LIMEN-LAND

Agro-ecological communities breaks the urban-rural boundary.

TYPE: Academic / Team work (Zizi Liu, Yixuan Liu, Zhiyin Wei, Junyi Liu)
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LOCATION: Shanghai, China

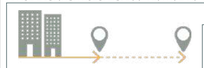
Through a modular paradigm construction, a self-sufficient agro-ecological community with various functions required for agricultural life will be created in the urban-rural area to improve agricultural productivity, alleviate employment problems and drive the development of neighboring industries.

It will become a bridge between rural and urban people, changing the stereotypes of each other and integrating the habits, perceptions, and ideas of both sides by living together, farming together, and thinking together. Finally, we believe "The Citizens" will create a culture that is unique to the community by its own.

BACKGROUND

Current Situation

The Problems of Urban and Rural Space


Increase the transportation distance between food production and the city center

Climate change as well as natural and manmade catastrophes further threaten the resiliency of our cities and food systems.

Rapid urban development has also stressed socio-economic stratification, creating issues of "food equity".

As a whole, the "ecology" of living is becoming increasingly vulnerable, with concerns for social welfare running parallel with demands for more responsible environmental stewardship.

AIM

An alternative to traditional agriculture is needed.

We need prototype a new rural-urban union that challenges the standard binary relationship between the two and search for prototypes that "fold" the rural and urban landscapes together, to propose an integrated rural-urban infrastructure to create a productive, hybridized future.

INVESTIGATION OF 6 SITES

How to choose 6 sites all over the world?

Selection is based on the natural conditions and socio-economic base of the city. The cities are classified into different classes of merit and demerit.
Six sites covering cities of different sizes and conditions in search of paradigmatisation.

Natural Conditions
Suitable for urban development, with a certain agricultural base.

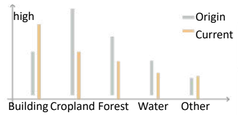
Socio-economic Base
Current urban and rural development is good, but reveals more real problems.

PUKOU, NANJING, CHINA

Scale
First-tier city
Provincial capital city

Population density
20351 people/sq km

History of Nanjing:



Old and New

Eating in Nanjing

Food+ Agriculture +Cuture = Commercial

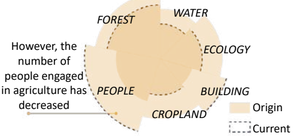
YUBEI, CHONGQING, CHINA

Scale
First-tier city
Municipality

Population density
19069 people/sq km

Trends of Chongqing:

Number and Quality



Featured of Chongqing:

Chongqing Bangbang (Picker)
From the countryside and are temporary porters on the streets which is a symbol of the Chinese hard-working people.

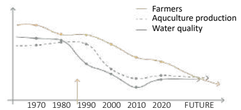
Chuanjianghaozi
Traditional folk songs are the songs of life forged by the blood and sweat of boatmen as they battled the treacherous waters.

HIDAKAGAWA, WAKAYAMA, JAPAN

Scale
Coastal city

Population density
9258 people/sq km

Trends (economic + environmental)



PS: The number of Outflow - Inflow people growing at a rate of 1w per year

Why do people not want to work in agriculture?

Dirty, Harsh, Dangerous and Smelly
No time to PLAY
Aversion to MANUAL LABOUR
Difficulties in life
Low Income
Private life is not fulfilling

How to break this STEREOTYPE ?

YUELU, CHANGSHA, CHINA

Scale
New First-tier city
Provincial capital city

Population density
15981 people/sq km

Development of Changsha:

Urban and rural community governance:
Evacuation of villages for settlement, to create a new urban community.

Land Urbanization → Resident Urbanization

Integrated and sustainable development model

SONGJIANG, SHANGHIA, CHINA

Scale
Mega-city
Municipality

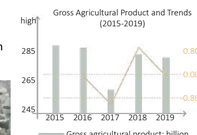
Population density
25923 people/sq km

Migrant workers of Shanghai:

The farming-related areas account for 67.8% of the city's migrant population

Problems of migrant workers:

Agricultural situation:



More volatile, less growth

Urban Agricultural:
Establishment of an agricultural supply and sightseeing tourism belt.

