found that while CSAs have adopted the term 'organic', they do so mostly without official certification. The findings also show that most of the farmers are small-scale, belong to the 'new' peasants, strictly adhere to organic principles, and often run other operations simultaneously with CSA such as a small shop or restaurant. Cheng and Yan (2014) also find that the motivation behind initiating a CSA farm can be diverse. Some farms have been established out of food safety concerns, others are inspired by the principles of organic agriculture or biodynamic farming, and some have arisen in partnership with research institutes. As noted by Si et al. (2015), this has led to some inconsistency between consumers and initiators. The study by Chen (2013) has examined six perceived consumer values related to the working shares of Chinese CSAs. Working shares refers in Chen's study to the type of share where members rent a plot of farmland, different from distribution shares that refers to a box of farm products (Chen 2013:38). The study finds that emotional values – including a sense of accomplishment, happiness and stress relief – together with social values – including friendship and engaging in wider social circles – are the most important values of a CSA working share.

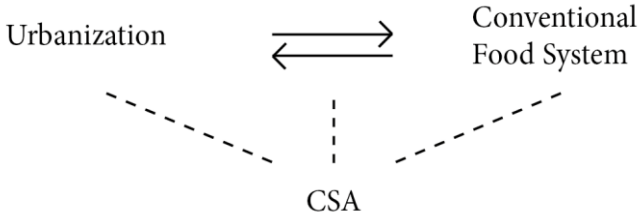
[7] The contributions that are included in this section are: Shi et al. (2011), Chen (2013), Cheng & Shi (2014), Scott et al. (2014), Si et al. (2015).

In a study on four types AFNs in China including CSA, Si et al. (2015) have examined the 'alternativeness' of AFNs and have allowed it for comparison with their Western counterparts. The study finds that Chinese AFNs share some similarities with Western types, most notably the strong urban middle-class feature. However, Chinese AFNs show differences in the way that they emerge in the context of widespread food safety concerns and tend to be more driven by consumers. Another important finding is that Chinese AFNs do not stand in direct opposition to the dominant food system, but instead aim to complement them. By doing so, the emphasis is placed on healthfulness, which is found by the study of Si et al. (2015) as the most prominent element of Chinese AFNs. On a more critical tone, the same study claims that the inclusion of 'real' peasants in the construction of AFNs in China remains minimal (Si et al. 2015). This is also found by the study of Scott et al. (2014), that finds that consumers of CSA are primary motivated by food safety, and actually show limited concerns about the environment or the livelihood of the 'real' peasants.

4.4 Conclusion

This chapter described the trend of urbanization, followed by an examination of the major issues that prevail in China's contemporary food system. It is found that urban growth has influenced the dominant food regime in several ways, and has posed new challenges to food security at the same time. Meanwhile, this chapter has also described how alternative food movements have only recently started to emerge in China. They are found in response to food safety issues and largely driven by the urban middle-class. Therefore, Chinese CSAs tend to be embedded in a socio-spatial context that is informed by urbanization, the conventional food system (and its issues), and the interactions between them (Figure 5). The contextualization of CSA helps to understand the empirical findings that are presented in the following chapter.

Figure 5 *Contextual linkages of Chinese CSAs*



5 The Harvest

This chapter discusses the empirical findings of the study, consisting of the data derived from the survey and semi-structured interviews with key stakeholders. The first section describes the general characteristics of the farms. This is followed by the findings that relate to food security, which are structured according to the three related pillars of the framework presented in chapter 2; the availability, access and stability. The section thereafter elaborates on the future perceptions of the Chinese CSA movement. The concluding section ends with a note on the multifacetedness of CSA and lays the foundation for the discussion presented in the next chapter.

5.1 General Characteristics and City Linkages

Ever since Little Donkey Farm has pioneered the CSA model on China's soil, many new CSA farms have emerged nearby various cities in China. Although official figures remain absent, key stakeholders estimate that there are currently over 500 of such farms in China. Almost all of the 15 farms included in this study have been established after 2010, which confirms that CSA in China is a recent phenomenon. The socio-spatial linkages of CSAs with the city are evident. Looking at the spatial structure, Figure 6 maps the respondents that operate near Beijing and shows that they are located at an approximate 50-kilometer radius from the city center. The social contextual linkages with the city become evident by looking at both the consumers and farmers of CSA. Two-thirds of the farmers in this study are accounted to the 'new' farmers (*xinxing nongmin*), a term used to describe farmers who have started farming with a non-farming background and are mostly young, high-educated, urban citizens. In contrast to the 'local' farmers (*dangdi nongmin*), their farm is registered as a company instead of a farm cooperative, farmland is usually leased from the local farmers, and farming operations are supported by the hiring of labor. Findings indicate that the motivation to start a CSA farm is mostly driven out of health concerns, but also because of environmental concerns or as a critical response to the dominant food system that fails to produce 'good' food:

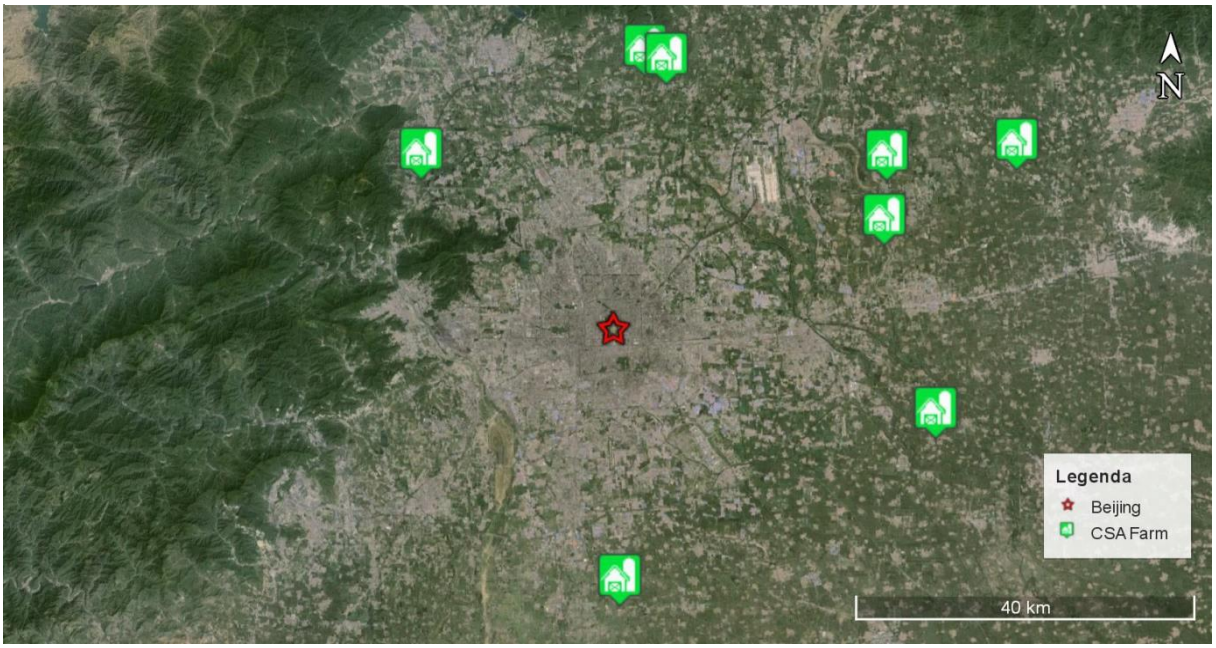
> *"Food in the city is a desert. In cities, especially in the big cities, you can't find good food". (Resp. I-02)*

