Food Tomorrow

Where history shows that cities originally grew around fertile cropland to sustain them, today this image is far fetched. Cities of the past would only expand if the farmers on the cropland were able to produce enough food to feed that growth. Cities of today however show an artificial growth in that respect and no longer respond to agriculture’s ability to sustain that growth. The results of this separation between farm and consumer is clearly indicated by the growing amount of people with a diet related health burden. Besides poverty, this trend indicates the lack of knowledge about food, also referred to as food ignorance. In the near future where 75 percent of the population will come to live in cities, this separation between the population and food production will grow even further. Above all, the expansion of arable land into valuable rain forests that are vital to the whole ecosystem of the planet is undesirable. Just like the food we consume, these ecosystems are sustaining human life on this planet and need to be protected for our own sake. To protect our future, cities will have to take responsibility in sustaining their own growth. So what will the city of tomorrow look like?

What if...?

What if a new cooperation between city and hinterland was born, where cities would no longer rely just on the hinterland for sustaining their population, but would share the burden of sustainable food production? This would save resources, transport kilometres, cut out the middle men and bring the people of the city in touch once again with the very food production that is sustaining them. This would encourage many to waste less and the government would be relieved of the burden to educate their citizens on food because the education would be right there in front of their homes. Resources would be easier to maintain within the food system and sustainable technology such as the soilless cultivation of plants using aquaponics, aeroponics or hydroponics would only use a fraction of the resources used in conventional agriculture. The reduced waste would be put to good use as much as possible. What are the advantages of this new cooperation and what limitations would be encountered?

- 200 apartments
- Hydroponic growth of dwarf fruit trees
- Aquaponic growth of food crops
- Fish Tower for aquaponic growth of food
- Distribution of food

As a future pilot project, this food machine derives its clarity to the public through the architecture where different volumes and shapes in the project represent different functions of the food production. This transparency through architecture symbolises the transparency in the future food chain.
The current world food industry is a very complex system. People die of starvation at the same time that others die from the results of overnourishment. Over a third of the food production is wasted and unsustainable farming practices are depleting the ground. A growing global population, changing dietary habits and competing users (farming for fuel and feed) are placing record demands on the consumption side.
2050

6.9 billion urban dwellers out of a world population of 9.2 billion

65% of food production is urbanized

25% food production countryside
Food production city 75%

38% grazing land with arable cropland enough space to raise livestock biologically

31% forest land no longer threatened by food production

The city of tomorrow is resistant to the upcoming shocks in the food industry. If any supplier from the hinterland is omitted, the city is still able to sustain its inhabitants with enough nutrition. In theory, the total food production of the city enables the city to be self-sustaining in nutrition. The city however still wants the hinterland to produce the goods that are not suitable for production inside the city, but is able to replace the nutritional value of these goods when needed.

31% other land such as desert land / ice and tundra. Cities are independant in food production and there are greenhouses in the desert
Solar Panels (3.160 m²)
Solar Collector (3.160 m²)

Storage of Cold and Heat

Rainwater Collection 3.942 m³ PER JAAR

Collection of grey and blackwater plus kitchenwaste
Vacuum toilets

Biomass digester (DESAR CONCEPT)

Food

Fertilizer

Biogas / CO₂

Solar Energy

Water

Excess Warmth Greenhouse

Storage of Cold and Heat

Rainwater Collection 12.860 M³ PER JAAR

1040 Hours / year

800mm / year

12.860 M³ PER JAAR