Food & the City
Urban agriculture from local initiatives to strategy

*Nico Tillie*, Landscape Architect, City of Rotterdam
Researcher: Cities as urban ecosystems, Delft University of Technology section of Landscape Architecture
There are a lot of initiatives from citizens, farmers and entrepreneurs!

Nu hier, Zomerhofstraat  City Farm het Lansingerland  Garden, Pompenburg

Schiebroek-Zuid (Vestia)  Zaaifestival Noordplein  Tussentuin, Gaffelstraat
Social projects en (semi-)commercial enterprises

City Farm Uit je Eigen Stad, Stadsinitiatief 2012

Farmers market (Oogstmarkt) Museumpark
And much more.....

Community Garden Tuin aan de Maas

Urban Farm Buytenhof Rhoon
Policy for stimulating urban agriculture in and around Rotterdam

Agenda for Sustainable Rotterdam, 2011:
“Municipality of Rotterdam stimulates urban agriculture and trade of regional food products”

Policy document Food & the City, 2012:
“Stimulating urban agriculture is about
– both intra-urban and peri-urban food production;
– both commercial and non-commercial food production;
– as well trade, processing and distribution of food.”
Rotterdam objectives and urban agriculture

Economy
- Increase value of property and areas
- More diversity in fresh food products
- More diversity in types of restaurants, shops and markets
- More jobs in food, greenkeeping and agricultural sectors

Social
- Stress reduction by greening urban areas
- Social cohesion by working together in community gardens
- Pulling more people with high education to the city
- Minimizing mismatch between offered jobs and workforce
- Attractive city by greening dense districts
- Bringing young people in contact with green

Ecology
- CO2-reduction and reducing traffic emissions by decreasing food miles
- Reduction costs of maintaining recreational areas
- Attractive city by greening dense districts
- Waste separation and reuse of biomass
- Improve biodiversity

- Absorbing water
- Cleaner air
- Conserve agricultural production
- Conserve landscapes
- More recycling
- More diversity in fresh food products
- More diversity in types of restaurants, shops and markets
- More jobs in food, greenkeeping and agricultural sectors
- Stress reduction by greening urban areas
- Social cohesion by working together in community gardens
- Minimizing mismatch between offered jobs and workforce
- Attractive city by greening dense districts
- Bringing young people in contact with green
- Reducing obesitas
- Improving health of citizens in deprived areas
- Improving health of citizens in deprived areas
- Reducing obesitas
- Bringing young people in contact with green

- Economic growth
- Improving distribution
- Economic opportunities and benefits for people
- Improving health
- Consumption of healthy food
- Better uses of some public spaces
- Strengthen food culture
- Empowerment
Focus on 3 main targets

1. Improve health of citizens
2. Reinforce sustainable economic development & benefits
3. Improve quality of public spaces

Bottom up and top down meet

- Building on Agenda for Sustainable Rotterdam
- Building on initiatives from citizens, entrepreneurs and social organizations
Improving health of citizens

Combination of more consumption of ‘real food’ and more physical exercise contributes to reduction of obesity and other health problems

Some actions of the municipality:
- Education programs on healthy food and gardening
- Stimulate creation of new community gardens in dense urban districts
- Set up network for schools that have kitchen gardens
Dante garden Lombardijen (Partners for Healthy Cities)
Improving quality of public spaces

Conservation of landscapes around the city and more attractive urban districts by making community gardens

Some actions of the municipality:
- Mapping empty lots in the city
- Leaflets about opportunities and rules for community gardens
- Stimulate roof top gardens & food production in city centre
- Yearly competition for best urban agriculture by citizens
Allotment gardens Heijplaat
Reinforcing sustainable economic development

More resilient economic basis, maintaining landscapes around the city; strengthen entrepreneurship

Some actions of the municipality
- Promotion of regional food products and farmers market
- Municipal land available for creating urban farms
- Ban planning rules that hinder initiatives for urban agriculture
- Organize network sessions with producers and customers
- More regional food products for municipal catering
- Organize regional trade missions (3x in 2013)
Products of Rotterdam region

