

**radhika\_saran**

p o r t f o l i o

# // read\_me

## // EDUCATION

M.Sc. Urban Management & Development  
Specialization - Urban Housing, Equity & Social Justice  
Institute for Housing & Urban Development Studies (IHS)  
Erasmus University Rotterdam, Netherlands  
2022 - 2023

Bachelor of Architecture  
School of Planning & Architecture (SPA), Bhopal, India  
2012 - 2017

## // WORKSHOPS / SHORT COURSES / COMPETITIONS

AI in Architecture  
TU Delft  
October 2024

Supervised Machine Learning - Regression & Classification  
Stanford University & DeepLearning  
June 2024

Code in Place  
Stanford University  
April - May 2024

Dwelling  
VolumeZero  
September 2023

Integrated Action Planning in Kibera, Nairobi  
IHS, Rotterdam  
April 2023

Gaining Land Use Transactions (Commercial Team - Winner)  
IHS, Rotterdam  
September 2022

## // WORK EXPERIENCE

Studio Lotus - Project Lead  
August 2024 - Present

Bamboopecker - Project Architect (Project Basis)  
March 2020 - December 2023

D+A Architects - Project Architect  
August 2019 - December 2021

Studio PKA (Puran Kumar Architects) - Junior Architect  
October 2017 - September 2018

Anupama Kundoo Architects - Intern Architect  
January - July 2016

```
1 import design
2 import technology
3 import urban data
4
5 # Name      : Radhika Saran
6 # Subject   : This is my progress towards developing a city I would want to live in
7 # Year      : 2016 - 2024
8
9 def main():
10     While True:
11         01 collect_data_spread_awareness()
12         02 develop_amenity_rich_neighborhoods()
13         03 blur_urban_rural_boundaries_through_tech()
14         04 serve_underserved_areas()
15         05 explore_sustainable_construction()
```

# 01 // collect\_data\_spread\_awareness



## Neighborhood Mapper

Location	Rotterdam, NL
Year	2024
Organization	Code in Place 2024, Stanford University
Team	Individual Final Project

Neighborhood Mapper is a data collection tool based on the concept of the '15-Minute City' which states that all basic amenities should ideally lie within a 15 minute walk, bike ride, or public transit ride from any given point in the city.

This project applies the concept to **personal neighborhood experiences** by asking the user a list of questions regarding the proximity and accessibility of 7 basic amenities, along with green-blue infrastructure in their neighborhood. In addition to serving as a data collection tool, it also **generates unique maps** based on the data input to encourage user engagement and spread awareness about **sustainable mobility and urban planning**. This project is a stepping stone to identifying critical urban indicators and exploring new ways of connecting people, cities and technology.



## [ Sustainability Ring ]

The Sustainability Ring is based on the '15-minute city' concept which marks the area that can be covered in a 15 minute bike ride (~ 4.5 km).

## [ Personal Mobility Time ]

Travel time (in minutes)

Mode of transportation (car, bike, public transport, walking)

## [ Blue Green Infrastructure ]

Tree Cover (perceptive guess)

Water body (pond, lake, river, ocean)

## [ Neighborhood Mapper ]

Data Collection  
The app collects data on the availability and accessibility of 7 basic amenities within a 7.5 km radius.

Generative Code  
The code generates a unique neighborhood map for each attempt, even for the same answers.

## [ Current Data ]

Geographic Information System (GIS)  
Global Positioning System (GPS)  
Google maps Operators Data  
Disaggregated Mobility Data



## [ Neighborhood Score ]

Each amenity inside the Sustainability Ring = 1 point

Water Body = 1 point

Trees > 100 = 2 points  
Trees 50 - 100 = 1 point  
\*Tree cover is based on perception only.

## [ User Terminal Input ]

Amenities List -

1. Workplace / School
2. Park
3. Grocery Store
4. Pharmacy
5. Hospital
6. Markets
7. Entertainment

Mode of Transport List -

1. Walking
2. Bike
3. Public Transit
4. Car

## [ User Menu ]

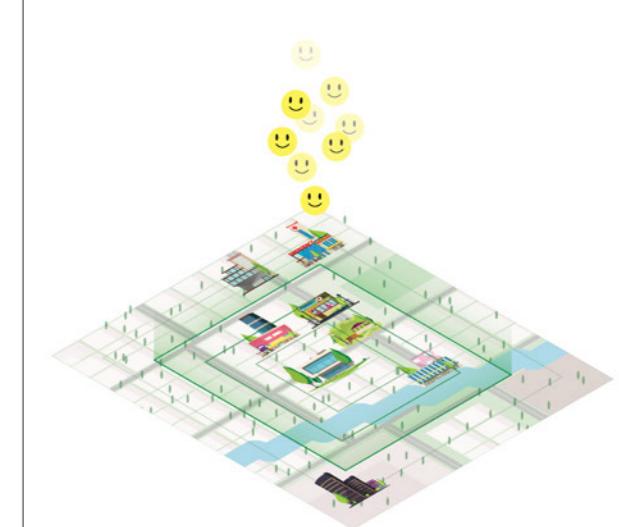
Neighborhood Statistics  
Layers / Labels  
Share Link / Map  
Upload Map to Database  
Generate a new map



