FEEDING THE FUTURE

Proposed Impression of the Arboratum located at the junction of the Agro-Cultural Spine and Greenvia

Global Food Security
Site Location:Barcelona,Spain
Site Area: 232 hectares
National University of Singapore,Masters in Urban Design
Semester 2

URBAN AGRICULTURAL DISTRICT

THREE CHIMNEYS
REGENERATIVE URBAN DESIGN FOR THE BARCELONA THERMAL POWER PLANT.
https://www.youtube.com/watch?v=xG_xKAGSu1s

Whats for dinner tonight? is probably the most profound question in a human life.
What we eat is intricately linked to everything around us, our history and our environment, our culture and our lifestyles, our health and our happiness.
Food thus stitches our past, present and the future,which is why it is pertinent that we secure this aspect in our lives.
As pandemics and economic crises threaten to destroy the very fabric of our lives, food becomes an important part of this narrative.
We must rethink our principles of architecture and urban design to bring the fundamentals of food security parallel to housing needs.
Here is our vision of integrating the pressing needs of the current time into securing our future.
This is our vision for 'Feeding the Future'.

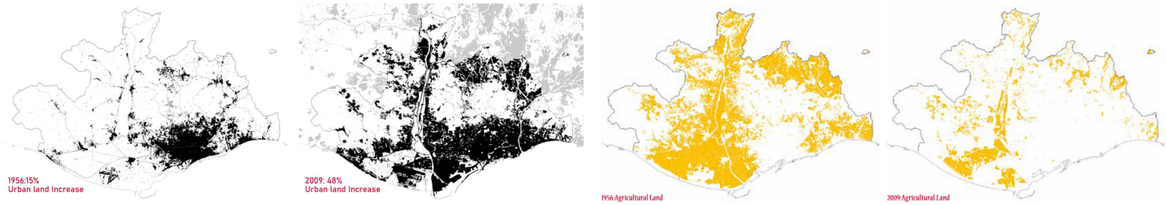
The proposal for Sant adria the besos aims to promote alternate farming technologies in the district by converting the existing factories into vertical farms and integrating these farms with public space.
This new form of food production is integrated with residential and commercial units making the district a self-sustained vibrant area,giving Sant Adria a new identity.

The concept has a holistic approach and combines a variety of innovative technologies, such as energy positive homes, renewable energy, energy storage, door-step high-yield organic food production, vertical farming aquaponics/aeroponics, water management and waste-to-resource systems.
The proposal adds not only environmental and financial value, but also social value, by creating a framework for empowering families and developing a sense of community, where people become part of a shared local eco-system: reconnecting people with nature and consumption with production.

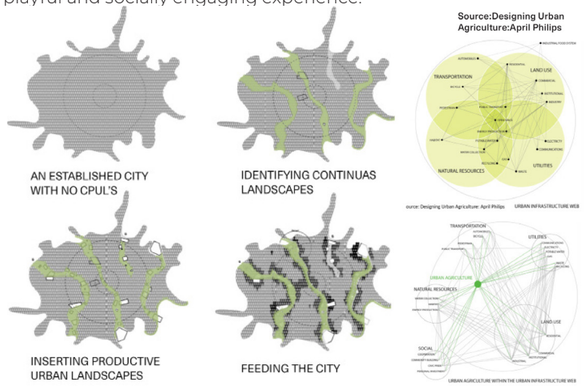
As city designers what role can we play to make the urban realm acceptable to the human psych,making our cities socially inclusive,healthy and happy?

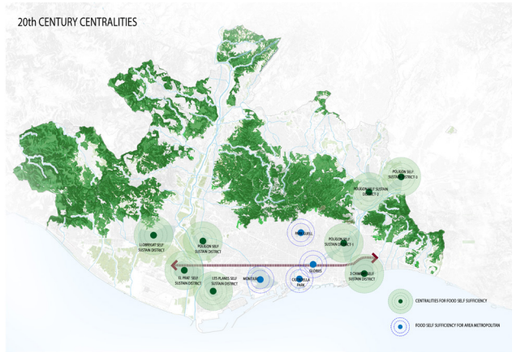
“Barcelona over the span of 50 years has lost more than 50 percent of its agricultural land due to fast paced urbanization.”
It is estimated by 2050 half of Llobregat delta region is prone to flood which poses a threat to food sufficiency and economic sector of the region. “

“The aim of the proposal is to render strategies that would make AMB area food self-sufficient,allowing all its residents access to active productive greens within a ten minute walking distance”
The streets and free spaces of the city would be converted into efficient “Green Infrastructure”, energetically self sufficient and capable of closing the water cycle on site”



How can we feed more people on limited agricultural land, with limited resources?
Introducing centralities that hold the potential in coping with some of the challenges of growing population,rapid urbanization,scarcity of resources,growing global foodcrisis while reducing CO2 emissions,rendering a robust public realm that results in an interactive playful and socially engaging experience.

