NeighbourFOOD

Raising food awareness in the future city

Dutch Housing Studio

By Ioanna Tzavella
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1. Introduction
   WHY is this topic relevant?

2. Research
   WHAT do I want to achieve with this project?

3. Project Design
   HOW can I achieve my goals through design?
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1. Introduction

**WHY** is this topic relevant?
[...] Apart from these global issues (of which there are more, like sustainability), there are also some local and national issues that factor into the development of our cities. Each country has its own set of local challenges, be it the availability of affordable housing, a growing gap between rich and poor, unemployment, climate change, the quality of inner cities, etcetera. The task of future architects is to provide sensible solutions in this incredibly complex force field.

(Handout AR3AD131 Fall 2017-2018)

Which challenges is Amsterdam going to face in the future?
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Personal fascination

- Overpopulation
- Climate change
- Co2 emissions
- Lack of raw materials

- Food supply
- Water management
- Waste management
- Renewable energy
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Personal fascination

- Overpopulation
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Personal fascination

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Problem statement

Overpopulation and food demand

The world’s population is expanding, thus food production must rise. By 2050 we will need to increase food production by 70%.

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Problem statement

Environmental footprint

Food production occupies almost 1/3 of the world’s environmental footprint!

- Global land area: 13.4 billion ha = 100%
- Global agricultural area: 5 billion ha = 37%
- Pasture: 3.7 billion ha = 70%
- Arable land: 1.4 billion ha = 30%
- Food and Feed: 1.29 billion ha = 27%
- Material use: 100 million ha = 2%
- Biofuels: 55 million ha = 1%

Source: http://biomassmagazine.com/articles/8183/european-bioplastics-releases-2016-market-forecast
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Problem statement

Awareness

People have lost their connection with the food that arrives in their table
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2. Research

**WHAT** do I want to achieve with this project?
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Project aim

Re-gain the lost connection of people and food by introducing urban agriculture in the city as a mean of raising awareness about food production and consumption.
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Project aim

1. Become aware
2. Become conscious
3. Create self-sustained neighbourhoods
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Project aims

1. Become aware
2. Become conscious
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Project aims

1. Become aware
2. Become conscious
3. Create self-sustained neighbourhoods

- Food education (food systems, food safety, marketing, etc.)
- Urban agriculture practices
- Change of diet
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Project aims

- BETTER FOOD: Access to fresh produce
- BETTER BODIES: Home-cooked, all day, every day
- BETTER COMMUNITY: Collective living under a common interest

Food production

Residents

Neighbourhood

Food-based activities

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Target group

- 55+
- Food fanatics
- Owners of allotment gardens
- Retired farmers
- A lot of free time
- Willing to share and pass knowledge to other people.
How can the architecture of a housing complex contribute in raising people’s awareness about food supply, inside the urban fabric of Amsterdam?
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Case studies

Source: HK Urban Rooftop, https://www.rooftoprepublic.com/
Source: Utrecht Tolsteeg, https://metroplex.nl/projecten/tolsteeg/
Source: Amsterdam Zuidpark Rooftop, http://zuidparkamsterdam.nl/
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Case studies

Source: Incredible Edible, https://www.incredible-edible-todmorden.co.uk/
Source: https://grist.org/article/food-washington-dc-common-good-city-farm/
Source: Incredible Edible, https://www.incredible-edible-todmorden.co.uk/
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Case studies

Source: From Your Own City, http://www.uitjeigenstad.nl/
Source: The People's Supermarket, http://now-here-this.timeout.com/2012/03/05/the-peoples-supermarket-is-saved/
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Urban agriculture projects & their Key Dynamics

- Social
The project creates or strengthens communities and social ties, and/or supports communication and cohesion.

- Economics
The project creates jobs, supports local economic activity and/or promotes a viable business model.

- Education
The project teaches food skills and promotes awareness about food, health and the environment.

- Environment
The activities are sustainable or beneficial to the environment in terms of nature, waste, energy, soil, water and air.

- Health
The projects provide affordable, nutritious, fresh and healthy food and support a positive public health agenda.

- Infrastructure
The projects contribute to the food infrastructure in terms of growing sites, transportation, community platforms and/or planning.

- Liveability
The projects create interactive spaces, help to reduce antisocial behaviour and provide urban amenities from cultural events and cafés to attractive and edible green space.

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Growing methods

CONNECTED WITH SURROUNDINGS

Forest gardening
- energy extensive
- knowledge intensive
- closed nutrient loop

Soil-based cultivation
- labour intensive
- re(use) of waste nutrient

Hydroponics
- capital intensive
- closed nutrient loop

Aquaponics
- energy intensive
- building integrated

ISOLATED FROM SURROUNDINGS

self-sufficiency

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Growing methods

Soil-based cultivation
Forest gardening
- Social: ++
- Environment: +
- Economic: -
- Education: +
- Livability: -

Greenhouse
- Social: -
- Environment: +
- Economic: +
- Education: -
- Livability: +

Building integrated cultivation
Roof gardens and greenhouses
- Social: +++
- Environment: +
- Economic: +
- Education: ++
- Livability: +

Vertical farming
- Social: -
- Environment: -
- Economic: +
- Education: +
- Livability: -
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Growing methods

In my project I want to include growing methods which can be integrated to the architecture of the building but also combine the key dynamics of social, education and efficiency as prior requirements.