## [ Amenity-rich Neighborhood ]



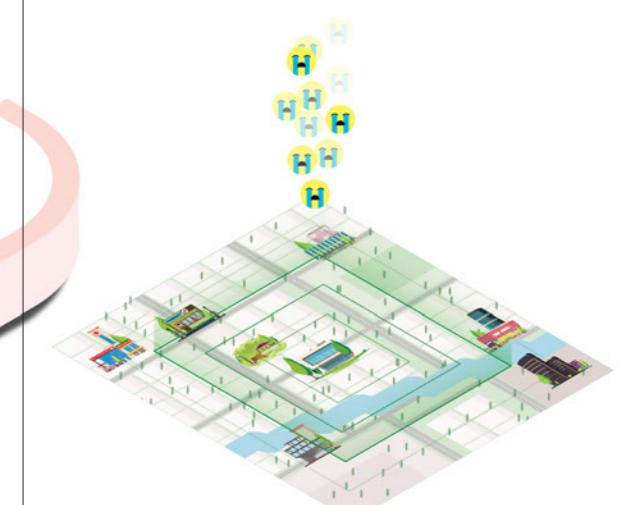
**7/7**  
Amenities inside the Sustainability Ring



## [ Developing Neighborhood ]



**4-6/7**  
Amenities inside the Sustainability Ring



## [ Underserved Neighborhood ]



**0-3/7**  
Amenities inside the Sustainability Ring

[ What can we do with it *RIGHT NOW* ? ]

[ What can we do with it *in FUTURE*? ]

How can we employ current urban data to *predict future urban trends?*



## 02 // develop\_amenity\_rich\_neighborhoods

### Housing - A Bundle of Amenities

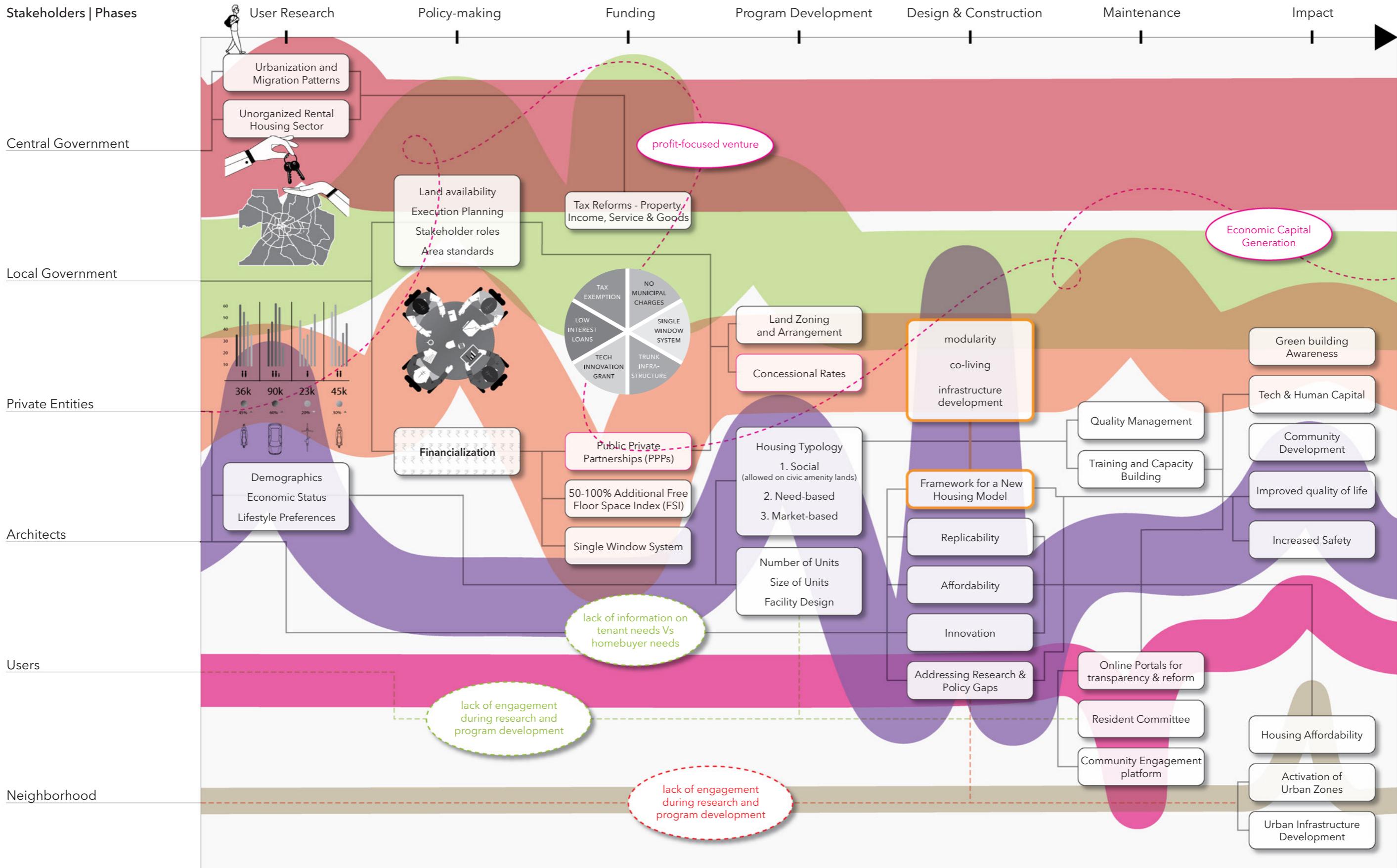
Location Bangalore, India  
Year 2021  
Organization D + A Architects  
Team Project Architect + 2 Junior Architects  
Role Project Architect - Design & program development; urban research  
\*All drawings in the portfolio have been prepared solely for application purposes by Radhika Saran.

This project was developed for a government scheme called Affordable Rental Housing Complex (ARHC), launched in 2020 in India. The scheme was developed to formalize the rental market, and promote innovative urban development that stimulated socio-cultural spaces for young adults.