SHIMANTO, KOUCHI, JAPAN

Scale
Coastal city

Population density
19305 people/sq km

Ecological issues:

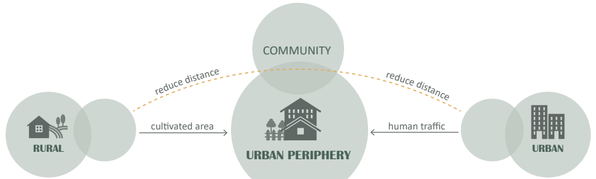
Economic issues:

Tourist farming is developing from urban centres to the suburbs, but in diminishing numbers.

Vicious circle:

HOW TO RELIEVE OR RESOLVE?

So,
How should we go about alleviating rural hollowing out?
How should we make fresh food available to all?
How do we mitigate the urban encroachment on the countryside?
How can we build our own food system that connects urban and rural areas while protecting the natural environment?



Remove Resources → **Remove People**

We believe that creating an **Agricultural Community** at the boundary between urban and rural areas that can be applied to a wide range of environments can go a long way in alleviating these problems.

Theoretical support

Purpose: to improve living conditions.

Pull factors: factors favouring improved living conditions
Ex. democratoic gov., thriving economies, job oppor-tunities.

Push factors: unfavourable living conditions
Ex. poverty, political instabiliy, religious intolerance.

Both pull and push factors are present in both the origin and the destination.

Lee's PUSH-PULL Model

– Negative Factors + Positive Factors ○ Neutral Factors

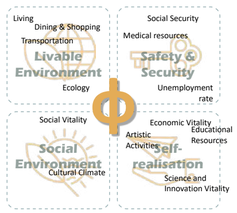
Intervening Obstacles:Proximity, physical barriers, linguistic and cultural differences, and the immigrants' own value judgements.

City Attraction Model

The long-term sustainability of a city is due to the role of ϕ (City attraction). If the city is imagined as a mass of water, and the coalescence and escape of water molecules is understood as the flow of people in and out, a mathematical model of urban population movement can be developed.

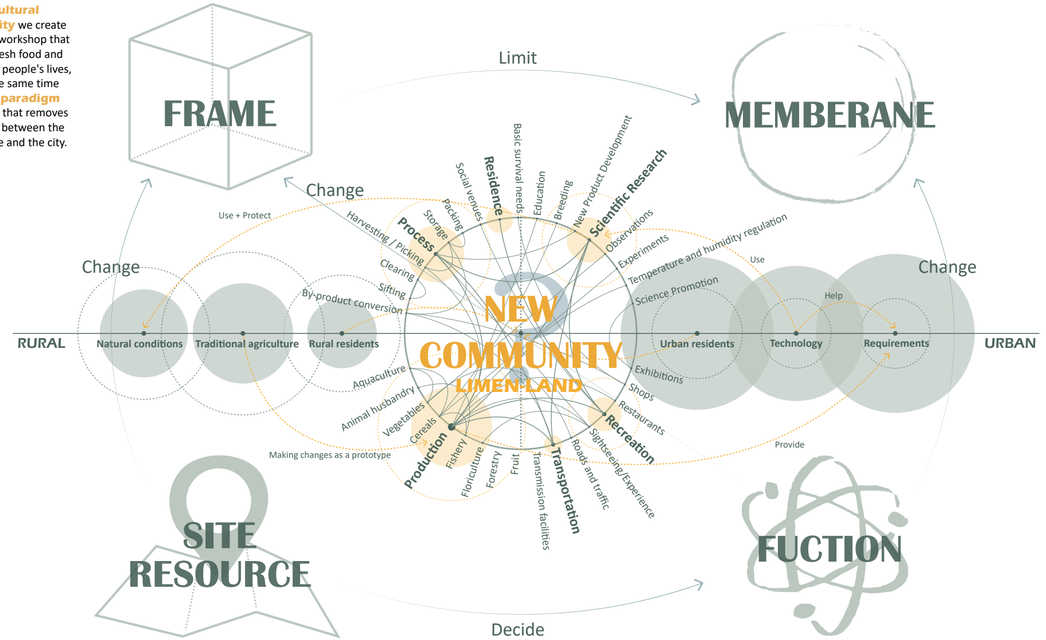
$$\Delta N = \sigma E \left\{ m(t)\left[1 - \lambda e^{-\phi}\right] - n(t)e^{-\phi} \right\}$$

