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How Spatial Planning
Can Support Sustainable Regional Food Systems in Europe?
The Example of the Regional Food Strategy of Amsterdam



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Abstract

The concept of regional food system planning aims to establish a regional integrated food system involving all the actors of the food chain in a specific area. Thus in adopting regional food planning strategies, food systems can help to create more sustainable systems. Sustainable food systems are economically profitable, socially fair, culturally involved and environmentally friendly. Indeed spatial planning can play a crucial role as too for achieving a sustainable production food chain since spatial planning interferes in various sectors such as transportation, natural resources management, communication, education, legislations or can help to build partnerships with other political sectors (agriculture, health, environment, transport, etc.) and give a better overview of the food accessibility.

There from food systems can be considered as an important trigger to promote sustainable characteristics such as socio-cultural and territorial cohesion or environmental and food justice. Moreover nowadays, the concept of sustainability in the food sector is a growing idea in the EU as it can be noticed in the Common Agricultural Policy (CAP) towards 2020 strategy. Some successful examples can prove it and give important guidelines to build sustainable food systems, such as the regional food system of Amsterdam in the Netherlands. As showed by the food system of Amsterdam, in employing adequate strategies spatial planning can help to build sustainable food systems. Indeed to achieve sustainable food systems different planning strategies can be used such as zoning techniques and adequate communication instruments, the integration of other political sectors or the promotion of institutional arrangements, and contribute therefore to the achievement of the CAP 2020 strategy.

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“Food planning in its broadest sense is arguably one of the most important social movements of the early twenty-first century in the global north”

(Morgan, 2009, p343)

Preface

The notion of food system planning caught my attention during my study in the Netherlands. Indeed during my ESEP Master, our class was composed of European students with different nationalities and I could notice that we all had a different view of agricultural and food issues. Most of the Dutch students saw agriculture as a competitive and productive sector, whereas French students mostly consider agriculture as part of regional identity, tradition and rurality. As I could understand and defend both points of views, I ask myself if it was not possible to join both ideas, and spatial planning appears as the necessary instrument.

Moreover I also found this subject very relevant because of the current crises affecting European countries and impacting on the food directly or indirectly. It became clear to me that changes are urgently needed in the food sector.

For instance the 2007 global financial crisis has led to the rising of food prices in both developed and developing countries (Riddle, 2008). In addition, the outcomes of globalisation have driven humankind to the edges of a socio-cultural crisis. Since regional food constitutes an individual's cultural identity, the contemporary standardization of food threatens cultural food diversity (Castells, 2004). Moreover, the production of food – and hence, food security – are compromised by natural climatic events, as well as by climate changes due to Global Warming (CAFOD, 2007). The need for decreasing the emission of CO₂ in the atmosphere clearly emphasizes the non-sustainable way of the current globalised food system. Finally, another reason why I've chosen such a particular setting is because in today society, food is a real concern. Many films showed how unsustainable our food is and how dangerous some components are for our health. The number of food sanitary crises which Europe faced in the past decades (E-coli, ESB, etc.) has made consumers more anxious about what they eat.

For all these reasons, I found it very challenging and interesting to work on how spatial planning can participate to overcome these crises. The question was to find out how spatial planning can make the food sector sustainable as mentioned by the new CAP strategy?

For me regional food systems can be a way to reach that goal in creating alternative strategies. Thus in order to illustrate my research I decided to work on the regional food strategy of Amsterdam since as stated by Vermeulen (2010) *“in Europe the few examples of systems are rare; one could nevertheless mention London, Utrecht or Amsterdam”*. As I was studying in the Netherlands and could find more information on Amsterdam, this choice appears as the most relevant.

1 INTRODUCTION

1.1 *Introduction*

At first glance, the general subject of spatial planning appears to address every essential basis for life: water, air, housing, transport, energy, health, economic development. To the question why food does so far seem to have been of little interest to spatial planners, one could argue that planning traditionally has been principally concerned with the built environment, rather than agricultural production. However spatial planning is also the only sector which has the adequate necessary overview to connect all the components of the food system (Sonnino, 2009).

This emerging idea has been developed in the United States under the term community or regional food system planning. According to the authors Kaufman and Pothukuchi, one could define a regional food system as the chain of activities connecting regional food production, processing, distribution, consumption, and waste management, as well as all the associated regulatory regional institutions and activities (2000, p113). Regional food system also incorporates all actors of the food chain from a specific area, i.e. food producers, distributors, sellers and consumers, in an integrated network. But how to define this “specific area”? There is no common definition given of a specific area, therefore this paper assumes that it depends on the perception of the concept of “region” of each country. It is then clear that it differs from a country to another.

Moreover, the American planning association states that regional food systems enable that “*all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice*” (2007, p6). Indeed the goals of food system planning are to build “*stronger, sustainable, and more self-reliant community and regional systems*”, and to suggest ways in which “*the industrial food system may interact with communities and regions to enhance benefits such as economic vitality, public health, ecological sustainability, social equity, and cultural diversity*” (American Food System Planning 2007, p2).

This statement also defends the idea that spatial planning strategies can be considered as important triggers to promote sustainable characteristics such as socio-cultural, economic and territorial cohesion or environmental and food justice (Sonnino, 2009, p426). Thereby food spatial planning can play a crucial role for achieving sustainability within the food system, since spatial planning interferes in sectors such as transportation, natural resources management or can help to have a better overview of the food accessibility (Morgan, 2009,

p342). Spatial planning should then play a role of supervision and organisation of these sustainable food systems.

Thus to demonstrate and explain how spatial planning contributes to the establishment of sustainable food systems, a literature review is presenting the link between both concepts (see part 2). Moreover nowadays, the concept of sustainable food system is a growing idea in the EU since its impacts can highly benefit the society. This point of view is clearly defended by the European Commission in the document “*CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future*” (2010) as presented in the part 2 of the research.

Moreover, many cities, regions and governments around the world have taken the initiative to re-design their food provisioning. It may then be interesting to look how spatial planning is organized in a particularly European country in order to create more sustainable regional food systems. A very interesting and relevant example is the one of the regional food strategy of Amsterdam (see part 4).

Thanks to these data, the research will define how spatial planning can create sustainable food systems as required by in the CAP towards 2020 strategy (part 5).

1.2 *Societal and academic relevance*

Before analyzing the academic relevance of this research it is interesting to explain some important notions concerning food planning and its impact on our daily life. Thus, according to the following scheme, the food sector integrates the production of food (i.e. the agricultural techniques, inputs or production management), the processing and packaging (i.e. food quality, hygienic norms, safety technologies etc.), the distribution and the retailing of the food (i.e. transport, marketing, etc.) and finally the consumption (preparation, acquisition, etc.).

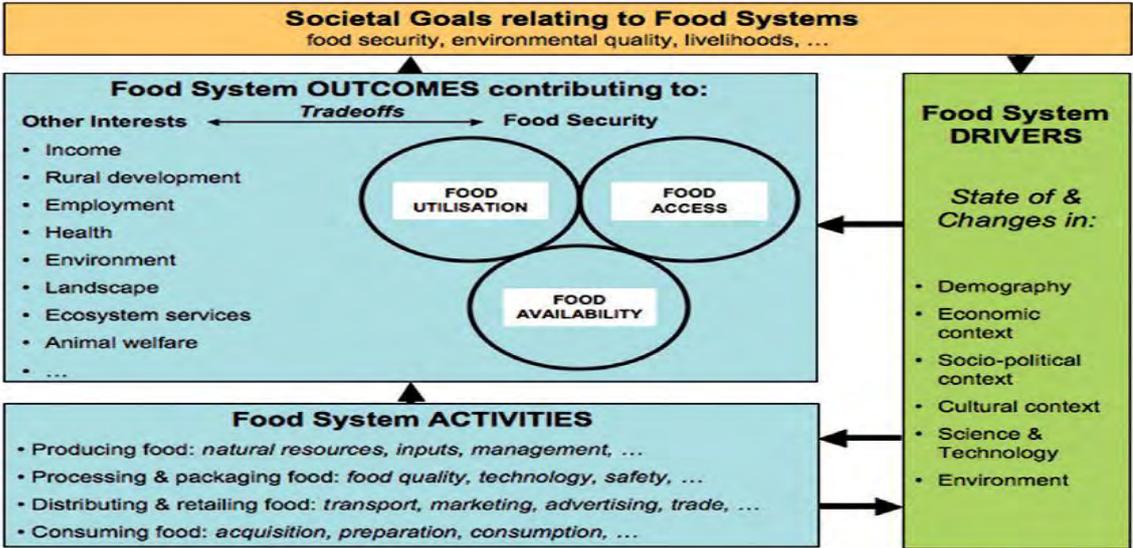
The food system embodies many sectors and actors which result on many economical activities. Thus, the food system is overall a crucial economical sector. The food system is shaped by several dynamics: demographic, economic, socio-political, cultural and scientific. Indeed, the demography will influence the need for food and the level of production, the economic situation will influence the capacity to sell the productions and also the price levels, the socio-political context will influence the welfare of the agricultural sector for instance (i.e. policies which want to support the agricultural development or not), the cultural driver will define the importance of the food system for the society and it can also influence the way of productions, and finally the scientific factor will define norms or values that have to be

respected in the food production processes. Thus, the food system must adapt itself to all the changes and evolutions of these drivers.

On the other hand, the food system influences many sectors such as health (i.e. quality of the food), rural development (shaping of landscapes), culture (food habits) or the environmental sector (sustainable way of production). Thus, the influence of the food sector is broad and can directly or indirectly concerns the consumer and its environment.

Indeed, as showed in the following scheme, the sector of food is a complex one but concern very many actors in our society.

Figure 1: Food systems activities (with example key determinants) and outcomes in relation to drivers and societal goals



Source: European Science foundation, 2006, report on European food systems.

These last decades, the agricultural and food sectors had to follow the principle of cost-effective production and its resulting economies of scale, conceptualized as the globalised agri-industrial system (Wiskerke, 2009). Thus, nowadays food issues are mostly seen as a matter that has to be addressed on a high governance level. Food policies often symbolize World Trade Organisation rules, the Common Agricultural Policies in Europe or other national policies. Even if the term of globalisation is commonly used nowadays, there is still no real definition for this term such as there is no real evaluation of its impacts. Indeed, the impacts of globalisation are huge and the triggers are various. To justify this process, one has to refer to quantitative data supporting the benefits of such a system on the economic sectors and to economic theories like Smith or the liberalism ideas. In brief, the result of that strategy is a mass production of cheap products. This strategy results on more purchase power for

consumers, a massive standardisation of products as well as on a concentration of production places and firms in developed countries such as in Europe. The money saved through that massive production can compensate the costs of international transportation in order to supply European food shops and restaurants with cheap apples of Chile or New-Zeeland for instance (Institut für Raumplanung Dortmund, 2008). Moreover the strategic power of agriculture and the so-called “food weapon” is undeniable. Indeed agricultural lobbies and political interests have monopolized and shaped the food scene.

Given that situation, it is clear that many European consumers want and need to be re-linked to their food. Thus regional food systems as defined in the introduction can help to overcome the current threats and to build fairer and more sustainable societies. Thus, many cities, regions and governments around the world took the initiatives of re-designing their food provisioning. The CAP 2020 strategy can be seen as one of these initiatives.

This leads us to the academic relevance of the research. For all the reasons cited above, it is interesting to define how spatial planning strategies come to reinforce and support sustainability in the food sector such as the objectives set by the EU through the CAP 2020 strategy. Indeed since the concept of food system planning is broad and quite new, it is necessary to define how this concept can allow sustainability in the food chain. Thus spatial planning can help to the creation of sustainable food systems thanks to adequate criteria concerning the form and substance of these food systems as defined in this research. However according to Haque (2002), there is no unique definition on sustainable food system. Thus thanks to the definitions given in the introduction and to the CAP 2020 strategy, I took the liberty to define a sustainable food system as a system supporting environmental, economic, social and cultural needs.

Thus according to the statement presented before, this research aims to find out how food planning can promote these economic, social, environmental and cultural benefits in Europe.

1.3 *Research strategy*

As presented in the introduction, this paper aims to research on the link and interactions between food spatial planning and sustainable food systems in order to define which spatial planning strategies could support sustainable food systems in Europe.

Thus the overarching question of the research is: How spatial planning can support sustainable food systems in Europe?

To answer to that overarching question, the research will be divided in two research subquestions:

- **What is the link between food spatial planning and sustainable food systems?**

Indeed as mentioned before, the beneficial impacts of food planning on the food system are real.

Thus after reviewing the European food context and current challenges that have to be overcome as defined in the CAP 2020 strategy, an analysis of the interactions and link between spatial planning on food systems will be conducted. Indeed the European document will help to define the “direction” to adopt in order to create sustainable food systems.

This brings us to the second research subquestion:

- **How can spatial planning support sustainable food systems?**

As analysed in the first research question, the impacts of regional food systems are various and promising. Thus, from the information found through the literature review and the example of the regional food strategy of Amsterdam, it will be easier to see how spatial planning can help to achieve sustainability.

A presentation of the food system of Amsterdam will help to find out the planning strategies enabling sustainable food systems as required by the new CAP strategy.

Nevertheless the research assumes that planning systems are very different from a country to another, but this paper aims to give some very general guidelines that define sustainable food systems and that can inspire spatial and food policies in Europe to achieve the “CAP 2020” goals. Indeed as mentioned before the concept of food system planning is quite new in Europe and therefore some general guidelines are interesting for the establishment of more concrete food strategies to promote the new CAP strategies.

This study is before all an exploratory study aiming to identify the problems of the food sectors and the role that spatial planning can play in order to “repair” the food chain.

Indeed the study aims first to make the reader aware that the current food system in which we are living in is not sustainable. It aims to explain the relationships between spatial planning, food and sustainability.

