



Socio-Economy



Disaster Mitigation



Environment



Architecture & Urbanism



Social Science

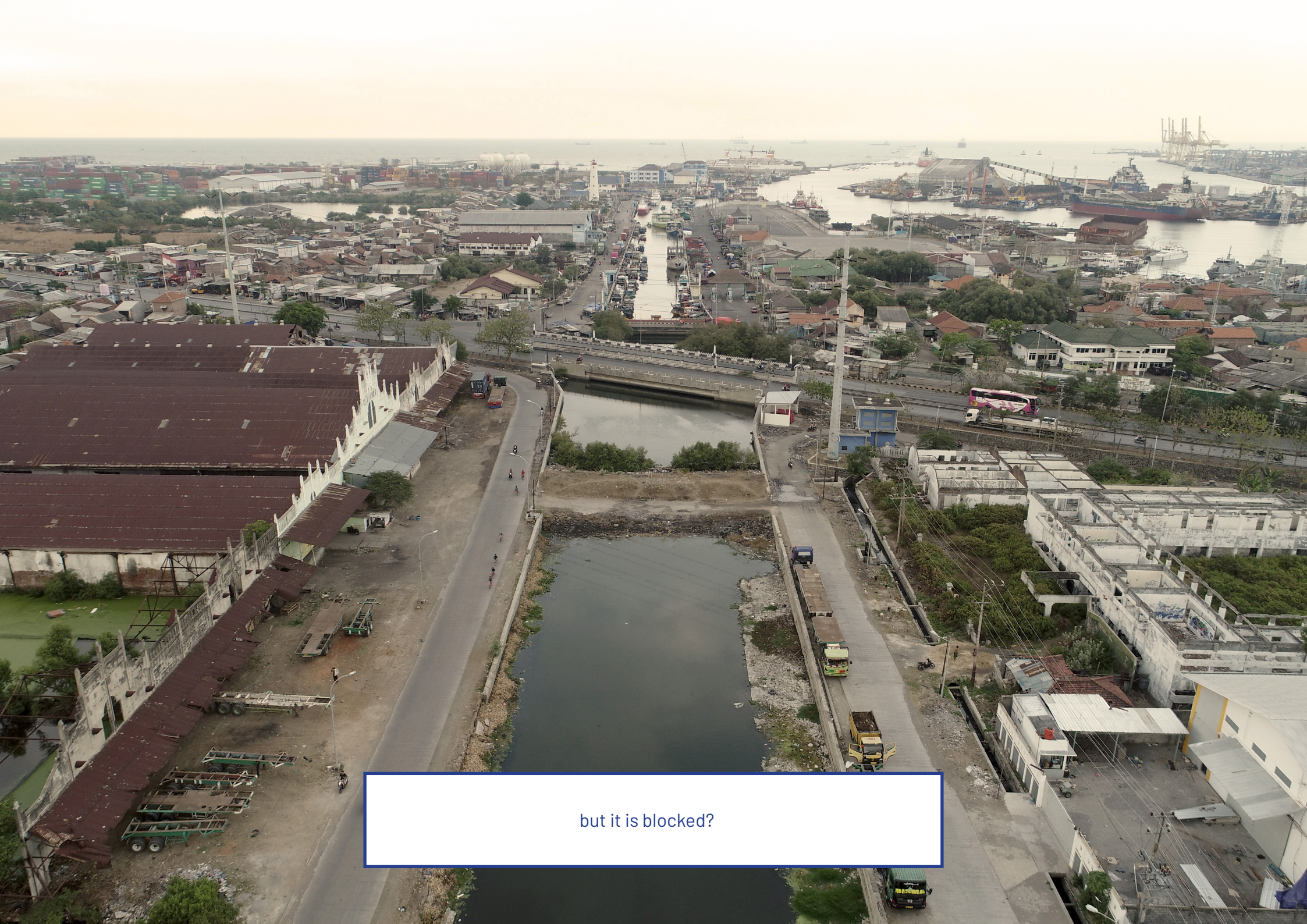




sea water has risen

river normalisation,
hard infrastructures for when the heavy rain comes, we are ready





but it is blocked?



infrastructure investments;
which one is best, fast or good?



little did we know..
it impacts most on the smallest scale



their lack of information, leads them to be less aware to the situation

quantity or quality?



"why move if I can't be close to my communities..?"



but what about human rights?

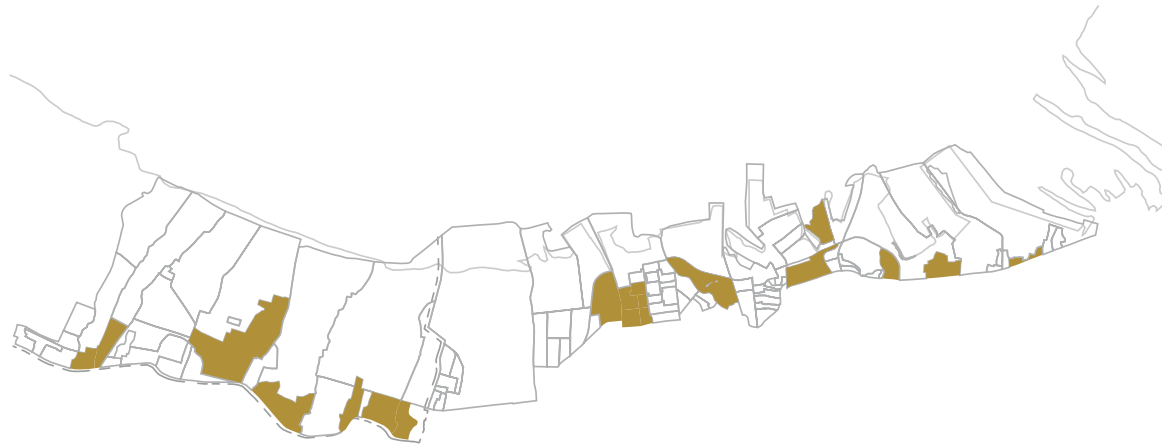
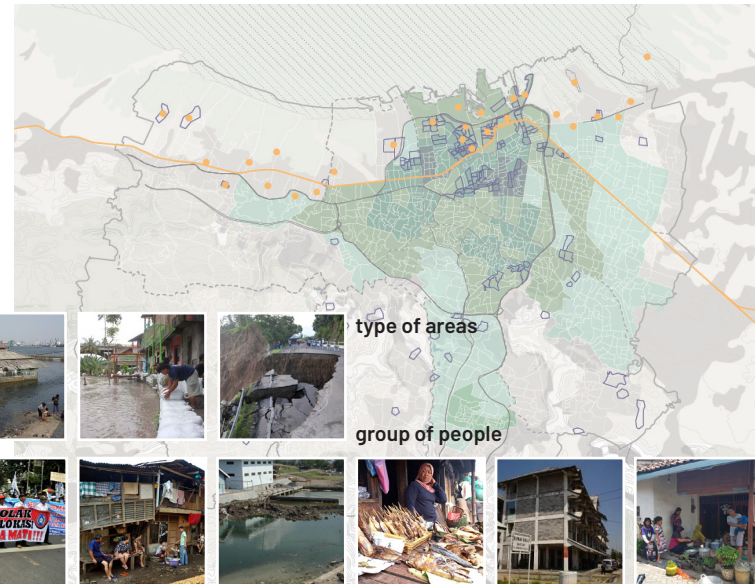
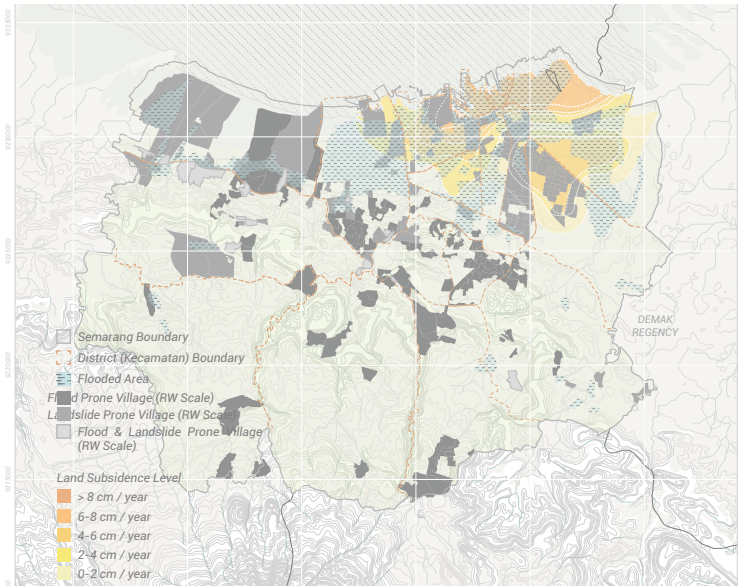


"I just let it sink,
and during flood, I put small barriers to block the water"



"I only change the wooden part when it's time, it saves money!"

analysis



research



**Network and Proximity
to job**

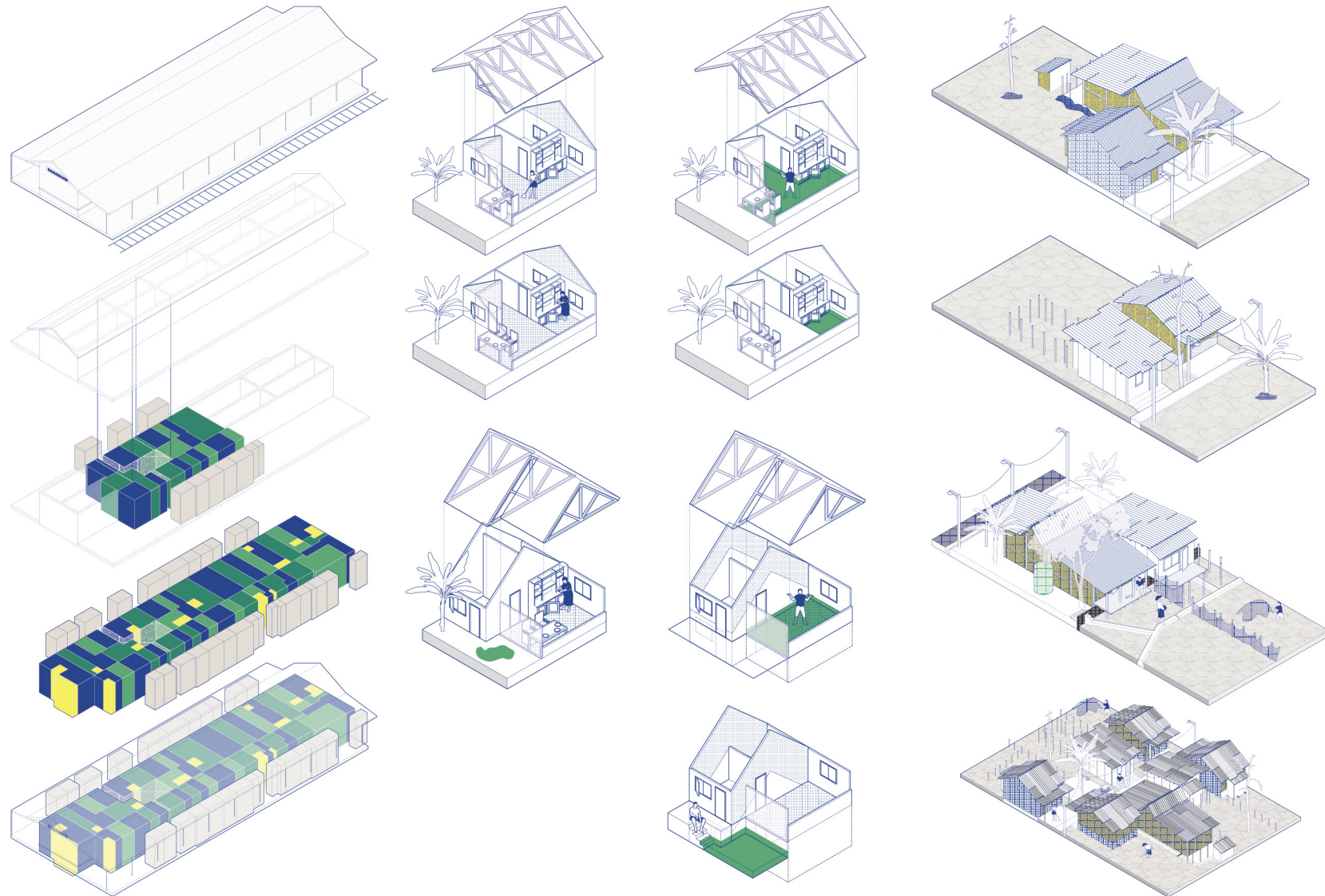


Housing



**Flooding and
land subsidence**

analysis







But some left abandoned

People is showing adaptive mechanism

Some people using existing old stasion structure as dwellings

Examples of alternative living, unsuccessfully implemented

why don't we utilize their local knowledge?

The water from PDAM is not well distributed due to insufficient drainage system



Centralized waste dump on hilly areas, creating pollution



Local distributor sells the water door-to-door

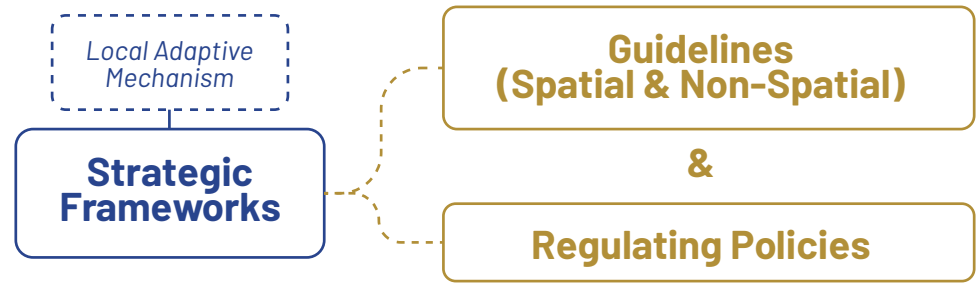
why don't we involve public participation in urban mitigation planning?

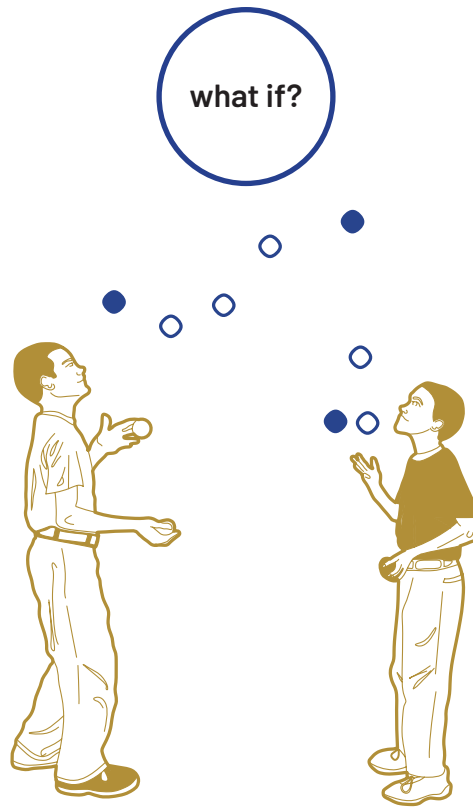


can we influence their way of living with the nature?

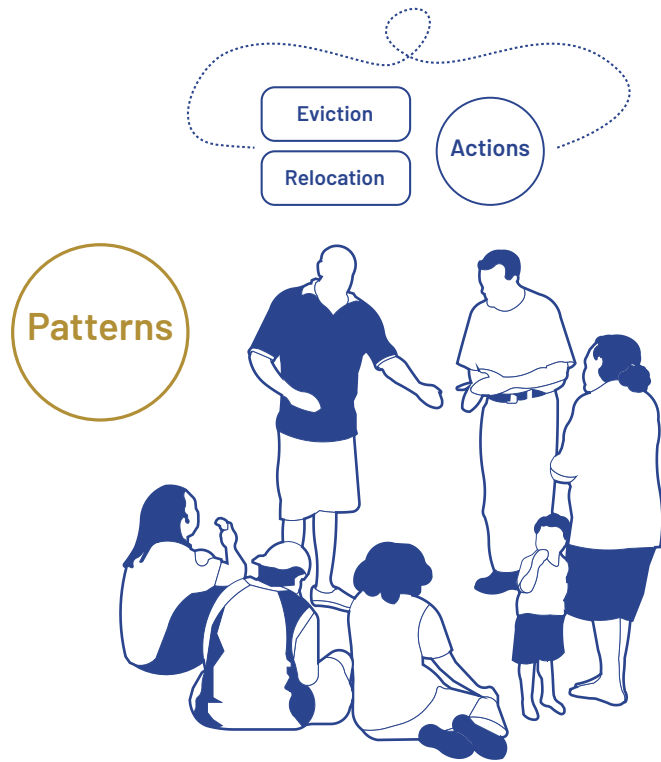
Main Research Question:

How to **improve the well-being** of the people
by **tackling the water issues**
through **strategic mitigation frameworks** based on local adaptive
mechanism and community based approach
in Kemijen and Semarang coastal area?