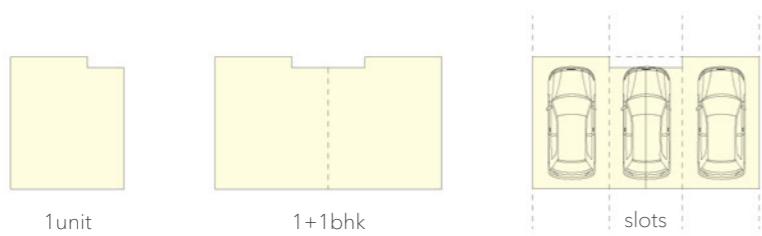
In response to the brief, this housing project is developed as a "bundle of amenities" that not only caters to its own residents, but also the neighborhoods around it. With an amenity-rich front strip accessible to public and a vibrant co-living heart for its residents, the project offers a new perspective on urban housing in the city of Bangalore.



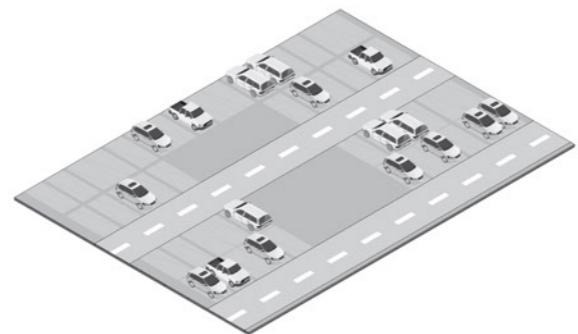
[ Are the stakeholders working with incomplete information/solutions? ]



## Grid of Flexibility

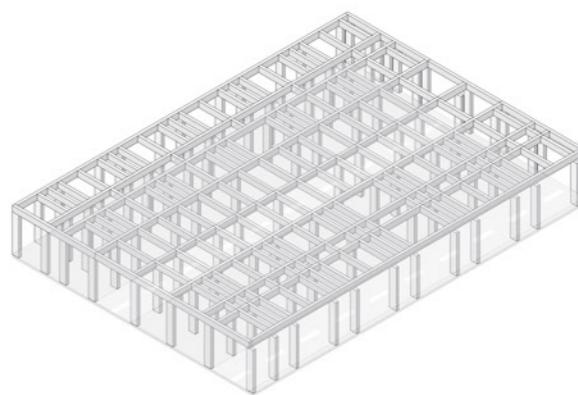


Market research showed that 75% tenants did not own 4 wheeler vehicles. A column grid of  $2.5 \times 5$  m is designed to optimize parking for 1+1 units, and also promote flexibility of eliminating columns wherever necessary.



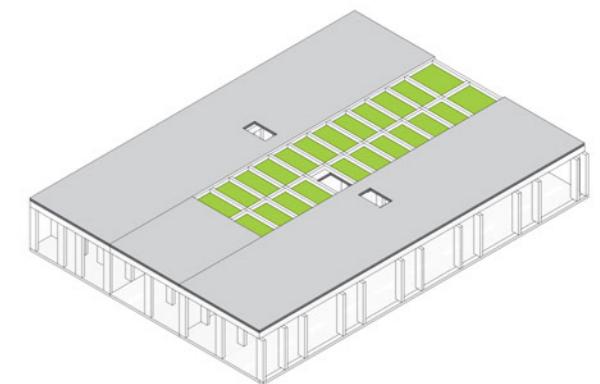
01 Parking

One parking slot for two co-living units combined as a 1bhk



02 Structural Grid

Grid-like sub-structure designed to maximize parking



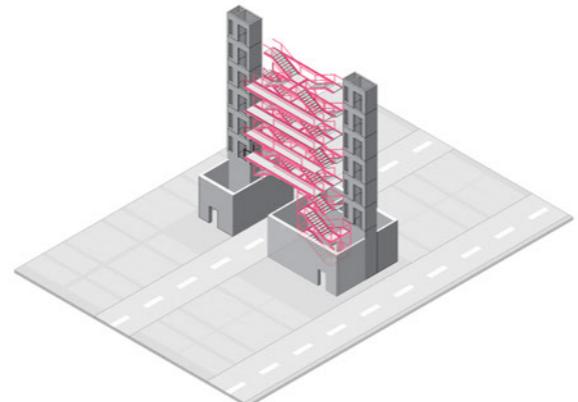
03 Sunken Slab

Sunken filler slabs in central courtyards for planter beds

## Housing - A Bundle of Amenities

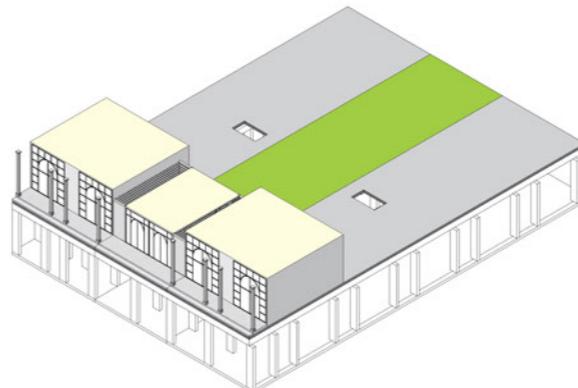


Opening the site to the entire neighborhood, amenities are designed to be accessible to all. The residents may access it internally or externally while non-residents experience it as a shopping front plaza along the main road.