Then through literature review another paradigm or way of consuming is presented: the regional food system, illustrated by the regional strategy of Amsterdam in the Netherlands. The analysis of this strategy led to see how planning and particularly regional systems can act

for sustainability in the food sector. It is undeniable that this research cannot present all repercussions. But the main changes and influences as supported by the EU strategy are taken addressed.

Finally the results obtained will help us to define how planning can support sustainability as required by the CAP 2020 strategy.

The research is a cross-sectional study because the period of time is limited. Indeed, the research will study the phenomenon of food system planning in the modern and industrialised society (i.e. these last 50 years).

As showed before, it is essentially a qualitative method that has been adopted since the research used predominantly techniques of data collections that generate non-numerical results based on qualitative considerations. The final aim is to collect and classify the data found through the literature reviews and the example of Amsterdam to conceptualise a kind of “guideline” for food planning. It is therefore a deductive approach that the research is using.

The research population will essentially concern all the actors involved and concerned by the food chain.

It is important to keep in mind that factors such as culture, political systems, environment or other factors impacting on food policies have to be taken into account to adapt the results obtained to the real situation.

1.4 *Current state of knowledge*

The concept of food system is quite new and therefore it requires research to define and to evaluate its real impact. Many studies (especially in North America) have been done in order to define this concept.

Nowadays we become slowly aware that the effects of spatial planning on food are considerable (distances between consumers and restaurants or supermarkets, origins of products, food transport...). This concept has been well developed in North American countries and one can notice that more and more cities in Europe are interested in this subject (Institut für Raumplanung Dortmund, 2008). Indeed, considering these promising objectives, food system planning is curiously only now finding ground in Europe, but thanks to the new CAP strategy some changes are expected. Even so, when the first European conference on the

topic took place in the Netherlands in 2009¹, it revealed that in spite of the lack of clear integrated frame, initiatives towards regional food production in Europe do exist. It is clear that this subject can play a crucial role in the future development of European cities and regions. Thus, it is evident that the food system concept is broad but rather young and therefore requires substantial research to define how it can support the CAP 2020 strategy.

As reflected in the theoretical framework the study on food spatial planning would naturally take on a holistic view, concretised by a systemic approach, so that it supplies a good overview of the origins, synergies and reciprocal connections between the food system and the new CAP strategy. It is also necessary to clarify that in order to achieve the aforementioned results, the strategies and instruments adopted by food spatial planning are of crucial importance, and hence require a solid definition too.

Concerning this topic, there is little research that has been done about the interactions between spatial planning and sustainable food systems as defined by the CAP objectives. As it has just been mentioned, little literature can be found concerning this issue in Europe. The most important authors in that topic are probably the American researchers Pothukuchi and Kaufman, who essentially focused on the conceptualization of communitarian food systems. Another author would be Sonnino who researched a lot about peri-urban strategies.

These authors give us some very important reflections and guidelines to define more clearly the place of food planning. Nevertheless, some interviews with spatial planners and academicians will also help to carry on that research.

¹ 9–10 October 2009, AESOP Sustainable Food Planning Conference, Almere, The Netherlands – Programme on: http://www.aesop-planning.com/Congress_files/2009-10-sustainable-food-programme.pdf

2 THE LINK BETWEEN SPATIAL PLANNING AND SUSTAINABLE FOOD SYSTEMS IN EUROPE: LITERATURE REVIEW

Before presenting how these two notions can be reciprocally benefic, it is first interesting to define more concretely the concept of sustainable food systems in Europe.

2.1 *The concept of sustainable food system in Europe*

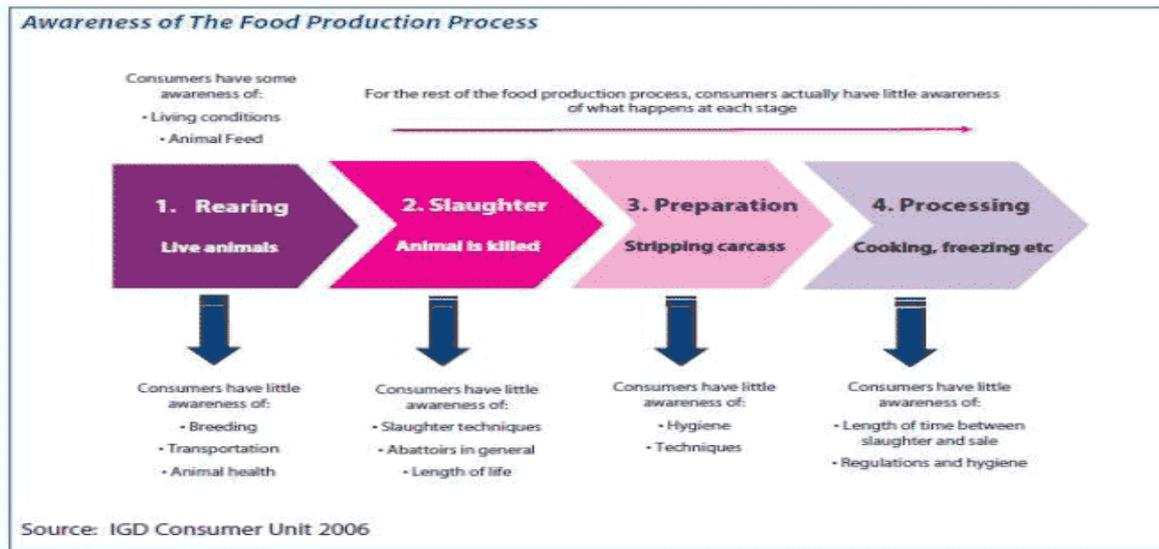
According to Sonnino (2009, p431), “*Today it is more than ever clear that international and national food policy-making has largely failed to achieve sustainability objectives*”. Indeed, globalised food systems are largely criticized. For Pothukuchi (2009), the fact that food is produced on a globalised scale or on a regional scale has different and diverse effects on the society. To foil this trend the European-Union tries to establish new strategy aiming to make the food chain more sustainable in order to overcome tomorrow’s challenges.

2.1.1 The new food equation

Although the negative side effects of a globalised food chain are well known, it is interesting to emphasize the fact that the process of globalisation doesn’t necessary mean that regional productions are insignificant because globalisation also highlights the importance of regional production. Indeed, according to Esser (2005) the process of globalisation strengthens the role of regions. The more global networks are developed, the more the populations will feel the need for closer political points. It is hence like a mutual support from these two trends.

Nevertheless the first weak point that has to be attributed to this globalised food system is its lack of transparency. Indeed, as showed in the following scheme, consumers have few power and knowledge on the current food sector because they are too rarely included in the food system.

Figure 2: Awareness of The Food Production Process



Source: IGD, Consumer Unit, 2006, p15

Moreover because of the non-transparent food chain, even though the consumer is the first concerned by the quality of the products he is eating, he is not aware of the food system production. Thus, it is clear that there is a real change to support in order to give more transparency on this system. Indeed transparency is a very important criterion to reach sustainability. Indeed how is it possible to evaluate the economic, social, environmental and cultural impacts of the food chain without transparency?

Indeed one of the first questions rising when the concept of sustainable food system is mentioned is how to reach it? According to Morgan (2009) there are 5 crucial current developments that have to be overcome to reach sustainability in the food system:

1- First the food price surge of 2007-2008. As mentioned in the introduction, food prices raised dramatically 4 years ago. This situation affected billions of people facing food insecurity, but also weakens the situation of other medium class citizens. Indeed, food prices nearly double for wheat or triples for rice, even though these crops are essential for the food security of the majority of the humankind (Riddle, 2008). As a result of this price variability, there is a call for *“appropriate government intervention, pleas to attend to populations underserved by the market and the environment, challenges to the commodity subsidy structure, and advocacy of locally based food systems linkages”* (Pothukuchi, 2009, p350)

2- Food security has become a national security issue. Indeed, after the food crises, food security became a crucial point in the agenda of most countries in the world. For instance, G8 group organized their first food summit in 2009 to which unfortunately only one president

assists; the Italian president Silvio Berlusconi, and which results were considered as disappointing to fight hunger (STWR, 22/04/2009).

On the other hand, overweight and obesity are serious public health challenges. Indeed, *“Overweight affects 30–80% of adults in the countries of the WHO European Region. About 20% of children and adolescents are overweight, and a third of these are obese. The prevalence of obesity is rising rapidly and is expected to include 150 million adults and 15 million children by 2010. The annual rate of increase in the prevalence of childhood obesity has been growing steadily, and the current rate is 10 times that in the 1970s”* (WHO, 2007, p16). Obesity illnesses concern mostly heart diseases, diabetes as well as certain cancers and are very costly for the health insurance system. Indeed, according to the WHO obesity would be responsible for 2-8% of health costs and 10-13% of deaths in different parts of the Region (WHO, 2007).

Thus, the question of food security has become a high international issue.

3- Climate change effects: All the agricultural systems are affected by climate changes nowadays. According to the majority of scientists, climate changes are due to the emission of CO₂ produced by the development strategy of the north countries, however it is the south which is the most touched (the very countries that couldn't benefit from the process of development). This situation highly affects the food production of these countries and the food security of their populations as in Niger (considered as the poorest country in the world) where more than 3.6 million of people are facing food crisis because of bad harvests caused by the increase of the desertification process and dust storms resulting from water shortages due to the global warming effect (CAFOD, 2007).

4- Land conflicts are escalating. Indeed, conflicts about lands or more precisely about food resources are increasing because of this situation of shortage but also because of the purchase of lands by rich countries. For instance the South-Korean company Daewoo wanted to buy 1.5 million hectares of land in Madagascar and employ South-African workers in order to work in these future oil palm production farms (Debailleul, 2009). The local population highly contested the project and for some experts this led to the political contestations and violence of 2009 (Oberle, 2009). Indeed, it is clear that these projects can highly affect the food security of the local population which won't be able anymore to use their own resources. The author Morgan (2009) is even more critical and qualifies this process of “new colonialism”.

5- The rapid urbanisation process is also a point that has to be taken into account. Indeed, this process has two effects. First, it decreases the arable land surface and second, cities are the biggest user of combustible (i.e. food) areas in every country (Morgan, 2009).

These 5 trends constitute what the author (Morgan, 2009) calls “**the new food equation**”.

In addition to those global threats, Wiskerke (2009) relates 3 common trends in the global food situation, qualified as mutually reinforcing process, that threaten sustainability:

1- A trend of “**Disconnecting**”. Because of the globalised economy, the distance between suppliers, producers and consumers increased. This trend results on a feeling of less transparency in the food chain and of more anonymity. In order to counter-balance this lack of direct contact and personal trust, the food sector requires more and more national and international quality and hygienic norms. Thus, “*the proliferation of production regulations, quality control systems and trade-marks means that consumers can no longer see the wood for the trees*” (Wiskerke, 2009, p370).

2- The second trend is the one of “**Disembedding**”. Indeed, the place of production is not anymore a constituent of the quality and nature of the product. The result is that consumers have lost the sense of belong to a place and therefore a sense of identification. Business strategies try to compensate by constructing a new image and identity around goods and services (Castells, 2004). This strategy aims also to reinforce the development of a massive consumption society in which consumers give more importance on the image that the goods reflect, than on how and by whom it is produced.

3- The third trend is about “**Disentwining**”. The current system of food production divided the food chain goods and services in several spheres whereas “*food, care, education and leisure form an indivisible whole for the individual, whose use is linked to place and time*” (Wiskerke, 2009, p.371). This disentwining reinforces the process of disconnection from consumers to producers in the food chain but it also disconnects consumers with their own food and all the educational, cultural and pleasure signification that food symbolises.

The consequences of these trends are that “*goods and services are increasingly exchangeable and places are increasingly interchangeable*” (Wiskerke, 2009, p.371). This situation results on a growing misunderstanding on food production means and consequently on what consumers are eating impacting on their identity.

Thus, all these economic, climatic, social or cultural negative trends have to be overcome and redirected in another more sustainable way. One solution to all these challenges seems to be the development of a new food paradigm including local solutions.

2.1.2 The need for sustainable food systems in Europe

As mentioned in the introduction, the current economic, cultural, social and environmental challenges that the EU has to overcome in the agricultural and food sector put into emphasis the pressing need for change. For this reason the EU Commission published a communication called “The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future”, the 18th of November 2010 in Brussels. The aim of this document is to *make a strategic choice for the long-term future of its agriculture and rural areas* (EU Commission, 2010, p1).

This new CAP strategy enumerates three challenges:

- 1- Food security;
- 2- Environment and climate change;
- 3- Territorial balance.

In order to overcome these challenges the EU strategy lists several guidelines: to address EU and global food security, to enhance the sustainable management of natural resources, to deal with the increasing pressure on agricultural production conditions caused by climate changes, to make best use of the diversity of EU farm structures and production systems, and to strengthen territorial and social cohesion in the rural areas of the EU through the promotion of employment and diversification.

For this reason the new CAP strategy aims to assure long term food security for European citizens, to support farming communities that support quality, value and diversity of food produced sustainably and to maintain viable rural communities (European Commission, 2010, p2).

The strategy defines 3 key notions:

- 1- *Smart growth* by increasing resource efficiency and improving competitiveness through quality products, using information and communication techniques, investing in training, providing incentives for scale innovation in rural areas and improving uptake of research.
- 2- *Sustainable growth* by maintaining the food, feed and renewable production base, ensuring sustainable land management, providing environmental public goods,

addressing biodiversity loss, promoting renewable energies, fostering animal and plant health, increasing resource efficiency through technological development and using results of research, further reducing emissions, enhancing carbon stocks and fully developing the potential of rural areas.

- 3- *Inclusive growth* by unlocking economic potential in rural areas, developing local markets and jobs, accompanying the restructuring of agriculture and supporting farmers' income to maintain a sustainable agriculture throughout Europe.

