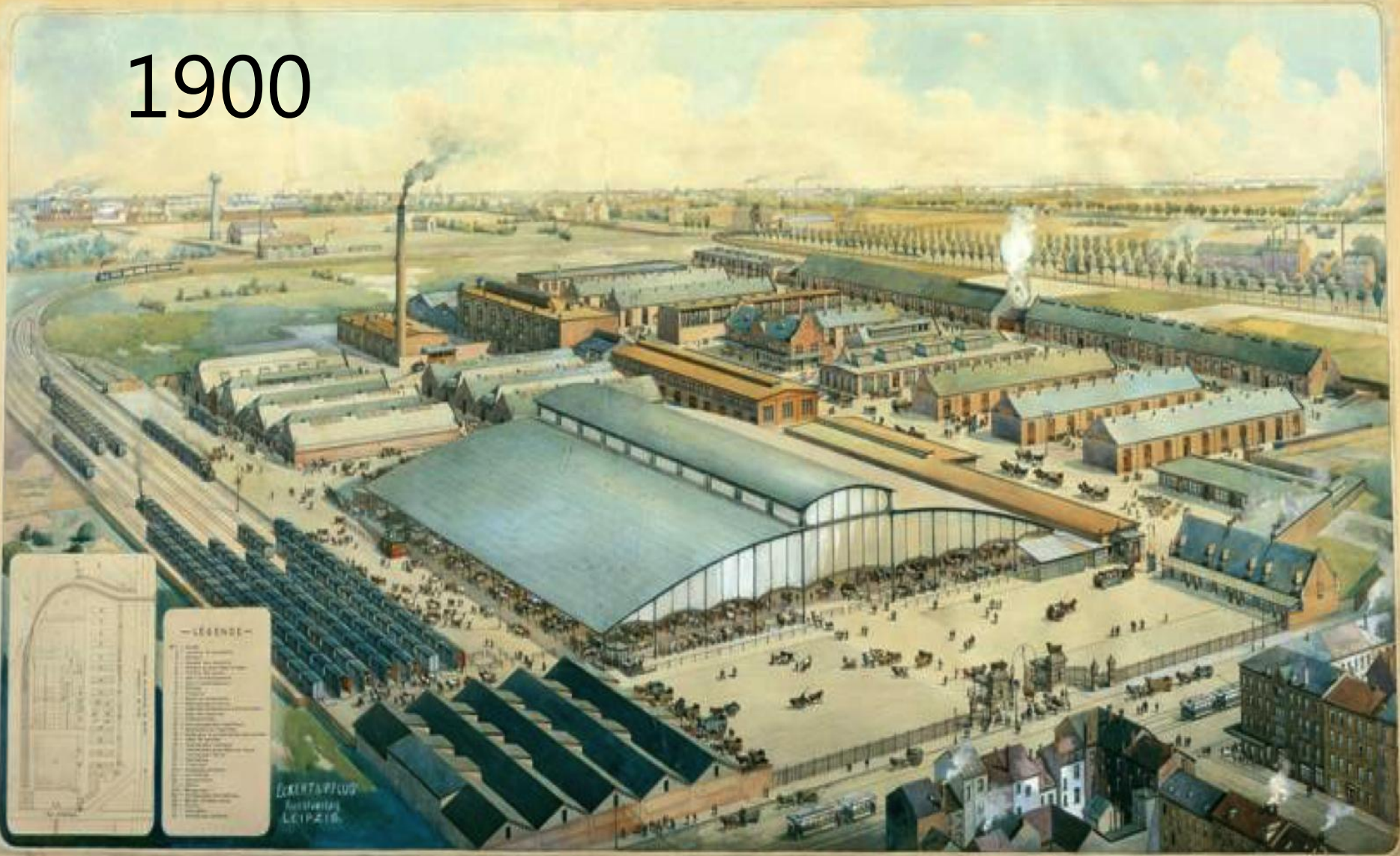


1900



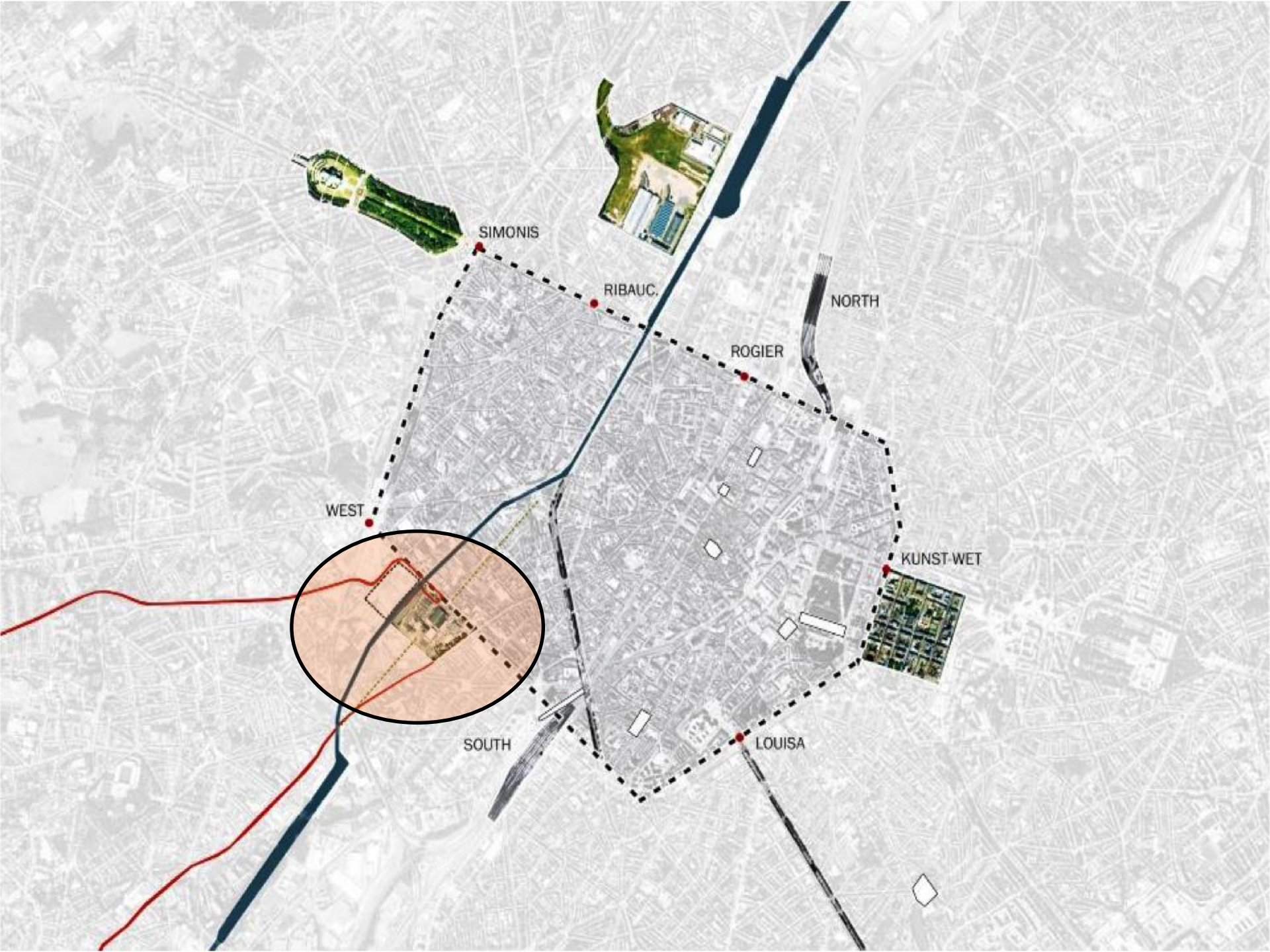
ABATTOIRS ET MARCHÉS D'ANDERLECHT-CUREGHEM.

2015



ABATTOIR Waar **Brussel** leeft
Où **Bruxelles** vit





SIMONIS

RIBAUC.