The proximity with the city can also be explained from the consumer side. The consumers of CSAs are almost exclusively urban middle-class citizens, which is

discussed in more detail in the next section. Since the CSA model works with distribution and working shares that are sold and delivered to local urban consumers, it requires CSAs to operate in a reasonable proximity to the city.

Further findings indicate that most CSAs can be regarded as small-scale, reflected by their average size of 66 *mu* (4.4 hectares) land. However, this is still notably higher than the average farm holding in China, which has an average of 9 *mu* (0.6 hectares) (Tan et al. 2013). The CSAs in this study have an average number of 14 employees per farm (with a maximum of 40). These employees are not necessarily full-time and paid employees, but can comprise of family members, volunteers, and students as well. Little Donkey Farm for instance, accommodates students who are doing internships at the farm.

Figure 6 *CSAs in Beijing that are included in this research (source: Google Earth)*



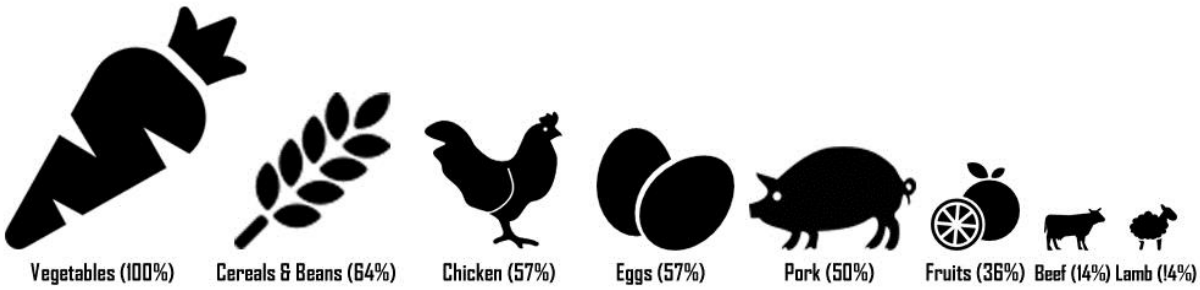
5.2 Contributions to Food Security

5.2.1 Availability: Delivering Safe Products in a Polluted Environment

The available products of CSA are characterized by their high variety. In contrast to practices as mono cropping, almost every CSA farm has a diversified production scheme. Most farms in this study engage in at least three types of the products shown in Figure 7. All farms grow vegetables on their farm, which is usually complemented with the growing of cereals/beans as well. About half of the farms engage in the rearing

of livestock, most notably chicken and pigs. Fruits are grown by only one third of the respondents.

Figure 7 *The variety of CSAs products (percentages as to the total sample size)*



Respondents claim that the quality of their products is different from conventional agricultural products. It is claimed that CSA products have a better taste, are locally produced in a more environment-friendly way, but above all it is claimed that their food is more safe compared to conventional agricultural products. In a context notorious for its many food safety scandals, safety is regarded by respondents as the most important asset of CSA products. This is achieved by a short supply chain and a strict organic farming method without the use of pesticides and chemicals during the production process. Although CSA products would presumingly quality for organic certification, most farms (86%) do not have any organic certification and have no intention of getting one. They claim that a certification is too expensive, complicated or that it does not contribute to consumers trust:

> *"With the lack of mutual trust, a proof of a paper is still not believable" (Resp. S-01)*

> *"The official certification system is not for small farms because the cost is high and it lacks trust" (Resp. S-13)*

> *"The certification process is complicated with a lot of time, energy and money consumption" (Resp. S-15)*

Instead, the Rural Reconstruction Centre, considered as one of the main initiators behind the CSA movement in China, has started promoting the participatory guarantee

system (PGS)[8]. Furthermore, trust is established as consumers and members are encouraged to visit and monitor the farm operations themselves.

Environmental conditions are another important consideration regarding the availability of food. Farming systems are largely reliant on the eco-system services that determine much of the quality of the products, where favorable conditions can greatly enhance the production. Respondents indicate that the quality of soil and water are generally good, together with moderate appreciation for the quality of air. In terms of pollution, soil and water pollution are also not considered an issue, while air pollution and climate change are considered environmental factors that slightly affect the production. However, respondents do admit that these environmental stressors could impact the safety of the products. Environmental issues are more striking at the proximity of the city, as urban sprawl and industrialization often comes with pollution that is especially persistent in Chinese context. Two interviewed representatives from a Beijing-based environmental NGO demonstrated their concern about the environmental conditions in which the Beijing-CSAs are operating. Contrary to the view of CSA respondents, they believe that issues such as water pollution, heavy metal contamination, and garbage disposal have serious implications to the quality of the CSA products. One CSA farmer argued that although she admitted that CSAs often have to operate in a polluted environment, it was her aim to make a change at the same time:

> *"But why we started organic farming in the beginning is not because the air and water is so good, but because it is polluted and we want to change it. That is the meaning of organic farming. People should understand, you do organic farming to make a change." (Resp. I-02)*