Thus these 3 concepts are the basis of the new European strategy. Indeed Smarth growth aims to integrate the social and cultural capital of a region through education and communication strategies, and through the promotion of typical products representing quality.

The Sustainable growth concept is based on environmental protection promoting ecological initiatives.

And finally the inclusive growth concept lies on economic development aiming to make the food chain more competitive.

These 3 key concepts contain the 4 pillars necessary for a sustainable food system: economic, social, environmental and cultural.

However the question now is to know what has to be changed in the current European food sector in order to achieve the strategy presented before?

2.1.3 The need for a new food paradigm

According to Sonnino (2009), food system planning aims to “*introduce new ways of thinking about the food chain and new types of social, economic and environmental relationships amongst food producers, retailers and consumers*”. She clearly emphasized the need for a new food paradigm.

As Wiskerke (2009) states there are two paradigms conceptualizing food systems:

- 1- **The agro-industrial paradigm**: This system shares a firm belief in the technological solutions for the multitude of current problems. According to (Marsden, 2003 in Wiskerke, 2009, p374) “*Characteristic for the hypermodern food geography is the ongoing industrialization and globalization of the agri-food production chain and standardization of food production and processing through globally applied production, processing and distribution regulations and quality assurance schemes*”. In addition, Sonnino (2009) states that this food system is placeless in opposition to the concept of regional production.

2- **The alternative food geography:** This paradigm is based on an integrated and territorial agri-food strategy. In opposite to the agri-industrial system, this strategy aims to link food production to a region and to all the cultural, environmental or economic features of that region. This shorter geographical scale results on local strategies which aim to improve the environmental sustainability of the food economy (Nosi & Zani, 2004) and also promote socio-cultural traditions in order to create quality and thus improve consumers' trust.

The main features of these two paradigms are explained in the following table:

Table 1: Competing agri-food paradigms and differentiated food geographies

Table 1. Competing agri-food paradigms and differentiated food geographies

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

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

Source: Wiskerke, 2009, p375

As one can notice through this table, the first table is mostly based on the trust on scientific solutions, whereas the second paradigm is based on a more „social' trust towards local professional producers as farmers. This second paradigm aims to produce change in the production of food in including social, cultural and environmental features in the process of production, and have beneficial impacts. For these reasons the idea of alternative food geography is gaining popularity in the scholarly attention.

The concept of an integrated and territorial mode of governance is illustrated as following:

Figure 3: Territorial mode of governance



Sources: Wiskerke, 2009, p376

Thus, according to Wiskerke, the concept of alternative food geography is territorial in two ways: First it develops spatially bound producer-consumer relations and second this mode of governance is based on regional specificities and thereby strength the regional economy. These concepts are thus the base of the food system planning.

However even if this research principally present the second paradigm, it is important to keep in mind that in the reality both concept has too cooperate for political reasons (international obligations resulting from the world trade systems, Shengen territory, etc.), and also for other more practical and reasonable reasons as the limits of food self-efficiency to assure food security for instance.

2.2 *Spatial planning and sustainable food systems*

2.2.1 **A spatial systemic approach on food: The food system**

Although food and spatial planning were considered as two totally different concepts, the concept of regional and urban food systems is not new.

During the 19th century, many examples existed: The idea of city-garden of Ebenezer Howard is a good example of that trend. In this concept cities could be autonomous through the implementation of garden in the city (Ebenezer, 1902). Furthermore, according to Mougeot (1999, p14-15) “*livelihood activity first became an urban policy issue and development tool in the 1970s when it became apparent that food supplies from rural and foreign resources were insufficient, inadequate, unreliable and unaffordable*”.

The authors Kaufman and Pothukuchi define the food system as following “*By the food system, we mean the chain of activities connecting food production, processing, distribution, consumption, and waste management, as well as all the associated regulatory institutions and activities*” (2000, p113). Moreover the authors claim that “*to be truly concerned about improving human settlements, planners need to incorporate food issues into their working models*” (2000, p118).

This concept based on an integrated and territorial mode of food governance rests on two pillars: the notions of public food procurement and urban food strategies (Wiskerke, 2009). Concerning public food procurement, it refers to the concept of “alternative food networks” presented before. According to Morgan & Sonnino (2008), “*public sector is merging as a powerful actor in the food chain*” and this result on “*designing an ‘economy of quality’ that has the potential to deliver the environmental, economic and social benefits of sustainable development – in and beyond the food system*” (Sonnino, 2009, p426). The public sector is thus seen as a main trigger for alternative food planning and this potential must be taken into account. The next part about the illustrations will show how the role of public sector is of crucial relevance.

Concerning the concept of urban food planning, it is important to highlight that for the first time in history more than half of the world’s population is urbanized, and it is in the cities that the most mouths to be fed are found (Mendes, 2007). Moreover the majority of the urban inhabitants must purchase their food. Consequently, in cities lack of money means lack of food for the majority of the households. Furthermore, the rapid urban sprawl and the loss of agricultural land in peri-urban areas have disconnected consumers from their environment and food sources. Thus, cities have become increasingly dependent on the global industrialized food system. Given that point, the WHO (World Health Organisation) launched for the period 2009-2013 a program called “*Healthy Cities*” aiming to care and support environment, healthy living and healthy urban design. Thus, according to Morgan (2009, p343), “*Healthy Cities provides an ideal opportunity to get city governments in the world to include a food policy dimension in their urban plans, especially if they want to secure the imprimatur of ‘healthy city’ status*”. This programme gives the opportunity to urban planners to play a crucial role in the building-up of sustainable cities, but it also creates opportunities for food planning communities to put food on the policy agendas of every department in the municipal government (Morgan, 2009).

Many activities are part of this new food strategy i.e. regional food system planning, as urban agriculture or regional markets projects for instance. As showed by the following case study, city farming for instance can enhance food security by ensuring a more regular supply of food for consumers who are mostly neglected by the current globalised food system. Moreover urban farming *“can enhance the vitality of urban communities by encouraging collaborative activities that foster relationships of trust and mutual support”* (Sonnino, 2009, p427). In the face of more unsecure cities and of a feeling of more individualism this is an important point. Indeed urban agriculture is certainly very important for developing countries because it tends to enhance food security, but urban agriculture is also wide developed in richer countries for the green spaces it provides that enhance urban liveability. Furthermore, according to Sonnino (2009, p427), *“vegetable gardens, which were once considered as “urban wastelands” that did not fit with the ideal image and layout of the modern city, are now increasingly seen as sites that can restore local distinctiveness and a sense of place against the homogenising tendencies of many urban environments”*. Thus, urban agriculture can on the one hand be a necessity for poor populations but also for rich populations, yet in both cases it enhances the quality of life and of environment in cities.

However, building a sustainable food system planning is not possible only through urban food projects. Indeed, *“there is an urgent need for planners and social scientists to overcome the unfortunate tendency to gravitate towards two distinct poles: ,urban’ vs. ,rural’ ”* (Redwood, 2009, p14). It is obvious that urban food security planning is not possible without a strong cooperation between cities and rural areas, therefore sustainable food systems must link cities to rural areas. According to Sonnino (2009), creating a more comprehensive food system, also means to link cities with rural areas. Indeed, (p434) *“ In an era of rapid urbanization, embedding this view in the planning system is, more than ever crucial not just to help cities to feed themselves, but also to devise the kind of political tools and institutional arrangements needed to reconnect them socially, economically and environmentally with surrounding regions ”*. Indeed, according to the author (2009) the ,urban-rural divide’ is responsible for three shortcomings in urban food research and policy: First, this tendency has confined the study of alternative food networks to the fields of rural and regional development, missing the fundamental fact that the city is the greatest place for alternative food products. The second point is that this conception of the rural and urban gap has looked at urban food supply failure as farm failure rather than as a failure of distribution. Thus, planners and policy makers didn’t act in the right way and therefore were unable to solve food security problems. Finally, the

third point is that this conception of urban and rural areas has promoted the view of policy as a non-urban strategy and this decrease researches on the role of cities in the food system.

It is undeniable that the role of cities for food security is of crucial importance. However urban systems have to focus on public food (defined as “*a myriad of initiatives that aim to improve citizens’ access to fresh and healthy food*” (Sonnino, 2009, p 429)) and food in public spaces and on the development of integrated approaches to food policy.

To sum-up it is clear that to build a regional food system, urban and rural areas have to set-up common and coordinated spatial policies and strategies, but these same policies and strategies have to be defined in a more specific way as presented in the following part.

2.2.2 The role of spatial planning in the building-up of sustainable food systems

In order to have a better overview of sustainable food systems, it is necessary to see how professionals like spatial planners perceive their roles to build these sustainable food systems. Indeed Morgan (2009, p342) states that “*Although people come to food planning from a bewildering array of backgrounds, straddling, professional associations, consumer protection groups and citizen based organizations, it appears that public health, social justice and ecological integrity are the principal concerns of the new food planners.*”

In a survey about food system planning, Pothukuchi and Kaufman (2000, p5) asked planners if they think they should be more involved in food system planning in the future. 38% responded “yes”, 38 responded “it depends” and 25% responded “no”. The ‘top’ arguments they gave were:

- Food is essential;
- Food issues are a public good that transcend the market;
- Need for holistic planning to go beyond the built environment and social issues like food are related to the built environment;
- It is a critical part of neighbourhood revitalization;
- Need for healthy cities with healthy residents;
- Food is an important aspect of local economy;
- The achievement of better access of low income inner-city residents to food.

In addition, in 2002, another study² was written about spatial planners that required planners for their opinion about the role they should play in the food system. According to this survey, the first priority was:

- The preservation of farmland,
- The promotion of sustainable agriculture,
- The use of zoning codes to regulate food retail;
- The development of farmers markets (Pothukuchi, 2009).

As one can notice, their perception about their roles became more precise and concrete than in 2000.

Thus according to Pothukuchi and Kaufman (2000), one can define five main roles for spatial planners:

- 1- The compilation of data on the community food systems,
- 2- The analyze of the connections between food and other planning concerns,
- 3- The assessment of current planning on the local food system,
- 4- The integration of food security into community goals
- 5- And the education of future planners about food system.

For the interviewee and food planner Lynn Peemoeller (Personal interview, Mrs Peemoeller, March 2010, Berlin), the main role of spatial planners concerns first the:

- **Census of the population** in order to evaluate the production capacities and other socio-cultural factors;
- To **connect people** because her first interest is to support social justice and food security.
- The **education** of consumers and food workers;
- The **integration of food into the city design**, to design areas in a manner that enable an efficient economic region;
- The **gathering of data** to understand patterns and the management of permits (vegetable gardens, farmers markets);
- The **coordination of the sectors**;
- To **integrate knowledge into the public institutions**.

For her it is very important that planners stay independent from the government.

These points have to integrate with the results of the case study in order to define how to support sustainable food systems in Europe.

² Raja, S., Born, (2008) *A Planners Guide to Community and Regional Food planning: Transforming Food Environments, Building Healthy Communities*

2.2.3 Food systems: For sustainable impacts

According to the parts before, the concept of food system is promising, however as stated by Sonnino (2009), it is still difficult to fully estimate and understand the significant potential and contributions of food planning strategies on the quality of lives of millions of citizens. For this reason this part aims to give an overview of the sectors concerned by food spatial planning.

First the impacts are economic. Indeed currently the food sector is a significant but also underestimated sector for local and regional economies. Land use planning policies, economic development programs, land taxation and development regulations are important spatial tools that can be used to enhance the viability and the dynamism of the agricultural sector in a region (Pothukuchi, 2009). This dynamism will enable other activities in the rural areas and benefit the rural population. Thus according to Sonnino (2009, p426), *“in many cases these strategies (i.e. food system strategies) create new economic opportunities for thousands of small farmers and retailers who would not survive the expansion of the global food system”*. This strategy requires a global organisation of the food system activities. Indeed food systems can develop land use plans in order to enhance the viability of the sector, incite the decrease of land taxation, facilitate access to markets and encourage other activities as agro-tourism or farm stands. These food systems should also develop tools as development rights, preservation zoning and partnerships with land trusts in order to protect farmers in supporting comprehensive planning strategy to promote local and regional markets for regionally produced food.

Moreover food spatial planning can have beneficial impacts on territorial cohesion. according to the Assembly of European Regions (2008, p1), territorial cohesion means that *“territories development is harmoniously and in synergy with each other, heading to common priorities and objectives, by implementing strategies with means and tools adapted to their territorial capital, providing an equal access to services and opportunities for all European citizens”*. Thus according to that same definition, food systems must be adapted to territorial capital. Indeed, this concept is *“what makes an area distinct from the others in terms of development potential. It is determined by a wide range of factors, such as geographical characteristics, size, climate, history...”* As presented before in the concept of regional specificities, regional food products are particular because of their geographical origins providing a particular taste to the product, or climate is influencing the agriculture and food production and history can be illustrated through traditional knowledge giving a particular characteristic to the product. All

these characteristics shaping food culture and products are a distinctive feature of a region and this strength constitutes a territorial capital and an economic, cultural and social advantage for the development of a region.

Indeed the socio-cultural impact on food is an important trigger for the development of food systems. Regional food systems are easier to control and the relationship between consumers and producers is closer. This constitutes also an important cultural value. Indeed in the face of the current globalisation process, one often claims that the big food cultures as the American one for instance are dangerous for other smaller cultures. This is also part of the cultural crisis mentioned in the introduction. In order to address that issue, the concept of food system planning aims to encourage local farmers to grow various species corresponding on their own needs. For instance, in Pennsylvania and Maryland farmers are growing N'goyo and Gboma (West African vegetables). This new trends can be very profitable since ethnic foods represents 25 billion dollars for the food industry in America (Paley, 2005). Thus, in strengthening farms economies, food system planning will also preserve unique regional and food heritage and traditions. On the other hand it enhances farmers' economies and provides new market opportunities. A good illustration would also be the case of the Tohono O'odham Nation Community Food system in Arizona which seeks to create a sustainable food system in accordance with the Tohono community³. Indeed, the population of Tohono O'odham currently have the highest rate of diabetes in the world (up to 70% of adults over the age of 35 have the disease) while before the 60's no members of the community had ever suffered from this disease (Tohono O'odham community action (TOCA) website, 2010). In going back to their original habits, they could decrease this disease. Moreover in stimulating culturally appropriate food it could result on economic development. This project concretely means to increase the production of native foods and the education of the community to eat healthfully. In addition, the community is working with the federal school lunch program to introduce healthier food. This model is nowadays seen as an example to protect food cultures. Indeed, their strengths are their ability to forge partnerships, mobilize local knowledge and history, and evaluate community need (Pothukuchi, 2009).