ΔN	the amount of change in the city's population.
E	policies, regulations, ordinances, etc. of the city.
σ	Enforcement of policies, regulations, ordinances, etc.
m(t)	Net increase in incoming population = all incoming - all in transit.
n(t)	net increase in outflow = total outflow - return.
ϕ	the potential of the city, i.e. the attractiveness of the city.
λ	return rate

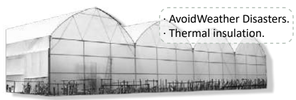


DESIGN CONCEPT

The **agricultural community** we create exists as a workshop that provides fresh food and transforms people's lives, while at the same time acting as a **paradigm of eraser** that removes the border between the countryside and the city.



Current agricultural production methods



· AvoidWeather Disasters.
· Thermal insulation.

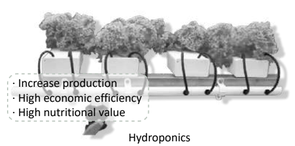
Greenhouse Farming

· No space restrictions.
· Reduced water loss and diseases and pests.

Asbestos Soilless Culture

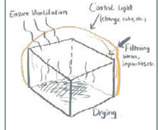
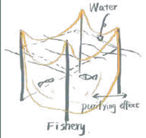
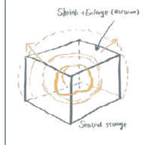
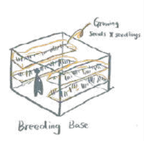
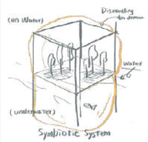
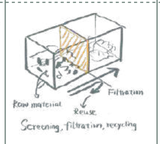
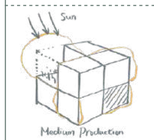
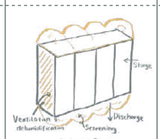
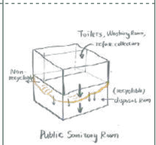
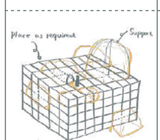
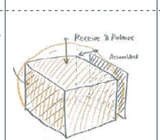
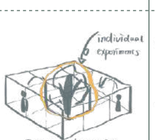
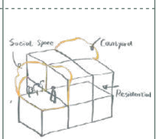
· Keep warm
· Kills weeds
· Reduce evaporation

Plastic Mulch

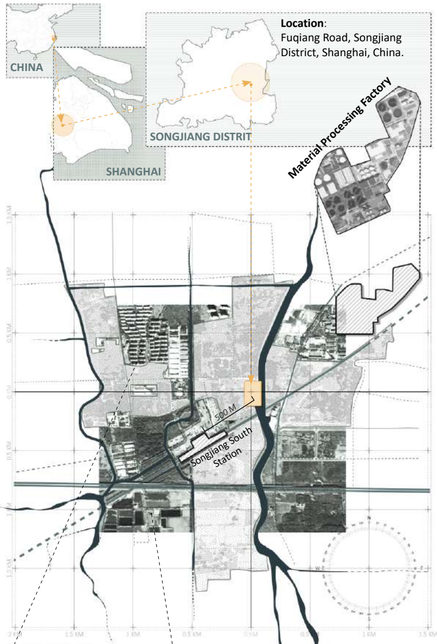


· Increase production
· High economic efficiency
· High nutritional value

Hydroponics

Production	Process	Scientific Research	Living & Recreation
Greenhouse Gardening	 Drying	Pilot Field	Flowing Restaurant
 Fishery		 Breeding Base	Shops
 Synthetic System	 Screening, filtration, recycling	Biogene Bank	Greenhouse Garden
 Mechian Production	 Product Storage	Education	 Public Sanitary Room
 Large Production	 Flexible Space	 Single Observation	 Residential Areas