5.2.2 Access: Serving the Middle-Class Through Diverse Channels

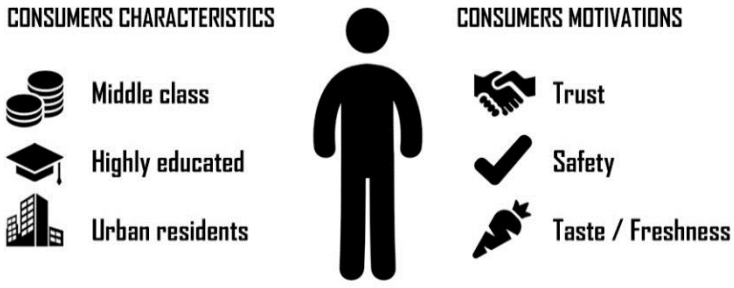
The second pillar considered in this study is that of access, and looks at how products are delivered and to whom. The CSAs in this study have between 50 and 800 members, with an average of 233 members per farm. These members are given the return of their 'shares' in agricultural products directly from the farm. The number of customers is slightly higher than the number of members, because most farms do accommodate non-members as well for instance with a farmshop or sale on a farmers' market. The prices of CSA products are significantly higher than similar agricultural products, respondents indicate that their prices are generally three to five times higher. The

[8] PGS is promoted by the International Federation of Organic Agriculture Movements (IFOAM) as a 'locally focused quality assurance system' and enables direct participation of consumers and producers in verifying the quality of the products (see also May 2008).

prices are high because of higher costs, as the 'new' farmers usually don't possess agricultural land and need to rent it from local farmers (62%) or local government (15%), while hiring labor in combination with labor-intensive farming method do also contribute to high costs. Delivering the products to customers constitute another significant share of the costs.

The high price puts an immediate barrier to the economic access and affordability of the CSA products, simply because not everybody is able or willing to pay a higher price for their food intakes. Chinese CSAs have sometimes been affiliated with an 'elitist' character and are received with skepticism from local farmers, who do not see the need for alternative practices such as CSA and organic agriculture. Closely related to the high price, the link with China's rapidly rising middle class is strongly evident in this study[9]. Respondents describe the background of their clientele as middle class, urban and well-educated (Figure 8). They argue that the strongest motivation of their customers to buy CSAs – and thus to pay a significant higher price – is mostly because of trust and safety, two narrowly related concepts. To establish trust between consumer and producer, and to demonstrate that the products are really safe, the length of the supply chain is set to a minimum and CSAs invite their members for regular site visits.

Figure 8 *Consumers of CSA as seen by respondents*



Chinese CSAs employ a diversified and innovative system of distributing their products to customers. Almost all farms (93%) operate a weekly delivery system to allocate the products directly to the customer[10]. This is complemented with pick-up points where customers and members can collect their products, employed by nearly half (47%) of the farms. Farmers' markets are also a popular distribution channel (73%). The Beijing farmers' market for instance, where also some respondents sell their products, usually

[9] In the Chinese context this has been well explored by Shi et al. (2011)
[10] This is a defining feature of CSA in general (Ernst and Woods 2013)

takes place in the weekend in rotating venues which is announced at Weibo and Facebook. Almost half (47%) of the respondents also employ online channels for marketing and selling purposes, usually through their own websites or on the online platform Taobao. At a site visit at Little Donkey Farm, a poster was observed which included codes that could be scanned with devices to be directly forwarded to the online shops (Figure 9). This conforms to the more general trend that CSAs are active Internet users and almost all farms maintain a micro-blog to give regular updates. To a somewhat lesser extend, respondents distribute their products through small shops and restaurants (33%), buying clubs (27%), farmshops (27%) and public institutions (20%).

Figure 9 *Poster at Little Donkey Farm displaying QR- codes (author's photo)*

5.2.3 Stability: Complementing the Urban Food System

Ever since in 2008 the first CSA farm was erected on China's soil, many new CSAs have followed. That CSA in China is 'booming' becomes also evident in the positive development trend of the production: the majority of respondents (60%) see a steady increase of their production, while (40%) see a constant rate of production and none farms see their production declining. A similar, positive, trend is visible in the CSAs desire to expand: only 13% of the respondents indicate to have no desire to expand their operation. The popularity and interest of CSA is also reflected by intensive coverage by both Chinese and foreign media.

Regarding the contribution to the stability criteria of food security, it is important noting that some CSAs evolve out of dissatisfaction with the conventional food regime. Following the responses in the interviews, unsustainability was mentioned referring to the environment and social costs of the conventional food system:

> *"Since the 1990s China makes a big change, they try to set up the industrialized countryside. This means that agriculture is for business, for markets. And that it is chemicalized. They use a lot of pesticides. Almost everything is industrialized." – Resp. I-03*

> *"After the year 2008 we see a financial crisis, environmental crisis, food crisis, and food security issues. So we believe for agriculture to sustain in the next 1000 years, the organic farming is a way to respond to the food and financial crisis. We feel if we can save the rural areas, we can respond to the crisis in the future." – Resp. I-02*

> *"If you want to be in the rural you need a way to survive. But if you only do the conventional farming in conventional markets you can't survive. That is why a lot of farmers move to the city. So you have to try a new way to grow your products and also a new way to market your products. So I think CSA is a good way to do this." – Resp. I-01*

Indeed, CSAs are usually packaged with wider and more ideological aims than solely the production of food. In this study, it was found that the main aim of CSA was to complement the existing food system, rather than opposing it. None of the interviewees had the aim to make CSA 'mainstream', but rather to reach out to a larger group of people and provide them with more choice and diversified channels.

Given that China's CSA movement is still in its early phase and that the number of CSAs remains limited, it is important to consider the current challenges faced by the CSA farms. Between nine different types of challenges, respondents claim that the high operation costs are the most relevant challenge. As mentioned earlier, these costs are mostly an outcome of renting land and hiring labor to sustain the labor intensive farming practices. Hiring labor is further complicated as some CSAs indicate to rely on temporary workers such as interns, while other CSAs claim that they find it difficult to recruit the local farmers. Although the products are sold for a premium price compared to conventional products, respondents claim that the low revenues are another relevant challenge. Other challenges, which respondents claim to have 'some relevancy', are the environmental conditions, land insecurity and urban sprawl. These are related to the spatial context in which CSAs operate, exemplified by the following response of one interviewee:

"Almost all land is occupied by construction, huge buildings. We need to maintain some agriculture, but this is difficult because normal agriculture is just low income." (Resp. I-03)

Land security remains a relevant issue as most CSAs rent their land with a lease term of no longer than 10 years. In two cases, rent was rented from the local government but again with a short lease term (5 and 10 years). These farms are exceptional cases as government support remains low, only a few farms (20%) indicated to receive governmental support. Urban sprawl around the farm also makes farming more difficult, as it results in changing environmental conditions while increased crime was also mentioned during an interview. At last, a low demand from consumers, competition from other CSAs, and access to credit are not considered a relevant challenge for the CSAs.