ROGIER

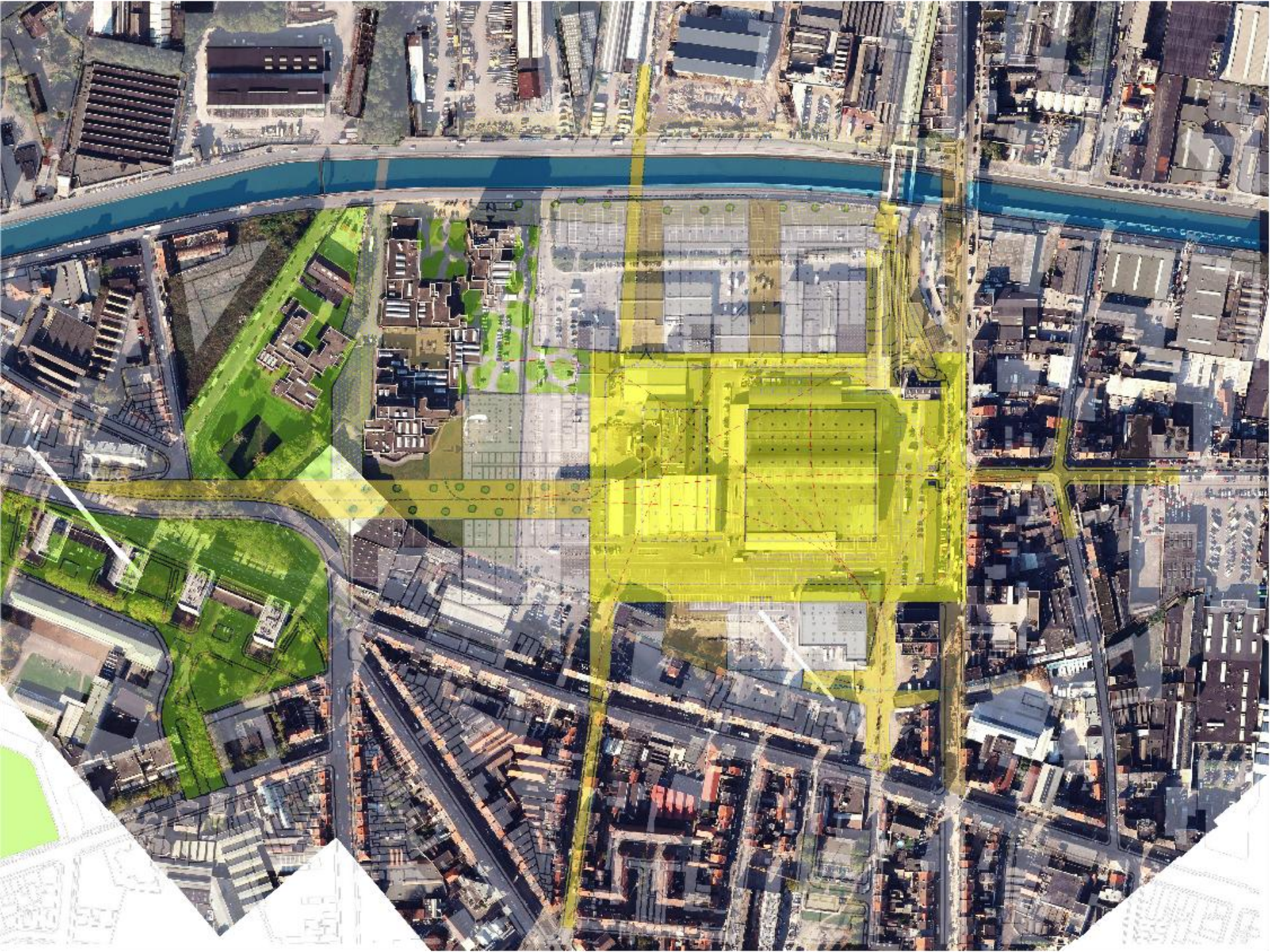
NORTH

WEST

KUNST-WET

SOUTH

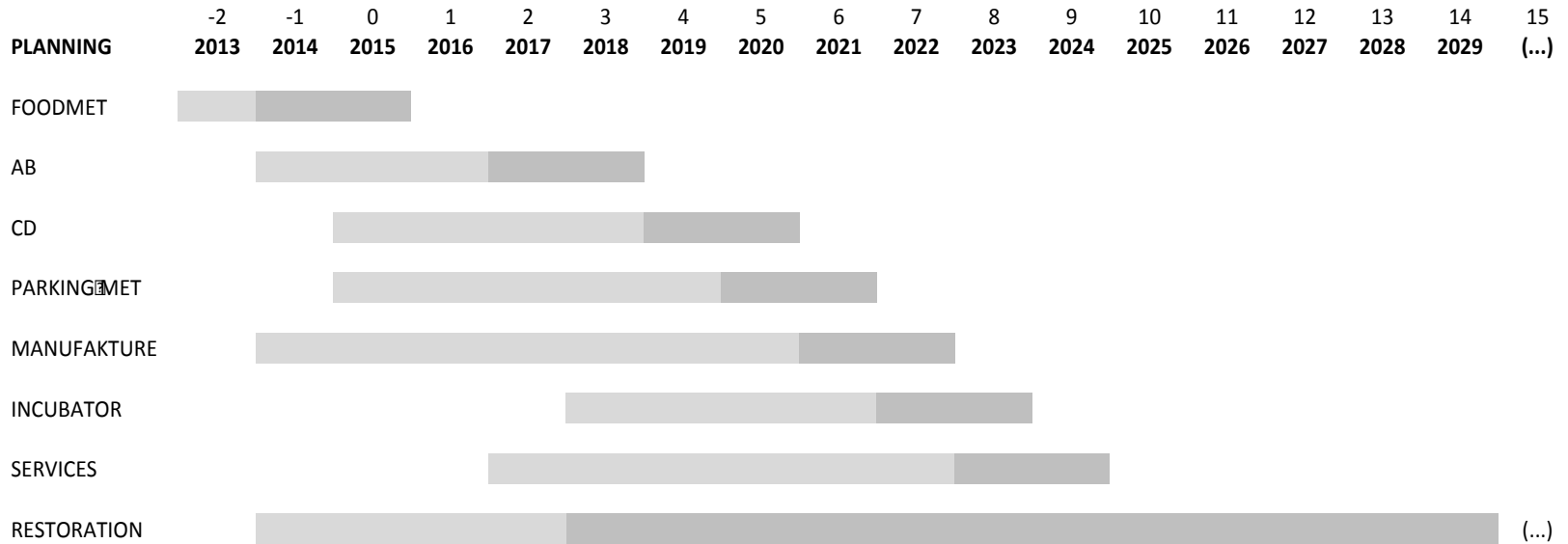
LOUISA



2030



ABATTOIR Waar Brussel leeft
où Bruxelles vit



TIMING

FINANCING



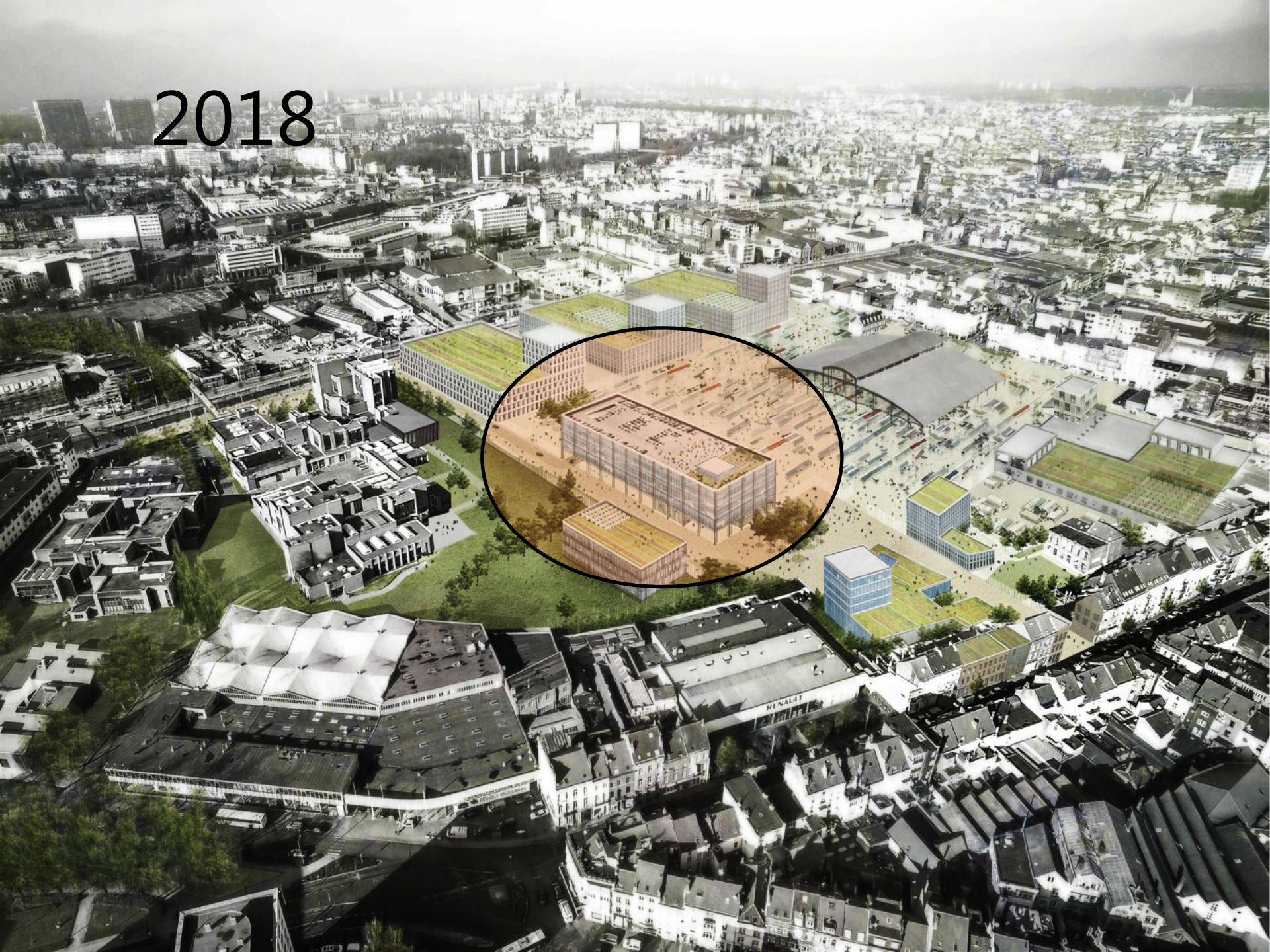
L'Europe et la Région investissent dans votre avenir