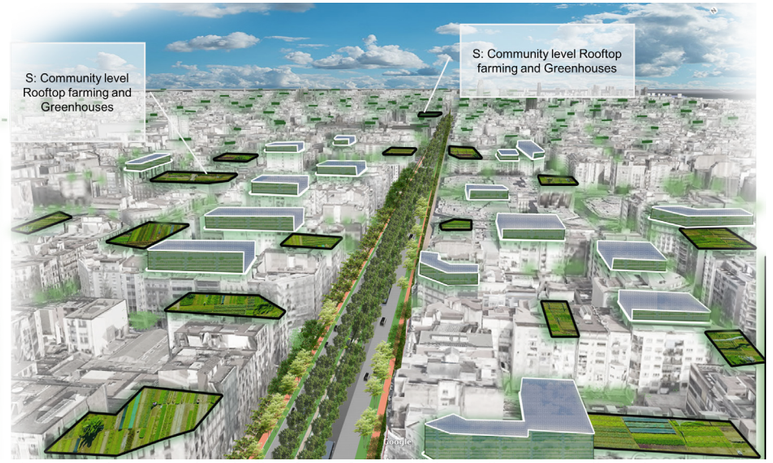




CITY SCALE INTERVENTIONS:

Transforming grey infrastructure to productive landscape spaces
by minimising automobile density within the city.

Existing streets of Barcelona



Granvia to 'Greenvia'-

Continuas Productive Landscape

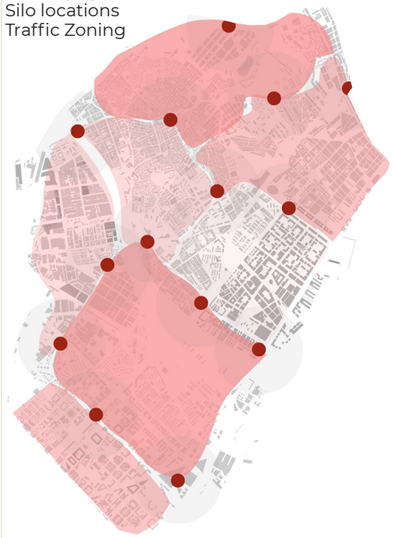
The greenvia acts as the binding factor from which smaller green tributaries emerge,weaving the fabric of the city with green corridors.

Proposed Streets with Leisure and food production

Cultivating a new relationship between farmland and urban development that supports a sustainable regional food network and community

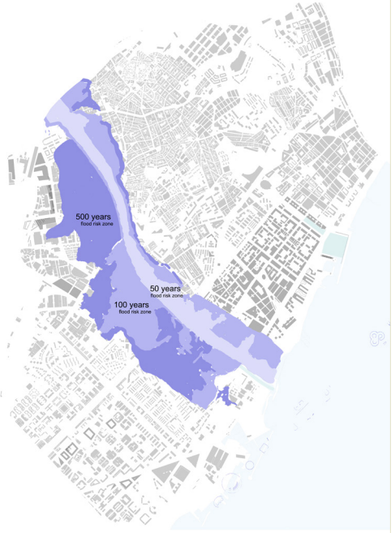
Perimeter scale map reflecting the newly defined mobility network,altered street systems and the contemporary production zones.
The proposal highlights the conversion of industries into green industries while the streets are continuas green corridors for a low carbon,car lite district.