5.3 Prospective Perceptions of CSA in China

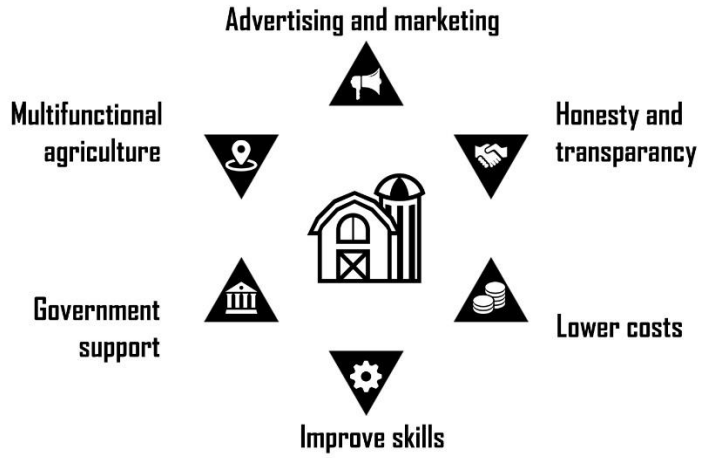
Acknowledging that the CSA movement is still in its developmental phase, it is important to include the perceptions respondents have on the future of CSA. Respondents seem optimistic about the future of CSA in China. The interviewed stakeholders expect that the trend of CSA is likely to continue in the future, and one interviewee argued that with the continuous food scandals covered in Chinese media, the concept is almost self-promoting. Another interviewee argued that because of China's rising middle class, considered a major driving force for CSA, a higher demand for CSA products in the near future could be expected.

However, CSA remains yet to comprise only a tiny fraction of China's food system and its contribution in terms of quantity insignificant. Compared to the United States for instance, that has nearly 5000 CSA farms (Cheng and Shi 2014:138), China remains also a small fraction of the current CSA movement. Furthermore, CSA remains relatively exclusive as it only caters a small segment of China's population. Anticipating on the future development of CSA, respondents were asked what they feel is needed to make the concept of CSA more attractive to a larger segment in China's society. As shown in Figure 10, respondents have different ideas on this can be achieved. Four respondents argue that advertising and marketing efforts have to be intensified to create more awareness. Closely related, some feel that the farming practices need to be arranged in an honest and transparent way. Two respondents claim that the costs and prices need to be lowered so that the products of CSA become more affordable. Two respondents call for a multifunctionality of the farming operations, by combining

cultivation practices with recreation functions such as agro-tourism. Although in the interviews it has been mentioned that the government has become more receptive towards CSA, and at some CSAs the local authorities have reportedly visited the farm, government support is only suggested by one respondent. Considering CSA as a social movement, and one that diverts from the (state-led) conventional food system, respondents see not the government but the people that should deliver change:

> *"Middle class takes the responsibility of the society. Not the government, we should do it. Government will change then." (Resp. I-03)*

Figure 10 *Respondent suggestions to make CSA more attractive to a broader audience*



5.4 Conclusion: More than Food

Summarizing the findings above, the contribution of CSAs regarding food security is much about complementing the food system by providing safe food to China's urban middle classes. However, as mentioned in chapter 2, food and its practices often extend the primary function as solely a source for nourishment (Blay-Palmer 2010:19). Although not the primary aim of this research, other contributions that were mentioned but that are more distant from the concept of food security deserve a brief discussion here.

> *"We are trying to transform the urban people's lifestyle, to have more discussion and communication with the countryside. Try to convince the urban people to understand you need to reserve the villages, countryside, traditional rural cultures and livelihood styles" (Resp. I-03)*

> *"[the contribution is] communicating with customers, to make more people understand farming and the concern with food security issues" (Resp. S-07)*

"Make more people understand the environment, farm and food. Support the existence of an environment friendly planting way. A way to rebuild the mutual trust in society" (Resp. S-12)

These quotes from two surveys and one interview reveal that some respondents feel that CSA can help to create more awareness about environmental and rural issues, re-establish trust between consumer and producer, and making urban people more interested in agriculture. This conforms to the other efforts CSAs are making besides producing food. Many farms host activities for urban citizens and sometimes rent out plots of farmland (Figure 11), have a farmshop or restaurant, and are thus allowing the farm to become a space for education and entertainment as well. Other farms collaborate with universities for scientific purposes or engage in partnerships with the local government.

Indeed, the contribution – to food security and beyond – of the CSA model is not solely restricted to the consumers and producers of CSA products. The impact of CSA's presence extends to the wider relational context as well. In accordance with the aim of this study, the next chapter will discuss the findings presented here and uses embeddedness to describe how the model of CSA contributes to its own and wider socio-spatial context.

Figure 11 *A family working on a rented plot of farmland (author's photo)*

6 The Mastication

The empirical findings presented in the previous chapter provides fertile ground for further discussion. This chapter elaborates on the findings using Polanyi's notion of embeddedness to analyze how CSA affects consumer-farmer relations and its wider socio-spatial context. This is followed by a discussion of how this translates in enhancing food security, which is guided by the issues related to China's food security that were identified in chapter 4. The conclusion ends with some final remarks and limitations of the CSA model.

6.1 Internal Embeddedness: Consumer and Farmer Relations

Hypothesis I: Relational mechanisms are established in which groups of consumers and farmers are directly affected by reciprocal interactions, giving rise to links of reciprocity and trust.

The hypothesis above assumes relational mechanisms and the prevalence of reciprocal interactions. Mechanisms that aim to strengthen (or 're-configure' to borrow the terminology of this study's respondents) the relationship between consumer and farmer are found evident in the operation and marketing activities of Chinese CSAs. Contrary to the conventional food system, where consumers are allocated a more passive role, the model of CSA allows consumers to become active members and shareholders of the farm. The relationship is also strengthened through direct deliveries of CSA produce without a third party involved. Consumers and members are furthermore frequently informed about the farm practices through digital platforms as Weibo and Sino Blog, while members are also welcomed to visit the farm. Some farms like Little Donkey Farm also distribute working shares where members can rent a plot of farmland. These relational mechanisms have led to reciprocal and more intimate interactions between consumer and farmer.