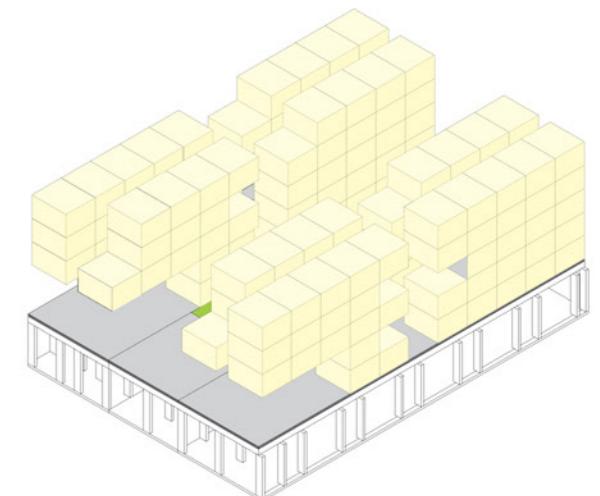
04 Access

Service cores along the spine of the site



05 Amenities

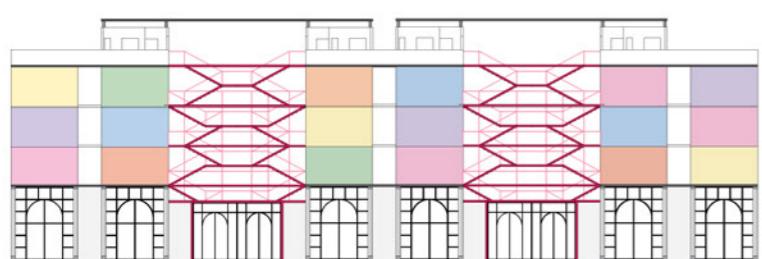
Amenities and entertainment accessible to the public



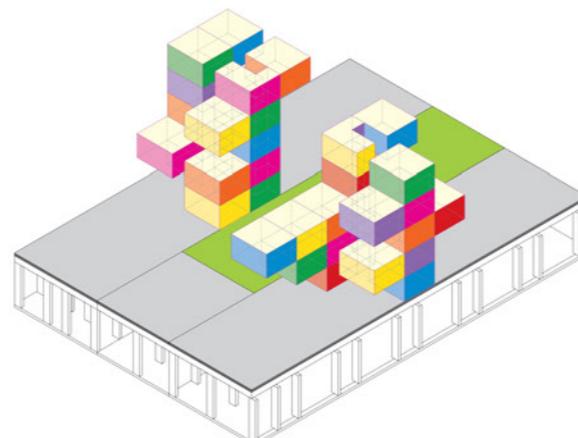
06 Housing

Prefabricated units for repetition, installation & modification

## Co-living and Green Living

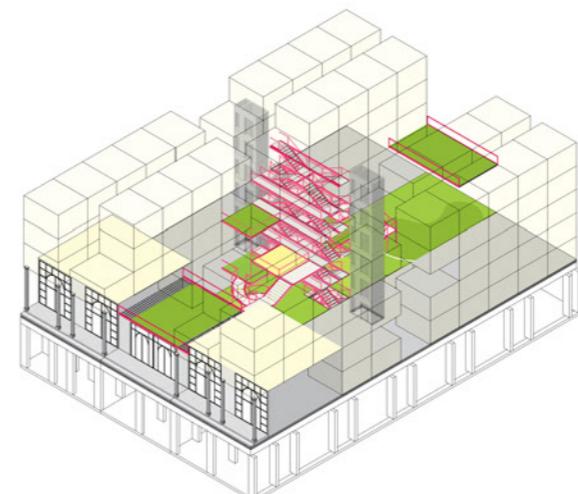


Co-living spaces, courtyards, and active terraces are designed to encourage social connections, bring nature into the site and applying sustainable energy solutions without concealing any building services, to promote understanding of spatial complexity and inculcate responsibility.



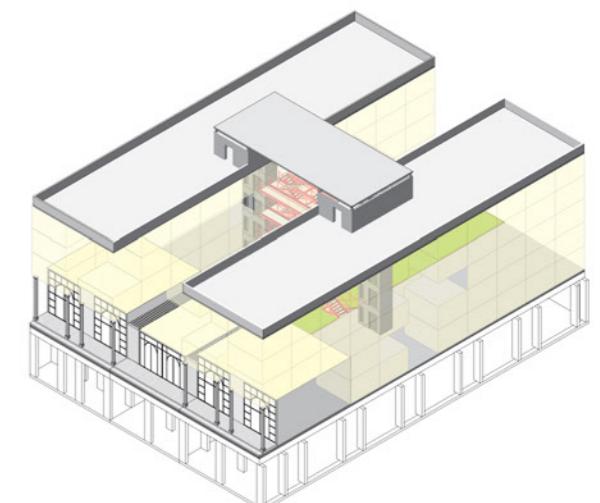
07 Co-living

Access cores serve as Co-living activity hubs with shared common spaces for games, relaxation, co-working etc.



07 Courtyards

Central courtyards provide green passages along the access and allow the co-living spaces to spill out into the



09 Active Terraces

Part terraces are used for solar electricity production and other parts may be opened up for large events

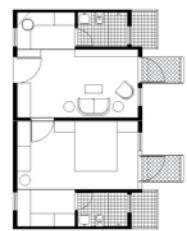
[ Need more space? Add Unit(s) ]



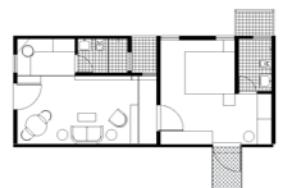
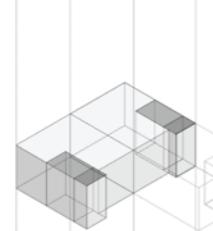
Type 1 : Two person sharing



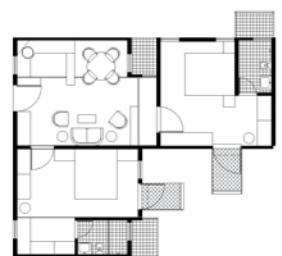
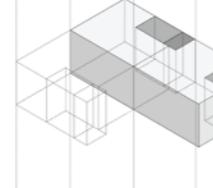
Type 1C : Single Couple Studio