 Europa en het Gewest investeren in uw toekomst



2016

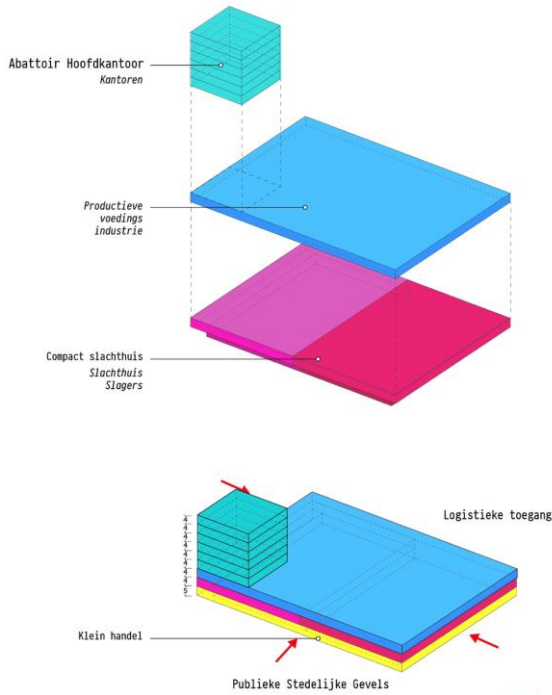


2018



2020

PROGRAMMATISCHE VOORSTELLING
Nieuw Voorstel Gebouw 2019



Planning, Construction & Operation of Aquaponic Farmsystems

September 2015

AQUAPONIC = AQUAculture + hydroPONIC



Megatrends & Vision

WHAT IS AT STAKE?