This in turn has given rise to trust, which is something that has remained almost absent in the consumer-farmer relationship of the conventional food system. CSA relational mechanisms have created an alternative path to reestablish trust and guarantee that products are indeed safe, organically grown and produced in an environmentally friendly way. At the same time, the reciprocal interactions and shareholder system allows farms to be more reflective to customer needs including dietary changes. The shareholder system also aligns the interest of consumers and

farmers, and the risks and benefits from a harvest are shared over a larger group of people. This allows the farmer to cope better with irregular events such as drought or sandstorms. Other initiatives that embed social capital, such as the PGS certification system, suggest a low-cost solution to regenerate consumer trust. This is particularly beneficial for the farmers in this study, who claim that official certification remains too bureaucratic or expensive. In line with the notion of Granovetter (1985), this illustrates that reciprocal relations can act as a substitute to formal institutional arrangements as well. The hypothesis above has been found largely significant in this study, as both consumers and farmers are affected by reciprocal interactions that are generated through the model of CSA.

6.2 External Embeddedness: the Socio-Spatial Context

Hypothesis II: Structural mechanisms are established in which the behavior and results of whole groups of people affect and promote a broader relational context.

As mentioned in chapter 2, two perspectives of external embeddedness are included in this study; CSAs are socially embedded as it is part of a wider social movement driven by the urban middle class, and CSAs are spatially embedded as they directly engage with their local surroundings. Each perspective will be discussed below.

Proponents of CSA frequently attach words such as 'civic' or 'social' agriculture to describe CSA as part of a broader social movement. This study however finds that social embeddedness remains limited to a small number of people. In line with the findings by Scott et al. (2014), this is firstly because the integration between 'new' and local farmers remains almost absent in the CSA movement. Secondly, the involvement of CSA remains reserved to a somewhat exclusive group of urbanites that come from a middle-class background. This is because the outside actors may not see the need to pay a premium price for products which are 'community-supported' or organically grown. Although the high price has also put a structural barrier to CSA's broader social context, the physical access of CSA is considered a means to reduce this barrier. CSAs operate in the direct proximity of their customers and cater directly to their customers through a diverse set of distribution channels. Besides home deliveries to its members, CSAs distribute their products through farmers' markets, farmshops, restaurants as well as online platforms. This has significantly improved CSA's capability to reach out to a wider group of consumers and non-members, which is fostered by their active online presence and the media coverage which CSAs have enjoyed over the last years.

Closely related is the second perspective, which looks at CSAs as spatially embedded in their local surroundings, and is mostly in the context of the peri-urban landscape. The engagement is evident in the 'localization' element of the CSA model; the farms operate in the direct proximity of the city and their locally grown products are directly delivered to residents who live in the proximity of the farm. The city linkages are highly relevant with China's demographic changes, with China's population growth expected to concentrate in urban centers. The spatial perspective also extends to the interaction with the local ecology. Polluted environmental conditions remain a considerable challenge for the CSA farms, mostly as an outcome of urban and industrial pollution. In contrast with the majority of Chinese farms, CSAs are guided by organic and environmentally friendly farming methods that aim to improve the local environmental conditions. Environmental remediation practices for instance, can remove pollution and contaminants in soil and groundwater[11]. By doing so, CSAs contribute to more sustainable and resilient food systems that are compatible with future food demands. Finally, some farms also host a range of non-farming activities while other farms are engaged in partnerships with the local government or research institutes. By doing so, the spatial domain of the farms has also become a space for educational and recreational purposes.

The second hypothesis is also found largely relevant for this study. Although the social and spatial perspectives have been discussed separately, it is their simultaneous interaction which prompts their impact in the wider 'socio-spatial' context. Through a set of structural mechanisms, such as non-farming activities and local production methods, the CSAs have become successful in reaching out to their wider context. This is for instance witnessed by the number of CSAs that have grown rapidly in China, and the increased attention from scholars, media and local authorities. However, the broader relational context remains mostly bound to CSA's own domain: CSA's presence only affects its own direct surroundings and remains reserved to only a small group of people. More efforts that go beyond consumer-farmer relations are needed to signify the presence of CSA in China's wider socio-spatial landscape.

6.3 Enhancing Food Security

So far this chapter has remained abstract regarding how the model of CSA can enhance food security. The contributions concerning the relational and structural mechanisms

[11] For a detailed explanation on environmental remediation see Eckerd and Keeler 2012

which underpin CSA become more clear when referred to the prevailing issues in China's food security. This section will elaborate on the issues that were identified in chapter 4 and discusses to what extend CSA can mitigate these.

One of the largest issues in China's food system are the many food scandals (including fraudulent certification practices) that have subsequently lowered consumer trust. This is partially because farmers use excessive amounts of pesticides and fertilizers, and because the production and distribution networks remain widely scattered. The relational mechanisms of the CSA model instills consumer trust by reconfiguring the supply chain and allowing for direct connections between consumer and farmer. As consumers can monitor the farm practices themselves, institutionalized certification systems are no longer required, and consumers can be assured that their food is organically grown and delivered without harmful additives. In this regard, the CSA contribution to food security concerns improving the nutritional and safety values of edible products in China's food systems. This is especially relevant for China's urban areas, where the distance between consumer and farmer is most distant. By delivering products that are genuinely healthy and safe, personal health conditions can be significantly improved.

The second issue identified were population growth and dietary changes, which are both narrowly related to urbanization. CSAs operate in the proximity of urban centers where food demands are highest, and in which consumers are almost entirely dependent on marketed food. The CSA model helps to make cities more sovereign in their food supplies and thereby making themselves more resilient to shocks that occur in the (global) food market, such as price hikes or food shortages. At the same time, the reciprocal interactions with urban customers makes the model more adaptive to changing dietary needs, and provides urban citizens with more influence on the food system. With a diverse set of innovative distribution channels, food security is enhanced by improving the physical access of edible products and making the cities' food systems more resilient. Although CSA is not an answer to population growth or dietary changes, it does operate in the context where future food demands will be most pressing and where people are most dependent (and vulnerable) on more distant food supplies.

The last two issues which were identified are environmental pollution and the loss of land and water resources. These are partially caused by industrialization and urbanization, and because of unsustainable practices in the conventional farming

methods. CSA addresses the latter by adopting strict organic methods that aim to make use of water and land resources in a sustainable way. At the same time, the local production methods translate into short distances between consumer and farmer, thereby significantly reducing food miles and thus food transportation emissions. While pollution has significantly reduced the quality of the environmental conditions upon which farming systems are dependent, the loss of prime farmland nearby China's cities is another significant issue to food security. Much farmland has already been replaced for non-farming purposes that provide higher economic gains, such as residential plots or industrial areas. The model of CSA connects farmers with local communities and urban consumers, which in turn enhances both the economic and 'social' value of farmland. As social capital becomes embedded in farmland, for instance when citizens become members of the farm or start to rent a small plot at the farm, this could stimulate the preservation of farmland. This is especially relevant to the peri-urban areas in which China's CSAs are located, where the loss and pollution of agricultural land are most striking. In sum, the model of CSA aims to improve environmental conditions and allocate environmental resources more effectively. Considering Brown's (1995) 'wake-up call', this is urgently needed to sustain China's rapidly increasing food demands. The two related pillars of food security, availability and stability, can only be maintained with a more sustainable use of the environmental resources, which is especially relevant considering China's self-sufficiency policy.