Finally the impacts of food systems are also environmental. Indeed, food systems have beneficial effects on many environmental concerns: decrease of CO₂ emission, respect of ecosystems, and decrease of soil, air and water pollution. Concerning the emission of CO₂, a main source of manure is the breeding activity: the intensive breeding system. For instance in

³ Official website TOCA: <http://www.tocaonline.org/www.tocaonline.org/Home.html>

the USA, concentrated animal feeding operations produce more than 250 million tons of manure per year (Centres for Disease Control and Prevention, 2003). Besides the odour inconveniences, a more important inconvenience is the health problems resulting of this concentration of animals. Indeed, animals are more affected by respiratory illnesses, injuries, infections (Bowman et al., 2000). This high manure concentration is also a big water pollution source. In supporting a more regional and sustainable agriculture with more extensive breeding policies, food systems can decrease pollution on water and on land as well as improve animals' welfare.

Another issue would be the loss of biodiversity due to the massive production of seeds and of unsustainable way of production. Indeed, natural areas as forests, prairies or wetlands have been threatened by a too productive agriculture even though these areas provide valuable habitats for wildlife. In adopting sustainable local food systems, it will decrease the impact of these intensive agricultural systems on biodiversity.

Furthermore, the revitalization of food cultures is also a way to protect eco-systems. Indeed, traditional knowledge from local communities is a very rich source of information related to eco-systems preservation and food production for instance.

2.3 Conclusion

This literature review shows how spatial planning can support the building-up of food systems.

Indeed in the face of the current globalised food system, there is a real need for change (2.1.1) and the EU started to address that topic through the CAP towards 2020 strategy (2.1.2). This strategy stressed for food security, environment and climate change adaptation and territorial balance. Thus spatial planning appears as an instrument capable of supporting these changes in the food system, and thence promoting a new food paradigm: the alternative food strategy supporting regional and systemic food systems (2.1.3).

Thus the concept of food system as described in 2.2.1 can enable sustainability thanks to its economic, social, environmental and cultural impacts as briefly presented in the part 2.2.3 and can therefore support the objectives of the CAP towards 2020 strategy (i.e. assure long term food security for European citizens, support farming communities that support quality, value and diversity of food produced sustainably, and maintain viable rural communities).

However to achieve these goals and in order to answer to the overarching research question (i.e. How spatial planning can support sustainable food systems in Europe?), it is important to adopt specific priorities for spatial planning (2.2.2) such as promote communication, develop private-public partnerships, support integrative and comprehensive systems or build legislative support within the food system.

These data found through the literature review will be then tested by the regional food strategy of Amsterdam.

Indeed a concrete example as the one of Amsterdam can help to valid the data obtained. Indeed as presented before, European food systems are rare compared to other regions, for this reason Amsterdam represents an interesting example and could inspire other European cities. Yet, it is clear that planning policies are different from a country to another, but (one more time) the results obtained by this research are broad and can therefore be adopted within different contexts and different spatial systems.

3 METHODOLOGY

3.1 *Introduction*

The lack of systemic approach on food in Europe makes the finding of spatial strategies supporting sustainable food systems difficult. Indeed the concept of food system planning being quite new in Europe, it is difficult to agree on some specific strategies to reach sustainability in the food systems. However the theoretical framework developed in this research contribute to overcome this lack.

Gill and Johnson (2002, p229) define theories as “*a formulation regarding the cause and effect relationships between two or more variables, which may or may not have been tested*”.

Therefore as described in the literature review spatial planning can have beneficial effects on regional food systems. However some criteria have to be defined to reach sustainability in a regional food system.

Indeed the main theories discussed in this research are first that the current food sector needs some changes in order to be more sustainable such as mentioned by the EU Commission in its CAP 2020 strategy.

Second sustainability in the food system can be reach if they follow specific objectives in the building of food systems as defended by the authors Morgan and Wiskerke.

Third spatial planning can support these objectives as demonstrated by authors such as Sonnino, Vermeulen or Pothukuchi.

According to these statements, the research assumes that in adopting specific priorities and strategies it is possible to create more sustainable food systems such as required by the EU 2020 strategy. It means food systems supporting cultural, environmental, social and economic development.

In order to test these hypotheses, the case study of the regional food strategy of Amsterdam will help us to see if planning strategies can achieve sustainability in the food system in accordance with the EU 2020 strategy.

Thus concerning the literature, it stems essentially from the field of planning. Indeed authors are often known as spatial planners or academicians specialised in the planning sector. By the diversity of sources this research tries to be the most heterogeneous possible. However as it can be noticed, the literature comes essentially from American or European authors. This literature review gives us a critical approach on the current food system, presents the concept

of food systems in order to define realistic food planning strategies resulting on sustainable food systems.

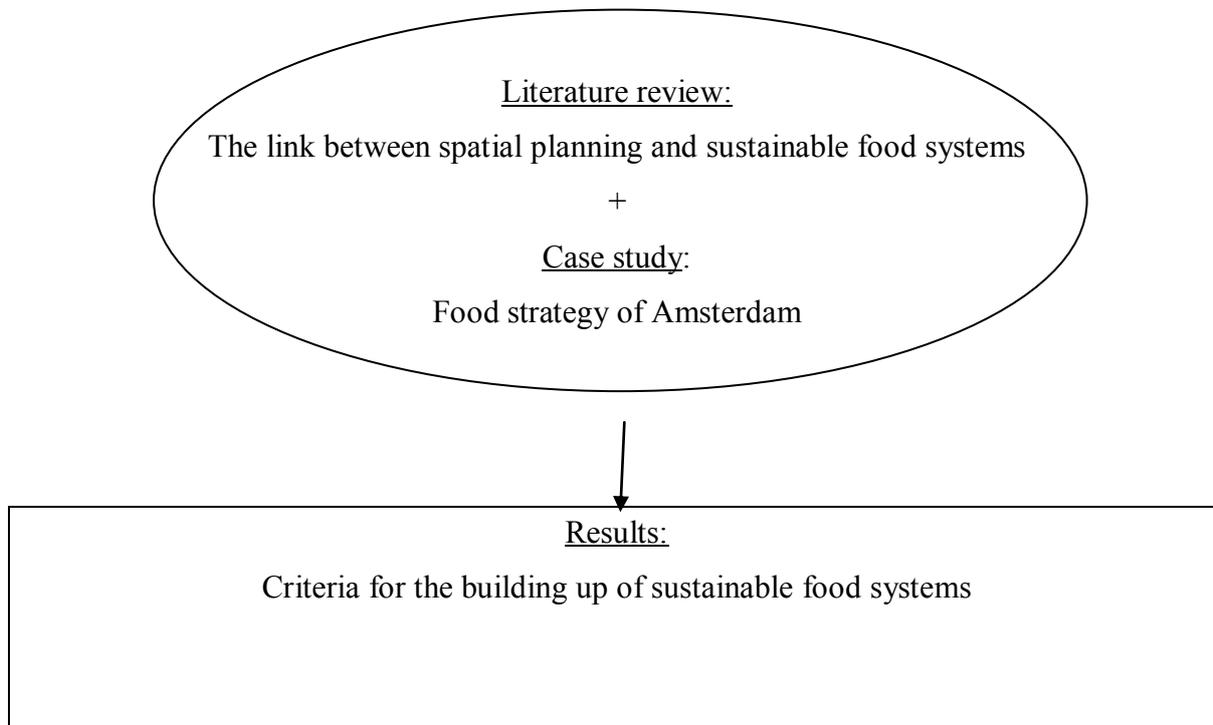
Yet, to establish these guidelines and strategies necessary for sustainable food systems, an analysis of a food strategy could give us some strong predictors. For this reason in analysing a food strategy as the one of Amsterdam, this research presents some relevant and important strategies for the building-up of sustainable food systems. The literature used here are official documents concerning the country and the city, and academic research on the food system of Amsterdam. On a whole, I would say that it permits to set the scene on a concrete food system. This study is important since they test the information and data obtained through the theoretical framework. This is an important part aiming to check the validity of the research in reinforcing or put into question the causal relationships between spatial planning strategies and sustainable food systems. Indeed the research that have been conducted allows us to have a better idea of the concept of food planning and gives us some important critics that have to be integrated by food planning strategies to support sustainable food systems. However they are academic information that have to be tested and agreed within real situations. This is an important component of the research that reinforces the reliability of the research.

3.2 *Research design*

A study on food spatial planning would naturally take on a holistic view, concretised by a systemic approach, so that it supplies a good overview of the origins, synergies and reciprocal connections between spatial planning strategies and regional food systems.

Thus the research model can be illustrated as following:

Figure 4: Research Model



As presented before to conduct that research and in order to support these hypotheses, the collection of data through literature analyses, and the study of the regional food strategy of Amsterdam will mainly be used. Thus these data will mainly be qualitative.

Moreover, the paradigm used will be realism since the method presented fits the subject matter in giving some guidelines and answer to the research questions presented below (1.3).

The research approach will clearly be based on a deductive approach, indeed the research lies on the findings of guidelines and strategies found through the research questions and which will be used to support sustainable food systems.

Concerning the external validity, as mentioned before, generalization is an important point in the research especially in the setting-up of patterns concerning the implementation of a sustainable food system thanks to an adequate definition of criteria for food planning. However it is clear that social and political factors would have to be addressed in order to create sustainable food systems.

4 REGIONAL FOOD STRATEGIES: THE EXAMPLE OF AMSTERDAM

4.1 *Public authorities: Essential triggers for the establishment of sustainable regional food systems*

As mentioned before, the role and the power of cities in the establishment of regional food systems have to be highlighted. Indeed, municipal governments are crucial actors in order to reach more fair and equal urban and regional economies (Sonnino, 2009) as demonstrated later in the case of Amsterdam. Thus, the author emphasizes that public authorities are much bigger economic actors concerning the provision and production of public goods and services, that it is commonly known. Indeed, cities can play the role of “counterweight” in front of national and international regulations prioritizing economic competitiveness over sustainability that result on the following situation. According to Sonnino (2009, p431), *“City-governments are trying to achieve what global and national policies have not been able to achieve by establishing new links and new relationships between different stages and actors of the food chain”*.

Many examples have been developed these last years and aim to support sustainable food systems. Indeed cities that became aware of their influence on the food system, adopted new and creative food strategies.

In Rome for instance, the city adopted policies aiming to introduce different types of alternative products in its public school canteens. The result of this strategy is that today more than 67% of the food served in these canteens is organic, 44% stems from bio-dedicated food chains, 26% are local, 14% fair trade and 2% comes from social cooperative employing socially excluded people (Sonnino, 2009). Moreover these policies encourage catering firms to adopt and obtain environmental certifications, to develop a sustainable transport system and finally to adopt socially responsible employment policies.

The example of the city of Beneficia in California is also interesting. Indeed, in the General Plan Update (2003), hunger, food bank use, and school lunches are identified as components of the social environment in the plan’s Community Health and Safety Chapter. These policies promote demonstration gardens at schools, churches, fire stations and other sites and it also considers utilizing vacant property for fruit and vegetable gardening. All these projects gave a better access to healthy food for underprivileged populations.

However public actors are not the only important actors in the establishment of food systems and sometimes partnerships with private actors can be highly benefic. For example the council on the Environment of New York City is a private citizens' organisation supporting the New Farmer Development Project⁴ and established in 2000. This project aims to educate, identify and support immigrants in the city with agricultural experience to become local producers and establish small farms in the region. The program provides training, opportunities to manage demonstration farms, access to New York City's farmers markets, small credit opportunities and support through technical assistance for new immigrant farmers. Since 2002, 130 immigrants have participated to this training and 16 individuals started their own family farm business (Pothukuchi, 2009). This initiative clearly helps the integration of new arrival on the society while preserving their traditions.

One could think that these kind of strategies are only possible in developed countries because they have the financial capacities of supporting these initiatives, but the example of the capital of Tanzania, Dar es Salaam is also a proof that the development of such systems are also possible and efficient in less developed countries. Indeed, Dar es Salaam's was to implement small retail stores in the suburbs of the city (Halweil & Nierenberg, 2007). Moreover the city is above all famous for its promotion of urban agriculture systems. Indeed, 60% of the milk sold in the city is produced in the city itself (Lee Smith & Prain, 2006) and around the $\frac{3}{4}$ of the urban population breed livestock (Halweil & Nierenberg, 2007). Moreover the planning policies of the city are acting with farmers on training and assistance programmes in order to legalize activities of food sellers and help to introduce mobile stalls in order to enhance food access for urban inhabitants and consequently avoid traffic congestion.

It is clear that these examples are very inspiring and for this reason a more detailed analysis of a food system as Amsterdam is of crucial importance in this research.

4.2 The food system of Amsterdam

4.2.1 The Dutch food strategy

The Netherlands is a European country with 16 603 400 citizens (Statistics the Netherlands, 2010) and 41 526 km² which means a density of 400.3 habitants per km². This high density' country is also one of the richest countries in the world. Indeed, its GINI rate (measuring inequalities of wealth distribution) in 2006 was very low (30.9) and its HDI (Human

⁴ Official website: <http://www.cenyc.org/greenmarket/nfdp>

Development Index) which measures human development as education, life expectancy and standard of living) in 2009 was very high (0.964) (United Nations, 2009).