The food industry is challenged by an accelerating demand for healthy, local and traceable food led by increasingly conscious consumers demand.

THE BIG (BUILDING INTEGRATED GREENHOUSES) VISION

BIG supplies fresh, healthy food grow within an aquaponics system, integrated to urban and suburban points of sales.

What BIG does?

GREENHOUSE

DEVELOPER & OPERATOR



FOOD (FRUITS/VEGETABLES/FISH)

PRODUCER



FOOD (FRUITS/VEGETABLES/FISH)

SELLER



LARGE RETAILER



SPECIALITIES RETAILERS



CHEF RESTAURANT



COLLECTIVE RESTAURANT

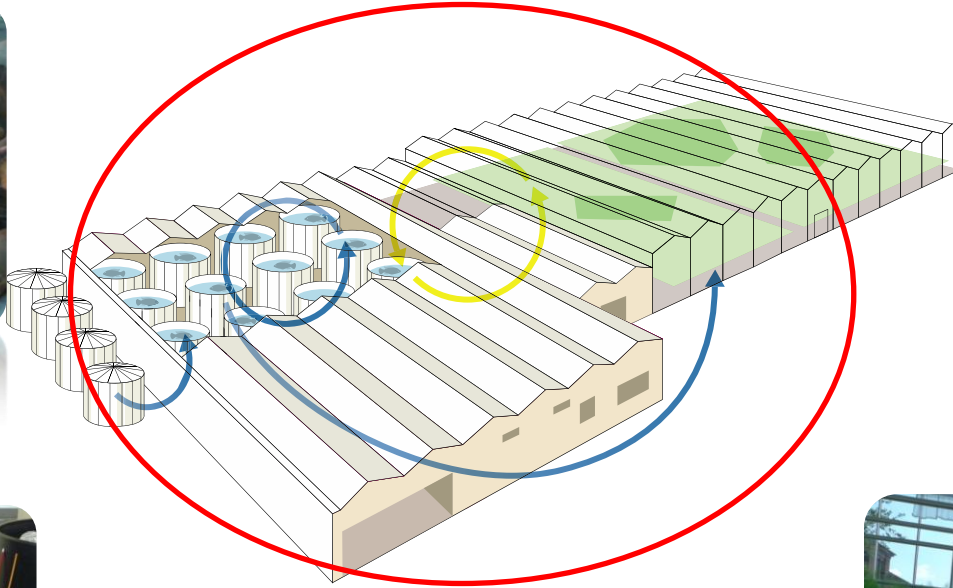


EVENT
CATERING



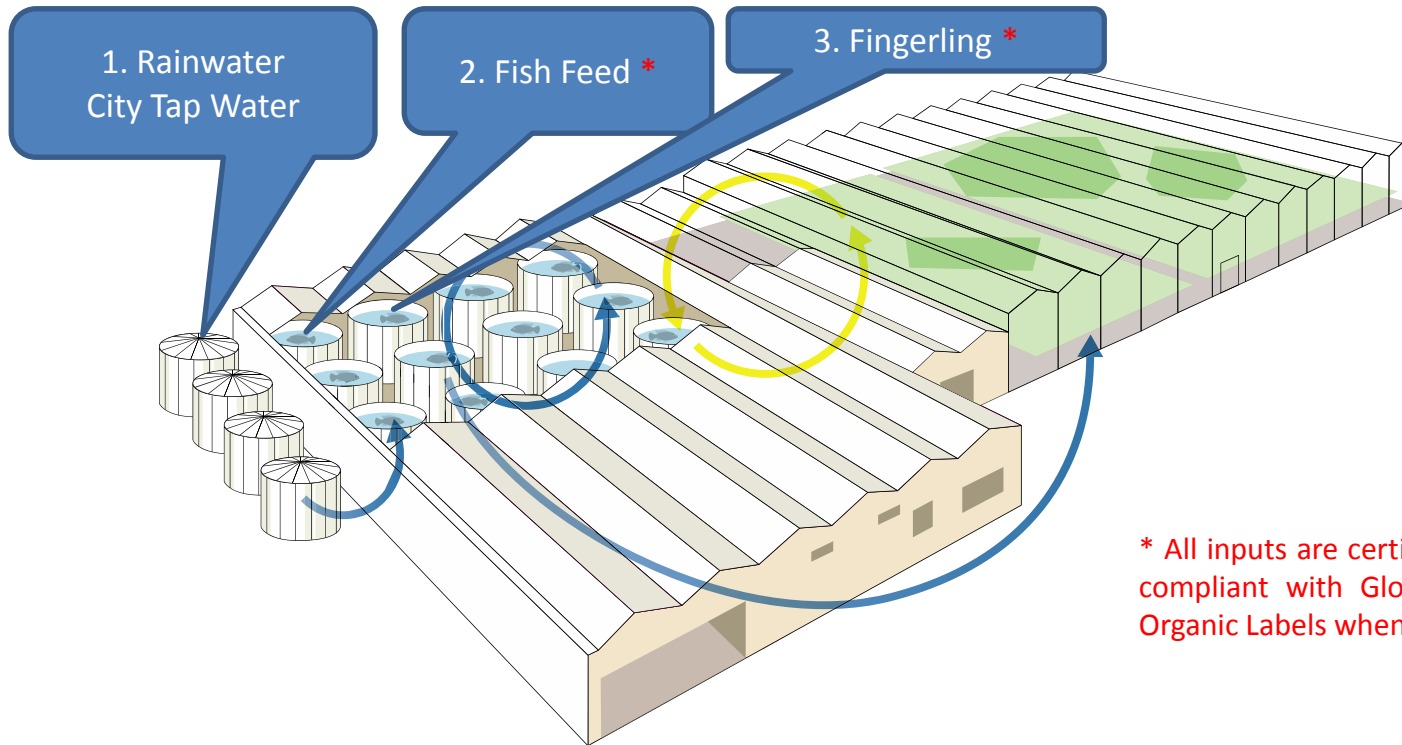
DIRECT SALES

How? Aquaponic = AQUAculture + hydroPONIC



HEALTHY, FRESH FOOD
LOCALLY PRODUCED
EFFICIENT AND TRANSPARENT

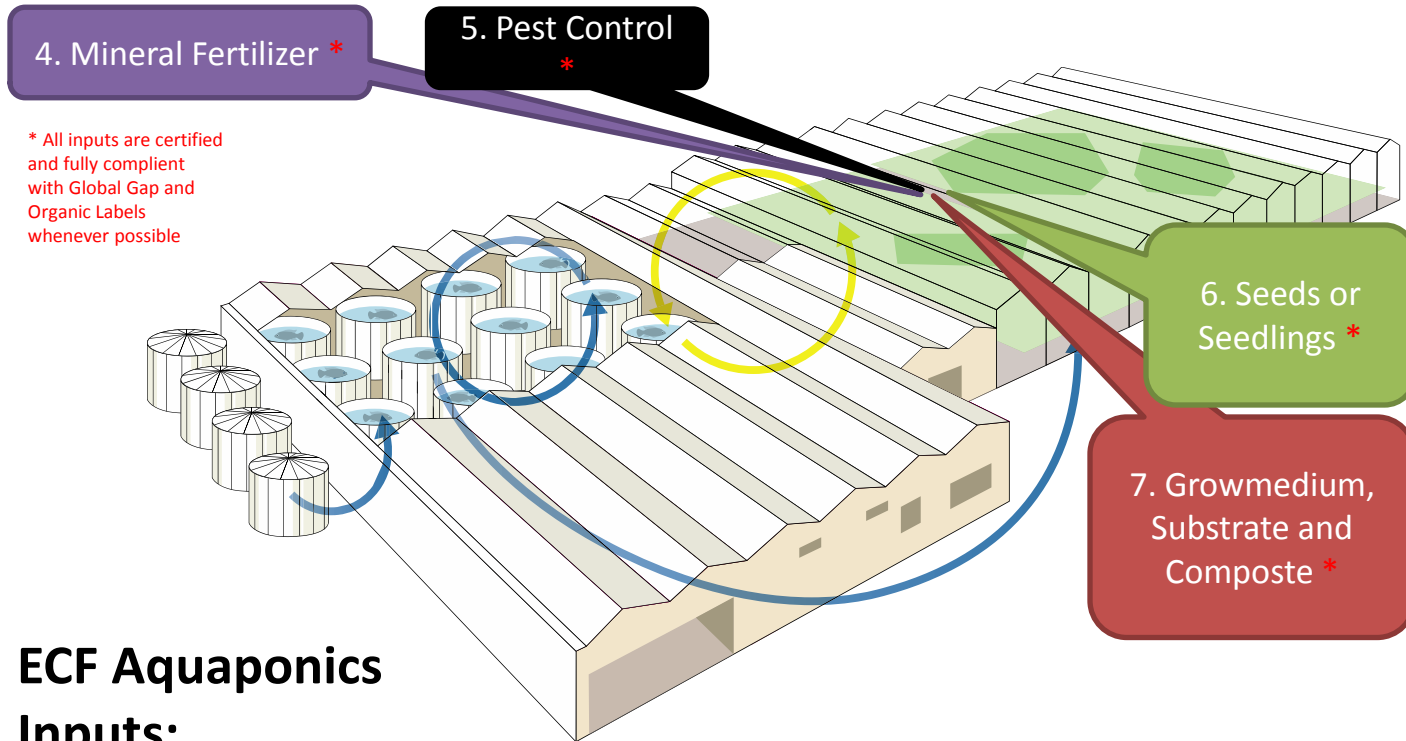




* All inputs are certified and fully compliant with Global Gap and Organic Labels whenever possible