SITE ANALYSIS OF SONGJIANG, SHANGHAI



3152 people/sq km (average)

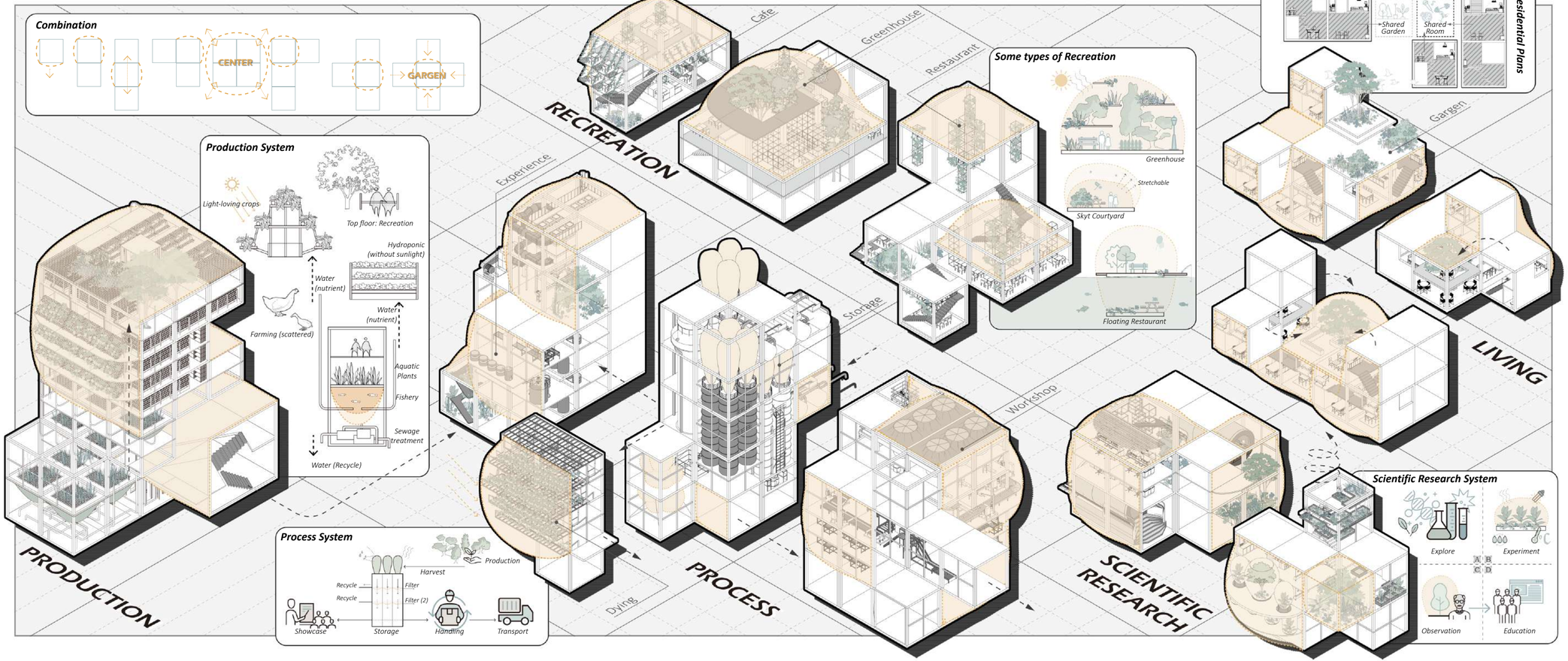
Population

Transportation

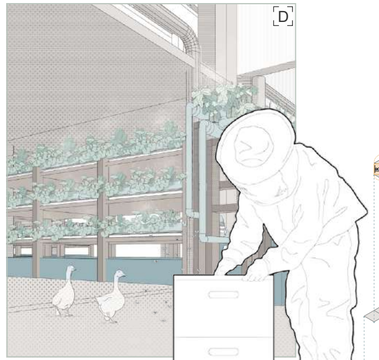
Well-developed surface transport

Agricultural Situation

· Rice and Flower Industry Area.
· Create agricultural tourism, agricultural leisure and cultural creativity.
· Subtropical climate, raining 1168mm;