The Dutch economy is based on strong agricultural exports. Indeed, even though the Netherlands is a small country, it is the third worldwide agricultural exporter, behind the United States and France, and the first in the EU (Pinckaers, 2007). The Netherlands exports a quarter of all world tomatoes, and one-third of all world peppers and cucumbers (Pinckaers, 2007). This strategy required high production and yields and the use of many fertilizers and intensive agriculture techniques resulting on high pollution problems in the country. Indeed, for a country which emphasised so much on environmental protection, it is chocking to notice that: *“Looking at the change in agro-ecosystem quality and quantity, agro-biodiversity decreases a factor 2.9 since 1950. In simple terms this means that the abundance of characteristic wild species is on average 34% of their abundance around 1950.”* (Ten Brink, 2001, p3). Water, air and soil pollution are also an alarming issue in the Netherlands since the sky over the Netherlands is among the most polluted in the world (Friends of the Earth, 2010). However this intensive agriculture strategy probably enables that food security in the country is high, indeed the average daily per capita calorie supply in 1999 (kilocalories) reached 3 243 in the Netherlands, 3 230 in Europe and 2 808 in the world (EarthTrends, 2003). However since 2000 the situation is changing. Indeed, the most recent preliminary figures from the government's Bureau for Social and Cultural Planning indicates that at least 11% of the Dutch population, or between 700 000 and 800 000 households, lived in poverty in 2004, after the figure had declined steadily in the late 1990s to a low of 10.1% in 2000 (Deutsch, 2005).

In a nutshell, this brief presentation of the food situation of the country underscores two main challenges that have to be overcome by the Netherlands: The most important one is the fight against pollution resulting from agricultural food production and high population density, and the second one concerns the worrying “new” trend of poverty affecting food security among the Dutch society.

In the face of this situation, it is interesting to see what food planning strategy has been adopted in the Netherlands. Thus concerning the Dutch food planning strategy, it clearly lies on partnerships and the cooperation between economic, civil, governmental and the associative sectors. According to the Dutch Minister Gerda Verburg, *“food sustainability can only be achieved if everyone contributes according to their respective roles, whether producers, consumers, industrialists, scientists or politicians”* (Vermeulen, 2010). Thus it is the Ministry of Agriculture, Nature and Food Quality (LNV) which is in charge for the

management of the food chain and addresses the questions of food production, transportation of livestock and food safety in order to respond to the social trend focusing attention on different concerns as health safety, product quality, animal welfare, environment and traditional methods as well as social justice. The Ministry of Housing, Spatial Planning and the Environment is in charge of the issue of food system planning. Moreover many other ministries are part of the strategy as the Ministry of Health, Welfare and Sport trying to introduce health concerns in the food strategy. Moreover with the participation of the Ministry of Economic affairs, they will analyze sustainability standards throughout the food system. As mentioned by Vermeulen (2010), “*All these initiatives confirm the importance of an integral, region-wide approach in which sustainability requirements are the priority*”. Moreover other actors are involved in this strategy as farmers and growers, suppliers, the processing industry, retail, hotels and catering, civil society organizations, consumers and international players. The role of the national government clearly shows that “*the national government regards itself as one of the actors in this field and rightly concludes that in an articulate society the various parties will fulfil their responsibilities*”. Therefore the national government plays the role of coordinator between the different ministries and actors in the field of food.

Furthermore as mentioned by the Dutch planner Vermeulen (2010), “*sustainable food requires more than a socio-cultural shift; at least as important is a shift within institutions and systems, their administrative and legal structures and possible financial arrangements*” and the National government is the adequate and legitimate authority to achieve this goal.

To achieve these various goals, the Dutch government adopted a timetable of 15 years in which the following initiatives presented in the following table will be taken:

Table 2: The Dutch Proeftuin strategy

Goals	Programs
<p>Stimulation of sustainable innovations in the agrifood chain</p> <ul style="list-style-type: none"> - Stimulate technical innovations - Build new collaborations - Strength links with stakeholders - Facilitate new and sustainable market segments 	<ul style="list-style-type: none"> - <i>Platform for sustainability of food</i> aiming to increase sustainable production and consumption ways in establishing concrete plans to enable specific chains. The members of the platform debate about production and consumption issues (animal welfare, organic food, etc.) - <i>Sustainability of production</i>: The goal is to promote innovation and cooperation for an integrated approach for sustainability in developing biotechnologies, adopting higher phytosanitary requirements, etc. Research and studies on system innovations and system interventions are required. Innovations funding for sustainable food, in which the Food Valley will a significant role are encouraged. - <i>Food wastage</i>: The aim is to reduce food wastage by 20% by 2015 through compost, biomass and animal feeds. - <i>Government as consumer</i>: The government must show the example and therefore adopt sustainable criteria in its policies. Ministry’s canteens should be furnished with 100% sustainable range of food. - <i>Transition to sustainable food systems</i>: Developing dialogues between relevant parties in the chain and civil society organizations in order to find sustainable initiatives within the inter-departmental program on sustainable food systems between the ministries of Agriculture, Nature and Food Quality (LNV), Housing Spatial Planning and the environment (VROM) and the Development Cooperation (OS). Programs as “<i>Biodiversity, Food and Meat</i>” should be encouraged, cooperation between partners in the chain should be promoted and a greater transparency in the food chain should be assured through cooperation between government, partners and consumers. Incentive funding for networks of innovative businesses and civil society organisations should be supported.

<p>Enable Dutch consumers to buy sustainable and healthy food</p> <ul style="list-style-type: none"> - Give sufficient information to consumers - Make consumers aware of the consequences of their choices - To give consumers sufficient options to choose from - To encourage consumers to consume more vegetables, to pay more attention to the seasonal assortment and to eat healthily 	<ul style="list-style-type: none"> - <i>Eye for quality</i>: It aims to use instruments and campaigns for specific target groups. The government develops instruments to raise awareness in collaboration with civil society, nature and environmental organisations. Local business strategies involving consumers as well as socially responsible enterprises are also supported by the government. - <i>Know what you are eating and make a choice</i>: This objective aims to provide reliable information about food safety in facilitating the accessibility of information for consumers. Therefore harmonisation within all the labels and standards systems needs to be done in order to help consumers to understand this information. The nutrition centre, mass media campaigns and instruments as the <i>ConsuWijzer</i> service are crucial in order to provide the adequate information instruments and to search for new ways to inform consumers. Private initiatives should also be encouraged in order to support private reliable information such as certifications. Funding for green education, health and sustainability increasing the knowledge of future producers and consumers are an important tool that should be supported as well as campaigns to raise awareness among consumers. Clear information stimulating initiatives in society which focus attention on sustainable food are also essential. - Periodic publication of a “<i>Food balance</i>” tracking changes in consumer purchasing behaviours. - <i>Measurement is knowledge</i>: Development of instruments used to measure improvements in the sustainability of the food system as certificates, quality marks and logos. One instrument has already been developed the “<i>Food Balance</i>” (Voedselbalans). These instruments will be revised periodically to observe behaviour and perception changes and to re-adjust food policies.
<p>Raising position on the international agenda</p> <ul style="list-style-type: none"> - Integrate concrete international sustainability standards - Fight for high international standards and ambitions in the field of animal welfare, environment, food safety and working conditions. - Form coalitions and alliances with other EU states 	<p><i>Setting the agenda in the EU</i>: Reform of the CAP must support innovative and sustainable enterprises; encourage further development of quality products and improvements in the sustainability of chains. The EU must also strengthen the position of consumers and champion further development of food safety policy. The EU should also improve sustainability on the world trade system. One of the objectives is to enable cooperation through a leading group of states with similar ambitions for the sustainability of food chains (France, UK, Germany, Scandinavian countries).</p> <p>- „<i>Setting the global agenda</i>’ strategy aims to continue the objectives of the policy document “<i>Agriculture, Rural activities and Food security</i>” and to be active in the UN Commission on Sustainable development in working bilaterally with suitable countries and support initiatives such as the round tables on sustainable soy, palm oil and cocoa in integrating stakeholders in these initiatives. Other initiatives aim to reinforce the research on locally applicable innovations improving productivity. Special attention is given to small farmers with limited access to land. The private sector must take action in order to protect the environment. The government has also to play a central role defining the framework and investing in public services and institutions</p> <p>The stimulation of local and regional markets so that producers and consumers are linked together and market incentives can serve as a guide for economic development. Food security and transfer mechanisms for developing countries are thereby of crucial importance.</p>

Source: “*The Proeftuin Amsterdam: Towards a Metropolitan Food Strategy*”, DRO, Vermeulen, 2010

4.2.2 The food strategy of Amsterdam

Concerning the Dutch capital it is important to remind that “*Amsterdam has from time immemorial been a mercantile city, in which the trade in foodstuffs has always been prominent*” (Vermeulen, 2010). Indeed, the coastal situation made the open character of the city which guaranteed international streams of food. Furthermore the region represented a reliable connection with the hinterland via the Rhine canal, and the rail and road network was developed. Thus Amsterdam became a strong role in the processing of food products. Moreover in March 2010 the Amsterdam Port Congress was devoted to food underscoring one more time the region’s strategic position concerning food trade. Its strategic role influences the building of sustainable food chains.

Today the 219 km² city counts 762 057 inhabitants. This represents a density around 4 459/km² (City of Amsterdam, 2006). Amsterdam is a powerful magnet for people from around the globe legal and illegal immigrants which make the city’s people from some 185 different nationalities (Amsterdam Tourism Information, 2007). In 2007 the annual listing of

the World's Best Cities to live in, Mercer Consulting ranked Amsterdam at number 13 based on political, social, economic and environmental factors, personal safety and health, education, transport and other public services (Amsterdam Tourism Information, 2007). However Amsterdam also has to face poverty, indeed in 2000 a quarter of the households on a low income lived in one of the four major cities, especially in Rotterdam and Amsterdam (Social and cultural planning office, 2004). Moreover according to the CBS and its Regional Income Survey the rate of households with a low income in 2000 reached more than 22% of the total population of Amsterdam (Social and cultural planning office, 2004). Furthermore people needing food help in the city has constantly decreased since 2000.

Concerning the food habits of the city, a study has been conducted in 2009 in the Neighbourhood 5 in Amsterdam in order to determine the food habits of the citizens⁵. Thus, over 46 participants 24 had a too high Body Mass Index and the study underscore the rare consumption of bread, vegetables and dairy products as opposed to meat. The second part of the study showed that the supply of organic and regional products are low in that region and that consumers based their purchase choices on costs rather than on health concerns, however they would change their food habits if organic and regional food was cheaper (Vermeulen, 2010). Although it is not possible to generalize the funding on the entire city, this research provided good indication on the dietary patterns of many middle class people living in Amsterdam.

According to the documents analysed, I would define the regional food strategy of Amsterdam as an initiative that aims to connect spaces and actors of the food chain within a perimeter of 50 km around the city. This strategy has been highly inspired by the one of London (Vermeulen, 2010). The initiative of building a food system strategy was first a political wish aiming to reach the following main objectives:

- Provide a naturally-grown and preferably local food for everybody while minimizing environmental impacts;
- Promote healthy eating habits;
- Achieve a balance between the demands of urban consumers and the supply of food products from the surrounding countryside;
- Preserve the surrounding agricultural landscapes of Amsterdam (Wiskerke, 2009, p381).

Different actors have been involved in that strategy, one of the most important is the Food Centre Amsterdam which recently celebrated its 75th birthday. Its key concern is to promote

⁵ Research paper on Slottermeer: The healthy city on district

sustainable and healthy food in Amsterdam. Therefore it supports the creation of a program named *Proeftuin Amsterdam* aiming to encourage existing and new initiatives as well as partnerships between public and private bodies. This strategy was carried out by the City of Amsterdam’s Physical Planning Department (DRO) because of its particular ability of joining city and region. The main objectives are (Vermeulen, 2010):

- To connect the city and the surrounding countryside;
- To make the food chain more sustainable;
- To underscore the health-related and qualitative aspects of food;
- To reinforce knowledge networks as regional, national and international scales;
- To employ food as a catalyst for social cohesion;

To reach this goal many different projects have been adopted as the availability of naturally produced and local food in schools, hospitals and municipal canteens as well as in local day markets as well as the preservation of the agriculture in the immediate surroundings of the city (as the city of Aleme). Indeed, the city of Amsterdam supports regional networking events in order to bring together private parties from the city and its environs through the development of commercial ties as supporting that:

- Every primary school to have access to a school working garden;
- Simplify regulations for retail and day markets for local food;
- The reduction of food distance and cleaner transport use;
- The inclusion of program in schools promoting healthy life style and eating habits (Wiskerke, 2009, p381).