ECF Aquaponics // Inputs

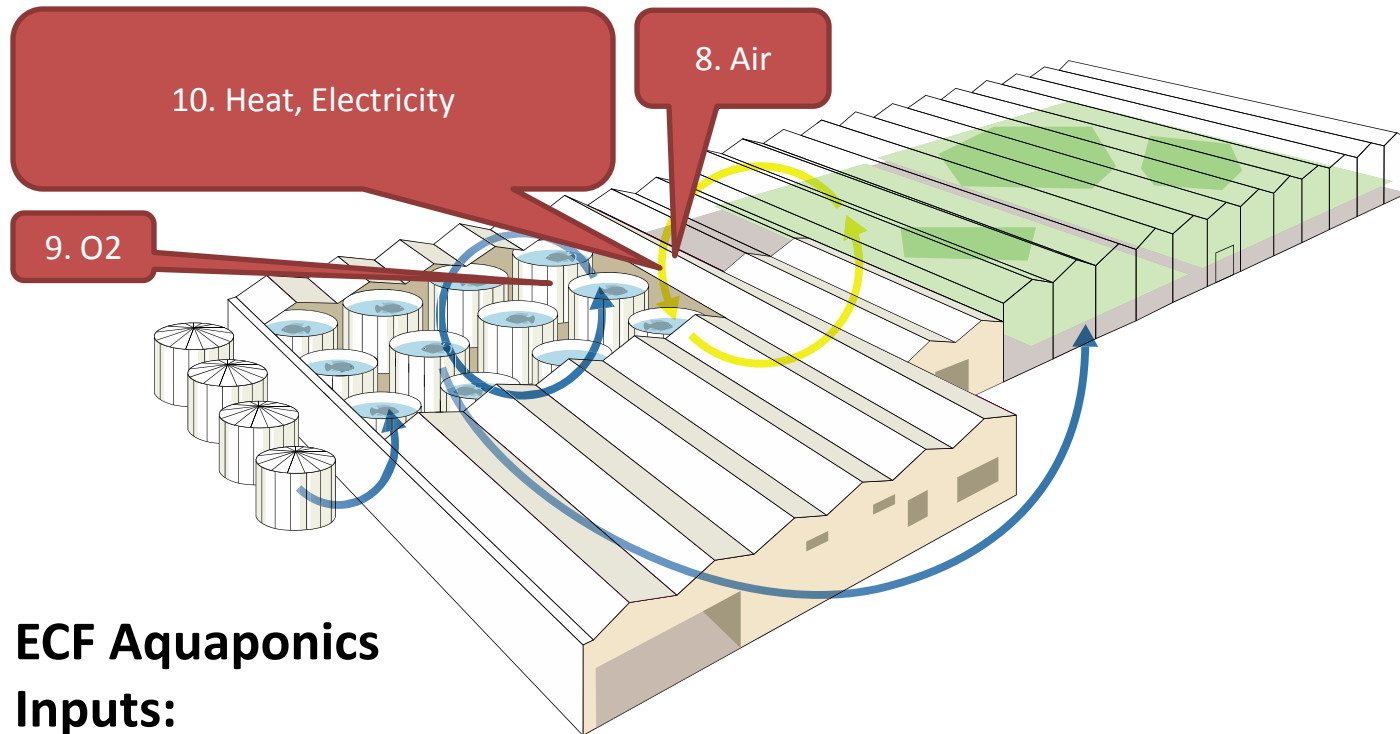
1. **Rainwater** is collected from GH roof and surrounding buildings – the water sterilized by UV treatment and Osmosis filtration . **City tap water** is a backup solution to compensate when there is not enough rainwater in storage; tap water is treated and checked the same way as rainwater.
2. **Fish feed** is supplied by a local manufacturer* based on local grains and certified fish waste from local fish processing . At a later stage, an integrated insect farm* based on the waste streams of the AP system improves the feed, increase efficiency and transparency of the system.
3. **Fish Fingerling** is supplied by a farm* that is certified and fully traceable for Organic Labels and Global GAP, at later stage, Fingerlin are produced within the farmsystem.



ECF Aquaponics

Inputs:

- 4. Mineral Fertilizer *** is supplied by a manufacturer based on local sources. At a later stage, inputs like phosphor and magnesium can be harvested on site and beyond, improving the efficient integrated systems.
- 5. Pest Control *** is a ZERO chemical systems with beneficial insects programs and optimized plant health systems in the nutrition delivery, irrigation and climate control by specialized partner companies.
- 6. Seeds and Seedlings *** are supplied by a local farm, at a later stage, seed propagation is produced within the farmsystem.
- 7. Growmedium, Substrate and Compost *** is supplied by local manufacturers. With the solid waste from the fish system, an integrated composting supply line together with the plant waste improves the integrated systems.



ECF Aquaponics

Inputs:

8. Air from surrounding area is continuously filtered by standard compliant air intake systems for buildings in the city and pumped into the greenhouse to create an overpressure with all openings covered by insect screens.

9. O₂ is delivered by local supplier, alternatively after certain minimal scale of the fish system O₂ can be generated on demand by a compressor.