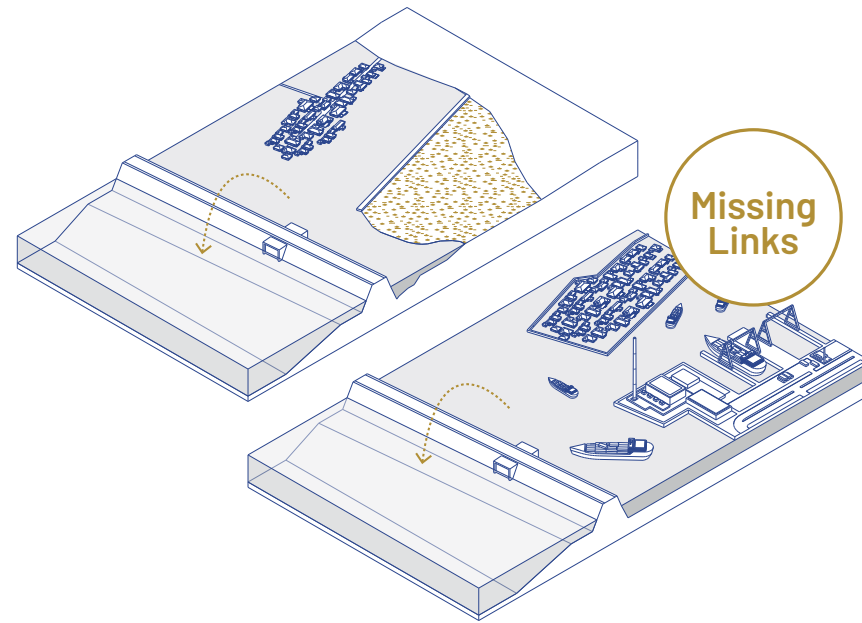


actions



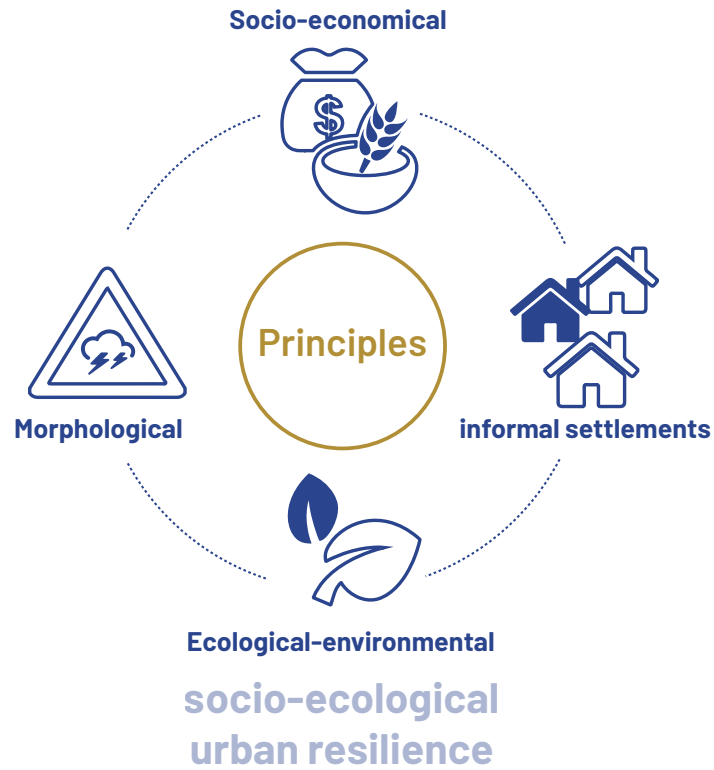
soft approach

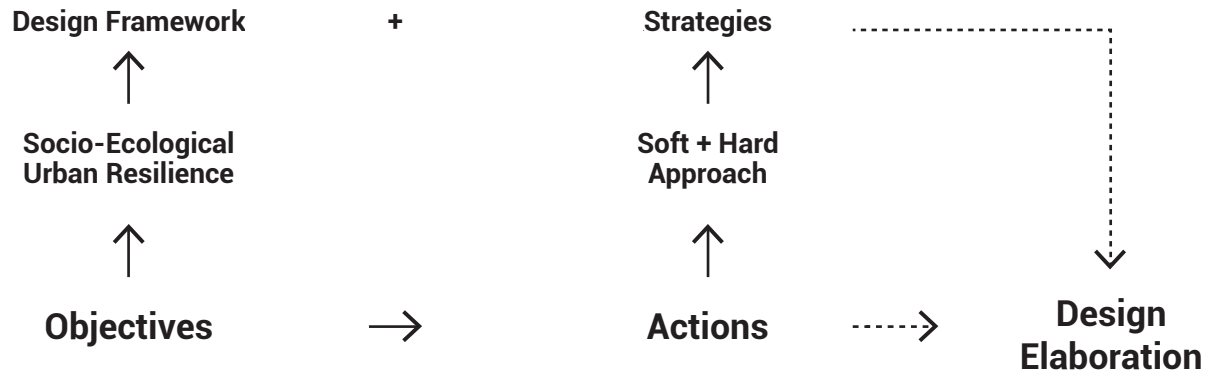
+



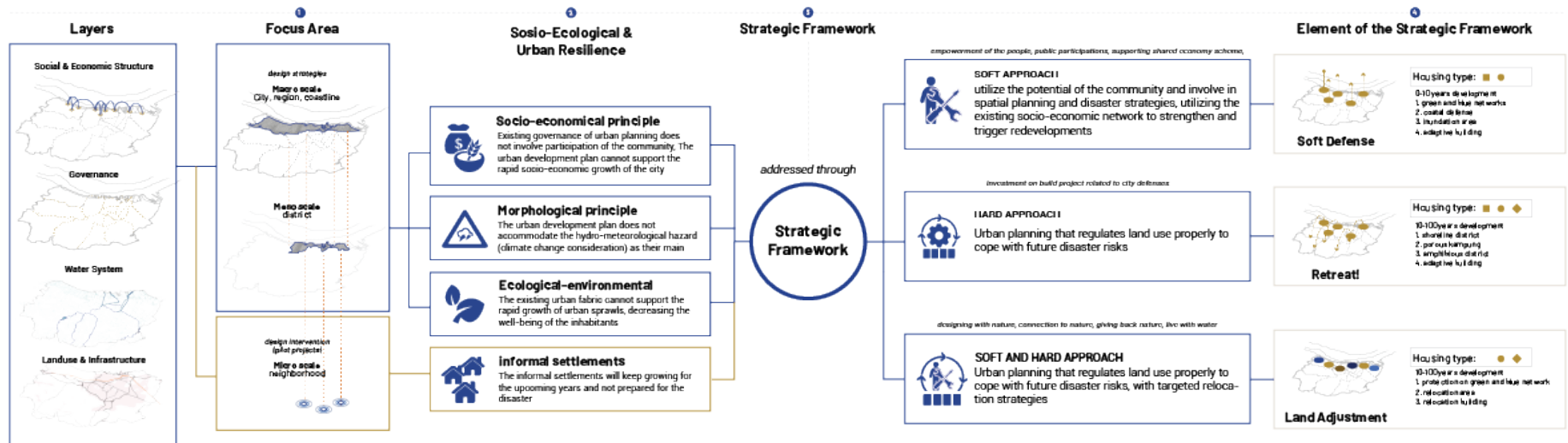
hard approach

objectives

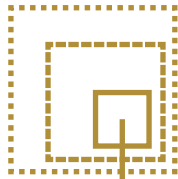




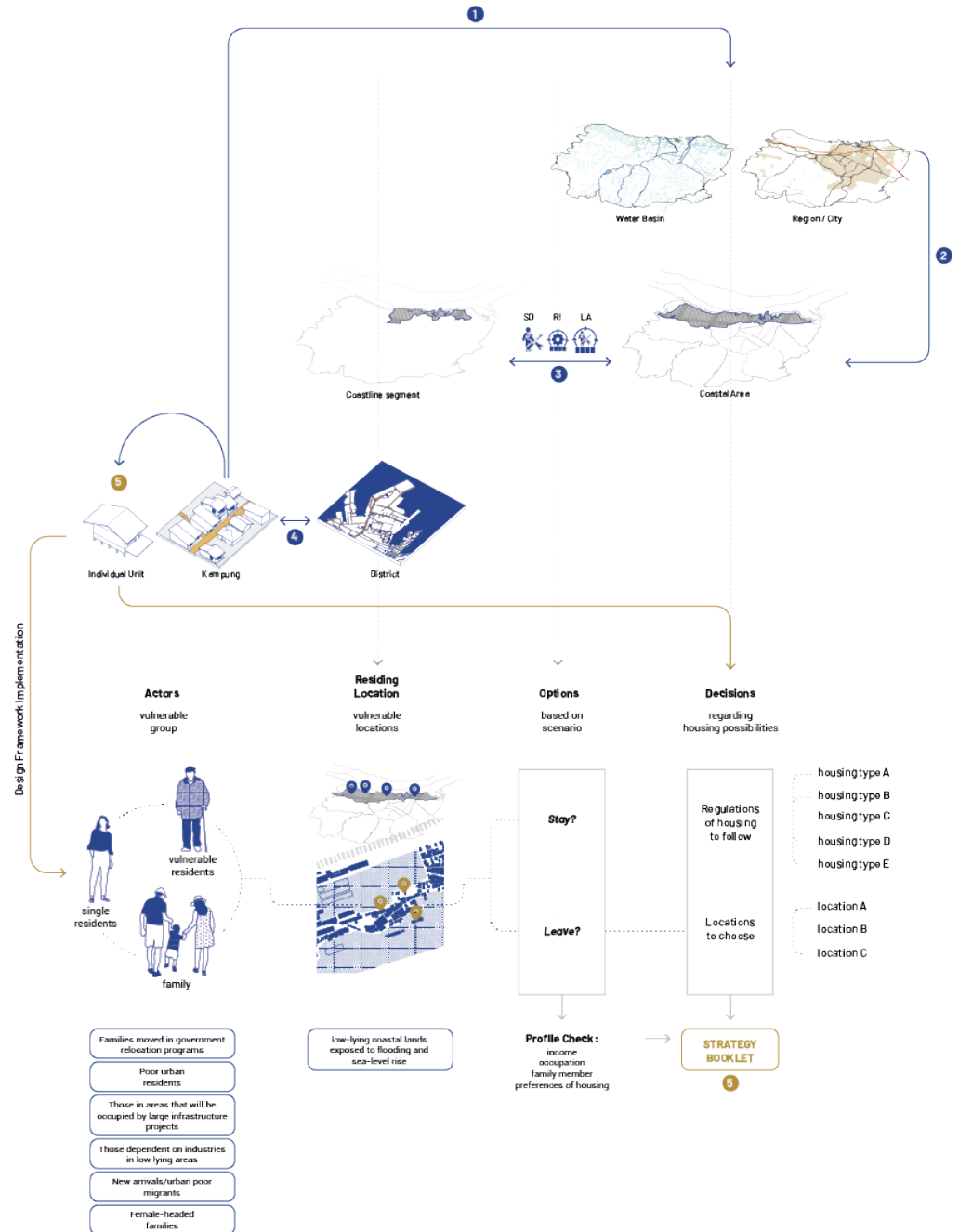
Design Strategies (Semarang Coastline)



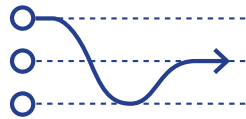
urban planning perspective (hard approach)



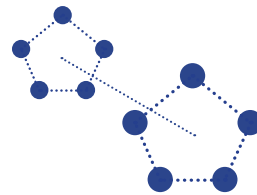
actor perspective (soft + hard approach)



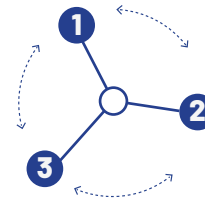
strategic framework



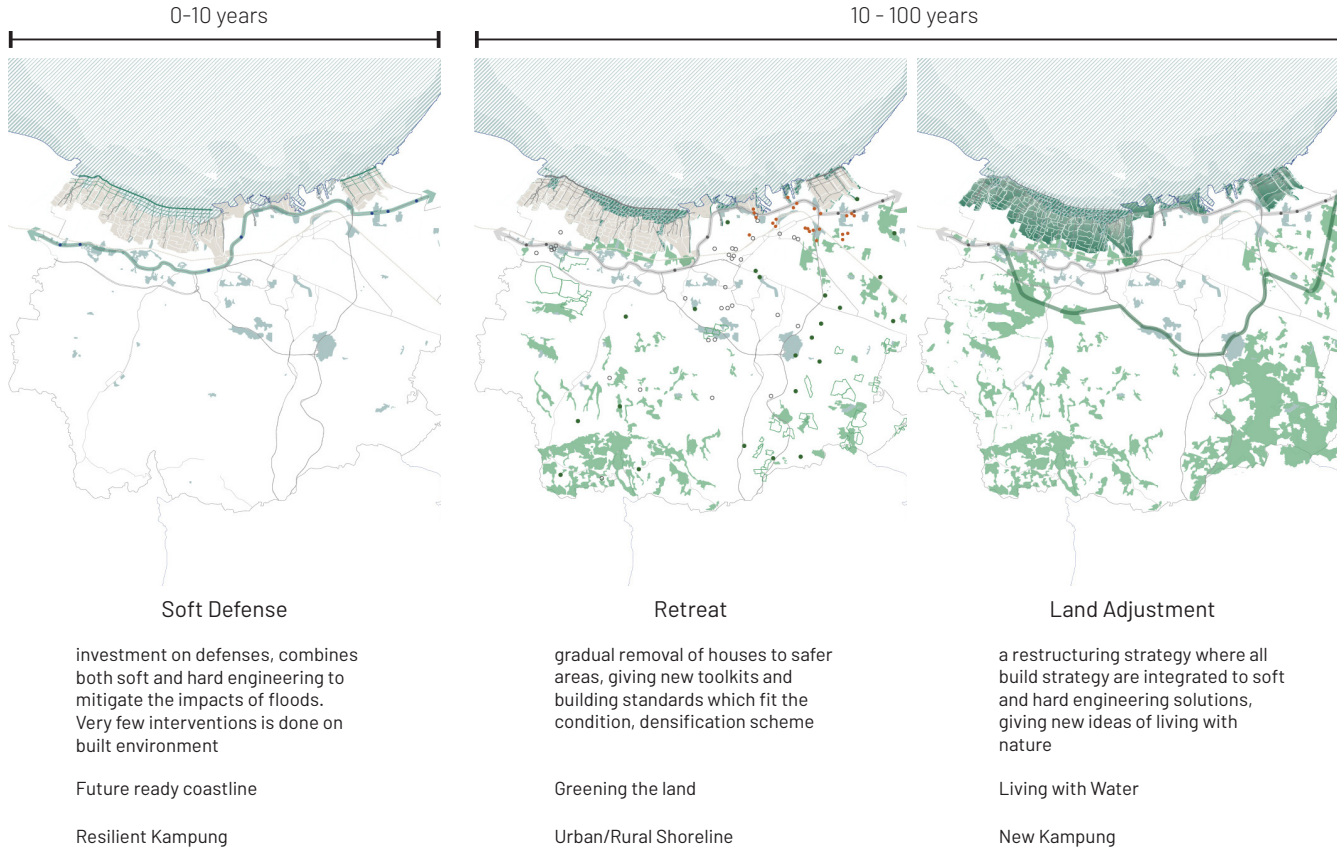
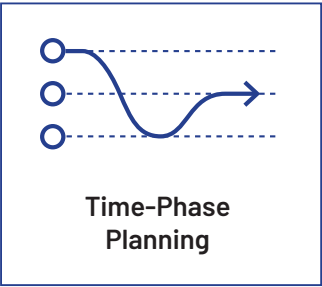
Time-Phase
Planning