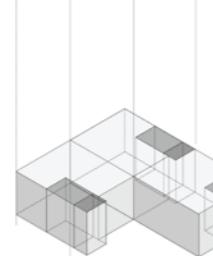
Type 1 + 1 = 1BHK : Single Couple Unit



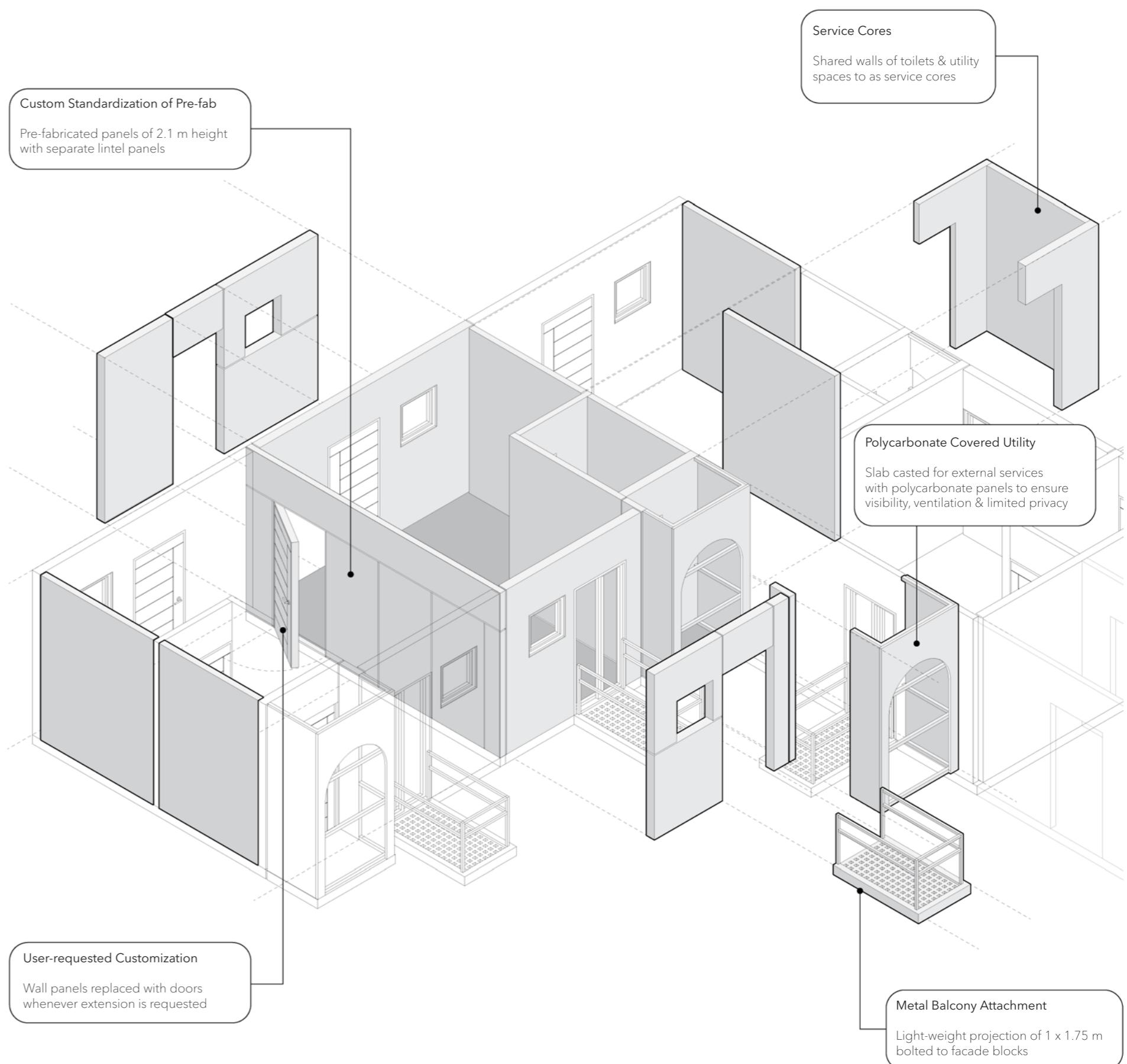
Type 1 + 1(Corner) = 1BHK Corner : Single Couple Unit



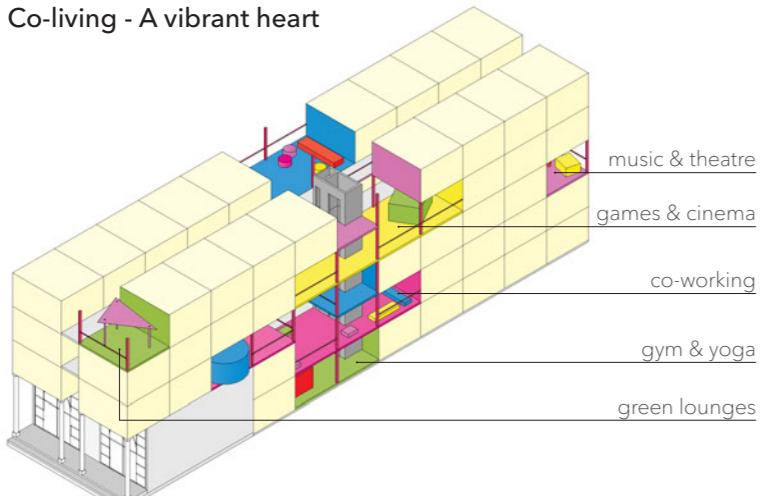
Type 1 + 1 + 1(Corner) = 2BHK : 2 Bedroom Family Unit