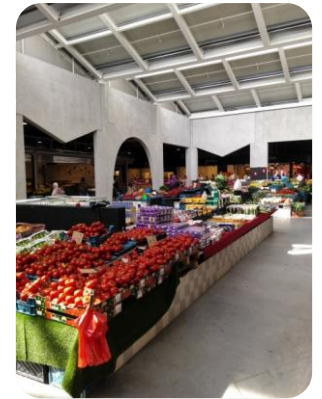
10. Heat is generated by cogeneration of heat and electricity with a compressed natural gas based plant on site, alternatively waste heat from building integrated synergy systems can be used as a CO₂ neutral heat source or an integrated heat pump system provides Zero CO₂ heat to the system. **Electricity** is drawn from the local grid, alternatively energy can be delivered by the co-generation and integrated bio digester systems fed by the waste streams of the integrated system and the surrounding urban habitation.



Existing Loop of Hot Water

Cooling Tower

Foodmet Vendor
Refridgerator
Cooling





Heat Exchange
Aquaponic Greenhouse



Foodmet Vendor
Refridgerator
Cooling

Cooling Tower





$1 \text{ W} = 1 \text{ J/s}$

$1 \text{ kWh} = 3'600 \text{ kJ/s}$

$1 \text{ cal} = 4.184 \text{ J}$

Fresh Food produced from Wasteheat

Specialties / Innovative Products



Speciality Herbs
Heritage Tomatoes
Microgreens
Mini Cucumbers
Mini Potatoes



Fish



Pink Perch (Tilapia)
Baramundi
Pike Perch





aquaponic products are not contaminated with heavy metals, medication, pesticide and other residue materials

HIGH EFFICIENCY FOOD PRODUCTION SYSTEM

3 m² aquaponic glasshouse production space can cover the annual supply of vegetables and fish for one adult. This is approx. 12% of the annual alimentation in western Europe.

AQUAPONIC GREENHOUSE PRODUCTION

- Generate Jobs
- Create Value and Quality of City Life
- Differentiate Efficiencies
- Bridge the Gap to Food Production
- Regain Confidence in Food Production
- Inform Consumers and Educate People
- Build Networks for Neighborhoods
- Create Lighthouse Effect
- Exchange Ethnic Identities
- Create Meeting Points
- Optimize Efficiencies and transform Vacancies in Real Estate
- Pay Return on Investment and Rent

Team



Steven BECKERS

C2C accredited architect/consultant; former associate at Art & Build and NGO's LSDG active Co-founder in Africa. VP at SECO. Associate LTF Consulting. Associate LTF Development. Board Member ICCE.



Mathieu BONIN

MBA, former e-Business Manager at Antalis International. Co-founder at Com du Sport (Digitick-Vivendi Group). Associate LTF Consulting. Associate LTF Development. Board Member ICCE.



Michael MORADIELLOS

Circular Economy consultant; former member of Ecosistema Urbano. Business adviser for creative industries. Associate LTF Consulting. Associate LTF Development. Board Member ICCE.



Yves PIANET

CEO de SECO GROUP, MD SECO SCRL and delegate administrator of SECOLUX SA & SECOLUX ASBL. Associate LTF Development. Board Member ICCE.



Michel SAUVAGE

Purchasing director at CCB (Crédit Communal de Belgique). Consultant for a microcredit organization (CREDAL). Associate LTF Development.



Nicolas LESCHKE. Founder ECF

Christian ECHTERNACHT. Founder ECF



Thomas ZOELLNER. Owner TZservices

Expert in urban food production, consultant in innovation products and digital tool development in agriculture. Founder and CEO TZservice.

PARTNERS

SITE DEVELOPERS



TZervices

SITE OPERATIONS/AQUAPONICS SYSTEM



GREENHOUSE SYSTEM



FOOD MARKET EXPERT



OPERATIONS PARTNERS





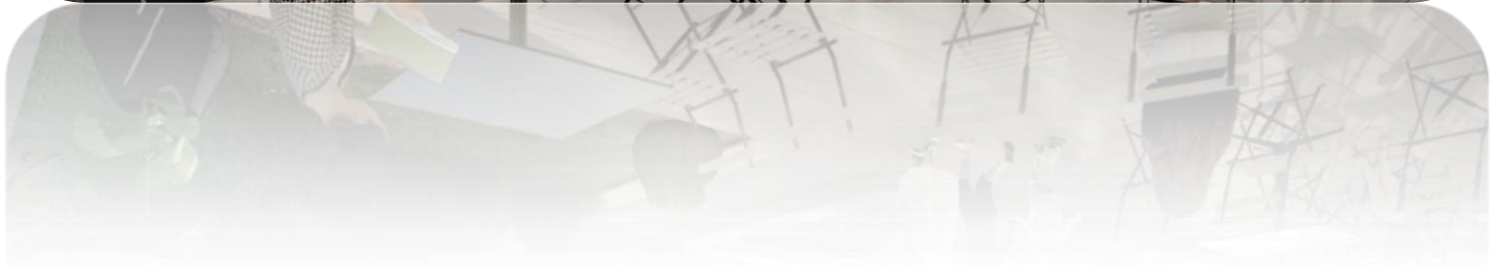
References BERLIN (DE)

ECF Farmer's Market Berlin | 1.800m² | largest urban aquaponics farm



OVERALL LONG TERM DEVELOPMENT







Thank you

**BUILDING
INTEGRATED
GREENHOUSES**
apply circular economy

Building Integrated Greenhouses scri
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