Multiscalar
Planning



Stakeholder
Engagement



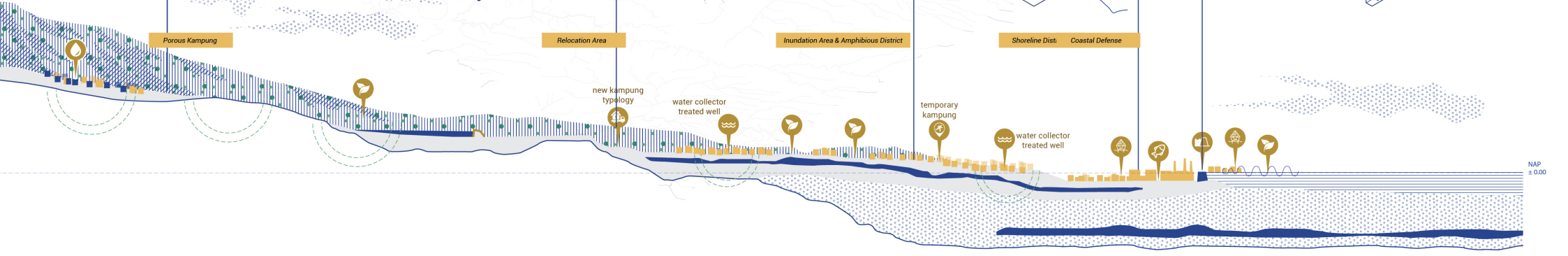
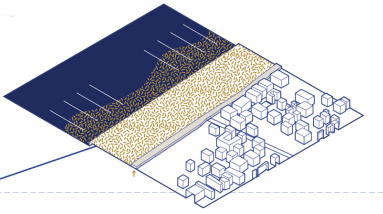
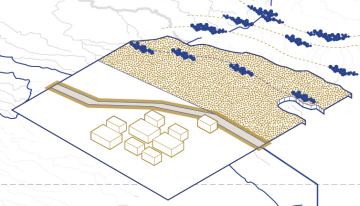
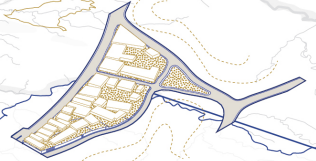
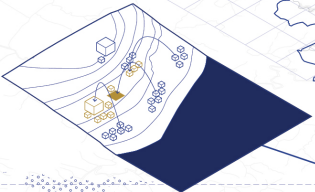
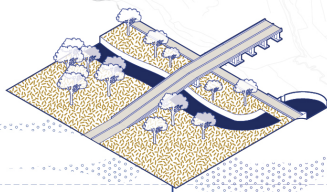
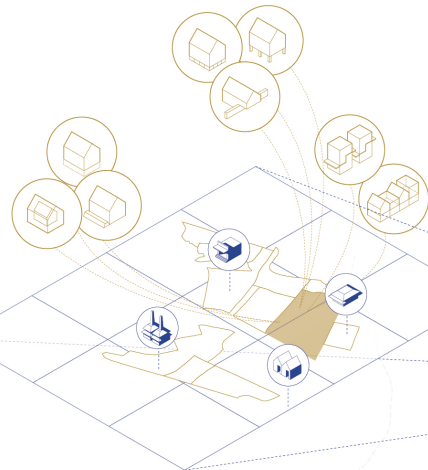
Multiscalar Planning

Community Scale

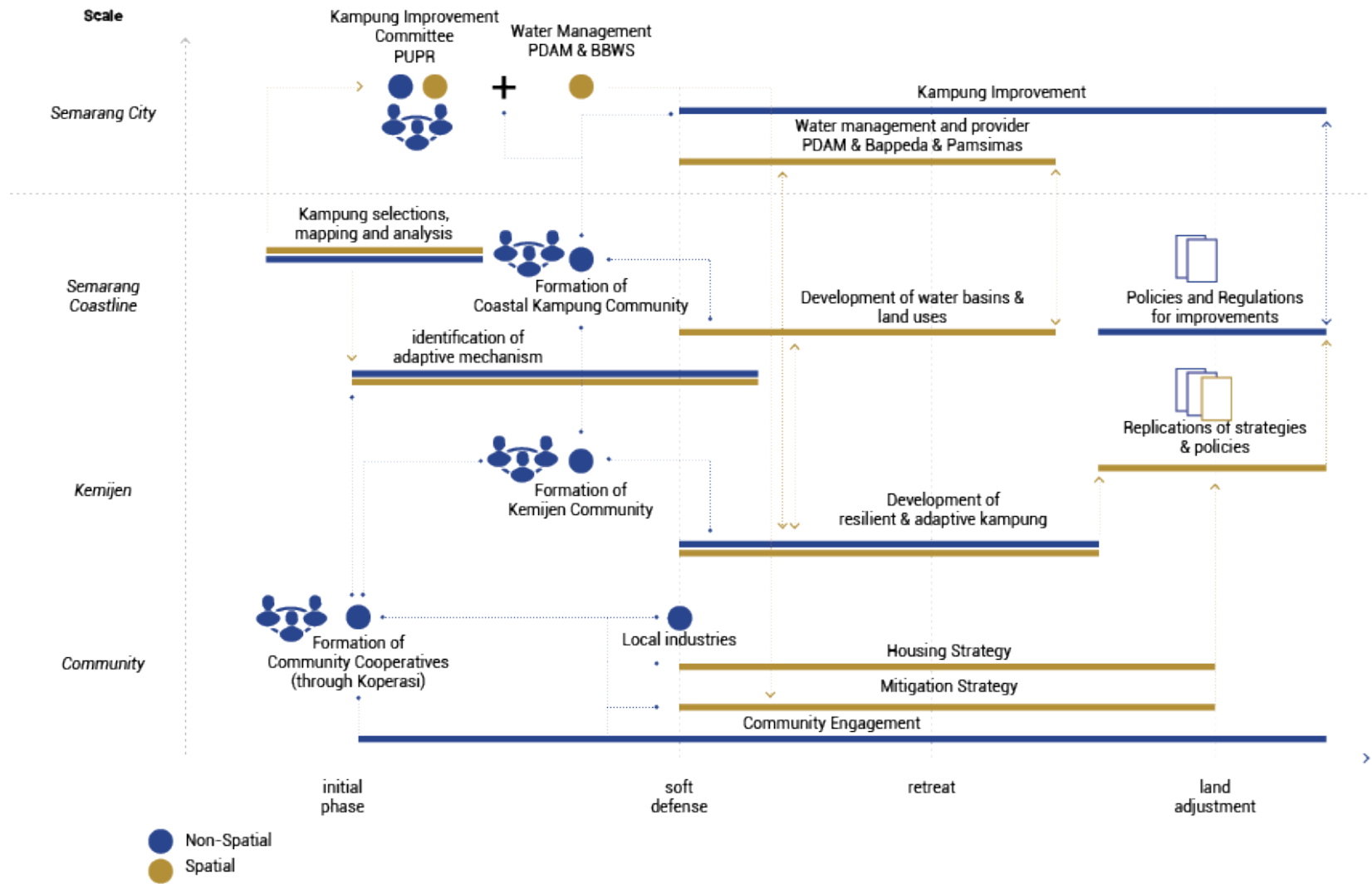
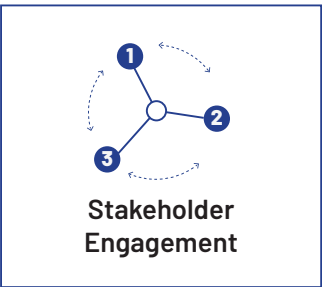
Kampung Scale

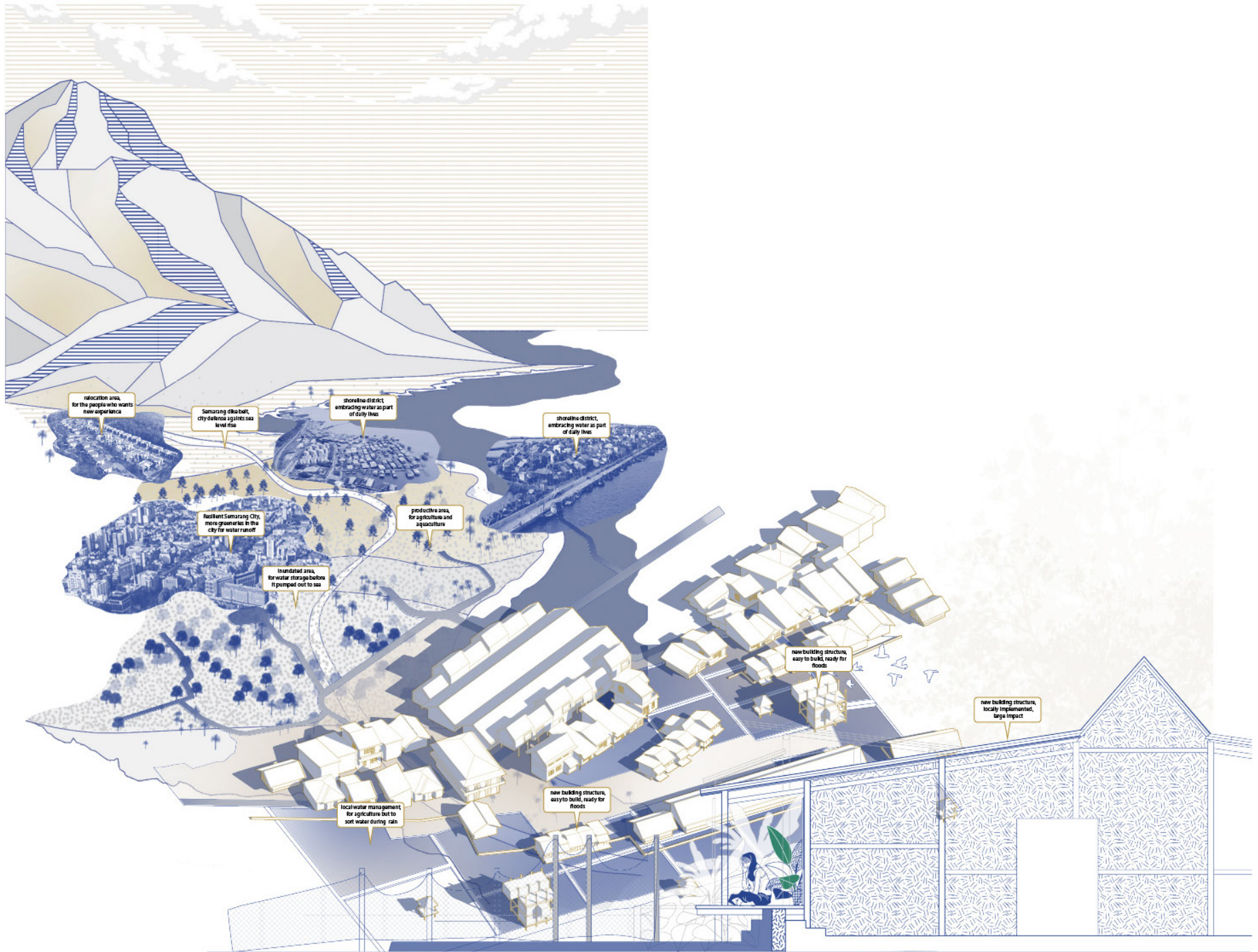
Districts Scale

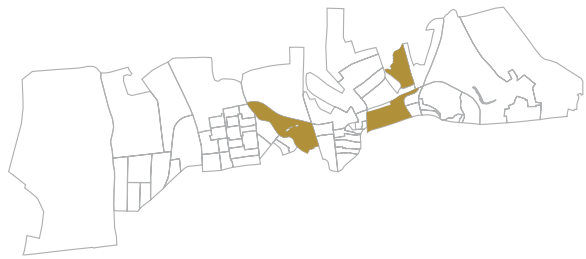
Coastal Scale



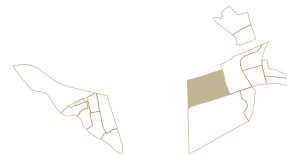
NAP ± 0.00







District



**Kampung
Kemijen**

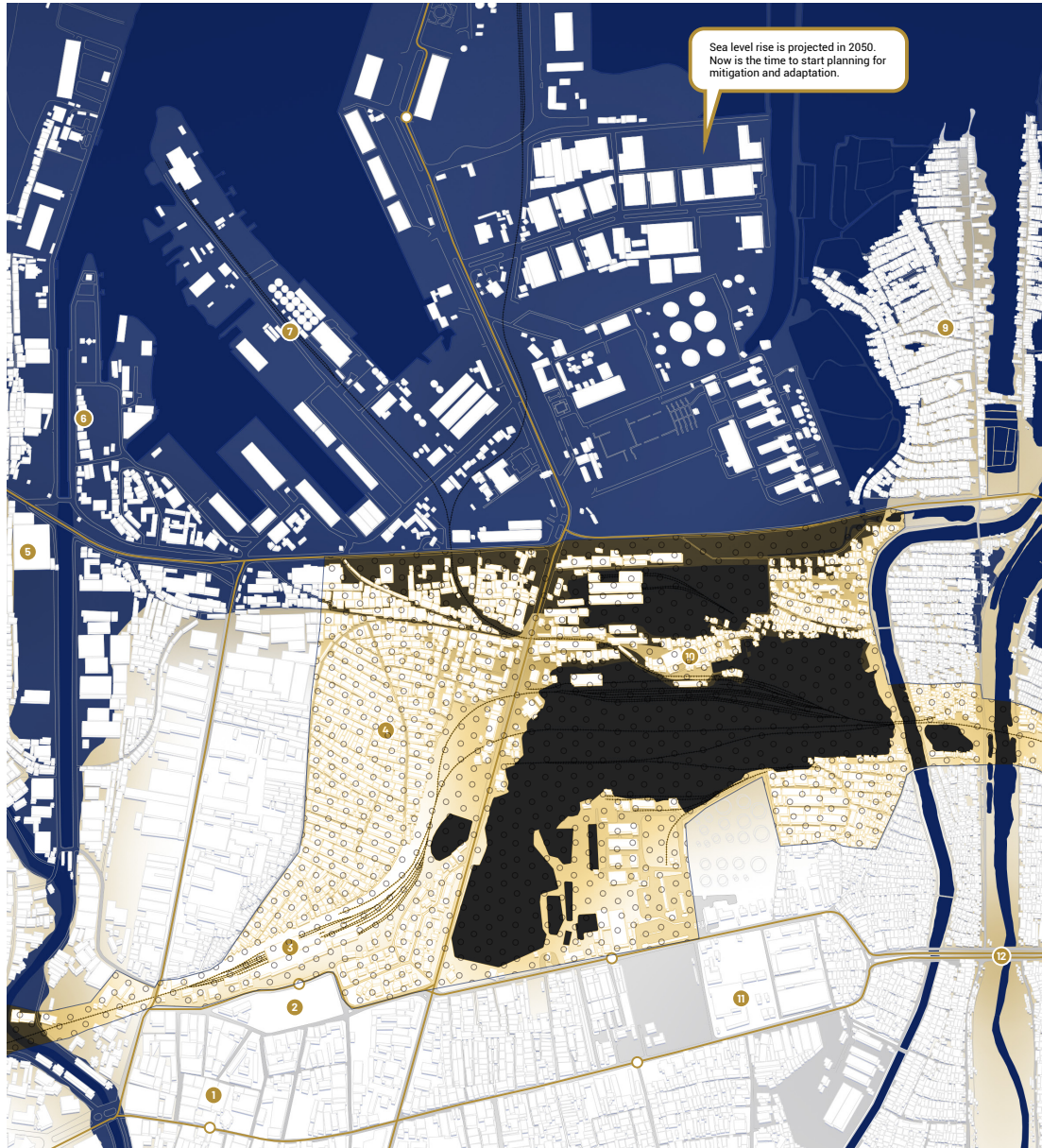


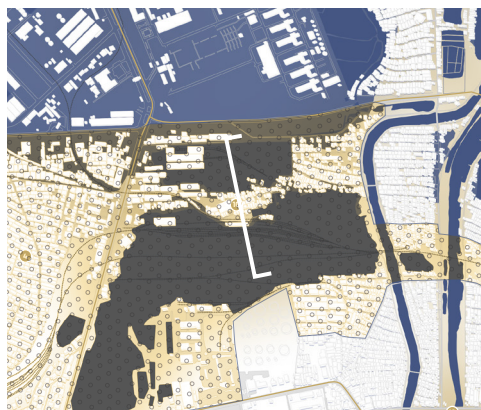
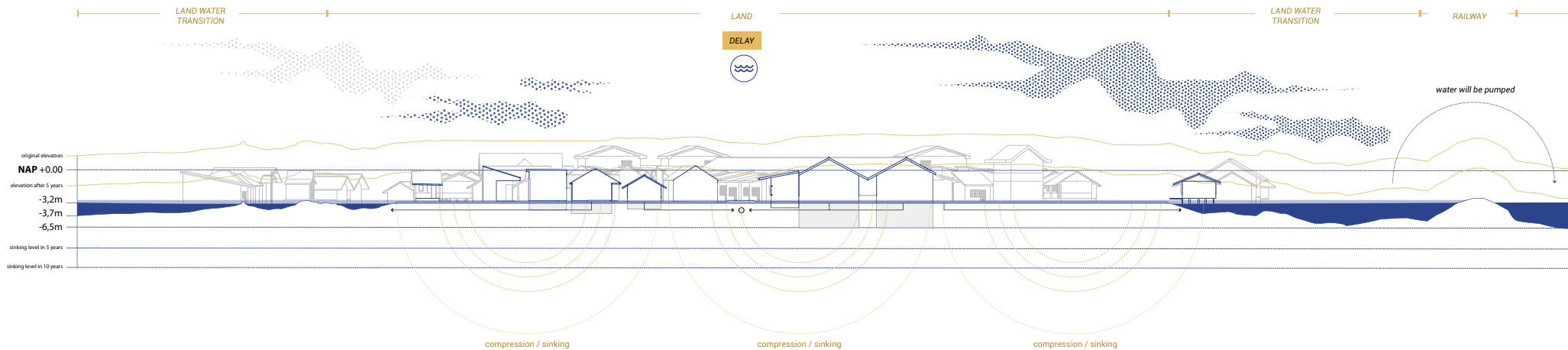
Community

imagine..