6.4 Conclusion

This chapter has elevated the empirical findings of the previous chapter for further discussion. It demonstrated that the CSA model affects consumer-farmer relations and the socio-spatial context in several ways, which in turn can make valuable contributions to food security. This has become particularly evident when referring to China's conventional food system and its related issues. Yet, the model and its prospective contributions to food security remain bound to a number of limitations that should not be overlooked. As suggested by Granovetter (1985), social relations should not be 'over-socialized'. Although some consumers may be willing to pay a premium because of the social or environmental values that are provided by the model, the high price of CSA products poses a significant barrier for those with different perceived values. Indeed, the model remains affiliated with high operational costs and vulnerable to some inefficiencies. At the same time, consumers and farmers have

diverging rationales to become involved in CSA. As the study's findings showed that initiators have different intentions to establish a CSA farm, Si et al. (2015) have found that China's AFSs are dominantly driven by a consumer demand for safe and healthy products. These inconsistencies may imply that the actual commitments (such as environmental care), needed to enhance food security, may remain limited and is varied between farms. A final remark is that CSA in China is still in its development phase, and therefore the analyses presented in this chapter remain largely tentative. With these limitations taken into consideration, a further outlook on the development of CSA in China is provided in the following chapter.

7: The Forecast

Crops Irrigated With Industrial Wastewater in China

Farmers in several areas of China's Henan Province have been forced to irrigate their fields with industrial wastewater, because groundwater sources have dried up or been polluted by industry, according to state media.

The crops harvested from the polluted fields are all sold, because none of the farmers dare to eat their own produce, according to locals.

- Epoch Times, March 22 2013

7.1 Summarizing the Findings

The article above describes a story about a paper mill that reportedly released wastewater directly into a nearby farmland. When the farmers complained, they were told that they could either buy groundwater pumped from the wells, or use the post-treatment water of the mill. Refusing to buy the water, the farmers had little choice but to use the polluted water. Consequently, a thick layer of pulp settled on the surface of the fields. Farmers then admitted to have sold all harvest to the market as they did not dare to keep it for own consumption.

Examples such as this highlight some of the most striking issues in China's food systems. With an increasing number of food safety scandals covered in Chinese media, there is a growing dissatisfaction with China's current food regime. The aim of the study was to examine the emergence of alternative approaches that divert from the conventional food system, and show how these can enhance to food security. Based on Polanyi's notion of embeddedness this thesis has analyzed the impact of CSA on consumer-farmer relations, and on a wider socio-spatial context. The findings, derived from surveys and interviews, were operationalized through a conceptual framework consisting of the pillars of food security: availability, access and stability.

The findings have shown that the CSA model has been successful in generating trust and intimate relations between consumer and farmer. These have accordingly been employed to guarantee that CSA products are truly safe, hence bypassing the use of official certifications. Almost exceptional in China's food system, CSA has enhanced food security by delivering healthy and safe products that can be trusted. Through media and online presence, marketing, non-farming activities and a set of local and diverse distribution channels, CSAs have also successfully reached out to their wider

social and spatial context. In contrast to the conventional food system, CSA has equipped urban citizens with more choice and influence of how their food is organized. This is especially relevant in China's cities, where consumers are more dependent on marketed food channels. The study has also found that CSA's local production methods have stimulated the local environment through sustainable farming methods. Accordingly, the CSA model can make important contributions to food security by preserving and improving the environmental resources needed for future demands.
While CSA model is found to be promising for food security in China's cities, there are still a number of challenges and limitations. High operation costs, mostly because of high expenses related to land and labor, have translated into high prices for CSA products. The inconsistencies between actors may also reduce CSA's ability to enhance food security. Nonetheless, this study suggests that the CSA model illuminates new paths to mitigate prevailing issues in China's conventional food system and make important contributions to food security.

7.2 An Outlook

Although Chinese CSAs are quickly increasing in number and are spreading rapidly across different cities in China, the CSA movement comprises only a tiny fraction of China's food system. Since CSA is a most recent phenomenon in China's peri-urban landscape, some final considerations concerning the development prospects of CSA are presented below. Although it was neither the aim of the study nor the aim of the respondents to make the CSA model 'mainstream', some opportunities are also suggested that CSA can capitalize on to make the model more attractive to a wider audience.

While most farms claim to emerge out of concerns with the conventional food system, such as the marginalization of small-scale peasants or unsustainable farming practices, commitments to these concerns are not always clearly reflected by the CSAs. CSAs operate almost entirely separately from the conventional agricultural system, and integration with the local (or 'real') farmers remains at a low level. More efforts are needed to connect the group of CSA and urban citizens with these local farmers, and thus extend CSA's sphere of influence which is now limited to a rather exclusive group of consumers and farmers. Although it will be difficult to convince farmers to change their traditional methods of farming, the synergy that evolves from it could be beneficial for both new and local farmers. New farmers can benefit from more local

knowledge and can benefit from using the land of existing local farmers (instead of renting it), while local farmers can benefit from a more lucrative farming model and make use of the marketing channels provided by the new farmers. This can provide current farmers and their peri-urban farmland a new stimulus, which is needed to address the issues of land expropriation and rapid losses of farmland.

The political environment in which the Chinese CSAs operate are different from their Western counterparts. Chinese CSAs operate in an authoritarian political system with a state sanctioned civil society and strong top-down decision making. Consequently, the absence, and limitations of civil society institutions and grassroots organizations have arguably constrained the development of CSA. The state's approach to achieving food security remains heavily focused on 'agricultural modernization' wherein organic and small-scale practices are not part of the paradigm. Although Chinese CSAs claim not to stand in opposition to the politically envisioned modern food system (something that is more frequent in the Western context), contradicting state policies and initiating civil-society-led movements still require caution. Nonetheless, some CSAs have successfully engaged in partnerships with local government while others have claimed that the local state has become receptive to CSA. For local urban authorities, CSA is compatible in making cities more 'green' or more resilient, something that also has enjoyed priority among urban planners. On a national level, in the most recent No. 1 Document[12], the central state has placed an emphasis on the 'socialized services' of agriculture and sustainable farming methods which are also compatible with the CSA model. However, as noted by Scott et al. (2014), commitments such as these are largely superficial and often contradict other state-approaches to food security. Taking these into consideration, the attitude of the local and central state remains to be seen when CSA departs from its initial phase and develops over time and space.