These actions highly show the wish of Amsterdam city to encourage consumers and producers to adopt a more ecological system and therefore specifically actions are taken as shown by the table:

Table 3: The Proeftuin Amsterdam strategy

Strategies	Projects	Objectives	Actors involved
Connecting the city and the surrounding countryside	Strengthen coalitions between municipalities	- Collaborations with other surrounding cities and regions	- The Municipality of Zaanstad, - The Province of North Holland and the Green Heart
	Farm education in and around Amsterdam - They are a permanent circle of 15 farms around Amsterdam - About 600 classes will have taken part in a farm visit by the end of 2011 - The farmers are paid for this activities and this salary can represent a realistic fee	- School classes spend a day on the farms in the vicinity of Amsterdam - School gardens - Tasting lessons - Teaching packs - The children help to muck out stables and cowshed, care for animals, work on the land, etc.	- School children, - Farmers, - Market gardeners, - The Amsterdam Nature and Environmental Education Centre (ANMEC) - The Nature and Environment Centre for the Zaan Region (NME Zaanstreek) - The North Holland Association for Environmental Education

			(IVN Noord-Holland)
	<p>“Amsterdam: Deliciously regional!”</p> <ul style="list-style-type: none"> - It aims to inspire as many dwellers as possible in order to savour the products from the city’s surrounding farms - It focuses on introducing organic farmers and market gardeners to the Amsterdam’s catering sector - 35 restaurants, 9 organic farmers and three farmers’ markets participated - 10 000 copies of the cycle map were distributed via 44 shops, 77 restaurants and about 350 knapsacks were given away 	<ul style="list-style-type: none"> - Development of a special cycle map to familiarize the public with the organic farmers and market gardeners in Amsterdam’s environs - The cycle map provides eco-friendly addresses: shops, restaurants, farms and farmers’ markets - Meeting between chefs, restaurant owners and organic farmers are organized 	<ul style="list-style-type: none"> - Van Eigen Erf (From One’s Own Plot) - Vriendelijke Keukens (Friendly Kitchens) - Proeftuin Amsterdam and VSBfonds
	<p>Regional produce from the Gardens of West</p> <ul style="list-style-type: none"> - On the morning of Sunday 27 september 2009, this project gathered 800 to 900 people 	<ul style="list-style-type: none"> - Public visit from several farmers and market gardeners by bike or on foot to gather products as milk, cereals, eggs and vegetables - Preparation of a regional community meal - Programs for children like milking or for adults like workshop about balcony gardening 	<ul style="list-style-type: none"> - The Gardens of West Project Organization - The Farm City Dream Association - Proeftuin Amsterdam - The innovation Network (InnovatieNetwerk)
	<p>Farmers’ markets</p>	<ul style="list-style-type: none"> - Bolstering the market for regional products within the city - Protect market place in which producers, wholesalers and consumers can meet as the Central Market Hall that is listed as a national monument 	<ul style="list-style-type: none"> - Slow food Amsterdam, - Pure Market, - District councils - Food centre of Amsterdam
<p>Making the food chain more sustainable</p>	<p>The Klarenbeek estate’s vegetable garden</p> <ul style="list-style-type: none"> - The garden is situated on the city’s outskirts on the eastern banks of the River Amstel - It focuses on care, recreation and sustainable landscape stewardship 	<ul style="list-style-type: none"> - The initiatives aims to run a vegetable garden with the assistance of care clients - The products which are mostly organic can be used at care facilities or be distributed to specialist food shops 	<ul style="list-style-type: none"> - Municipalities of Amsterdam and Diemen, - The Province of North Holland, - The Government Service for land and water management, - The Dutch state forestry service, - The district council for Amsterdam East/Watergraafsmeer and the Amstelland green zone recreation area
	<p>Professional education in the food chain</p>	<ul style="list-style-type: none"> - Creation of the “Food Lab” to search for innovative practice-driven training in food-related sectors and provide vocational training in Amsterdam 	<ul style="list-style-type: none"> - Educational institutions as colleges - Meeting point Amsterdam (MPA) - The ROCvA regional community college - Professional training institutions (VMBO and MBO)
<p>Underscoring the health-related and qualitative aspects of food</p>	<p>Lunch at primary school</p> <p>It is a citizen initiative managed by mothers which received a training from the Regional Community College of Amsterdam</p>	<ul style="list-style-type: none"> - Provide primary schools with background information about school lunches - Introduction of nutritionally balanced menus - The launch of the pilot scheme “<i>Time for food</i>” at Koggeschip primary school. It is a children’s restaurant where pupils eat twice a time per year during lunch - During the meal the children are told about the ingredients and the provenance and taste of the products 	<ul style="list-style-type: none"> - Amsterdam’s Municipal Health Service, Department of social development, Employment and social services department, the education sector, the Ministry of VROM, -The Amsterdam Circle of social sector enterprises, - The regional community college of Amsterdam - Nature Time and Table foundation - Koggeschip primary school The innovation network for green space and the agriculture cluster Greenwish - The work and social assistance service - Proeftuin Amsterdam

	<p>Healthy college canteens</p> <p>and</p> <p>Amsterdam's municipal canteens</p>	<ul style="list-style-type: none"> - To encourage college and secondary school canteens to serve healthy food - Every school and college canteen must offer healthy food options by 2014 - Enable students' initiatives to cook with a prize for the most delicious creation - To raise awareness among youngsters of the importance of nutritious food - Supply of sustainable products on hospitals, care homes and canteens for governmental offices 	<ul style="list-style-type: none"> - Municipal departments, district councils, - Rabobank, the Campina dairy company and the Colour Kitchen - The Netherlands nutrition centre, - NOVA college - The ROC ASA school
<p>Reinforcing knowledge networks at regional, national and international scales</p>	<p>"School gardens and more"</p> <ul style="list-style-type: none"> - Schools from every district participated in the project - The project focuses on food's origins and our perception of food - The children learn to prepare food, to cooperate with classmates and the way food taste 	<ul style="list-style-type: none"> - Education projects about nature and the environment - Children cookery lesson using fresh products harvested from the garden thanks to a mobile cookery lab - The ANMEC developed the booklet "Dat smaakt naar meer" providing many tips and activities that could be offered to school children and distributed in all schools - A vegetable or fruit growing competition is organized every year 	<ul style="list-style-type: none"> - The Amsterdam Nature and Environmental Education Centre (ANMEC) - Proeftuin Amsterdam - Schools
	<p>Research</p>	<ul style="list-style-type: none"> - Proeftuin Amsterdam commissioned studies from research institutions 	<ul style="list-style-type: none"> - Wageningen University, University of Amsterdam, - the Highschool can Amsterdam University of Applied Sciences
	<p>Amsterdam capital of taste in the context of the National tasting week</p>	<ul style="list-style-type: none"> - Garner and consolidate public support - To draw attention to regional and seasonal products with a sustainable provenance - Meal prepared from local products - Creation of a cycling route "The farm Outing" that tours the farms on the urban fringe 	<ul style="list-style-type: none"> - Ministry of Agriculture, - Nature and Food Quality, - Dutch Railways, - Catering companies and food enterprises and industries
	<p>Proeftuin Amsterdam promotes international exchanges and networks</p>	<ul style="list-style-type: none"> - Remains in contact with other Dutch municipalities and with other municipalities as London - Sharing of knowledge worldwide (New York, Boston or Berlin) - Be member of European association and producer organizations - Work with several European cities on an Interreg IV programme with the aim of developing sustainable food chains - Several presentations of the Proeftuin project in The Netherlands and abroad as The MorgenTomorrow International Urban Planning Congress of october 2009) 	<ul style="list-style-type: none"> - Proeftuin Amsterdam, - The Netherlands council for the rural areas, The Netherlands Rural Network, - The Peri-Urban Regions Platform Europe (PURPLE), - Food centre Amsterdam, - The association AlimenTerra, - the agri-food cluster at Wageningen University, - The Amsterdam public library, - The ministry of Housing, Spatial Planning and the Environment
<p>Employing food as a catalyst for social cohesion</p>	<p>Festival of 1001 Flavours in Amsterdam-Southeast</p> <ul style="list-style-type: none"> - It served as a meeting event for urban consumers and rural producers - It contributes to make a positive contribution to integration 	<ul style="list-style-type: none"> - To place the importance of tasty, healthy and sustainable food in a multicultural context including actors of different nationalities - Organization of activities as Eating with your neighbours as the Food Night in the Indische Buurt neighbourhood for instance - Organization of a Tasting Market at the Langerlust farm presenting a varied assortments of Dutch as well as foreign products - Several chefs prepared a multi-culinary dish that local residents from a whole range of cultural backgrounds has to savoured and judged 	<ul style="list-style-type: none"> - The Food Centre of Amsterdam, city's district councils - Media through posters, advertisements, flyers, the local television channel, national and local newspapers - VSBfonds - Proeftuin Amsterdam - Slow food Amsterdam - Local producers - The Green heart, beating heart (association for countryside and tourism ventures)

Source: "The Proeftuin Amsterdam: Towards a Metropolitan Food Strategy", DRO, Vermeulen, 2010

4.2.3 Lessons learnt

Concerning the Dutch food planning strategy, one could notice that in the Netherlands the main objective does not really include any social domestic measures, but it promotes more an integrated environmentally sustainable food system. This trend is illustrated by the participation of governmental bodies. Moreover the national strategy of the Netherlands clearly aims to include food systems into an innovative approach relying on an economic-based approach. Another goal is to promote healthy habits for consumers in order to fight against obesity and other related diseases. Thus the national strategy encourages consumers to buy healthy food. One more time the strategy is based on an economic objective which is to encourage consumption. The Netherlands adopt a more social approach concerning the setting-up of an international agenda comprising food quality issues, accessibility concerns and knowledge building or preservation. The case of the Netherlands is thus an example for an economic and health directed programs.

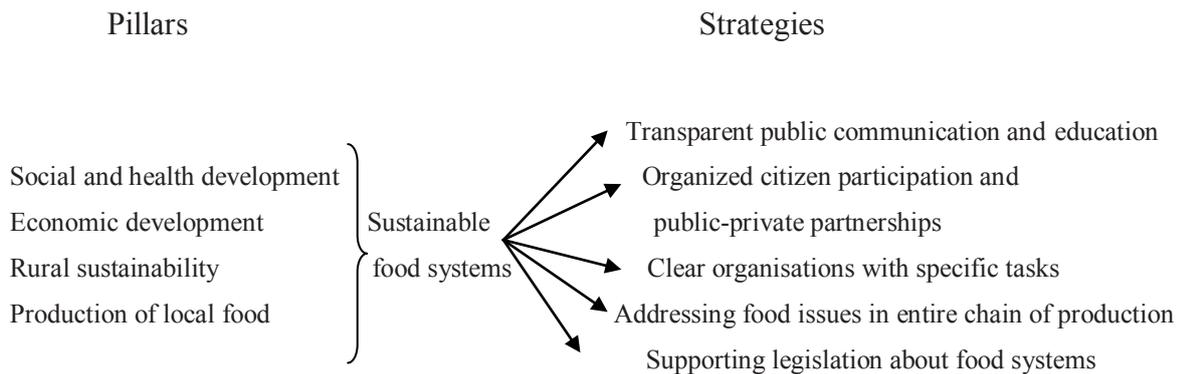
Concerning the case of the city Amsterdam, although many governmental actors are involved, they are working in collaboration with other associations, civil society organisations or private actors. Thus, the strategy doesn't first rest on governmental initiatives but on public and mutual pressures to create a collaborative and consensual system between the actors of the food chain as the connection of spaces, of food actors, of different levels of actions and of people (see table about the food strategy of Amsterdam). Indeed, as claimed by Betlem (1994), the Dutch institutional system rests more on integrative strategies, and consensus has been a characteristic of Dutch nature management. For these reasons I would qualify the food strategy from Amsterdam as a bottom-up strategy. The action of the government is essentially resulting of pressures from consumers and other actors. Indeed, the Dutch society is well organised and citizens' movements can be efficient, powerful and well structured especially concerning a subject aiming to protect health and environment.

Furthermore the objectives of the Amsterdam strategy traduce the concerns of the Dutch society. Obesity, health problems and pollution are the top priorities. Consequently education focuses on health concerns as school meals and organic way of producing are encouraged and supported. Social cohesion is also an important goal of the strategy in order to enhance social links and exchanges between citizens. To do so activities as public visits to farms, community gardens or regional community meals are part of the strategy.

4.3 Conclusion

One could summarize and schematize the results obtained through the example of Amsterdam as following:

Figure 5: Food system strategy of Amsterdam



Thus the study of the regional food strategy of Amsterdam showed first that the main priorities based on 4 pillars:

- 1- Social redynamisation
- 2- Economic development
- 3- Environmental and health protection
- 4- Production of local food and preservation of regional cultures

These 4 pillars can be organised in three guidelines:

- 1- Socio-economic factors: Priorities 1 and 2
- 2- Environmental factors: Priority 3
- 3- Cultural factors: Priority 4

To follow these guidelines and achieve these priorities, some “success factors” found and presented in the lessons-learnt of the example of Amsterdam have to be respected:

- 1- Transparent public communication and education;
- 2- Organised citizen participation and public private partnerships;
- 3- Clear organisation with specific tasks;
- 4- Addressing food in its entire chain of production;
- 5- Supporting legislation about food systems.

According to these “success factors”, one could divide planners’ roles in three strategies:

- 1- How to create a strong institutional support → Success factors 3 and 5;
- 2- How to make the food chain clear → Success factor 1;
- 3- How to create integrated food systems → Success factors 2 and 4

These results suit to the theoretical framework reflected before (see part 2.3). Indeed the European strategy for sustainable food and agricultural policies, and the research on the link between spatial planning and sustainable food systems follow the same aims.

Thus this will define our next part i.e. spatial planning strategies supporting sustainable food systems in Europe, and answer to the research question, i.e. “How spatial planning can support sustainable food systems in Europe”.

5 SPATIAL PLANNING STRATEGIES FOR SUSTAINABLE FOOD SYSTEMS

This part will be divided in two parts; the first presents the “form” of a sustainable food system and the second address the “substance” of a sustainable food system through the spatial planning approach. It is clear that spatial planners are the major actors of these strategies since they will have to adopt the spatial strategies defined below.

5.1 *The components for sustainable food systems*

As presented in the lessons-learned of the case of the regional food system of Amsterdam, a sustainable food system rests on 4 pillars (see figure before) that have to be integrated by food systems in order to be more sustainable.

As mentioned before, the food sector is currently dominated by private economic actors. For this reason, the economic concerns is here linked to the social one, since spatial planning has few influence on the economic development of the food sector but can influence the economic development and thence the social pillar.