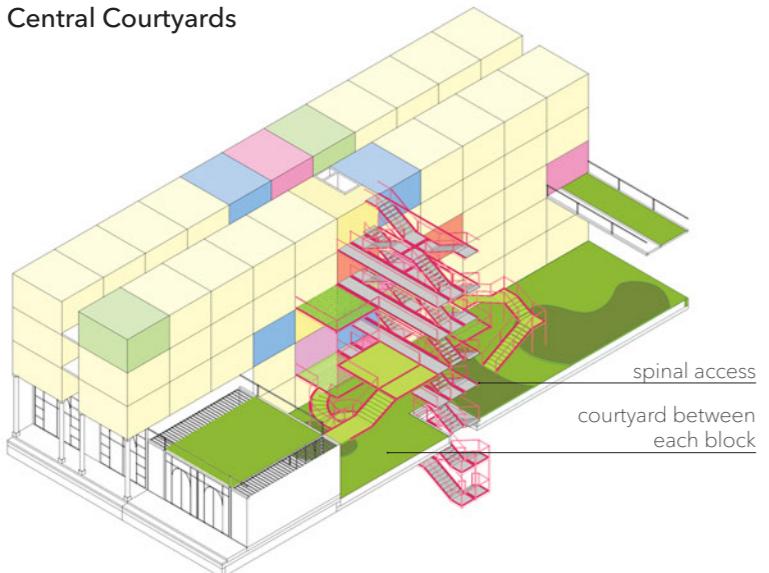
[ Modularity = Adaptability = Growth ]