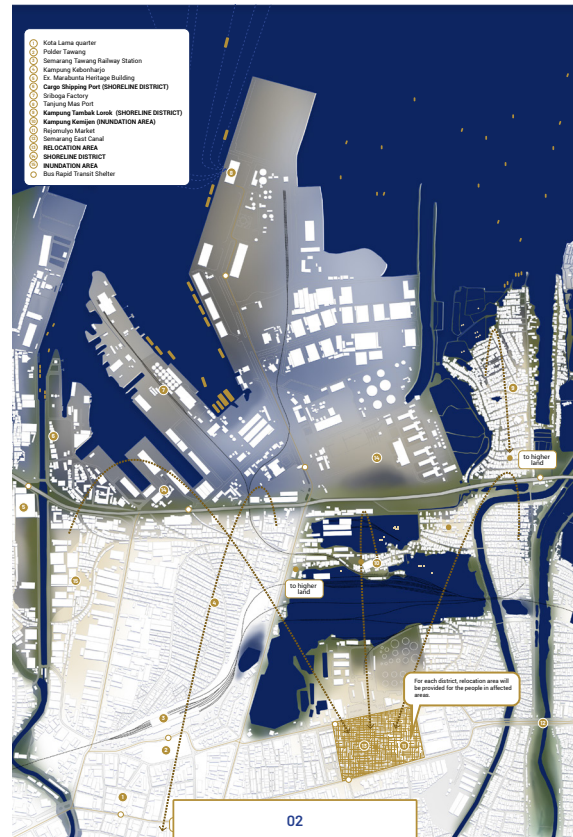
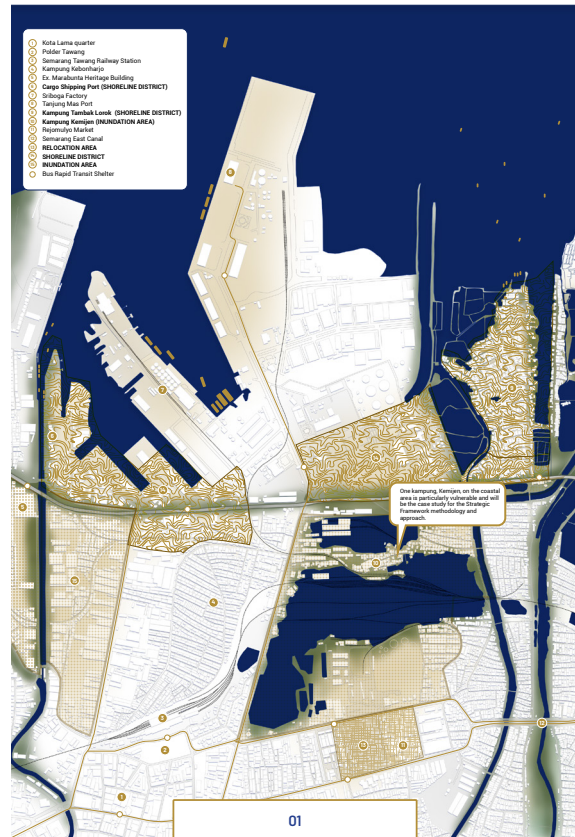








Design Masterplan



Strategies

01
— Soft Defense —

Socio-economic

Morphological

Ecological-Env.

02
— Retreat! —

Socio-economic

Morphological

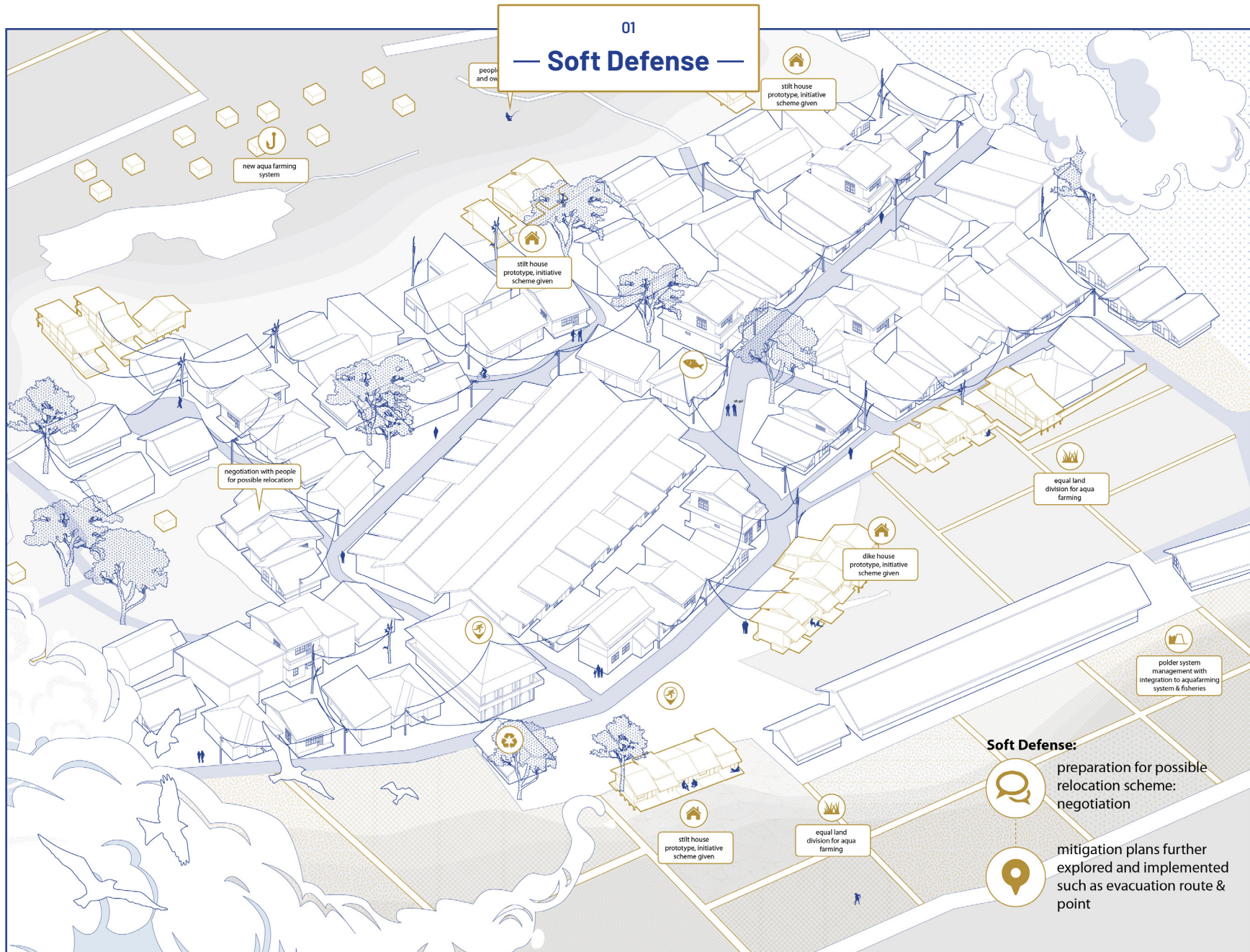
Ecological-Env.

03
— Land Adjustment —

Socio-economic

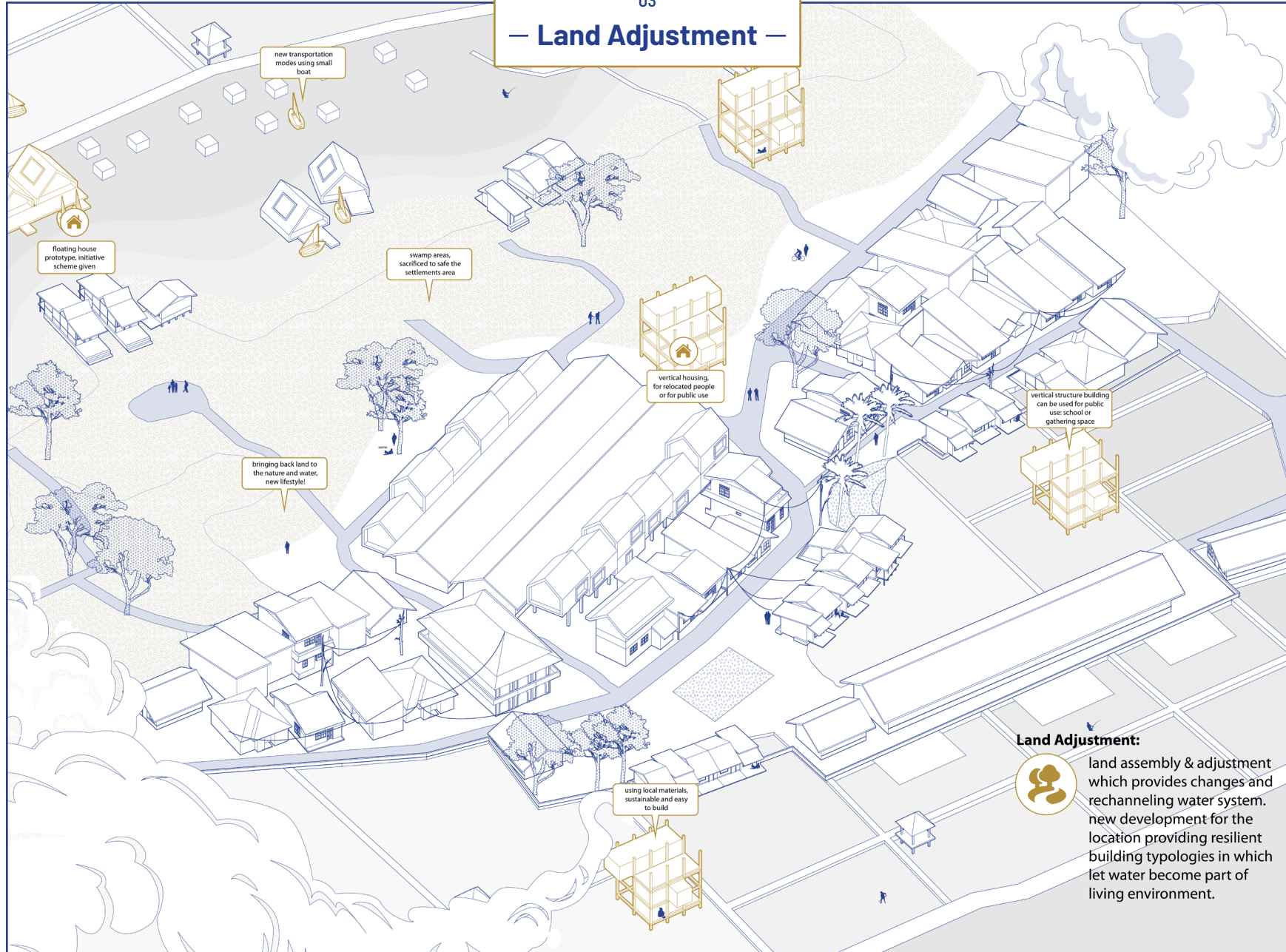
Morphological

Ecological-Env.



03

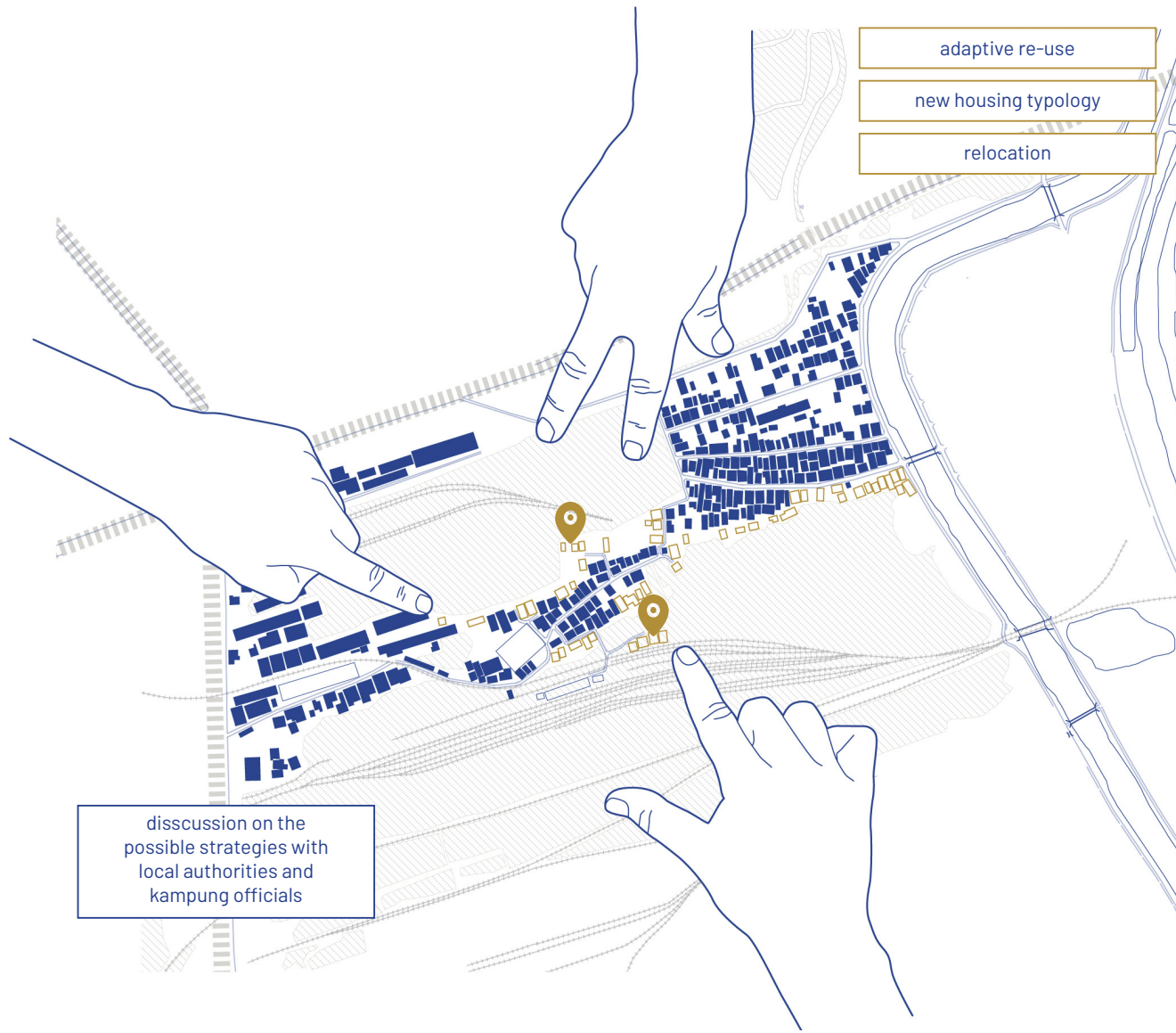
— Land Adjustment —



Land Adjustment:



land assembly & adjustment which provides changes and rechanneling water system. new development for the location providing resilient building typologies in which let water become part of living environment.



discussion on the possible strategies with local authorities and kampung officials

- adaptive re-use
- new housing typology
- relocation

choose best fit options from catalog of strategies

STRATEGY
103 / Adaptive

Description Code / 1000

The use of existing building, use after use... (text partially obscured)

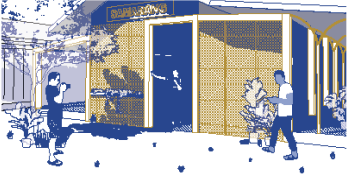
Incentive Schemes

Cost

Funding Scheme

Building Transformation

Three small architectural drawings showing different building transformations.



STRATEGY
101 / Dike House.

Description Code / 1001

The site house allows you to have your own back yard facing your own... (text partially obscured)

Incentive Schemes

Cost

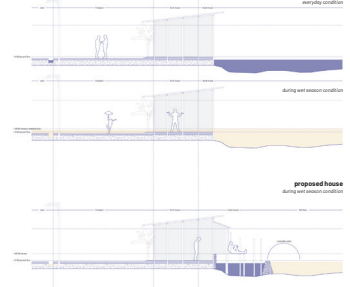
Funding Scheme

Current Spatial Condition

Two floor plans showing the current and proposed spatial conditions.

existing house (during wet season condition)

proposed house (during wet season condition)



STRATEGY
101 / Dike House.

Site

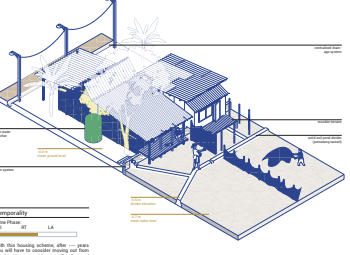
If your house is located on the... (text partially obscured)

Program / Floorplan

Infrastructure

Temporary

3D architectural rendering of a house with a large open area in front.



assistance



00

Preparation

Kemijen

LAW 1/2007

Plan A

Plan B

PT KAI

01

Soft Defense

02

Retreat!