Forest gardening
- Social: ++
- Environment: +
- Economic: -
- Education: +

Roof gardens and greenhouses
- Social: +++
- Environment: +
- Economic: +
- Education: ++

Vertical farming
- Social: -
- Environment: -
- Economic: +
- Education: +
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3. Project Design

**HOW** can I achieve my goals through design?
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Project location

Source: https://www.arcam.nl/winterlezing-1-stedenbouwkundig-patroon/lezing-1-luchtfoto-amsterdam/
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Project location

Location: Hoogte Kadijk 401

Source: https://www.arcam.nl/winterlezing-1-stedenbouwkundg-patroon/lezing-1-luchtfoto-amsterdam/
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Site analysis

Kadijken neighbourhood map Scale 1:2000
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Site analysis

- Currently on the plot Hoogte Kadijk 401, lies the former Office of the Food and Consumer Product Safety Authority.

- This building has been vacant for the last five years.

- Currently the building functions as a squat for people of the ‘Wij Zijn Hier’ community.

- Government is planning to remove the building and design affordable housing for immigrants and young people.

http://www.at5.nl/artikelen/166362/kantoorgebouw_hoogte_kadijk_omgebouwd_voor_statushouders
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Site analysis | Public transport

![Diagram showing public transport routes in the future city](image-url)
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Neighbourhood Amenities

- Supermarket
- Small grocery store
- Health and Hygiene (Hairdresser/drugstore/pharmacy/pedicure)
- Technical services (Bike shop/Workshop)
- Clothing store
- Other care functions
- Weekly Market

- Restaurant
- Café/Lunchrooms/Cafetaria
- Coffee shop (drugs)
- Theatre & Museums
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Urban Plan
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Building block emergence

The form of the building emerged from the traditional block which is evident in the area but another reason to do so was in order to create different levels of privacy and collectivity. The building follows the perimeter of the plot.

The street side of the building takes a more public character by creating a public plinth, to connect the building better with Sarphatistraat.

To create a connection with the water, the closed block opens up in that side.

The building façades are getting slanted a little in order to accentuate the view-lines from the street side.
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Urban Plan
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Building ensemble
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Building organisation
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Elevation | Southeast
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Elevation | Northwest
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Elevation | Northeast
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Elevation | Southwest
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Building Ensemble | Ground Level
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Building Ensemble | Public amenities

Central courtyard
- Space for weekly market
- Collective space for residents

Public plinth
- Community kitchen
- NeighbourFOOD info-centre
- Bio supermarket
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Building Section | A-A'

Roof gardens
Education, social & environment

Dwellings
Liveability & environment

Courtyard
Liveability & social
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Building Section | B-B'

Greenhouse
Education, & environment

Dwellings
Liveability & environment

Roof gardens
Education, social & environment

Public plinth
Education, social & environment

Courtyard
Liveability & social

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Collective roof garden
Collective growing buckets
Aeroponics greenhouse
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Building Ensemble | Ground floor level
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Dwelling floor-plan | 90m² apartment

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Building Ensemble | First Level
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Dwelling floor-plan | 72m² apartment
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Building Ensemble | Second Level
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Dwelling floor-plan | 63m² apartment
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Building Ensemble | Third Level
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Building Ensemble | Fourth Level
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Building Ensemble | Fifth Level
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Dwelling floor-plan | 45m² studio
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Dwelling floor-plan | 60m2 apartment (wheel-chair friendly)
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Dwelling floor-plan | 90m² apartment (wheel-chair friendly)
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Building construction system
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Building construction system
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Building construction system
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Horizontal Facade Fragment
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Detail | Growing bucket

- Multiplex boarding, 15mm
- Multiplex boarding, 15mm
- Multiplex boarding, 15mm
- Multiplex boarding, 15mm
- Substrate layer, 20mm
- Recycled plastic tiles
- Air cavity with vertical timber battens structure, 40mm
- Timber battens, 50x40mm
- Substrate layer, 20mm
- Waterprof membrane
- Coarse gravel, 230mm
- Drainage layer, 40mm
- Fine gravel, 70mm
- Earth, 300mm
- Multiplex boarding, 15mm
- Timber battens, 40x40mm
- Multiplex boarding, 15mm
- Multiplex voarding, 18mm
- PIR insulation, 80mm
- CLT floor element, 160mm
- Multiplex voarding, 18mm
- Horizontal timber battens, 28mm
- Multiplex voarding, 18mm
- Ceiling wooden cladding, 20mm

Scale 1:5
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Detail | Growing bucket

- timber construction bracket
- wooden cladding, 20mm
- horizontal timber battens, 28mm
- mutiplex voarding, 18mm
- PIR insulation, 80mm
- CL T floor element, 160mm
- PIR insulation, 80mm
- waterproof membrane
- air cavity with floor carrier system
- timber batten, 20mm
- wooden decking finish, 20mm
- mutiplex boarding, 18mm
- timber battens, 40x40mm
- mutiplex boarding, 18mm
- mutiplex boarding, 18mm
- mutiplex boarding, 18mm
- mutiplex boarding, 15mm
- timber battens, 50mm
- water drainage pipe
- mutiplex boarding, 15mm
- air cavity with vertical timber battens structure, 40mm
- substrate layer, 20mm
- recycled plastic tiles
- coarse gravel, 50mm
- drainage layer, 20mm
- fine gravel, 70mm
- earth, 85mm
- substrate layer, 20mm
- mutiplex voarding, 18mm
- timber battens, 50mm
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Climate | Rainwater system

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Climate | Ventilation system
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Climate | Heating system
Thank you!

Questions?