5.1.1 **Respect of socio-economic concerns**

Concerning social concerns, food system planning must act to **promote equity and social integrity** in integrating food security concerns into community goals or in supporting food systems that are socially equitable and economically just. Indeed, one has to remind that the definition of the concept of food security is reached when “*all residents have access at all times to affordable, high-quality food through conventional sources and through means that are environmentally, economically and socially sustainable*” (Pothukuchi & Kaufman, 2000, p8). Food planning is therefore the only sector which can implement specific production strategies and tools to achieve food security. Better access to food sources, social programs or other facilities that help to reduce food issues for low income households, collect maps and data inventorying food insecurity zones, develop development plans in order to encourage urban agricultural projects as in Amsterdam (part 4.2.2) and the use of brown fields for food production, or encourage the development of partnerships between food producers and business districts that would include fresh food convenience stores are initiatives that should be supported.

To do so, food planners are required to **develop partnerships with social organisations** as community-based food associations, food banks, community kitchen, city health department

and other social departments in order to support the creation of food help programmes. This strategy was adopted by The Netherlands state as presented in part 4.2.1; Indeed planners can help to connect producers and social actors. In this manner a common socio-economic strategy can be build and this could also support the creation of jobs.

Moreover as it is the case in Amsterdam food planning must also develop partnerships with trade and economic partners, such as private companies. Indeed sustainable and locals way to produce food is nowadays a marketing strategy to attract clients and therefore both parts (i.e. private sector and food planning) can benefit from such a partnership.

Finally, through land use transportation, economic development planning and regulatory measures food system planning should **encourage social and territorial cohesion**. Planners should work closely with farm and food worker organisations, they should establish assessments about work conditions, prepare rural comprehensive plans that address spatial and economics needs of the low-income households and encourage fair trade policies for instance.

5.1.2 Support environmental sustainability in the food chain

Supporting a better access to food as presented in the literature review before is necessary, but this food has to be healthy. Thus, planners could also **fight against non healthy food** sources in mapping the organic or sustainable producers as presented by the case of Amsterdam (part 4.2.2). On the other hand, they could help to the development of grocery stores provisioned by these organic farms and offering healthy food through mapping and information campaign towards consumers.

A healthy food system also means a healthy environment. As stressed out by the Dutch food planner M. Vermeulen (personal interview, April 2010) and as presented by the example of Amsterdam, food systems should support **ecologic way of producing** and control in order to decrease the presence of chemicals in food. The use of labels for instance could be a useful tool to adopt sustainable way of production and inform consumers of the environmental and social implication of what they are consuming.

Furthermore as mentioned in the literature review, food planning can **support the conservation of regional agricultural** land and wilderness species. Moreover food planners should include environmental concerns in their plans which promote air, soil or water protection and also which promote biodiversity, habitats and ecosystems. To do so, planners have to **develop partnerships and cooperation with the scientific community**.

Furthermore, planners could use their role of habitation planners in order to develop community gardens or urban agriculture projects through special zoning provisions for residential development for instance and enhance agricultural biodiversity. The examples such as the Tanzanian city of Dar es Salaam cited in the literature review are here very pertinent since they can serve as model for the establishment of such an initiative.

Finally food system planning **could also act in the energy and waste sector**. Indeed, besides the pollution effects of fossil fuel they also became expensive, thus regional food planning should encourage the production of renewable energy in conducting energy audits in order to figure out first the current production of biofuel or other energies produced thanks to the agricultural production sector, and also the potential of the region in the production of energy. Concerning waste management, planners could also conduct waste audits and then **explore possibilities related to recycling food** during the production process (composting, bio-fuel development, etc.). To achieve these goals, planners should work in collaboration with renewable energy firms, scientists or environmental organisms, and food producers. Together they can also **put pressure on politicians in order to facilitate and accelerate the integration of renewable energy** in the entire food system. This can also represent a profitable economic alternative for food producers.

5.1.3 Preserve diverse traditional food cultures

As presented in the literature review (part 2.1.3), regional systems have a cultural meaning for many citizens. Indeed the region in which someone is living is also a component of his own identity. Indeed concerning cultural concerns, food planning should support food producers to **preserve and sustain diverse traditional food cultures as it is the case** in the regional food strategy of Amsterdam.

The issue of cultural diversity has also to be taken into account. As presented in the literature review and according to Max-Neef (1989), fundamental human needs are universal, but their satisfiers vary according to culture, ecologies, region and historical conditions. Thus planners have also an important role to play in the **research of cultural consumers' habits** in order to build a food system which is able to satisfy their needs. The creation of local institutions and social organisations are therefore essential, indeed these bodies are the expression of cultural diversity. In front of a more and more globalised world, it can be difficult for consumers to conserve their food habits. Thus, regional food planning can play several roles. First they have to **strengthen and protect regional, native and ethnic food cultures**. Therefore planners they have to study food habits with other sociologists or anthropologists of each region and then

establish plans that support locally based efforts to sustain food traditions for production, preparation and also consumption. Planners need thus to **identify, collect and document knowledge about these traditions**. But they also have to identify the current trends, threats and impacts of different sectors, policies or situations on food cultures in order to be able to overcome these issues. The case of the Tohono O’odham Nation Community Food system in Arizona mentioned in the literature review (part 2.2.2) is a relevant and inspiring illustration to promote food traditions and healthy food habits.

Furthermore, as mentioned in the literature review and supported by Redwood (2006) “*there is an urgent need for action research linking generation of knowledge and its field implementation*”. Therefore, planners must be the link between generations and **encourage intergenerational communication**. Moreover they have to play a role of “cultural keeper”. It means motivating populations of different generations in order to exchange their knowledge. The protection of this more traditional knowledge is essential in order to sustain and implement a sustainable food system.

5.1.4 Summary table

The criteria that have to be integrated by food system planning to reach sustainability are summarized in the following table:

Table 4: Guidelines for sustainable food systems and concrete illustrations

Main strategies	Objectives	Concrete illustrations
SOCIO-ECONOMIC CONCERNS	Ensuring availability and accessibility to adequate and various food sources	Mapping food needs, food productions places, food distribution networks, etc.
		Put pressure on politicians to promote food access for all
		Mapping organic farms and see which healthy food stores sell these organic products
	Promoting equity and social integrity	Working with social and public organizations as food banks
		Support solidarity between low income households, between generations, etc.
ENVIRONMENTAL CONCERNS	Sustaining natural environment	Inform the population about the importance of a qualitative healthy diet
		Promotion of the marking-out of products through the support to labelling initiatives for instance
		Campaign for organic, sustainable food production
		Develop partnerships with transport and

		environmental planners and professionals as well as scientists or biologists
		Integrate agricultural conservation strategies in their plans
CULTURAL CONCERNS	Preserve food cultural diversity	Contact producers and make them aware of the importance of agricultural biodiversity and of the economic interests of diversification
		Collect data and interview producers and consumers to know more about past and present food habits according
		Strengthen and protect regional, native and ethnic food cultures
		Encourage intergenerational communication in organising exchanges between the old and young population
	Encourage cultural exchanges	Encourage intercultural communication in enabling exchanges between producers of different cultural origins

5.2 *Strategies for sustainable food systems*

To be sustainable food systems must include the social, environmental, economic and cultural pillars presented in the part before. These components formed the so-called “form” of a sustainable food system.

However to achieve sustainability in the food sector, adequate strategies have to be adopted such as found before through the case of Amsterdam (part 4.2.3) and this will constitute the so-called “substance” of a sustainable food system.

5.2.1 **Make the food chain more transparent**

As cited in the lessons learnt of the example of Amsterdam, there is a real need for **transparent public communication and education** on the goals and strategies of food planning towards consumers and producers. Indeed it is important to make consumers aware of the challenges that have to be overcome through education and transparent communication strategies in cooperation with food producers. Planners can therefore play a role of coordinator between these actors and help to organise meetings and events aiming to improve the communication process between consumers and producers.

Moreover, **organized citizen participation and multiple private-public partnerships** are highly needed. Indeed as demonstrated in the presentation of the food sector (part 2), many

actors are involved, and to create a logical strategy these actors must communicate and be linked. This requires an independent actor linking private and public actors. Thus food planners seem to be the most adequate independent actor.

In an interview of the Dutch food planner: M. Vermeulen, he claimed out that the challenges that need to be overcome by food planning in order to build a sustainable food system is first to *“understand agriculture and the agricultural policies and integrate these in urban policies and development;”* (April 2010). Thus in order to fulfill this condition, the criterion as it also has been several presented in the presentation of the food strategy of Amsterdam through the creation of the “food lab” (4.2.2) is about **knowledge building**. Indeed more information concerning the complex current food chain system (Sonnino, 2009) is needed. According to Pothukuchi and Kaufman (2000, p7) *“One of the principal activities of planners is to collect, compile, analyze and interpret data on important community issues, to guide future public and private investments”*. Training center such as the Farm education projects in Amsterdam (part 4.2) are inspiring and efficient tools.

Moreover consumers have and want to know how their food is produced. Tim Lang (2009) highlights the importance of **“food democracy”**. It means giving the possibility for consumers to know what they eat and to change their environment. However, all local products are not necessary healthy and sustainable. Consumers must also know how to make the differences between a sustainable product, a local product and a non-sustainable product, or a healthy and non-healthy product and therefore education and communication are essential. To do so transparency is essential in both systems because this lack of transparency is a common feature of the entire globalised food system. Spatial planners acting in the food sector must be the guardant of this transparency in putting pressure on private actors, and public regulations in order to defend producers and consumers.

Moreover as promoted by the food strategy of Amsterdam (Amsterdam Tourism Information, 2009) in its willingness of linking consumers and farms, an adequate **public communication** strategy is necessary. Planners should play an important role in the process of communication in order to control communication processes about the construction of meanings concerning food systems. Planners have thus a relevant role to play in the evolution of actors’ perception that can lead to a change of behaviour and therefore support new food systems production strategies and more sustainable ones. They should be an interface with media, food movements, standard regulations, control systems, and consumers. To do so, planners have also to work with marketing actors to spread a new paradigm for food production and give

alternative meanings to food (Brunori, 2007). What is more according to Pothukuchi (2009), in order to make food systems more attractive for consumers, it should always place emphasis on the beneficial effect it has on health since (p365), *“health-related arguments are visceral and persuasive, and have received significant attention from local policymakers”*. Thus, health argument will encourage private stakeholders as food companies to participate to this project in order to improve their public image (Personal interview of L. Peemoeller, Berlin, March 2010) as demonstrated by the growing participation of Kellogg’s foundation in the American local food system for instance.

In addition, food systems activities would be arguably more effective if their **beneficial effects on the local economic** are emphasized too. Thus local governments which are asked to do more with less (Pothukuchi, 2009) would be more interested in these planning projects thanks to the various challenges it can help to overcome as presented before. Spatial planners should thus make campaign for the economic benefits for the local governments in order to include food as an issue in urban and regional planning. Thus planners must assess the impact of planning policies in analyzing how land use policies, transportation, neighbourhood, social, cultural and environmental policies impact on the food system (Pothukuchi & Kaufman, 2000).

Moreover **researches** in the academic and practical fields as surveys or results assessments have to be conducted which would be used to build community debates, research and policy decisions. The partnership that the city of Amsterdam built with the University of Wageningen for instance, can be a relevant example. The data obtained by these research partnerships should be available and used by city policymakers, staff and community members, especially for successful example such as Amsterdam (Pothukuchi, 2009).

What’s more, in order to build-up sustainable food systems, one requires data and information on past and current projects, on foreign projects but also on the situation of other sectors. Sonnino (2009, p 433) states that planners can *“support knowledge building processes at the municipal level by providing data and in-depth case studies that’s that help policy-makers to understand the functioning of the urban food system, it potential and limitations”*. Indeed, because of the recent interests of social scientists and planners in the sector of food, there are still few information and data on it. While according to Sonnino (2009, p 433) *“by providing comparative data on urban food strategies, social scientists have a unique contribution to make to the creation of global policy network that can disseminate best practice, helping to support capacity-building in food insecure areas of the world”*. This global policy network

should **support intra- and international knowledge exchange** processes between cities and regions in order to learn from each other and create an internationally network and strengthen the impact of food system planning. Thus the creation and support to universities, schools or training centre such as in Amsterdam (part 3.3) as well as other research centres should be active in that strategy.

5.2.2 Create a strong institutional support

First, **social programs and supports** as subsidising food and other initiatives such as presented in the Dutch strategy (part 3.2) should be encouraged. Thus, *“If lasting results are to be attained, it is essential to put in place institutions, policies and programs which address the often complex underlying causes of vulnerability to hunger, malnutrition and food insecurity”* (FAO, 2006). Food planning strategies should support the creation of social programs and develop and propose other initiatives.

The support of legislation securing the right to food through political pressures from the citizens are naturally also of crucial relevance. Here spatial planners must research on the international and national legal texts that exist in order to defend food producers and consequently consumers. Indeed produce food is a right defended by many international texts and initiatives (Treaty on Phytogenetic Resources for Food and Agriculture of 2005 for instance). Planners must here play a role of advisor towards food producers in giving them legal advices for instance.

Furthermore in order to root food systems in the society, there is a need for **institutionalisation** through city plans supporting food planning (Pothukuchi, 2009) as presented in the literature review. Moreover in collaboration with other sectors, as economic development, public health, sustainable agriculture, social justice, planners should develop and advocate policies in order to influence the politic and regulatory system. As seen in the example of Amsterdam, legislative support is essential. These spatial planning strategies should develop legislative platform advocated by planners in order to develop action-guides that would build a support for the legislative platform. Thus a kind of policy guide would provide practical guide for the profession (Pothukuchi, 2009).