- Milk, honey, meat
- Milk, meat
- Fish
- Vegetables, grapes (greenhouses)
- Vegetables (greenhouses and open air)
- Potatoes, fruits, vegetables, wines
- Fruits, vegetables, cereals
- Fruits and vegetables (greenhouses and open air)
- Potatoes, vegetables, fruits, cereals
Farmers market in Rotterdam
3 trade missions
Regional trade missions

- Connecting city to the peri-urban areas
- Connecting producers and potential consumers (shopkeepers, restaurants, traders, att. for seasonal menus)
- Shorten food chains
- Strengthen local economy
Regional Food Council

• New advisory board
• Connect producers, food industry, traders, health care, education and research
• Focus on awareness on food and business cases for projects
• Links to agrobusiness in the port and topsector agro
The influence of the current foodchain. Alternative routes are set up.

Consumers in the Netherlands spend about 10-15% of their income on food.
So far so good, but can we take this a step further

- How much food is/can actually be produced in the city region with urban agriculture
- Relate this to the existing system, how much food overall is produced, how much space per person, per food item etc.
- Many questions to be address
Space use

100 gram portion sizes

beef
cheese
pork
chicken
beef kroket
eggs
cricket kroket
Veggie burger
Cooked legumes

Survived

0.7 m²
0.6 m²
0.5 m²
0.4 m²
0.3 m²
0.3 m²
0.2 m²

GHG

0.8 kg CO₂
0.9 kg CO₂
0.5 kg CO₂
0.4 kg CO₂
0.2 kg CO₂
0.2 kg CO₂
0.1 kg CO₂

Saturated fats

6.0 gram
2.8 gram
0.5 gram
4.6 gram
3.0 gram
1.8 gram
1.4 gram
0.7 gram

Impact of replacing meat proteins with plant and insect proteins

Source: Nederland verbeelden planbureau voor de leefomgeving
## Data in Rotterdam region

**Surface of city region Rotterdam:** 80,000 ha

**City region:** 1.2 million inhabitants

### Landuse classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Percentage</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“green” (39%)</td>
<td></td>
<td>31,000</td>
</tr>
<tr>
<td>Wood lands</td>
<td></td>
<td>4000</td>
</tr>
<tr>
<td>Recreation areas</td>
<td></td>
<td>5000</td>
</tr>
<tr>
<td>Agricultural lands</td>
<td></td>
<td>22,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification</th>
<th>Percentage</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“built environment” (35 %)</td>
<td></td>
<td>28,000</td>
</tr>
<tr>
<td>Semi-built</td>
<td></td>
<td>4000</td>
</tr>
<tr>
<td>Traffic</td>
<td></td>
<td>4000</td>
</tr>
<tr>
<td>built</td>
<td></td>
<td>20,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification</th>
<th>Percentage</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water (26%)</td>
<td></td>
<td>21,000</td>
</tr>
<tr>
<td>Rivers connected to open sea</td>
<td></td>
<td>12,000</td>
</tr>
<tr>
<td>Water bodies in the city</td>
<td></td>
<td>9,000</td>
</tr>
</tbody>
</table>
demand for food in the region and demand for surface

11 m² per day per person for current diet.
9 m² per day per person for the 'healthy food directive 2012' diet,
7 m² per day per person for vegetarian diet

Total surface needed for omnivour's diet:
Region 294 720 ha per year
(is about 10 times the available green space in the region, 3.5 times the total space in the region!)

Consider shifts in diets, throwing away less, seasonal menu's, using the built environment, roofs, walls, and water...there still is a lot of potential, but also competition with renewable energy production in cities
Combine with other issues, like existing high rise needs to be retrofitted

Go from this to maybe.....
Low energy use, greenhouse production, wintergardens etc
There is a crucial role for the urban farming when thinking about resilient cities as urban ecosystems let's scale up!

*Figure Source: Urban agriculture potential Rotterdam / ruimte voor stadslandbouw in Rotterdam  www.pauldegraaf.eu*
Thank you for your attention!

Photo: speeldernis Rotterdam (play wilderness)