03

Land Adjustment

community

programs

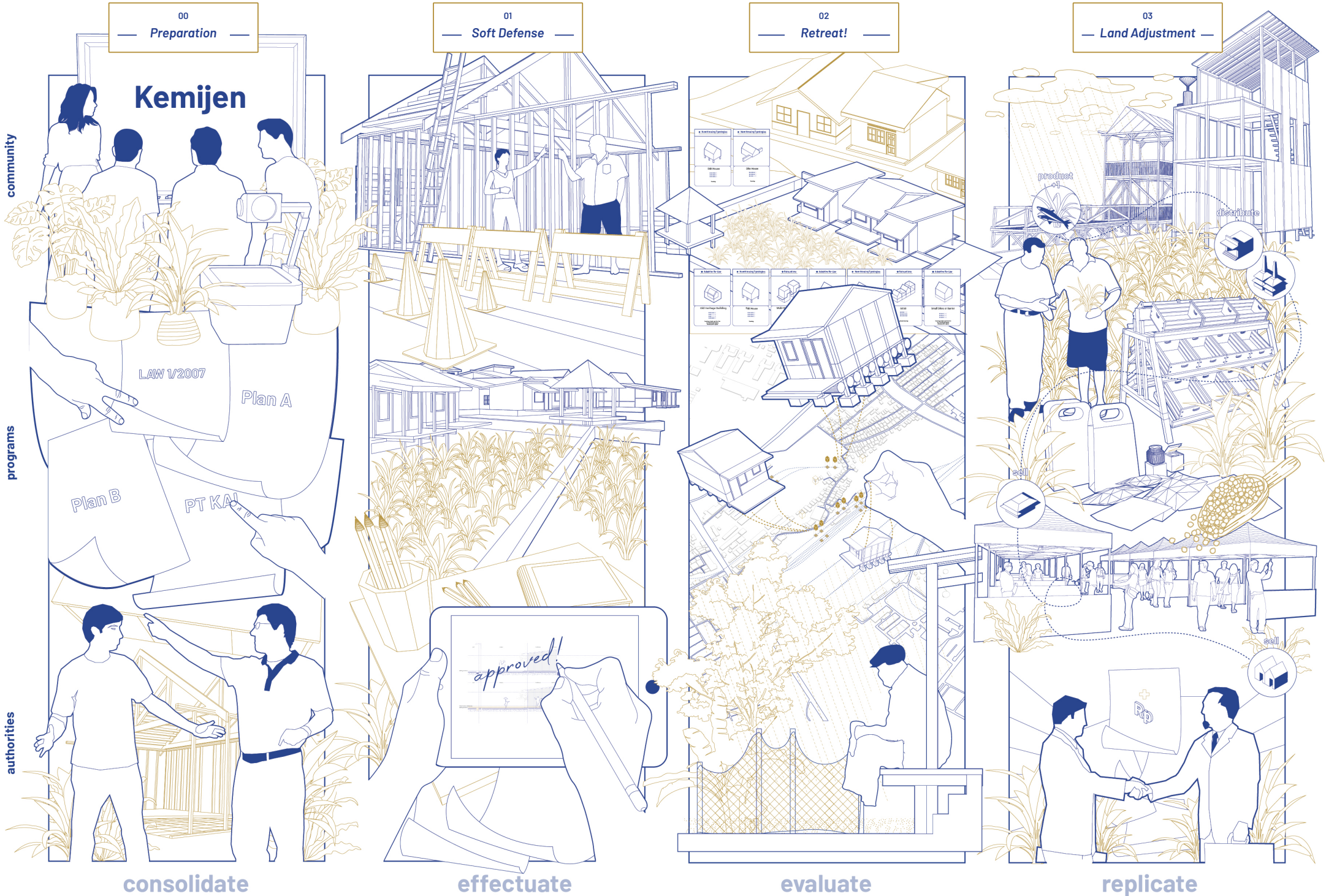
authorities

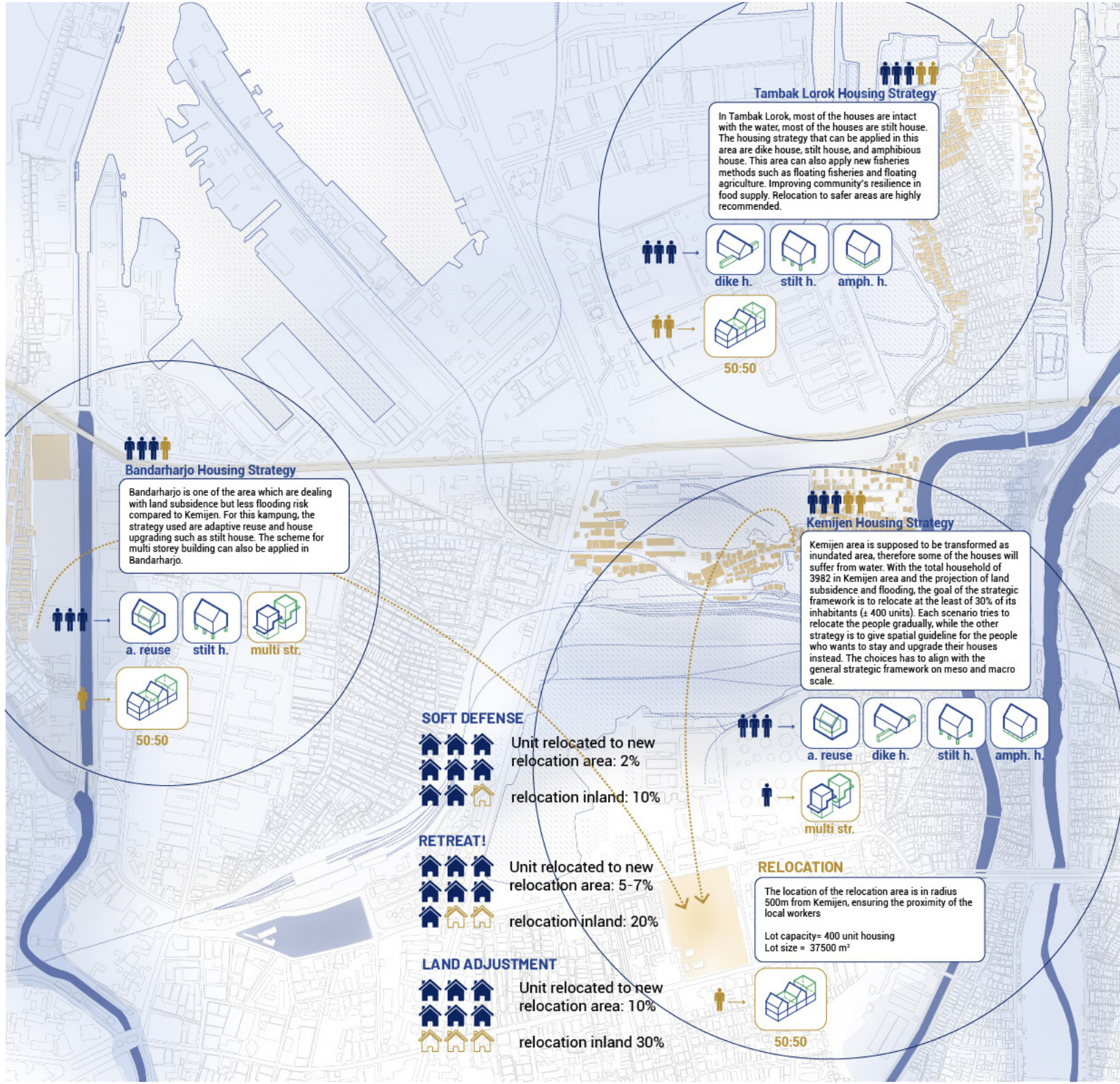
consolidate

effectuate

evaluate

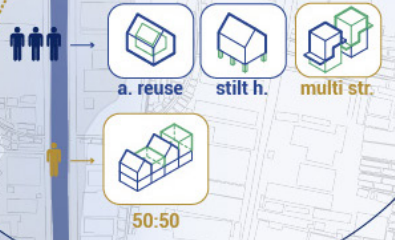
replicate





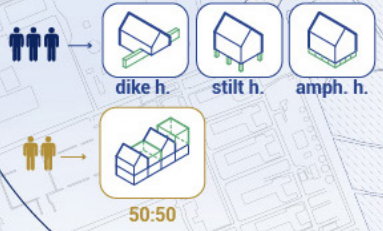
Bandarharjo Housing Strategy

Bandarharjo is one of the area which are dealing with land subsidence but less flooding risk compared to Kemijen. For this kampung, the strategy used are adaptive reuse and house upgrading such as stilt house. The scheme for multi storey building can also be applied in Bandarharjo.



Tambak Lorok Housing Strategy

In Tambak Lorok, most of the houses are intact with the water, most of the houses are stilt house. The housing strategy that can be applied in this area are dike house, stilt house, and amphibious house. This area can also apply new fisheries methods such as floating fisheries and floating agriculture. Improving community's resilience in food supply. Relocation to safer areas are highly recommended.



Kemijen Housing Strategy

Kemijen area is supposed to be transformed as inundated area, therefore some of the houses will suffer from water. With the total household of 3982 in Kemijen area and the projection of land subsidence and flooding, the goal of the strategic framework is to relocate at the least of 30% of its inhabitants (± 400 units). Each scenario tries to relocate the people gradually, while the other strategy is to give spatial guideline for the people who wants to stay and upgrade their houses instead. The choices has to align with the general strategic framework on meso and macro scale.



SOFT DEFENSE

- Unit relocated to new relocation area: 2%
- relocation inland: 10%

RETREAT!

- Unit relocated to new relocation area: 5-7%
- relocation inland: 20%

LAND ADJUSTMENT

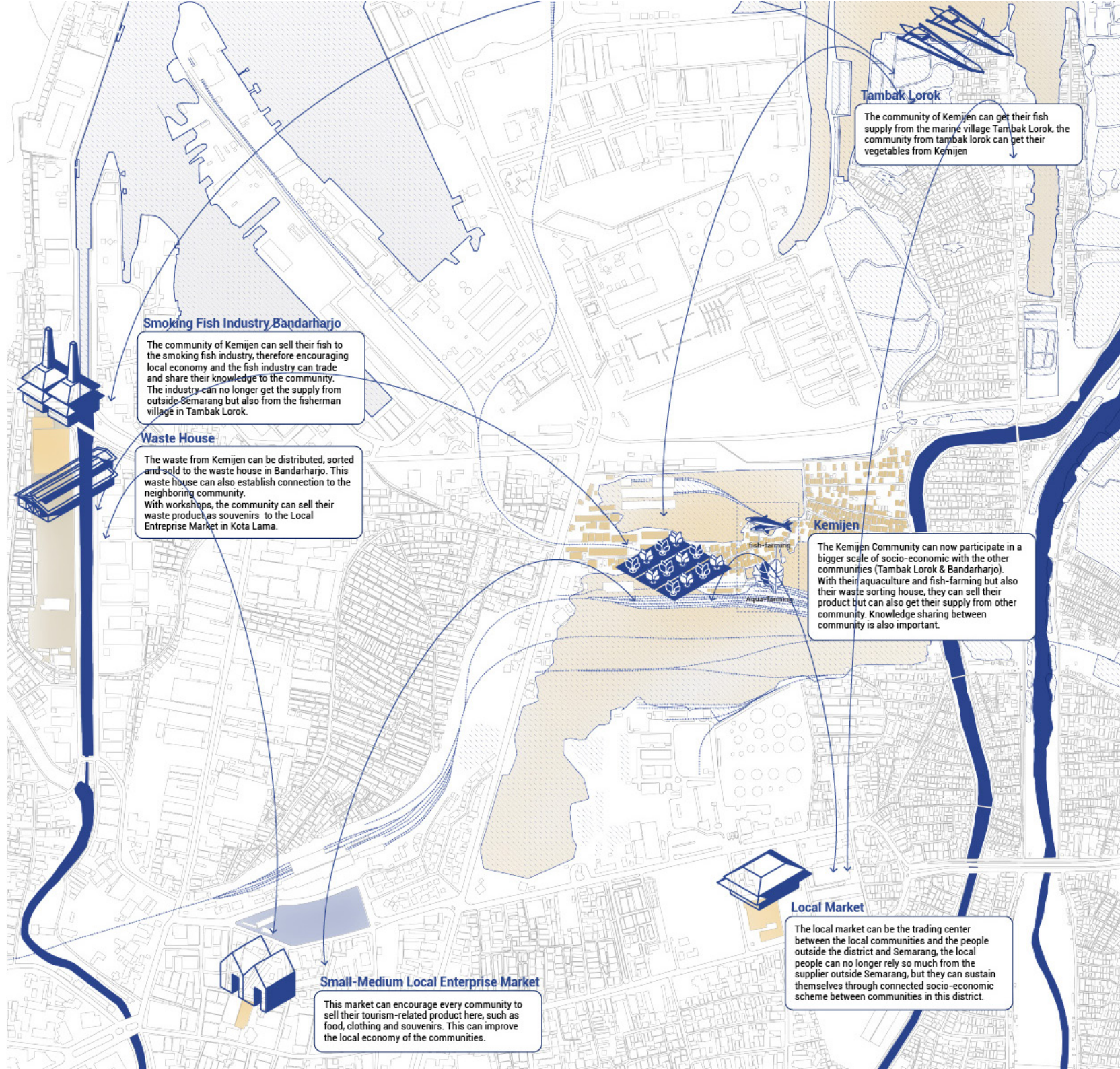
- Unit relocated to new relocation area: 10%
- relocation inland 30%

RELOCATION

The location of the relocation area is in radius 500m from Kemijen, ensuring the proximity of the local workers

Lot capacity= 400 unit housing
Lot size = 37500 m²





Tambak Lorok

The community of Kemijen can get their fish supply from the marine village Tambak Lorok, the community from tambak lorok can get their vegetables from Kemijen

Smoking Fish Industry Bandarharjo

The community of Kemijen can sell their fish to the smoking fish industry, therefore encouraging local economy and the fish industry can trade and share their knowledge to the community. The industry can no longer get the supply from outside Semarang but also from the fisherman village in Tambak Lorok.

Waste House

The waste from Kemijen can be distributed, sorted and sold to the waste house in Bandarharjo. This waste house can also establish connection to the neighboring community. With workshops, the community can sell their waste product as souvenirs to the Local Enterprise Market in Kota Lama.

Kemijen

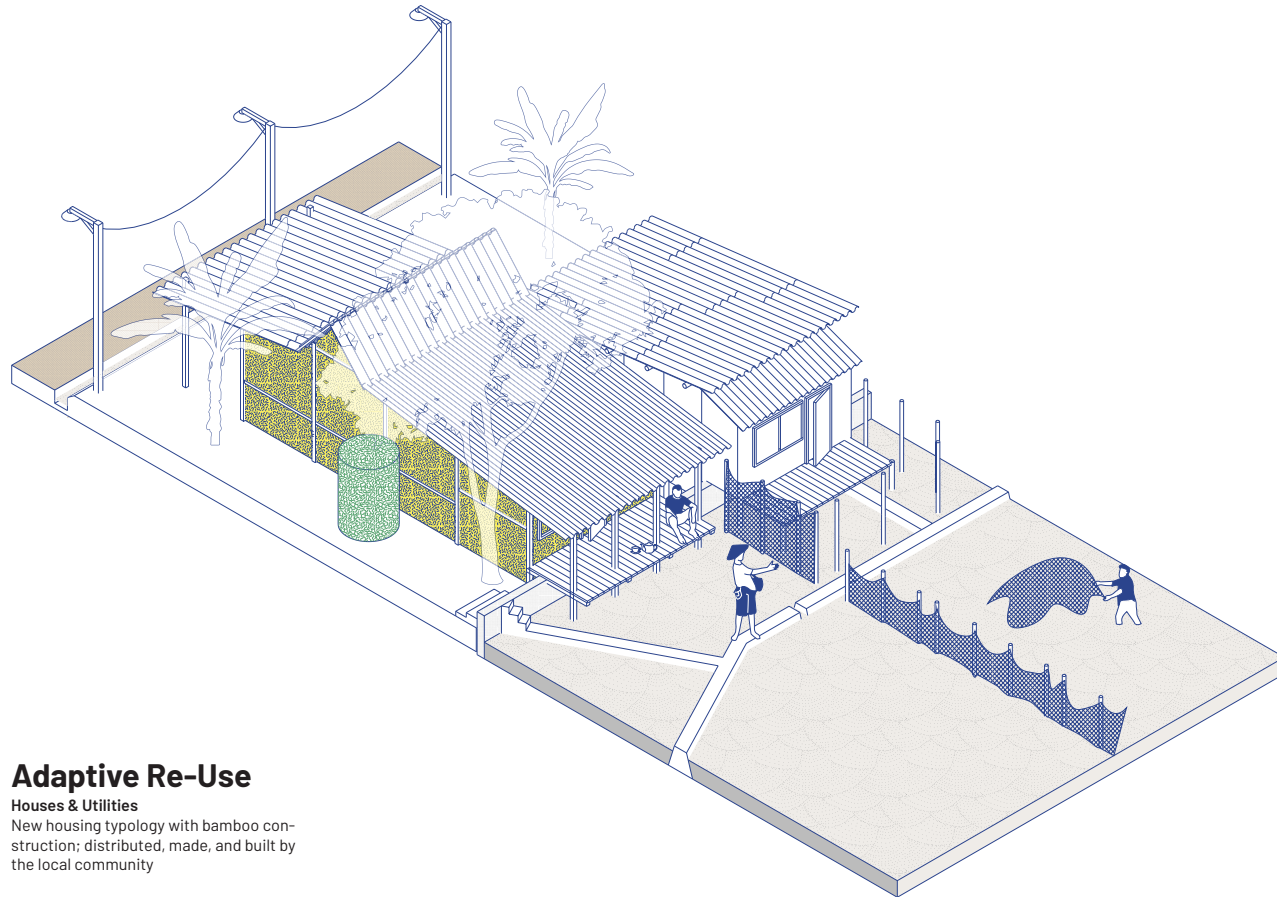
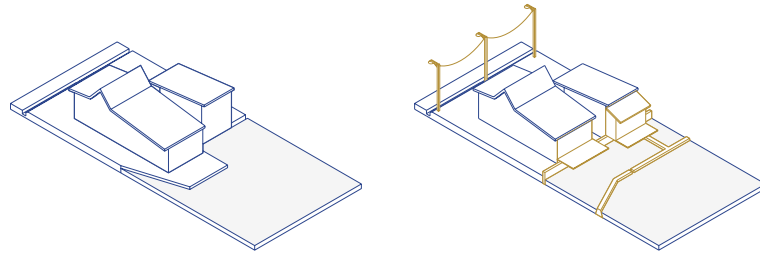
The Kemijen Community can now participate in a bigger scale of socio-economic with the other communities (Tambak Lorok & Bandarharjo). With their aquaculture and fish-farming but also their waste sorting house, they can sell their product but can also get their supply from other community. Knowledge sharing between community is also important.