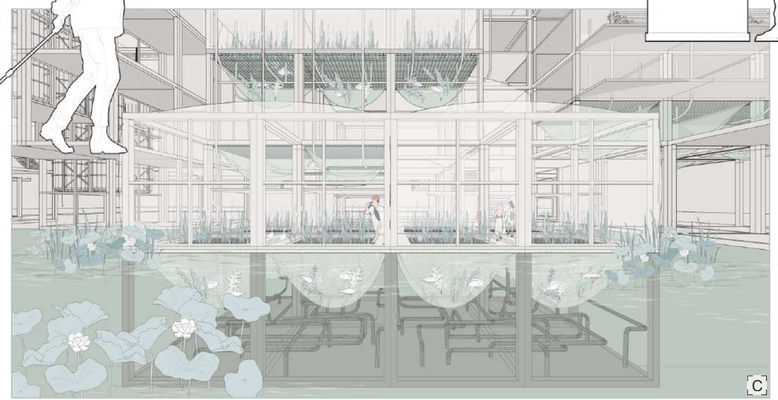


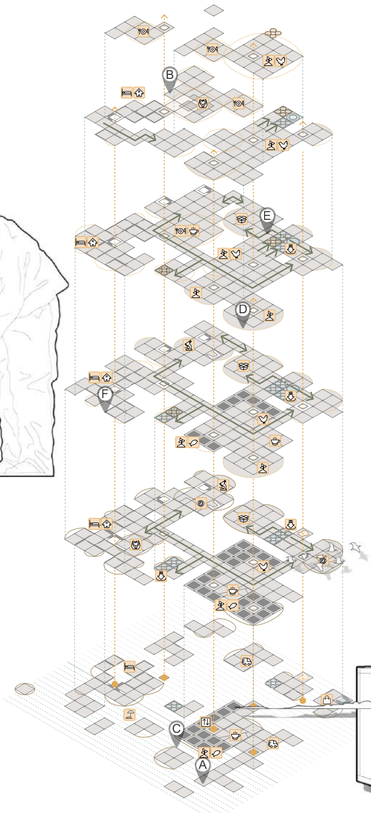
B: *This is the area where I work.*
The vegetables in the lower part of this area are usually eaten by the free-range chickens and ducks.
The food you eat in the community is all original.

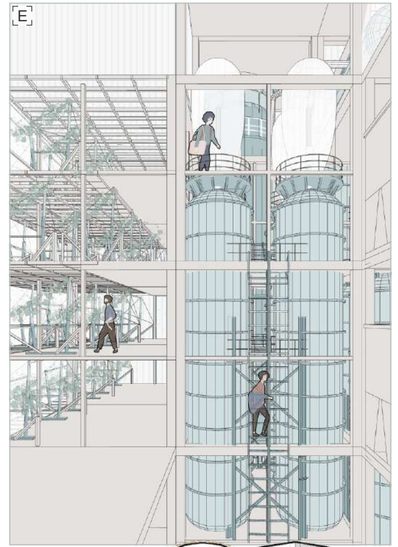


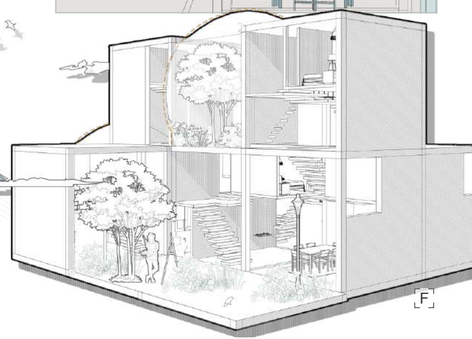
C: *Wow, this place is so beautiful and vibrant too.*
I'm falling in love with it.