Mobility System
Silo locations
Traffic Zoning

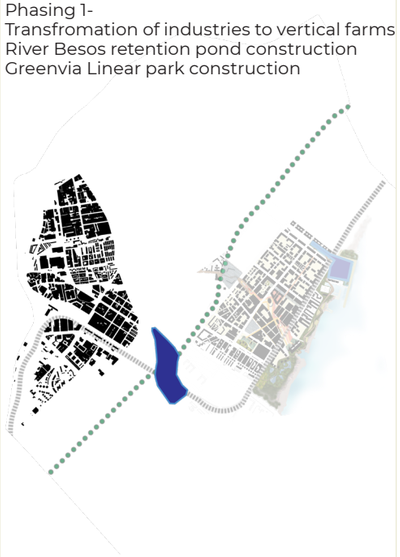


Ecological system

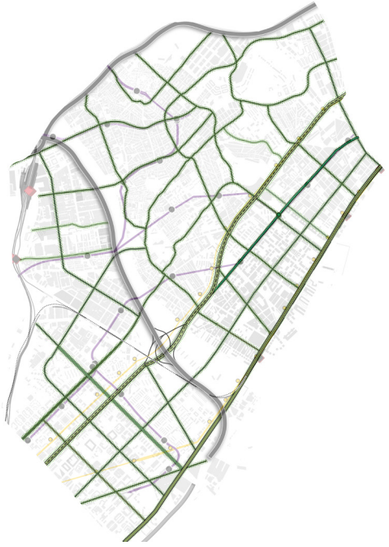
Risk and metabolism



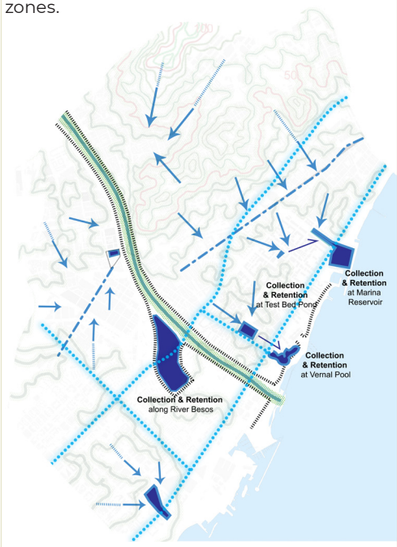
Phasing 1-
Transfromation of industries to vertical farms
River Besos retention pond construction
Greenvia Linear park construction



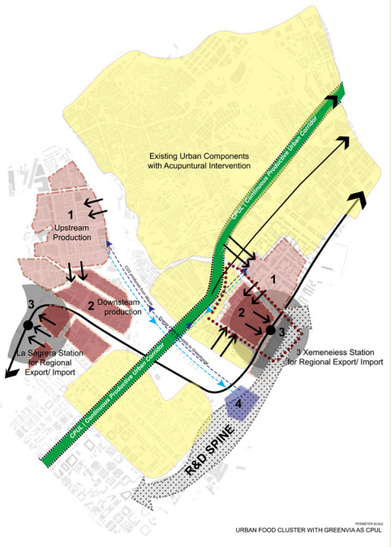
10 Minute City



Hydrology-water collection and retention zones.



Food Production and Processsing Zones

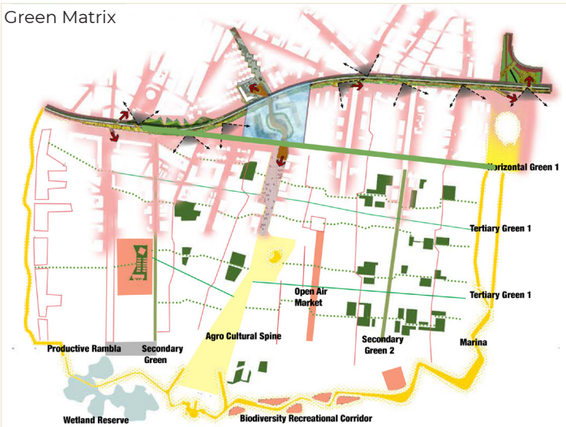


Phasing 2-
Urban green corridors and fingers
Hydrological corridors on existing infrastructure

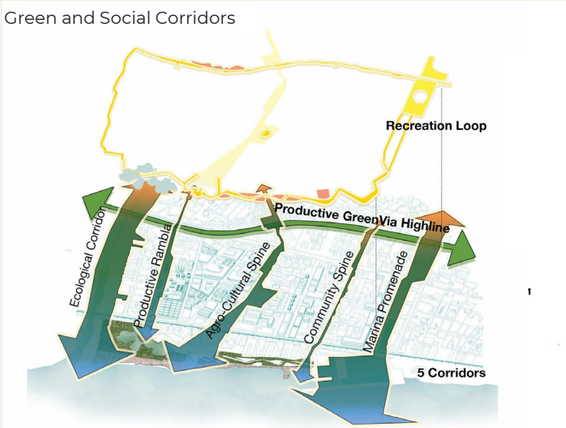
With a growing world population,the demand for food is increasing calling for smarter and more resilient solutions to feed the world.
Three main issues plague the global food industry:***sustainability, waste, and nutrition.***
Solving the issues faced by the global food sector has become an international priority.