Although the political environment has put certain constraints to the development of CSA in China, it has concurrently prompted CSA's development to strive for more democratic involvement on how food systems are organized. Within a short time, the actors of CSA have reached out to a large audience and have established a wide network, including research institutes, students, media channels, and in some

[12] The 'No. 1 Central Document' refers to the first major policy document each year released by the Central Committee of the Communist Party of China and the State Council. Here is referred to a translated excerpt of the most recent No. 1 document (released Feb 1, 2015), translated by Landesa (2015).

cases local authorities as well. In addition, they have established a presence on China's digital platforms such as Weibo and YouKu. China's CSA movement remains largely self-supportive without the need of outside actors, and through self-organized annual conferences they work together by improving their skills and knowledge. This is remarkable when taking into consideration that most of CSAs operate with little financial or governmental support, and instead are constructed around social capital that is flavored with a pinch of ideology. These achievements underline the promising outlook for the future development of CSA. In addition, the wider context allows for more opportunities which the CSA movement can still capitalize on. Multifunctional agriculture for instance, which integrates food production with recreational or educational functions, can be used to diversify the income opportunities of CSA farms. The rising Chinese middle class, an important driver for CSA, suggests another positive trend that CSA can benefit from.

7.3 CSA in China: Nutrients for Change?

The common answer by policy-makers to enhance food security is to focus on economies of scale and intensify the use of chemicals of pesticides, and China is no exception. This study has shown that to a certain extent alternative food systems – diverting from the conventional food system by emphasizing local, organic and small-scale – can also contribute to food security. Due to the limited number of respondents, the findings presented in this research are not necessarily representative of the Chinese CSA movement in general. Still, the results provide valuable indications that future research could explore in more detail. The concept of embeddedness – in this study limited to the social and spatial perspective – can be further explored and extended with more perspectives, such as gender and politics. CSA in the Chinese context remains an under researched topic. This study has made a first attempt to fill this gap by looking at food security. CSA and other forms of AFSs deserve close attention from policy-makers and agricultural specialists, especially as the pressing issues in China's food system are not likely to go away. In a setting where even farmers do not trust their own produce, CSA provides fertile ground for change.

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Appendix: the Survey (Chinese and English)

欢迎来到网上调查

首先非常感谢您参与这项關於北京全市CSA农场的調查研究。这项研究是由隆德大学（瑞典）进行，考察CSA對粮食系统的贡献。由于在北京CSA农场数量有限，您的参与是高度需要及感謝的！问题分为5个部分，大约需要20分钟才能完成。您提交的信息将于以嚴格保密，您可以在任何時候離開問卷頁面。谢谢您！

一般信息

1. 您农场的名字

2. 您的农场是哪年成为**CSA**农场的？

3. 您农场有多少会员

4. 您农场有多少员工

5. 您农场有多少亩耕地？

6. 谁在经营和管理这个农场？

- 当地农民/农民合作社
- 新型农民（外来者）

第二部分－食物的供应

7. 什么原因促使您建立了您现在的农场？

	主要原因	相关原因	不相关
作为对现存食物系统的一种应对行为			
我关心环境问题，例如水和土壤资源的退化和污染			
对于健康的关注			
我认为这是一个很好的商业机会			

其他

Survey on CSA farms in China

Thank you very much for interest in participating in this survey study on CSA farms in China. The study is conducted by the University of Lund (Sweden) to investigate the contribution of CSA on the food system. Due to the limited number of CSA farms in China, your participation is highly appreciated! The survey is divided into five parts, and takes about 25 minutes to complete. Information that you submit will be kept strictly confidential, you can leave any questions blank at any time. Thank you!

Part 1 – General information

1. The name of your farm

2. In which year was the CSA-farm established?

3. How many members does the farm have?

4. How many employees does the farm have?

5. How many of arable mu does your farm have?

6. Who is in charge of the operation and management of this farm?

- local farmers/farmer cooperatives
- new farmers (outsiders)

Part 2 - Food supply

7. What was the motivation to establish the CSA-farm?

	Main reason	Related causes	Irrelevant
Concerns in the existing food system			
Care about the environment, like soil and water degradation.			
Health Concerns			
A Business opportunity			

Others:

8. 您农场的产出有哪些？

- ☐ 蔬菜
- ☐ 水果（包括果树）
- ☐ 猪肉
- ☐ 牛肉
- ☐ 羊肉
- ☐ 鸡肉
- ☐ 鸡蛋
- ☐ 谷类和豆类
- ☐ 其他

9. 如果与传统农业相比什么能使您的产品价值更高？

	绝对不同意	不同意	既不同意也不反对	同意	绝对同意	不知道
更好的口味	○	○	○	○	○	○
更安全	○	○	○	○	○	○
环境好	○	○	○	○	○	○
本地种植	○	○	○	○	○	○

10. 您的农场通过了有机认证吗？

- ○ 没有，也不打算认证
- ○ 我将来会做有机认证
- ○ 是的

如果是，那么是哪种有机认证/如果没有认证，原因是什么？

11. 您如何认为您农场的环境条件？

	非常差	差	一般	好	非常好	不知道
土质量	○	○	○	○	○	○
水质量	○	○	○	○	○	○
空气质量	○	○	○	○	○	○

12. 由于任何以下的环境因素您的产品有没有受到消极影响？

	没有影响	有一些影响	有严重影响	不知道
土污染	○	○	○	○
水污染	○	○	○	○
空气污染	○	○	○	○
天气变化	○	○	○	○
您认为这个会影响食物生产安全吗？	○	○	○	○

8. What do you grown/raise on your your farm?

- ☐ Vegetables
- ☐ Fruit (including fruit trees)
- ☐ Pork
- ☐ Beef
- ☐ Lamb
- ☐ Chicken
- ☐ Eggs
- ☐ Cereals/beans
- ☐ Others:

9. What makes your product better compared with conventional agriculture?

	Strong disagree	Disagree	Neutral	Agree	Strongly Agree	I dont know
Better taste	○	○	○	○	○	○
More safe	○	○	○	○	○	○
Environment friendly	○	○	○	○	○	○
Locally grown	○	○	○	○	○	○

10. Does your farm have organic certification?

- ○ No, and not intending to
- ○ No, but in the process of it
- ○ Yes

If so, what kind of organic certification? If not certified, what is the reason?