A: *This is our greenhouse garden on the top floor, which cultivates plants and animals from all over the country.*
You can roam around here and have a cup of coffee if you wish.









SERVICE BLUEPRINT

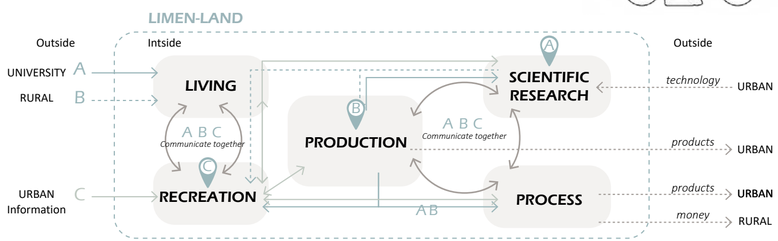
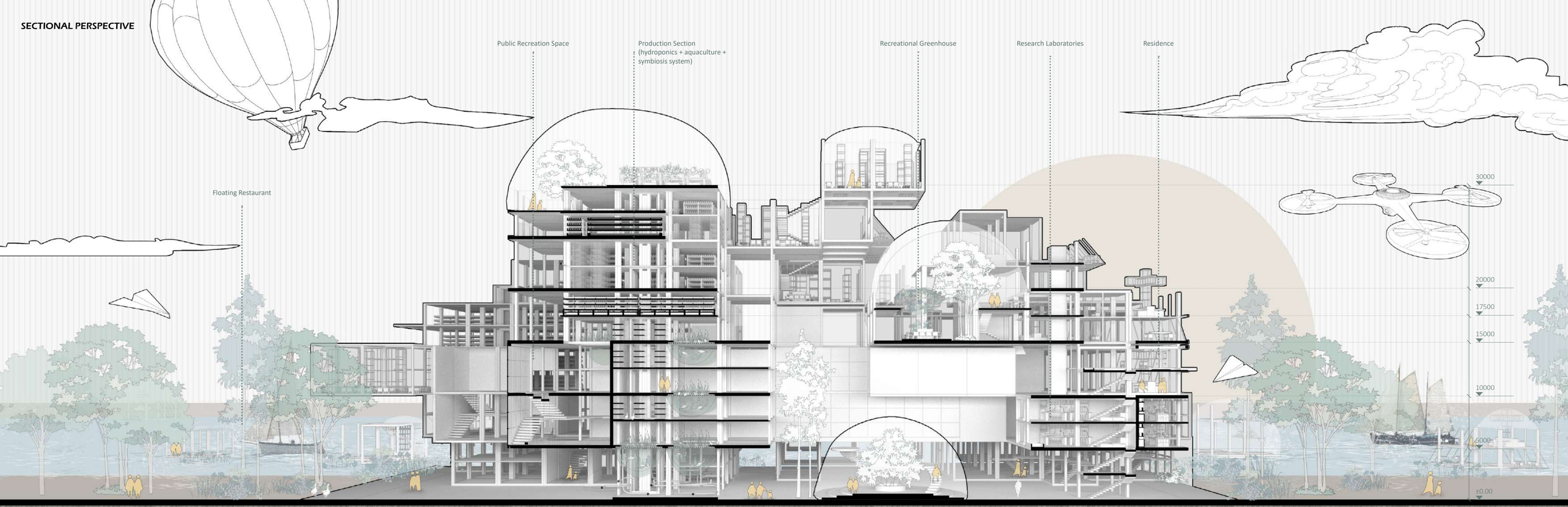
A Researcher work in *LIMEN-LAND*
Routes of A

A Farmer work in *LIMEN-LAND*
Routes of A

A Visitor live in *CITY*
Routes of A

FUNCTION

Connection lines



SECTIONAL PERSPECTIVE