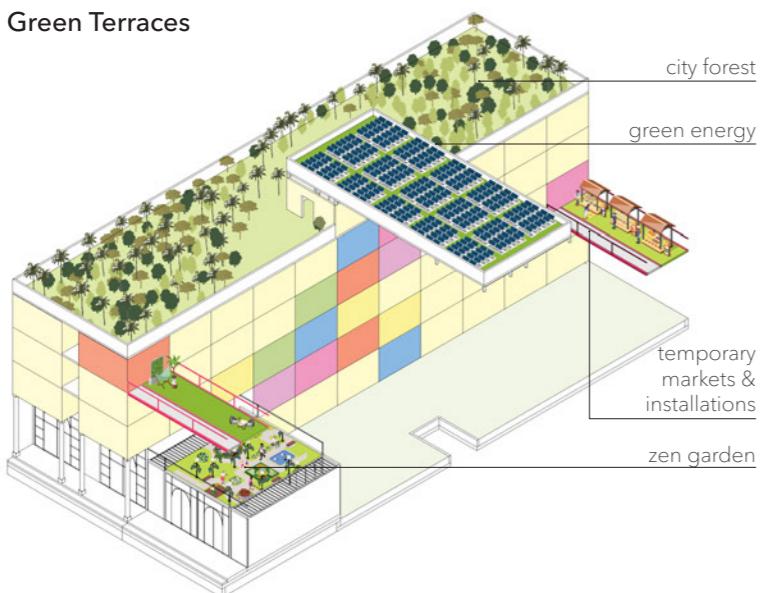
Co-living - A vibrant heart



Central Courtyards



Green Terraces



All-in-One Courtyard





## 03 // blur\_urban\_rural\_boundaries\_through\_tech

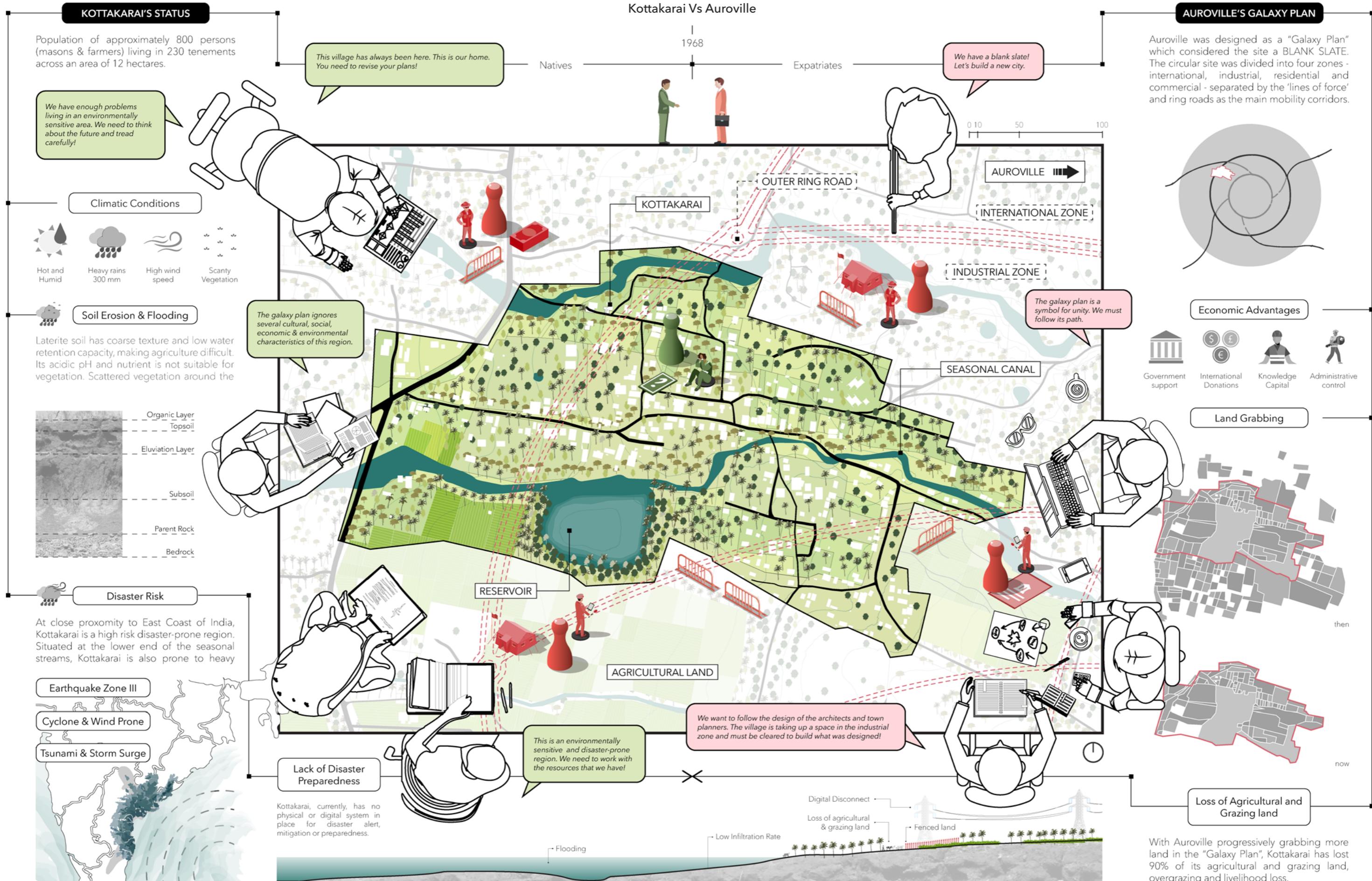
### SMART Village Kottakarai

Location Tamil Nadu, India  
Year 2017  
Organization School of Planning & Architecture  
Team B. Arch Final Year Individual Thesis

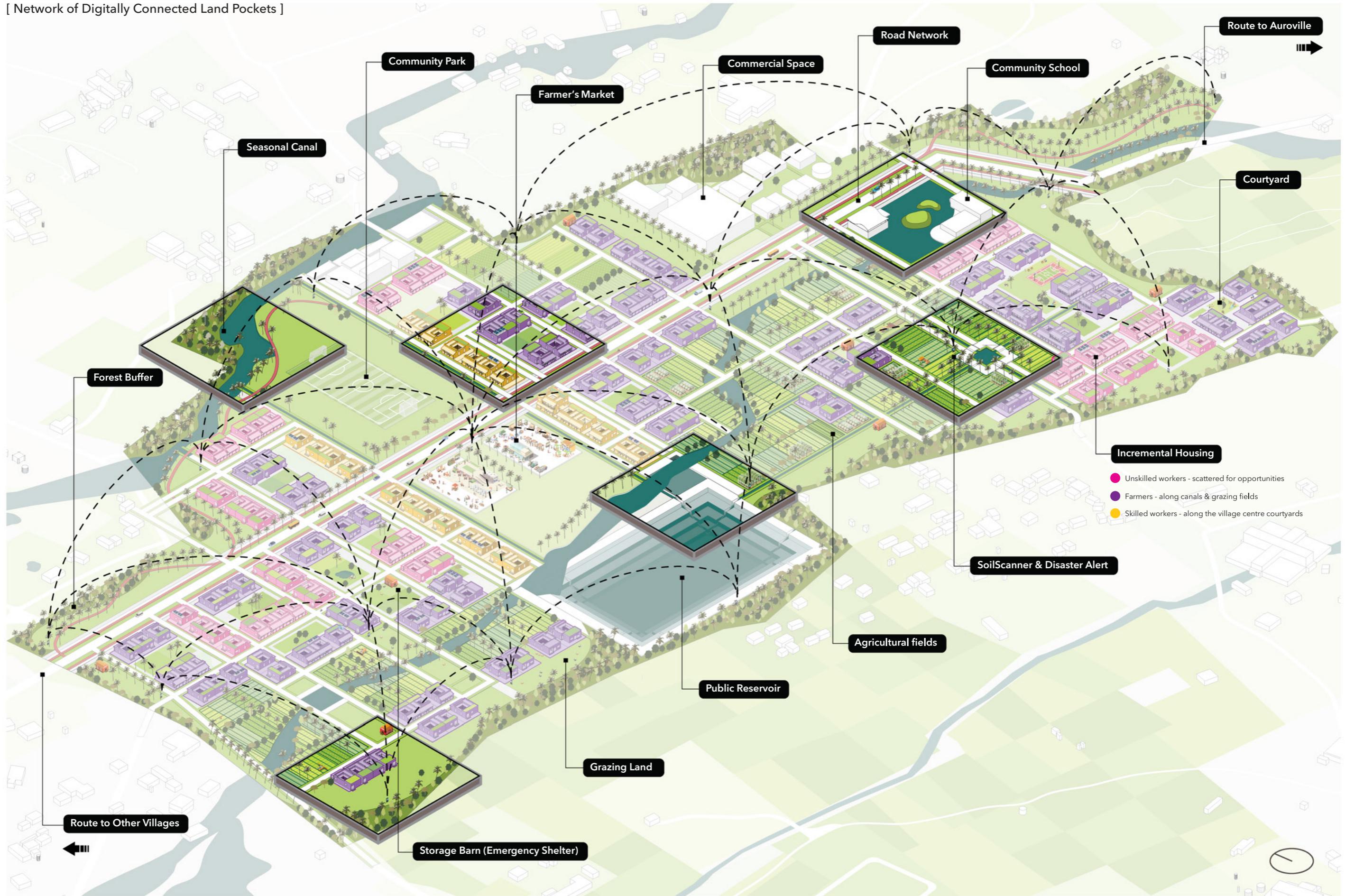
Village Kottakarai, located along the Southern East Cost of India, is struck by disaster frequently due to its location and climatic conditions. This agricultural community is surrounded by "Auroville" - a township built by expatriates that wish to expand their boundaries; adding a layer of socio-cultural complexity to an area struggling with economic and environmental disasters regularly.

The project proposes SMART rural development in the form of modular pockets of land. These pockets offer a variety of nature-based solutions, coupled with an incremental housing tailored to the community's agricultural needs. The goal of the project is to blur urban-rural boundaries through digital intervention i.e. the 2-in-1 Soil Scanner App equipped with automated soil health monitoring and a disaster-alert system.