Local Market

The local market can be the trading center between the local communities and the people outside the district and Semarang, the local people can no longer rely so much from the supplier outside Semarang, but they can sustain themselves through connected socio-economic scheme between communities in this district.

Small-Medium Local Enterprise Market

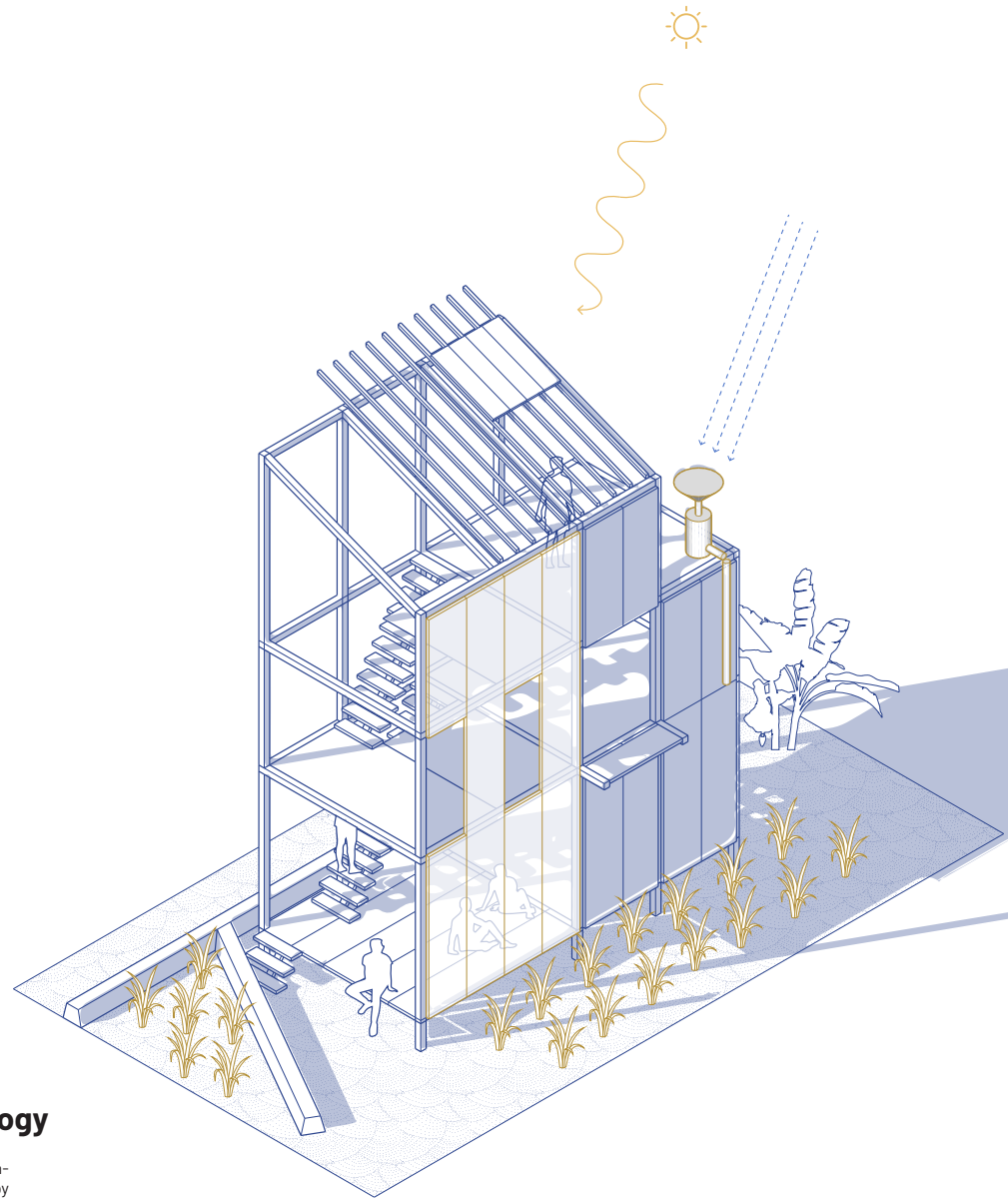
This market can encourage every community to sell their tourism-related product here, such as food, clothing and souvenirs. This can improve the local economy of the communities.



Adaptive Re-Use

Houses & Utilities

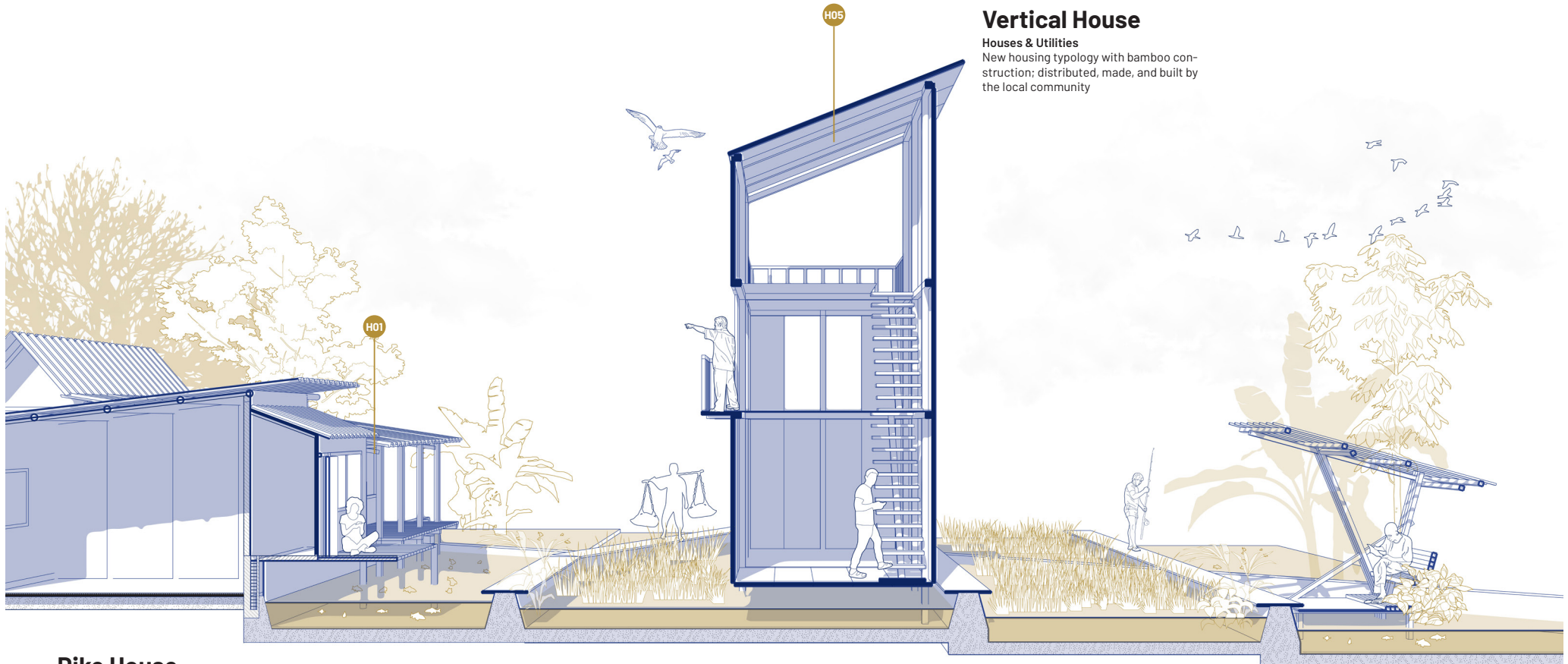
New housing typology with bamboo construction; distributed, made, and built by the local community



New Housing Typology

Houses & Utilities

New housing typology with bamboo construction; distributed, made, and built by the local community

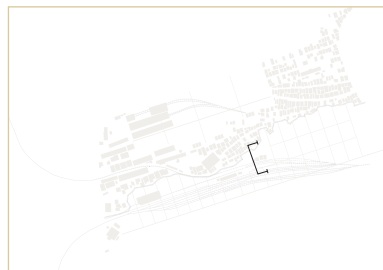


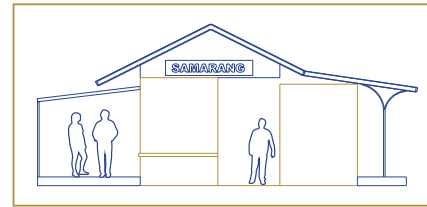
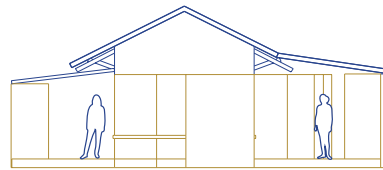
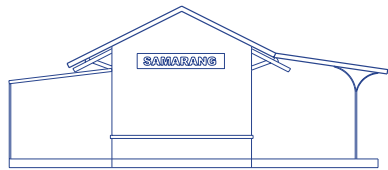
Vertical House

Houses & Utilities
 New housing typology with bamboo construction; distributed, made, and built by the local community

Dike House

Houses & Utilities
 People can upgrade their backyard facing the fish pond or farm while also contributing to the kampung by building dike, protecting the whole kampung





Adaptive Re-Use

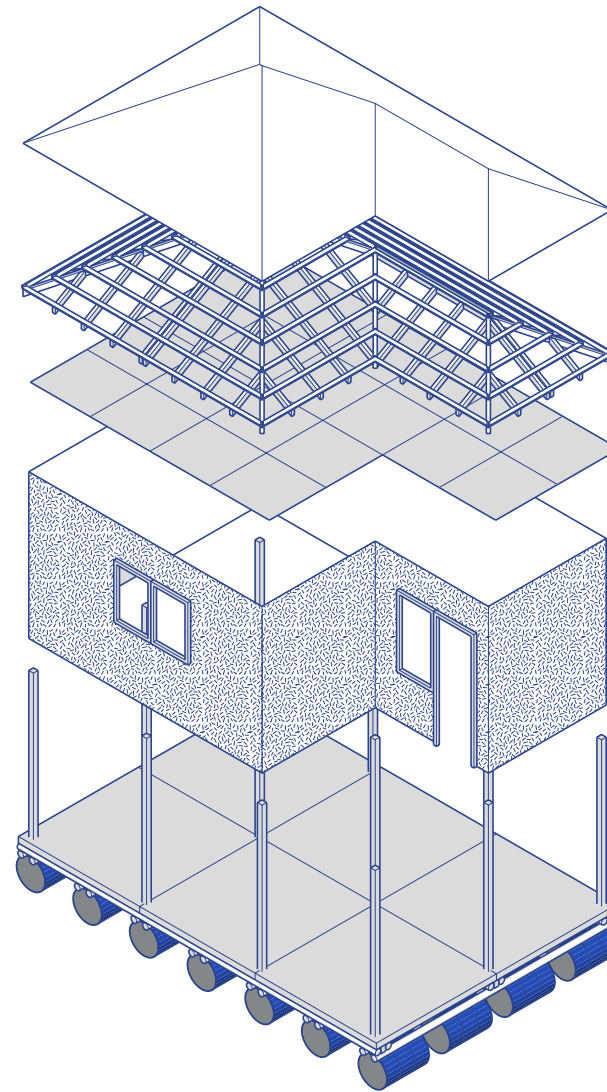
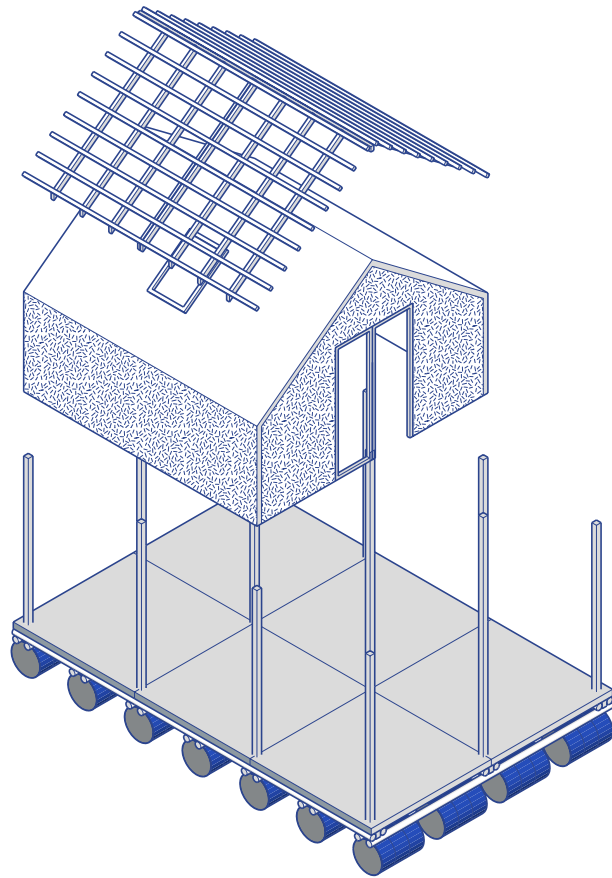
Houses & Utilities

Re-using the old heritage infrastructure as new housing typology, sustainable and durable

New Housing Typology

Houses & Utilities

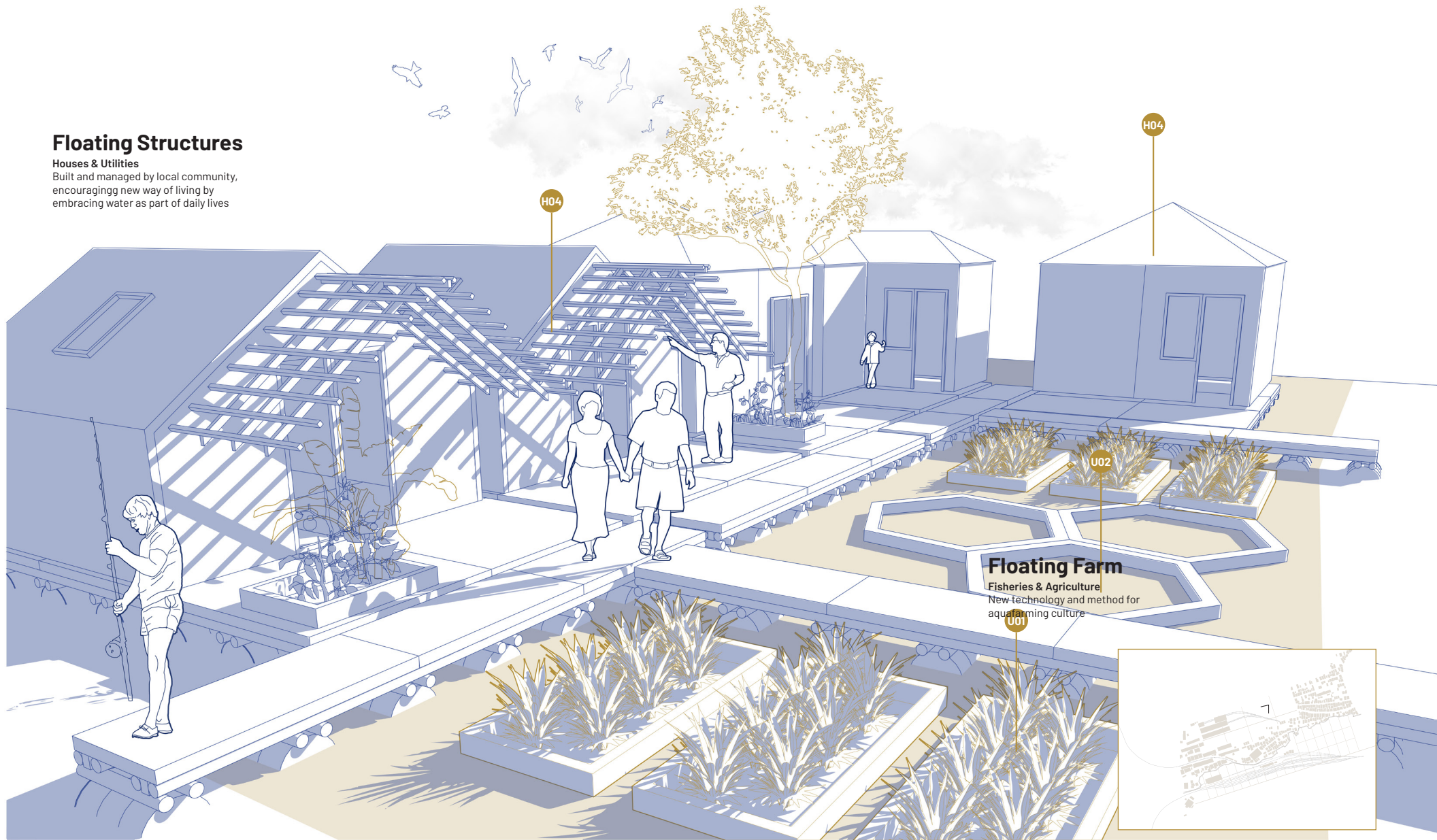
New housing typology with bamboo construction; distributed, made, and built by the local community