The proposed masterplan is looking for softer systems of dynamic change by integrating the existing industrial fabric and adapting them into high yield vertical farms.

Green Matrix



Green and Social Corridors

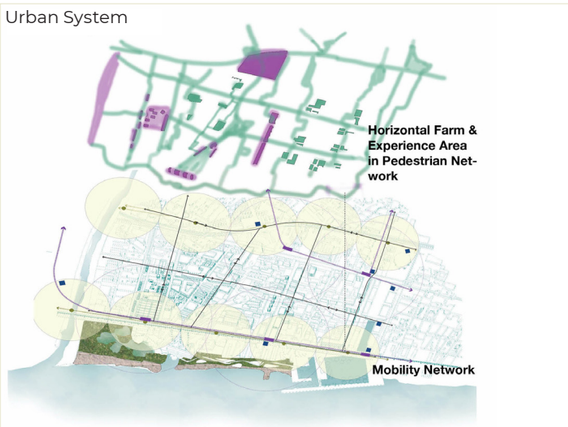


Conventional development patterns dictate that farms are located at the periphery of the city.
The master plan inverts this traditional pattern, featuring clusters of development organized around an agricultural core.

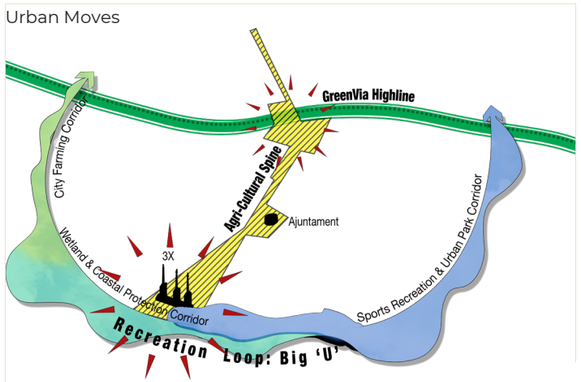
For our proposal to maximise the production of food,we emphasized on the conversion of roads to productive streets.

‘The proposal is all about applied technology and adaptive re-use of existing“urban voids”.
Already existing structures are simply being transformed into an integrated community design, providing clean energy, water and food right off the doorstep.’

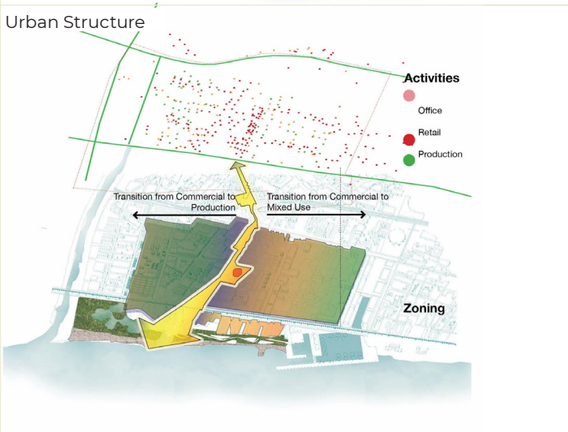
Urban System



Urban Moves

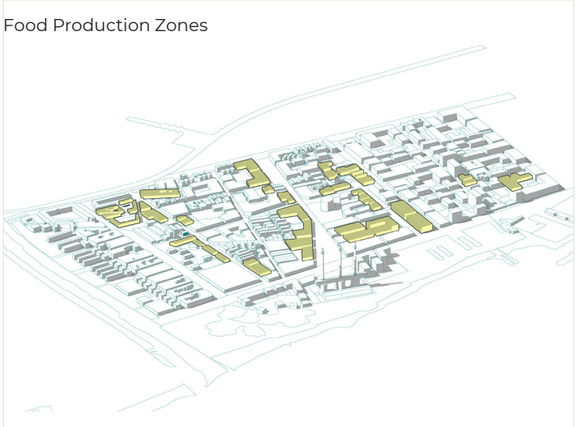


Urban Structure



The second intervention was to convert all obsolete industries into vertical farms or production farms integrated with public space.
An agro-cultural spine was introduced that connects the “greenvia” to the chimneys establishing a clear vista for pedestrian movement.