Another strategy aiming to develop food systems concerns the **spatial planning skills** of planners. Indeed it is important that planners participate in state food council’s organisations to provide a more systematic focus on a state-wide food issues and actions. The providing of maps and other documents is here of crucial importance. Moreover planners should develop

organisation where food planners could regroup themselves to discuss about food issues. They must also be able to evaluate the real impacts (negative or positive) of food systems. Thus, measurement units for the life cycle assessments would be tools which should be developed thanks to planners in order to know how to build a sustainable food strategy. Indeed, building food mapping research (Pothukuchi & Kaufman, 2004) and the development of logistic solutions to food supply and access problem such as food hubs (Morley et al, 2008) the design, implementation and evaluation of criteria and methods for assessing and monitoring the sustainability performance, design and construction of new residential areas in which urban agriculture is spatially and socially integrated (Pothukuchi, 2004) are some of the crucial tools that food planners must use.

Finally before addressing the conditions necessary for sustainability presented before and support the current strategies, it is very important to **fight against corruption** in the very strategic food sector even if developed countries. Indeed as presented in the literature review, there is a lack of transparency in the food sector (part 2.1.1). For instance, farmers' organizations often accused the local government to prevent the promotion of local food systems, because they have economic and political interests with main food firms (Lima, 2009). Food planners must then support independent legal advices and supports to local producers and put pressure on politicians to make the food system transparent and non-corrupted.

5.2.3 Build integrated food systems

Addressing food issues in its entire chain of production and consumption i.e. from the producers to the end-consumers is the base of the efficiency of integrated food systems.

According to Pothukuchi (2009, p350-351), "*planning field's professional identity as centrally linked to the delivery of basic needs of communities, and to the forging of systematic connections to various sectors to achieve community goals*". Thus, as presented in the literature review and as it is the case in the example of Amsterdam, food planning should be addressed in a holistic approach including and linking production, processing, distribution, retailing, consumption and the management of waste for instance. In addition to this holistic condition, Pothukuchi (2009) adds that the food system has to be immediately or in a progressive way comprehensive. The only actors enabling such a holistic approach are food planners.

Moreover in order to build comprehensive systems, one needs to strength the power of civil society. According to Calame (2003), the inclusion of citizens in the policy-making makes the

policy process more legitimate, effective and efficient. Thus, food planners should develop participatory decision-making approaches. There planners must play a role of **mediator between the government, producers and the society**. Exchanges with public bodies are important to put pressure on the politics and make the institutional and politic system evolve and also to create mutual strategies based on a common goal. Therefore planners must be the link between governmental bodies and other sectors. Locally elected bodies are of crucial importance to operate some legislative changes in order to strength the role of civil society such as demonstrated by the Dutch example (part 3.3). A planner should be the neutral agent who guides these debates.

Third, as the strategies of Amsterdam showed, planners have to define and **develop independent pathways from below**. Indeed, local organisations with deep roots in traditional arrangements play various roles in local natural resource management and represent local voices to external agencies (Esman and Uphoff, 1984). Thus, planners must help these communities to organize themselves as in helping farmers to map their farms, villages, urban environment etc. as the strategy “Deliciously regional” in Amsterdam aims to do.

Besides the integration of all food chain actors in the decision-process food planners have also a large role to play in the comprehensive **knowledge building of scientific, technical, economic, cultural or social matters**. For these reasons, planners have to create partnerships between professionals. Indeed in a more scientific and technical approach, planners must develop partnerships with food professions as engineers or food scientists in order to fully understand these complex mechanisms and be able then to create a sustainable integrated food system. Indeed, according to Schönhart (2008), the (controversial) effects of local food systems on the economic and the environmental sectors show the importance of scientific assessments, public information and the need for more investigations. Planners can play the role of gathering of multidisciplinary information and knowledge thanks to multidisciplinary partnerships.

As showed through the literature review and as claimed by Peelmoeller in the interview conducted and as also stated by Pothukuchi & Kaufman (1999), food systems are inextricably linked to the other community systems, including transport, land use and economic development. Thus, planners have to **identify the interconnections between food production and other planning sectors** in order to identify sectors in which data may need to be collected. This strategy could include more scientific geographic planners in order to create Geographic Information System, environmental planners that would examine the

impact of local food production on ecosystems, neighbourhood planners, planners who could evaluate the impact of local food systems on the economic development and encourage the implementation of food businesses for instance. Thus, food planners have also to play a role of “bridge builders” between planners.

Finally, in order to set-up a comprehensive food system planning, one also has to **link places and geographical places**. The example of Amsterdam and its strategy to link urban consumers and rural producers is therefore also relevant. Thus, planners should develop urban, rural and regional economic development plans which would encourage urban and rural relationships in order to decrease the gap between urban and rural areas as mentioned before.

To link geographical places also means to link countries. Thus concerning the European context, initiatives aiming to increase partnerships between regions of different countries can contribute to reinforce food systems. Thus Amsterdam is a member of PURPLE⁶ (Peri-Urban Regions Platform Europe). PURPLE works to connect places in Europe in order to create networks and create links. This organisation could also be the starting point of transboundary food systems for instance.

5.2.4 Summary table

This table gives an overview of the strategy that food planning should develop:

Table 5: Strategies for sustainable food systems and concrete illustrations

Main strategies	Objectives	Concrete illustrations
Support the development of transparent food systems	Knowledge building	Training for famers or food professionals to make the food process more transparent; Organization of farms visits in school; Integrate food issues in university courses on spatial planning, etc.
		Partnerships with media or public campaigns
		Research, surveys, analyses of data, comparative analyses on the agricultural situation, the food cultures, etc.
	Put pressure on private actors to respect sustainable specifications	
	Political support	Defend consumers’ interests inside the politician areas

⁶ Website PURPLE consulted the 1ST october 2011: <http://www.purple-eu.org/>

		Defend environmental friendly policies on public events (workshops, markets, etc.)
	Spatial planning skills	Development of logistic solutions
		Evaluate and communicate the planning impacts of policies
Creating holistic and comprehensive food systems	Integration of all food actors in the decision process	Support meetings with consumers, producers, associations, politicians etc.
		Helping rural and urban food actors through mapping and spatial organizational strategies
	Develop exchanges between food actors	Support of food councils and debate places
		Develop links between scientific, technical, economic and social actors
	Develop exchanges with other planning sectors	Develop partnerships with other planners (transport, environment, housing, etc.)
	Develop geographical links	Develop urban – rural regional development plans
	Integrating the civil society in the food strategy	Support the creation of food communities
Defending the interests of consumers		
Create strong institutional support	Support of legislation	Create collaboration and networks with other legislators
		Develop legislative platforms, develop policy guide
Put pressure on politicians to fight against corruption in the food sector for instance		
	Support of food sustainable policies	Create city plans supporting food production systems

5.3 *Conclusion*

Concerning the form, as defined by the literature review and concluded through the case study of Amsterdam, sustainable food systems must integrate the economic, social, environmental

and cultural pillars. Indeed food systems rest on the respect of these components essential for the building of fairer systems.

However concerning the substance of sustainable food systems, specific strategies are required to support these sustainable food systems as the support of transparent food systems, the creation of integrated food systems and the building of strong institutional support.

Although this strategy is efficient in the context of Amsterdam, these criteria seem broad enough to be efficient in other regional food strategies in Europe.

6 CONCLUSIONS

6.1 *Conclusions*

The research objective was to show that spatial planning can help to achieve more sustainable food systems.

The research showed that spatial planning can have beneficial impacts on the food system and thence reach sustainability (part 2).

To support this hypothesis the presentation of the regional food strategy of Amsterdam comes to test the hypothesis stating that spatial planning can support sustainable food systems.

Thus it appears that to be sustainable these spatial planning strategies must be sustainable and respect environmental, social, economic and cultural concerns. Moreover to be efficient, food systems must be comprehensive, transparent and institutionalised as demonstrated thanks to the model case of Amsterdam (part 4).

How spatial planning can support sustainable food system in Europe? In integrating environmental, cultural, social and economic components and in adopting strategies aiming to create comprehensive, transparent and institutionalised food system (part 5).

Thus the main findings of this research are first that food planning can support sustainable food systems. However although food systems can be various and different depending on the country, the culture, the environment and the social network, the criteria found can be adopted and adapted by European countries. In fact the common point of all these systems is that food is a very important value for all societies (Brunori, 2007) and therefore the impacts of sustainable food systems can be huge. The second is to understand that spatial planning and planners can play a large panel of roles to support sustainable food systems.

6.2 *Research boundaries*

First, it is important to underscore that each society will place a different emphasize on the roles described above. Cultural, historic, moral and other sociologic factors will define the priority for each of this criterion. Indeed, as claimed out by Forsyth (2003), arguments, actions and even sciences are naturally biased by interests, personal perspectives and assumptions. In order to be fully capable of the realisation of sustainable food systems, it is important to take these considerations into account.

Moreover the concept of food system being quite new, it is evolving rapidly. Indeed, it has to be highlighted that a main boundary of this research is that all the impacts of this system are not known and that consequently spatial planning strategies would have to evolve.

Finally the model case study cannot provide all the criteria for sustainable food systems. First because cultural, political, institutional or economic development can determine and influence the generalisation of the conditions found. Thus the role of spatial planners in each country has to be taken into account. Indeed as stated by Lima concerning food issues (2008, p3) *“Approaches to dealing with food security will differ according to historical backgrounds, economies, ecosystems, and social characteristics to create distinct understandings of food security”*. And second because in these case studies it is only a partial analyze which has been conducted. So the conditions found are not definitive and other criteria exist.

6.3 ***Further researches***

It is important to notice that for Schönhart (2008), the question is not to know if local food systems are good or not, the question is to know what the problems are, what are the possible solutions and what forms of local food systems can contribute to improve the solution. This last statement joins the research question of the research. Further researches on that topic are here needed. This also shows that planners should thus adopt a flexible attitude towards food systems and accept that some characteristics of mainstream food systems are sometimes better than local ones. Food planners should thus not be considered as local food planners but as general food planners including global and regional solutions in their strategies in order to reach their common objective: a more sustainable food system. In order to help them to make the good choice, comparison studies are therefore very relevant to see if these local strategies are still more sustainably efficient than global strategies. More of these analyses are nowadays required since according to Schönhart, research should focus more on the links and synergies between local and mainstream systems instead of isolated analysis. Comparison focusing on these two systems would therefore be relevant. These researches could thus improve the conditions for a sustainable food system found above and consequently help planners in their missions. To sum-up, it is important to highlight that food systems are not the opposite of globalisation, but another way (a more sustainable one) to deal with food.

Furthermore currently many projects and policies in the sector of food are not effective because there is a lack of willingness, coordination and of roles repartition (Lima, 2008).

Indeed who should be responsible for the setting of food systems: The politicians, the mayors, the citizens, the producers? On more time research on the repartition of roles is needed.

Moreover in the face of all the crises mentioned at the beginning of the research, the goals of food planning and of the setting-up of a comprehensive strategy should also tend to address emergency situations (Poppendieck, 2000). The building of local food reserves for instance is also an important tool to provide food security for communities. Planners should watch for an emergency plan and play a role of guarantor of food security in case of natural, economic, energy or even political events which could affect food security. This role has not been analysed yet, but relevant changes could be brought in the European context.

Planners could also have influence on the international scale. Indeed because the concept of food planning is quite new, its globalisation process has not been much studied yet. However concerning general trade, humanitarian aid, development assistance or other international actions promoting sustainable development, European planners could develop partnerships with other countries in order to help and assist them. Food planning strategies could as well support domestic policies in order to support and take international food issues into account in their policies. Thus, planners should offer their expertise for international NGO concerned by sustainable and local agriculture, education, health, clean water, energy production, rural development or concerning water supply issues. What's more food planning can help to reach self-reliant solutions in order to make poorer countries less dependent on richer countries' helps since the first goal of food system is also to make countries more food autonomous. Planners can also have a role to play in protecting human rights as farmers' rights, environmental justice or the right to food. Thus planners could also support initiatives assisting small-scale farm, women owned-farms or fight against children work in farms.

Finally planners could also support alternative movements such as the growing Fair Trade Towns movement⁷ for instance. This aims to develop fair trade cities encouraging the consumption of fair trade products on their public events, places and to encourage food selling in supermarkets for instance. Cities as Dublin, and other 400 cities in the world have already joint the movement.

⁷ Official website of The Fairtrade Foundation - Consulted online the 14th of July 2010:
http://www.fairtrade.org.uk/get_involved/campaigns/fairtrade_towns/default.aspx

6.4 *Further considerations*

Food spatial planners have few impacts on the food system if the political context is not favourable. Indeed they can put pressure on policy makers but without a real implication and willingness at a national level, planners cannot achieve their goals. The challenge now is to get politicians involved in the system. Indeed the political willingness as showed by the Dutch example, is probably the most important success factor of sustainable food systems. Thus, according to Rob Hopkins⁸ (2009) the question of food has also become of political relevance, and therefore new campaigners should focus their efforts on local food issues if they want to mobilise support.

Moreover it is clear that the more food systems are created, the more roles are discovered and attributed to planners. Their influences on this sector is therefore increasingly growing and this trend can result on a more active and systematic involvement in the food system by planners in the future. Thus food spatial planning strategies are of crucial importance in order to build-up a fairer society in the world and food is therefore a crucial and precious tool. Indeed food has to be considered as a solution and not anymore as an issue. There is a real change of paradigm that has to be taken into account.

The concept of food system planning has a promising future. Indeed its beneficial impacts on environment, social and economic development as well as on the protection of cultural values are more than necessary to change the current industrial food system into sustainable ones. To reach this goal, food systems must overcome many challenges as presented in this research, consequently the roles that planners can play are always broader and for these reasons the profession of food planners must be especially adaptive and the academics have to help them in conducting and exchanging researches.

To close this research, food planning has a great future. Indeed a more local production could really make a difference in the European context as pointed out by Wiskerke (2009, p382): *“Such [food] regional food strategies can be instrumental in meeting the challenges Europe will have to face with respect to changing global food markets and demographic developments”*.

⁸ Rob Hopkins is the founder of the transition towns movement

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- Interview of Peemoeller, Food spatial Planner in Chicago, March 2010, Berlin

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