

## Chapter 7. Summary

For this academic year the assignment of the Dutch Housing Graduation Studio is to determine the City of the future and especially Amsterdam. The city of the future could be determined by means of current affairs. What do cities need to be or become in order to solve a current social, physical or economical problem in the society.

I have chosen a topic for my graduation project based on a personal fascination and a topic that has started increasingly to attract attention during the past few years. This topic is food awareness.

Cities are attracting people increasingly because of the work opportunities, universities and wide range of facilities. It is estimated that the world population will grow up to 10 billion people by 2050 with the majority living in cities. In Europe 80% of the population will live in cities by that time. As more people will move into cities, the demand for food in cities will arise too. This means that somewhere else in the world natural landscapes have to be transformed into agriculture in order to feed us. Yet 73% of deforestation can be attributed to agriculture and deforestation is likely to continue with projected increases in food demand.

These landscapes does not only feed people but also animals, a third of the annual corn crop globally is used to feed animals to provide people with meat. This is considered not a efficient way of providing us with food (Steel, 2008). Carolyn Steel states in her book that nineteen million hectares of rainforest are lost every year to create new arable land, although at the same time an equivalent amount of existing arables is losing to salinization and erosion. Even though the produced food uses a great amount of fossil fuel and makes other costs, it is not valued.

Half the food produced in the USA is currently thrown away. At the same time people are not even managing to feed the planet properly, while a billion of us are obese, a further billion starve. In addition 80 percent of global trade in food now is controlled by just five multinational corporations which give them the power to completely control the food system.

UN Food and Agriculture Organization estimates that 70% more food need to be produced by 2050 to feed the expected 10 billion of world population.

That is equal to 1 bn tones more wheat, rice and other cereals and 200 more tones of beef and other livestock. This is a very difficult to achieve because most available farmland is already being farmed and in ways that decrease its productivity and lead to soil erosion and water wasting.

The population growth in cities demand more food to feed everyone. As cities became distance independent, it was no longer necessary to produce food in the close environments. Agricultural sites moved outside the city and over time it became possible to even import food from any place in the world. The space in the city was used for other developments and agriculture sites moved outside the city.

Today food is developed in a mass globalized system which causes a long distance between the production and people consuming it. The globalized food system separated food production from its consumers and therefore the relationship between people and their food is being lost. People do not really have any idea how and by who their food is produced and where it comes from. Supermarkets are one of the greatest examples of this distanced relationship between people and their food. In Amsterdam supermarkets have taken over the sale of food since almost thirty years ago.

The food production industry intensified and developed into a large scale production to meet the needs of the growing population in the cities. The population growth in cities goes hand in hand with its ecological footprint. The ecological footprint of cities is about the number of m<sup>2</sup> land needed to feed the city. Food is taking almost a third of the environmental footprint; food production has big environmental impact because of the high greenhouse gas emissions caused by production methods and the use of pesticides and infrastructure to transport the food. Although the Netherlands has globally the second biggest export of agricultural goods, the food system is not sustainable due to the above mentioned reasons.

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As mentioned before the aim of this thesis is not to solve this unsustainable global food system, but rather to make people aware of what is going on and how our food model has been transformed through decades. This will make people aware of where their food comes from, how it is produced and the big impacts the controlled food system has on the climate, their food and therefore their health and even their wallet. The aim is also to make citizens able to grow their own fruits and vegetables and not to be 100% dependent on the unsustainable world's food system. This is indirect a great step into changing our food model. This leads to the research question of this thesis which is:

How can the architecture of a residential building create an active way for people to get involved in the food system again?

In order to answer this question research studies have been made, including literature studies, plan analyses and site analysis.

When people who share the same interest and fascination about food awareness will live at the same residential building or in the same neighborhood, they can share their knowledge and build up an sustainable urban environment with a sustainable food system. Due to this people can relate much better to their food.

Food shapes our lives and did shape our cities in the past. Modern food production has damaged the balance of human existence. Nowadays few of us are conscious of the process of how food reaches our plates. Where the city in the preindustrial era was flowing with food and also physically shaped by food, our food system distanced us completely from the production of food. Citizens could see grains coming into the city through rivers, animals walking into cities and how food was sold on markets on streets, so that nobody living in a city like that could not be aware of where their food came from. This is lost with the advent of industrialization, which caused a big change in the system of feeding cities

After industrialization and advent of railways cities started to expand quickly and became large metropolitan areas. At the same time the agricultural industrial landscape in other parts of the world also started expanding in similar way. The railways made it possible to grow large amounts of grain because trains could then transport it to cities. This was the beginning of a big transformation of extraordinary landscapes which resulted in an massive global abundance of grain. Later this mass of grain was used to feed animals instead of grass. This became a new industrial model of how to create cheap beef on the basis of this massive grain production.

The research in this thesis have shown that our food system is a complex system which give the complete power to certain corporations and completely eliminate participation of the consumers. The actual producers of food, the farmers, don't have any relation with the consumers of food. They have to go through food corporations or supermarkets to reach the consumer, so that these business structures have all power to control the food system.

This power must be divided fairly between all the participant of the food system. More power has to go to the producers and consumers and less to the business corporation. Also producers and consumer should be able to meet and work together. This is already a trend that starts slowly to grow, for example in the Netherlands.

Herenboerderij is an initiative of a group farmers and consumer who work together. It is a sustainable, mixed company with the aim to produce healthy and tasty food for a good price. Their motivation is having more control over their food and to be able to trust that food is produced fairly, with respect for the farmer, the animals and nature. Each household pay monthly to the farmers on basis of how much food they want to receive. The farmers in return offer the whole year healthy, fresh and locally produced food to their customers. This is a great example of how people could get involved in food production again.

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There are four common types of urban agriculture, forest gardening is one of the urban agriculture types, it is a soil-bound and largely self-managing food forest. Allotment garden-style food growing is soil-based cultivation from ground level cultivation in full soil to raised beds, or in soil layers on rooftops. This type fits the image most people have of urban agriculture. Allotment-style production aims to deliver fresh vegetables directly to restaurants and individuals by combining smart cultivation schemes, making use of the small spaces and microclimates of the city. At the other hand there is controlled indoor substrate cultures such as hydroponics and aquaponics, with fresh produced food that is available the whole year.

The four types urban agriculture differ in their relation to the soil and the built environment, their relation with the essential flows of the city and the impact they have on public space socially and esthetically. Therefore they offer different benefits to the city and respond to different opportunities. These four types complement each other in the products and services they deliver, in their needs and requirements, and in the way they fulfill the spatial, socio-cultural and environmental needs of the city. They represent different values: from the importance of healthy soil to the need for affordable food production in sufficient quantities. Instead of choosing between these approaches, each should be embraced for its particular qualities and for the diversity that a combination of types provides

All these studies, including the plan analysis and site analysis led to the design brief. Allotment gardens is the type of urban agriculture that will be implemented in the architecture of the residential building. This is an active way to get people involved in growing and producing food. This will bring producers and consumers of food closer to each other. The inhabitants of this building are not only food consumers but also producers of food, at least for themselves. This residential building and its inhabitants could be regarded as an example or model for other residential buildings and citizens of an active way for engaging people with the food system again.