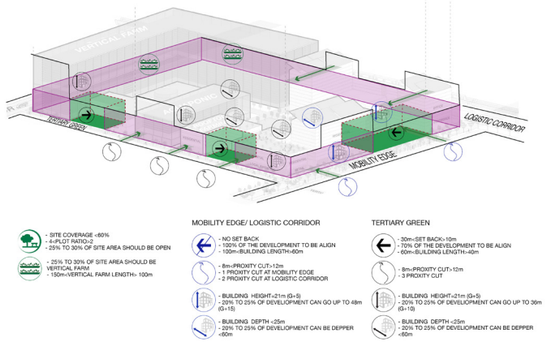
Food Production Zones

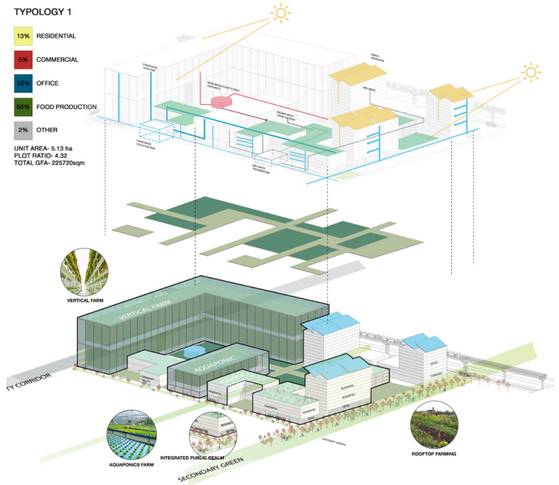


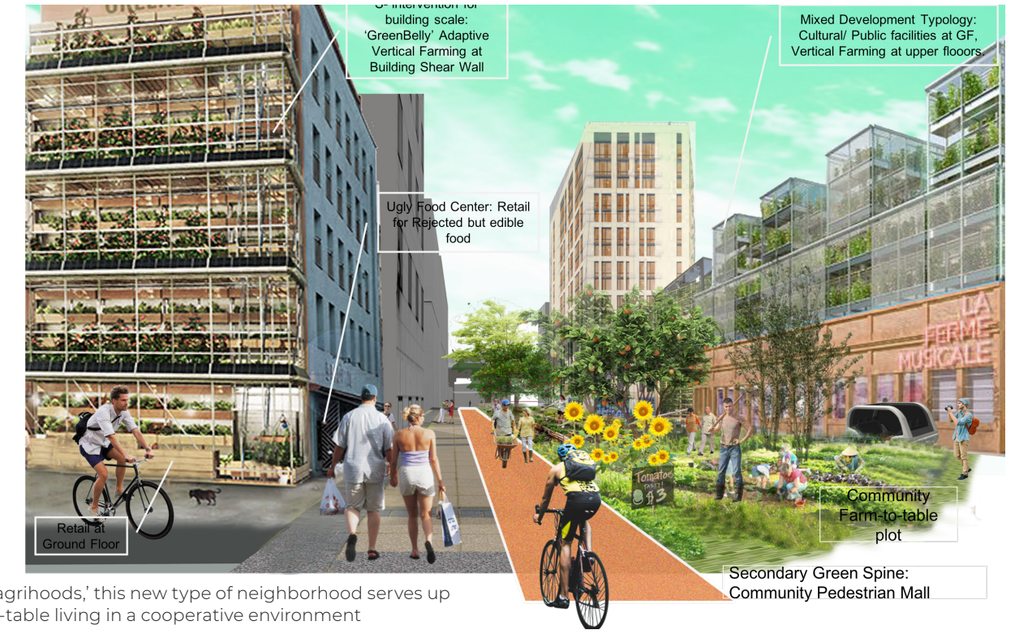
The ecological loop integrating the river besos,the sea and the marina was established in order to tap on the exisiting ecological features of the site.
Food Production Cores:
2 core zones with integrated R&D spine, logistic hubs, and waste hub.