11. What do you think of the environmental conditions on your farm?

	Very poor	Poor	Neutral	Good	Very good	I don't know
Soil quality	○	○	○	○	○	○
Water quality	○	○	○	○	○	○
Air quality	○	○	○	○	○	○

12. Is your production negatively affected by any of the following environmental factors?

	Not affected	Slightly affected	Serious affected	I don't know
Soil pollution	○	○	○	○
Water pollution	○	○	○	○
Air pollution	○	○	○	○
Weather changes	○	○	○	○
Do you think this has an impact on product safety?	○	○	○	○

第三部分－食物通道

13. 您大约有多少消费者？

14. 您的产品的价格一般比市场平均价格高出多少个百分比？

15. 您的会员如何获取他们的产品？（可以多选）

- 他们到农场来取
- 我们配送到家
- 他们到其它地方（如市区的配送点）
- 其它方式，请描述

16. 除了给会员配送以外，您还有别的销售渠道吗？（可以多选）

- 在农夫市集销售
- 通过消费者采购团销售
- 卖给小商店或饭店
- 在农场的商店销售
- 在线商店（如淘宝或自己的网店）
- 卖给政府部门、企业、学校、医院等机关单位
- 其它，例如

17. 您能否给出您所有客户的共同点？（例如：收入水平，教育，地区）

18. 您是如何让消费者考虑在您那买产品的呢？

	都不重要	不重要	一般	重要	非常重要	不知道
味道／产品的新鲜度	○	○	○	○	○	○
食物安全	○	○	○	○	○	○
他们信任我的产品	○	○	○	○	○	○
为了支持当地生产	○	○	○	○	○	○
环境好	○	○	○	○	○	○
应季，符合时令	○	○	○	○	○	○
递送／方便采集	○	○	○	○	○	○

第四部分－稳定性

Part 3 – Food distribution

13. How many customers do you have?

14. How many times higher are your products compared to the conventional ones?

15. How do your customers collect your products?

- Pick-up directly from farm
- Home delivery
- Other places (like distribution points)
- Others, please specify

16. Which of the following distribution channels do you use?

- Farmer's market
- Buying clubs
- Sale to small shops/restaurants
- Farm shop
- Online (like Taobao or own website)
- Sold to public institutions like schools, hospitals,etc.
- Others:

17. Could you describe some common characteristics of your customers? (like income, education, location)

18. What is important in the consumer's choice to buy your products?

	Not important at all	Not important	Neutral	Important	Very important	I don't know
Freshness/flavor	○	○	○	○	○	○
Food safety	○	○	○	○	○	○
Trust	○	○	○	○	○	○
Support local production	○	○	○	○	○	○
Environment-friendly	○	○	○	○	○	○
Season-bound	○	○	○	○	○	○
Delivery / convenient	○	○	○	○	○	○

Part 4 – Stability

19. 您有没有想要扩展您的客户？

	绝对不同意	不同意	一般	同意	绝对同意	不知道
我想，但是我已经尽我最大能力了	○	○	○	○	○	○
我想，但是很困难找到新客户	○	○	○	○	○	○
我不想吸引新客户	○	○	○	○	○	○

20. 在过去的几年您的生产发展的如何？

○ 稳定增长

○ 保持没变

○ 稳定下降，请看

(自愿回答)請您再将答案陈述的具体一点

21. 以下什么原因您认为对于您的农场经营是一个挑战？

	一点没有	有一些	非常多	不知道
高运营费 （例如：地租、员工费用、机器费用）	○	○	○	○
低客户需求	○	○	○	○
没有足够收入	○	○	○	○
贷款机会	○	○	○	○
城市扩张	○	○	○	○
土地不安全	○	○	○	○
环境条件	○	○	○	○
农民雇佣	○	○	○	○
与其他“社区支持农业”的竞争	○	○	○	○

您认为有没有这里没有提到的其他的挑战因素？

22. 您农场的土地是从农民那里租赁的吗？

○ 是

○ 不是

如果是，租赁期限是多少年？

23. 您的农场是否得到任何政府支持？

○ 没有

○ 是的

如果是，是哪种支持

19. Would you like to expand your consumer base?

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
Yes, but I am already at my maximum capacity	○	○	○	○	○	○
Yes, but difficult to find new customers	○	○	○	○	○	○
No, I don't want	○	○	○	○	○	○

20. How has your production developed over the last years?

○ Steady growth

○ Remained constant

○ Steady decline

(optional) Could you specify your answer?

21. What do you consider a main challenge to your farm business?

	Not relevant	Some relevancy	Highly relevant	I don't know
High operation costs (like rent, staff, machinery)	○	○	○	○
Low consumer demand	○	○	○	○
Not enough revenue	○	○	○	○
Access to credit	○	○	○	○
Urban sprawl	○	○	○	○
Land insecurity	○	○	○	○
Environmental conditions	○	○	○	○
Hire farmers	○	○	○	○
Competition from other CSA farms	○	○	○	○

Are there any challenges that are not listed here?

22. Is your land leased from farmers?

○ Yes

○ No

If yes, how long is the lease term?

23. Does your farm receive any government support?

○ No

○ Yes

If yes, what kind of support?

24. 您的农场是如何注册的？

- ○ 作为一个公司
- ○ 作为农民合作社
- ○ 其他

第五部分－开放性问题

以下为开放式问题，请受访者自由撰写备注、评论或任何其他种类的形式文字回覆。

25. 您认为“社区支持农业”对于北京的食物系统做出的最大贡献是什么？

26. 您是如何看待未来的“社区支持农业”的？

27. 要使得“社区支持农业”对北京市民更有吸引力，还需要什么？

28. 您对于该调查有何具体建议或问题，请提供

29. 如果您希望收到我的研究结果，请您在这里留下您的邮件地址

以下两个问题您可自愿填答

30. 您的姓名

31. 您在农场的职位

24. How is your farm registered?

- ○ As a company
- ○ As a farm-cooperative
- ○ Other

Part 5 - Open-ended questions

The following are open-ended questions, please feel free to answer any of the following questions.

25. What do you think is the greatest contribution of CSA to China's food system?

26. How do you see the future of CSA?

27. What is needed to make CSA more attractive for the people in China?

28. If you have any questions or comments regarding this survey, please indicate here.

29. If you wish to receive the results of my research, please leave your e-mail address

The following two questions are optional.

30. Your name

31. Your position at the farm