Floating Structures

Houses & Utilities

Built and managed by local community, encouraging new way of living by embracing water as part of daily lives



Floating Farm

Fisheries & Agriculture
New technology and method for aquafarming culture

Floating Farm

Fisheries & Agriculture
New technology and method for aquafarming culture

U02

U01

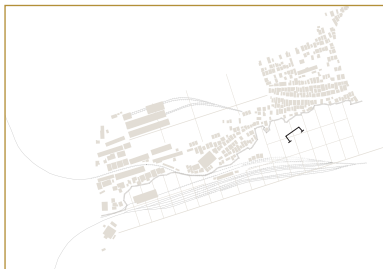
Bamboo Structure

Houses & Utilities
New building typology with bamboo construction; distributed, made, and built by the local community

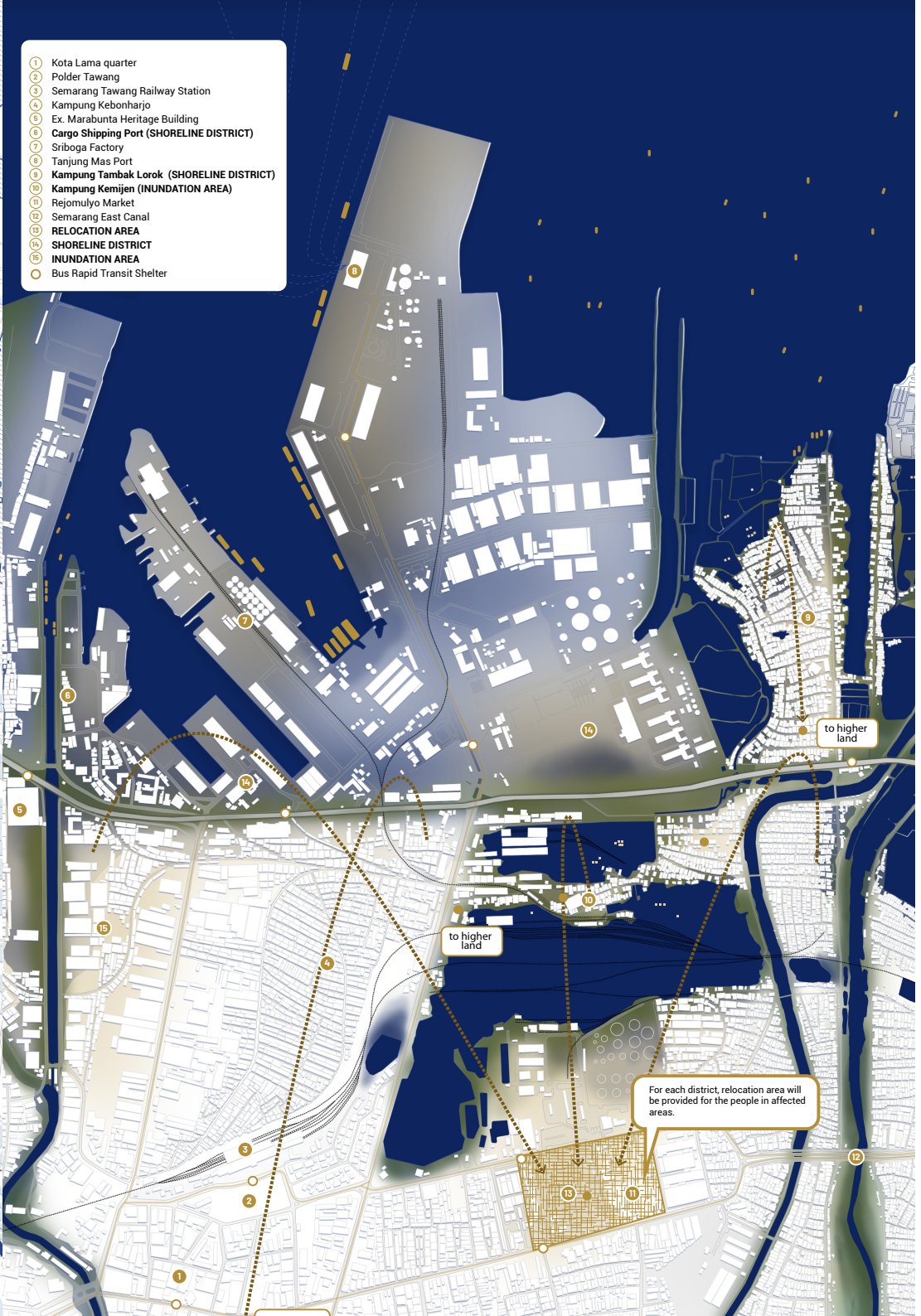
H05

Constructed Sawah

Agriculture & Fisheries
Farm field engineered to flow the water out but also for fisheries and agriculture

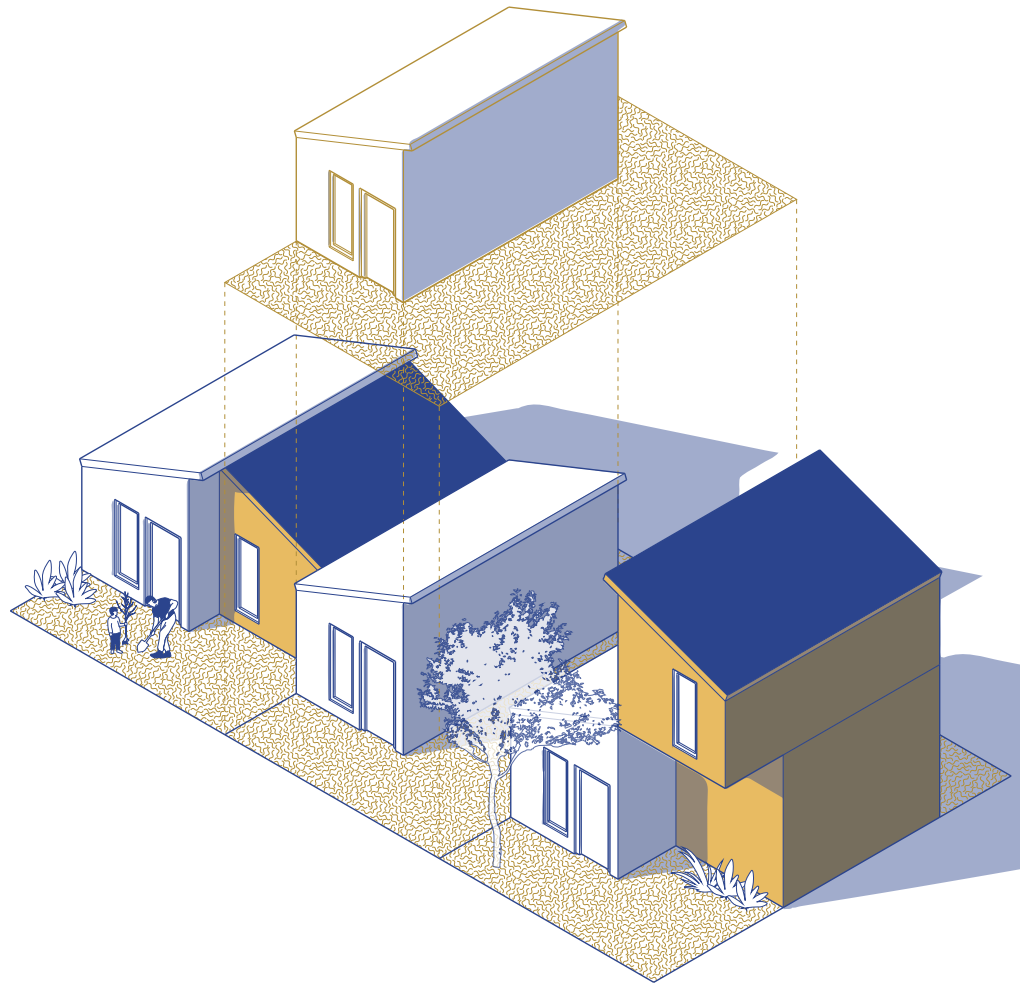


- 1 Kota Lama quarter
- 2 Polder Tawang
- 3 Semarang Tawang Railway Station
- 4 Kampung Kebonharjo
- 5 Ex. Marabunta Heritage Building
- 6 Cargo Shipping Port (SHORELINE DISTRICT)
- 7 Sriboga Factory
- 8 Tanjung Mas Port
- 9 Kampung Tambak Lorok (SHORELINE DISTRICT)
- 10 Kampung Kemijen (INUNDATION AREA)
- 11 Rejomulyo Market
- 12 Semarang East Canal
- 13 RELOCATION AREA
- 14 SHORELINE DISTRICT
- 15 INUNDATION AREA
- 16 Bus Rapid Transit Shelter



Relocation

Houses & Utilities
 New housing typology with bamboo construction; distributed, made, and built by the local community





Heat Island Reduction

Houses & Utilities
Street trees can help keeping the neighborhood and the city's temperature low

Economy Space

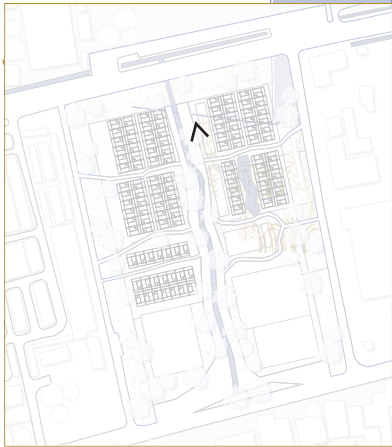
Houses & Utilities
The regulation for economy space on the frontyard on each house, allowing people to sell goods

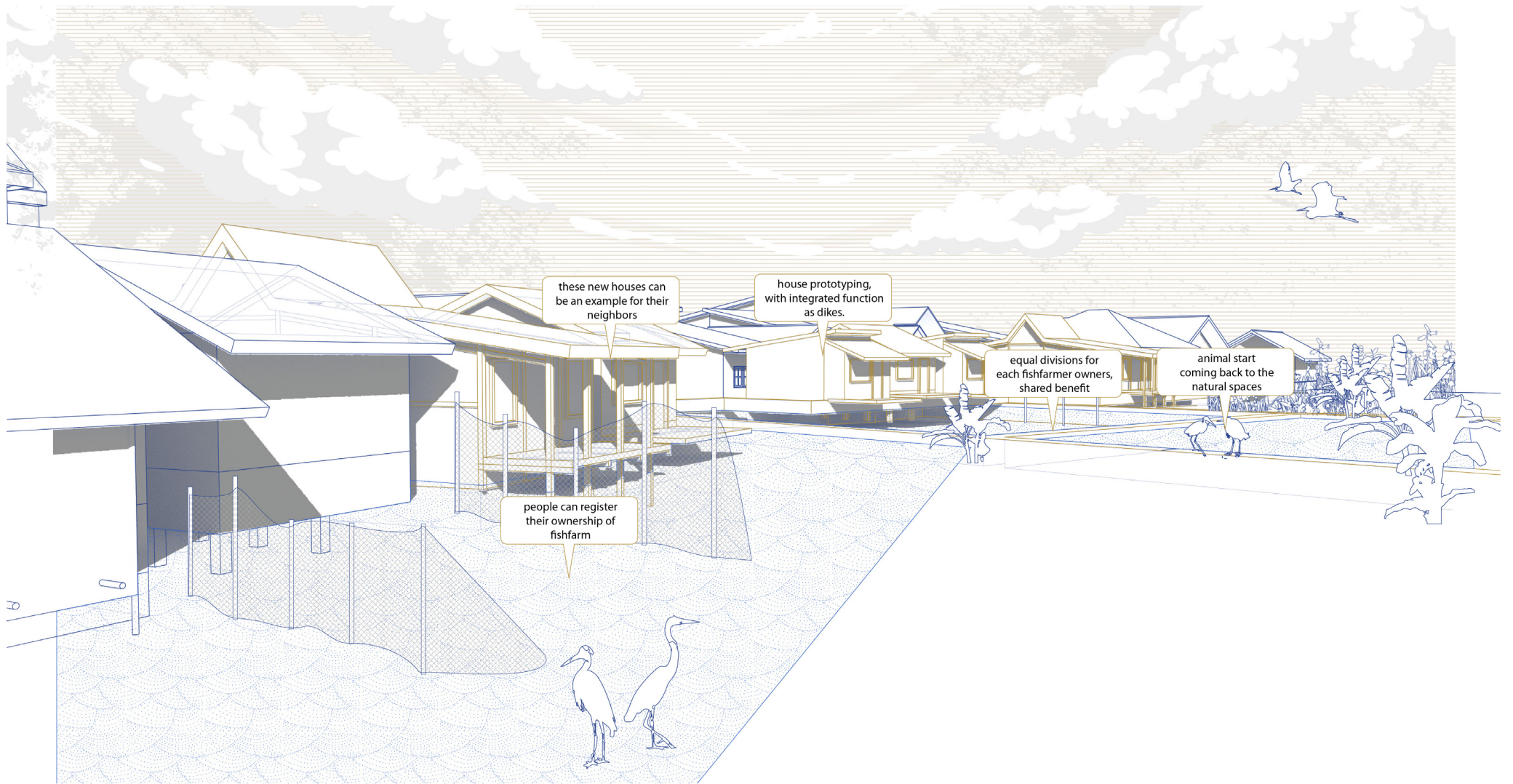
Water Sensitive Design

Houses & Utilities
Reduction in Stormwater Runoff, directing water runoff into street planters to be filtered, reduces flooding and recharging groundwater

Pedestrian Oriented

Houses & Utilities
Every neighborhood and amenities are easily accessible by foot or bike