“Local Agroforestry”

Networking people,place and food
New urban agriculture systems in high density neighborhoods.
This typical prototype is a celestial point of diverse programs integrated through a network of public and private”



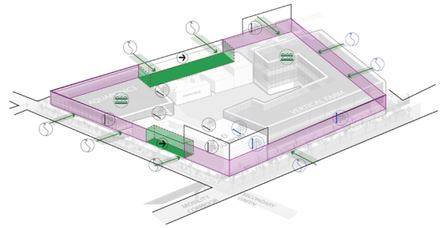


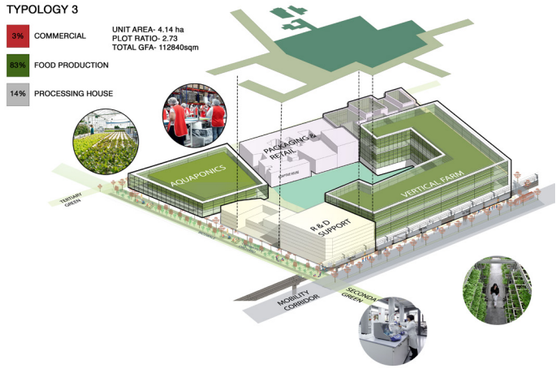


Called ‘agrihoods,’ this new type of neighborhood serves up farm-to-table living in a cooperative environment

“Granja Urbana Eco-Industrial park”

Experience and display typology.
New urban agriculture systems in high intense production zones.
This typical prototype makes use of the existing industrial fabric for adaptive reuse into vertical farms.





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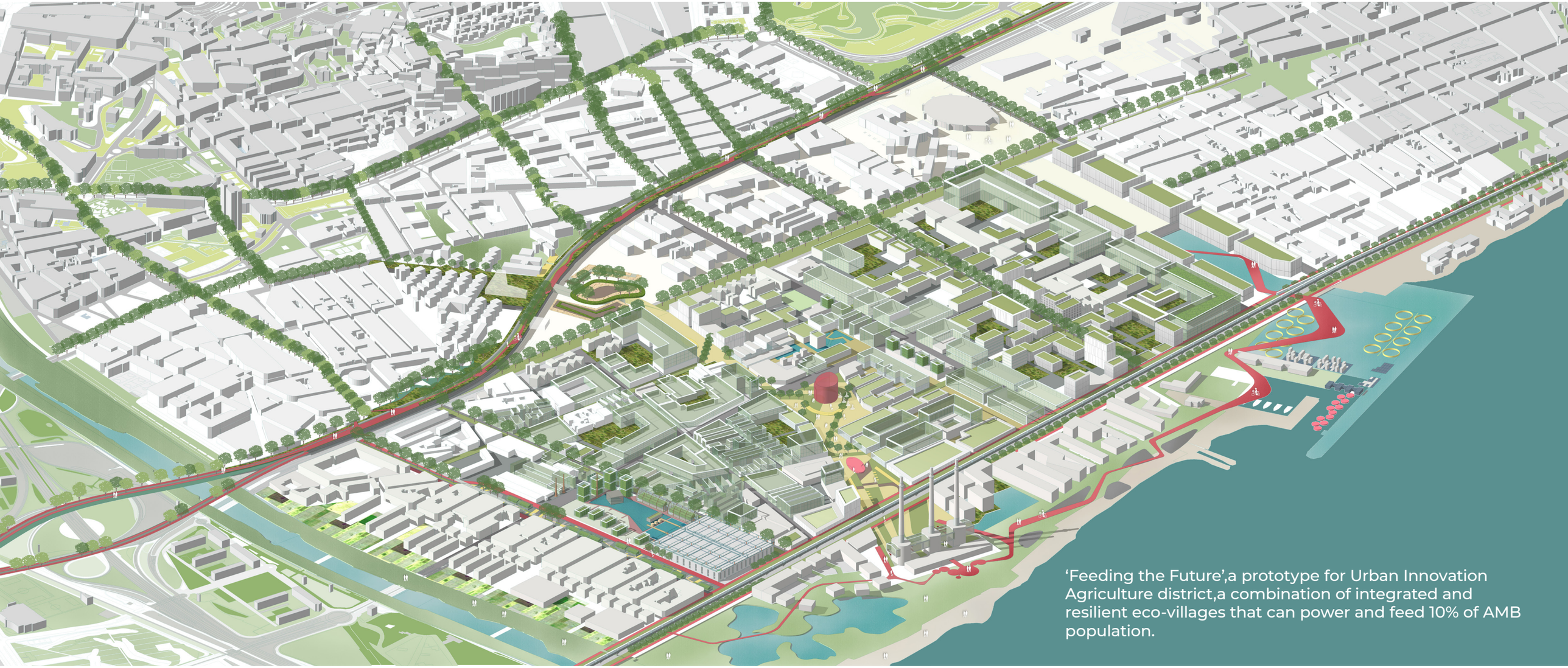

‘Feeding the Future’,a prototype for Urban Innovation Agriculture district,a combination of integrated and resilient eco-villages that can power and feed 10% of AMB population.