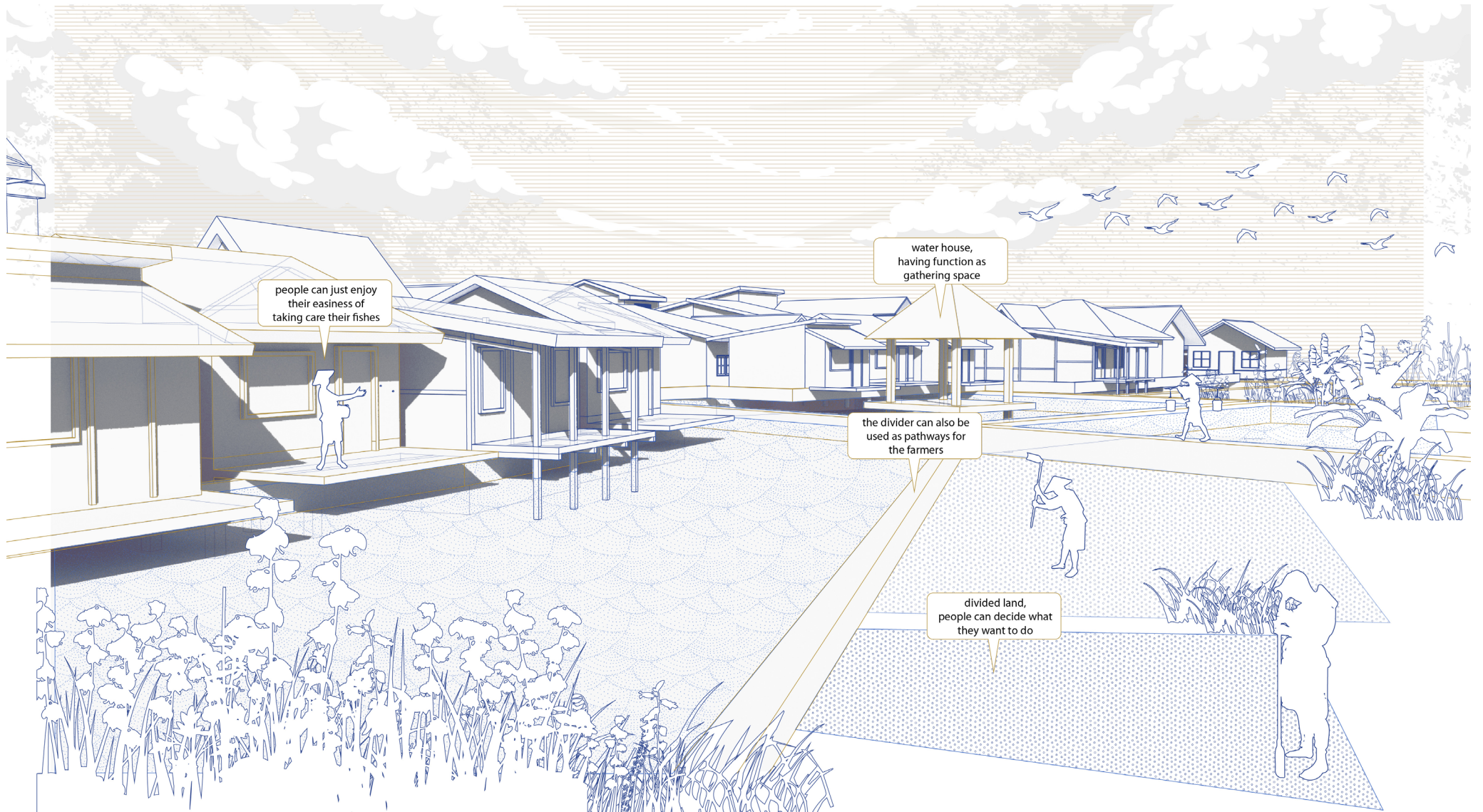
these new houses can be an example for their neighbors

house prototyping, with integrated function as dikes.

equal divisions for each fishfarmer owners, shared benefit

animal start coming back to the natural spaces

people can register their ownership of fishfarm

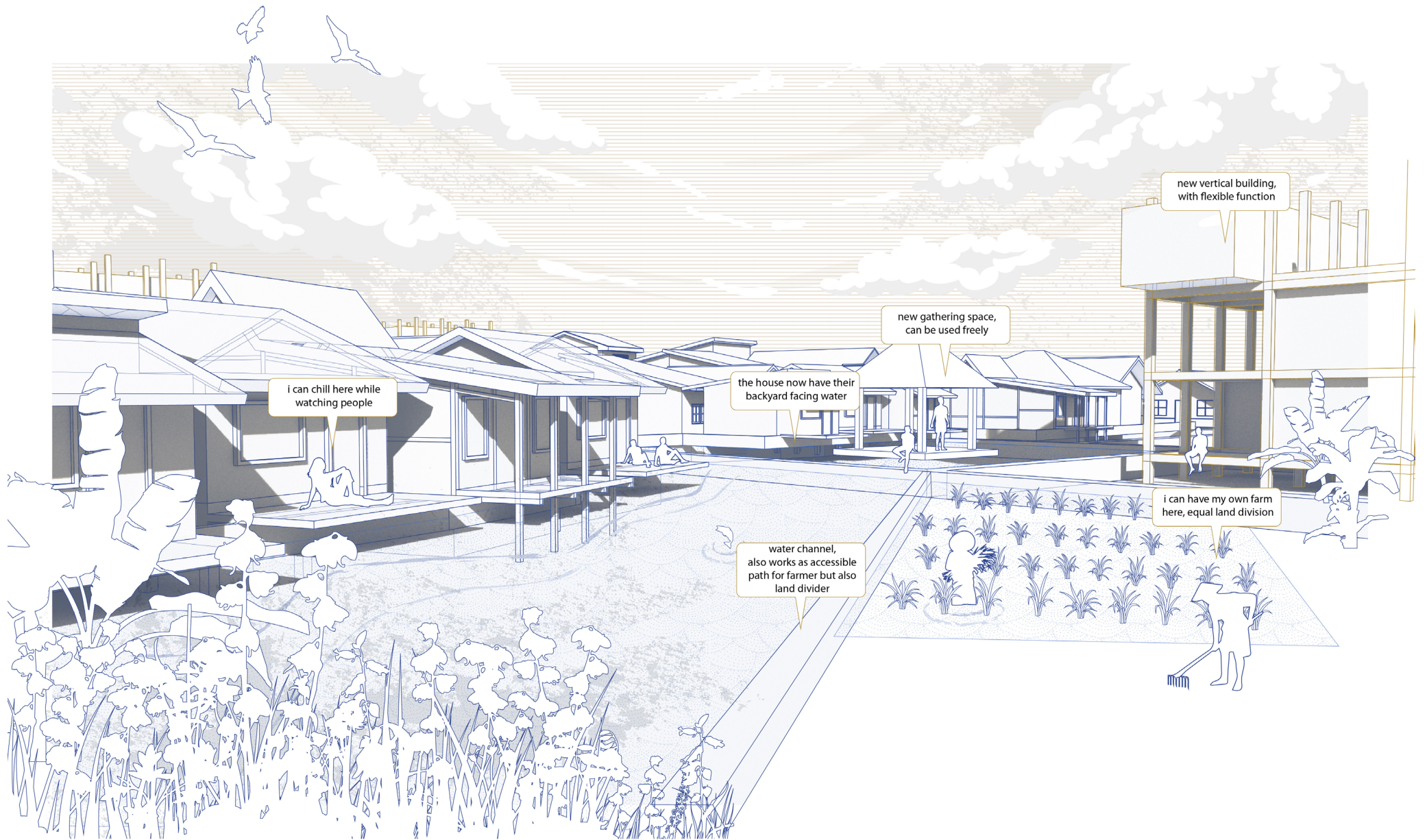


people can just enjoy their easiness of taking care their fishes

water house, having function as gathering space

the divider can also be used as pathways for the farmers

divided land, people can decide what they want to do



i can chill here while watching people

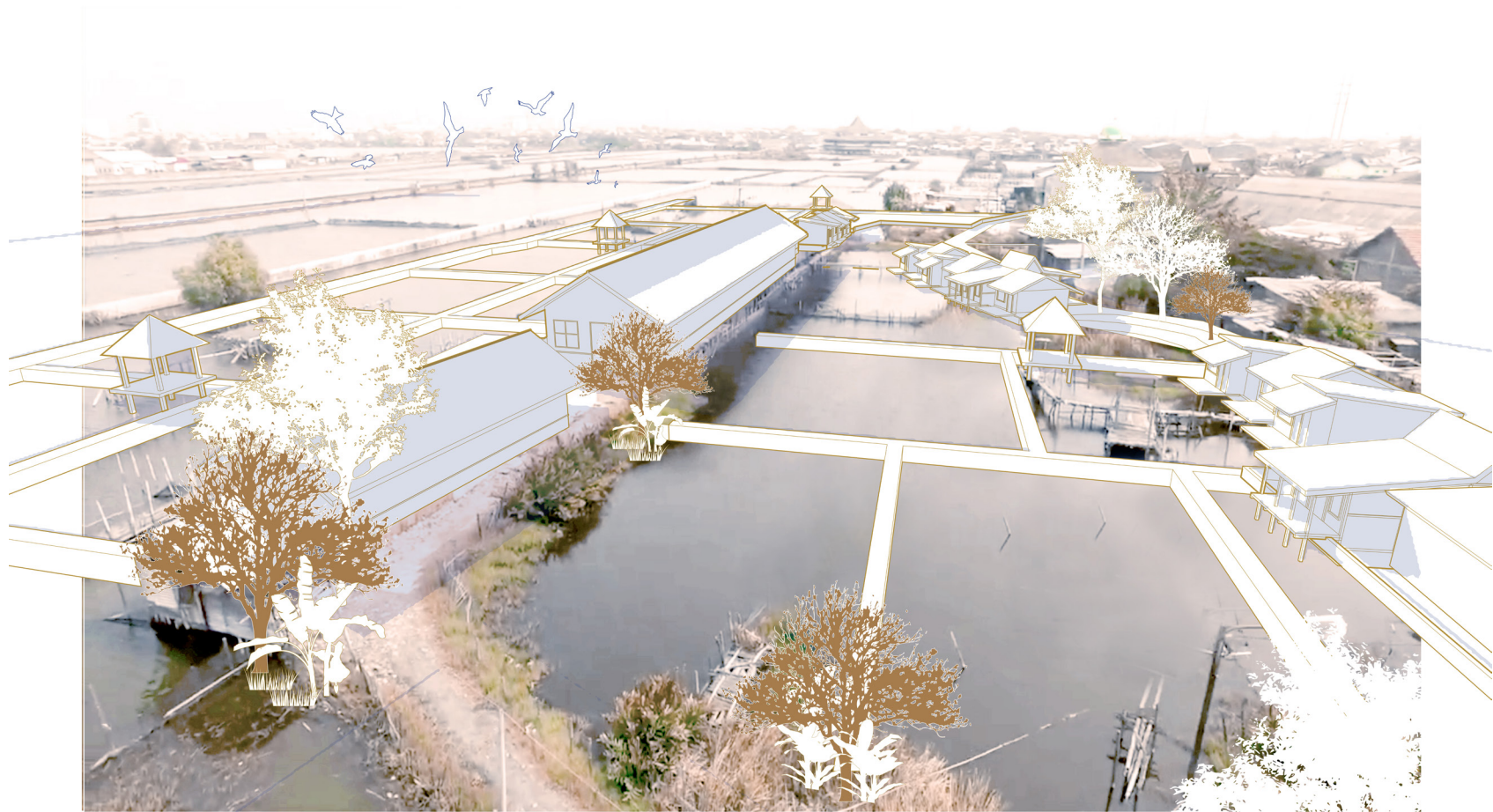
the house now have their backyard facing water

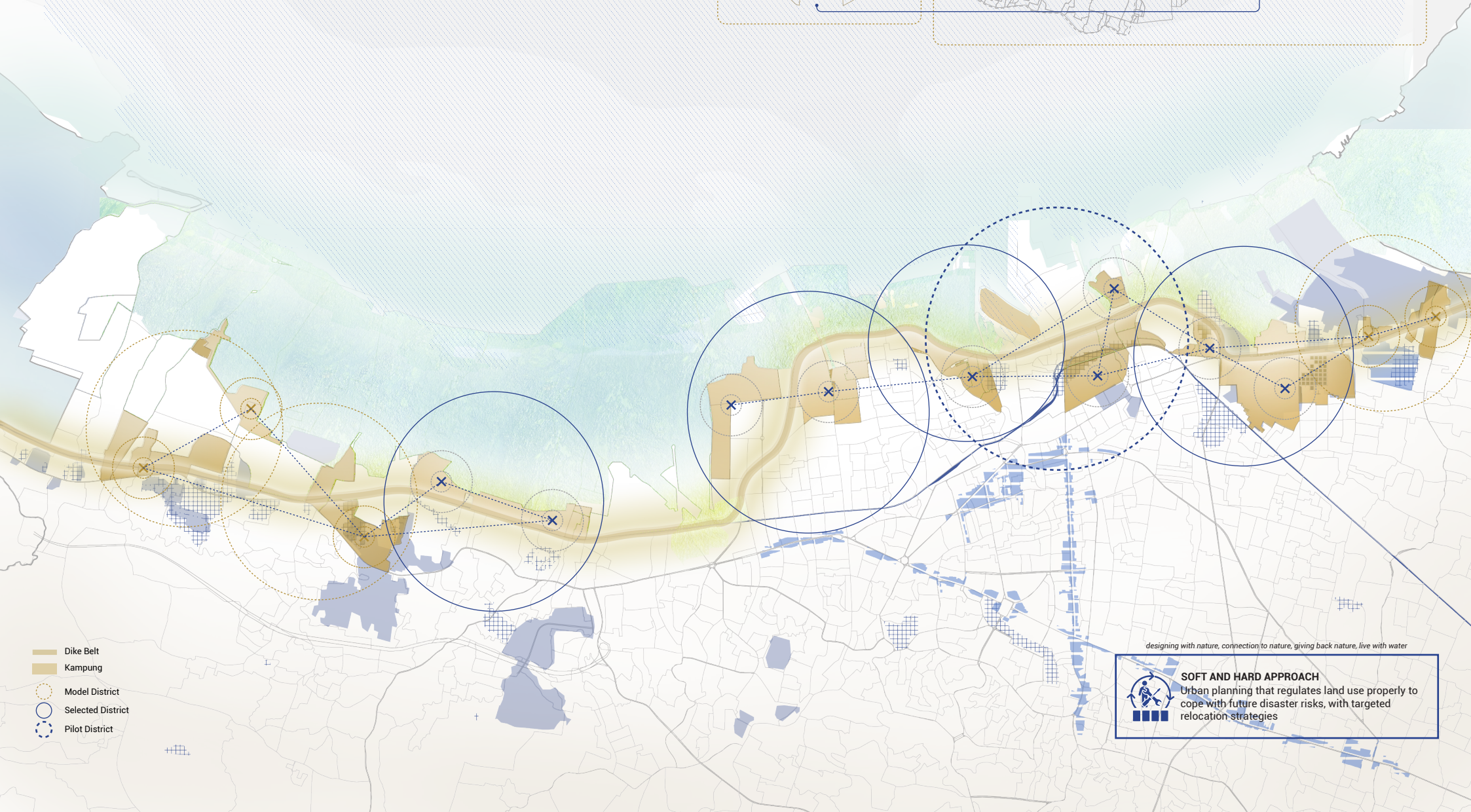
new gathering space, can be used freely

new vertical building, with flexible function

i can have my own farm here, equal land division

water channel, also works as accessible path for farmer but also land divider





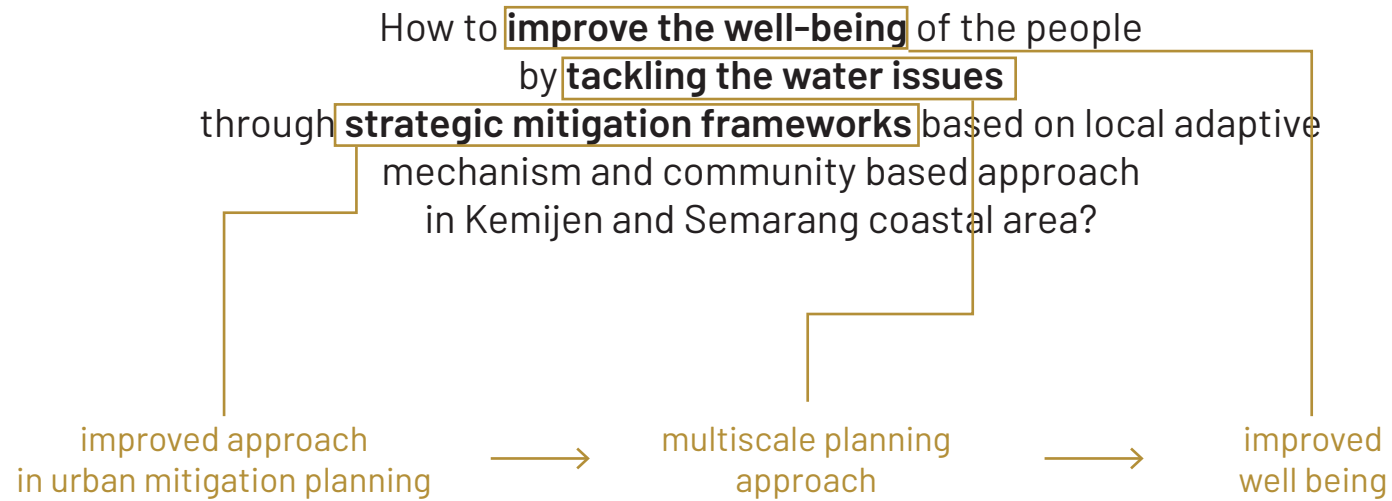
- Dike Belt
- Kampung
- Model District
- Selected District
- Pilot District

designing with nature, connection to nature, giving back nature, live with water



SOFT AND HARD APPROACH
 Urban planning that regulates land use properly to cope with future disaster risks, with targeted relocation strategies

Main Research Question:



<p>Adaptive Re-Use</p> <p>Old Heritage Building</p> <p>Small Dikes or Barrier</p>	<p>New Housing Typologies</p> <p>5th House</p> <p>Existing Building</p>	<p>Relocations</p> <p>Multi-Storey Kampung</p> <p>Existing Building</p> <p>50/50</p>	<p>Adaptive Re-Use</p> <p>Existing Building</p> <p>Existing Building</p>	<p>New Housing Typologies</p> <p>Dike House</p>
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terima
kasih!