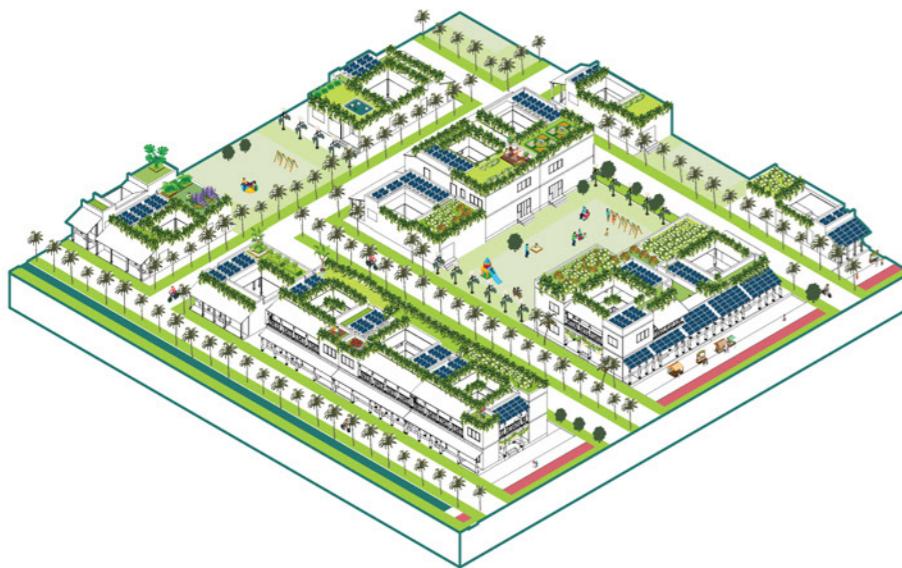




## [ Network of Digitally Connected Land Pockets ]

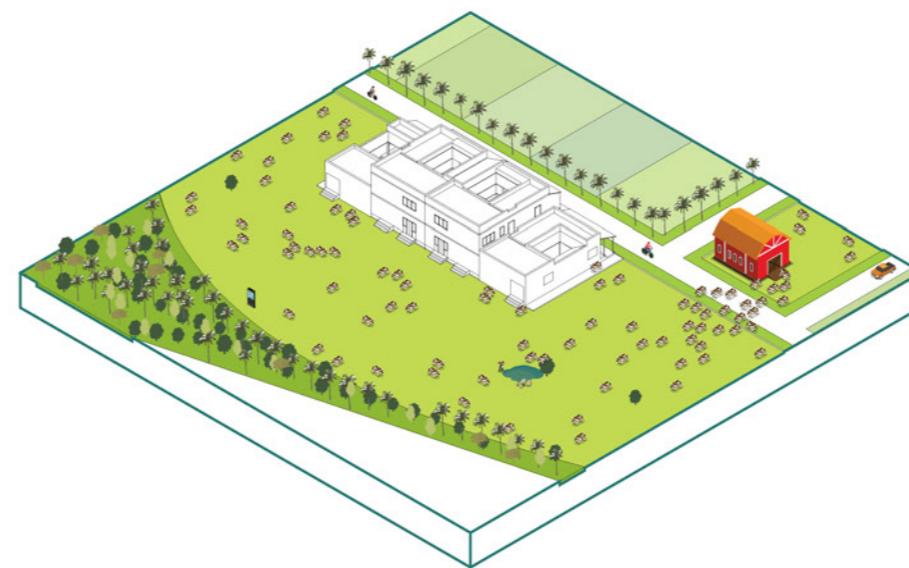


[ Pick a pocket of Nature-based Solutions ]



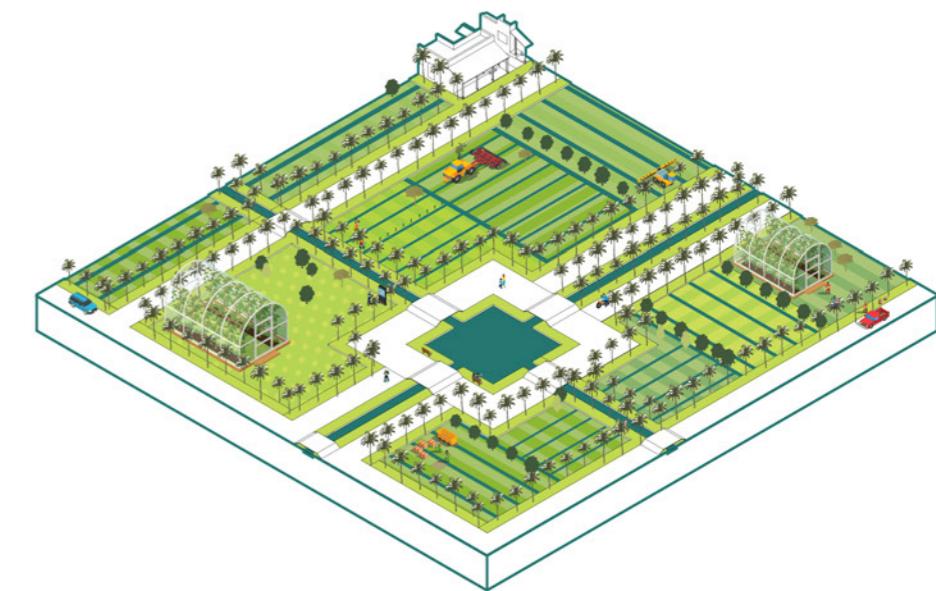
**Green Terraces & Solar Energy**

Green Terraces retain rainwater and reduce runoff, lowering risk of flooding.  
Solar panels provide a sustainable source of energy.



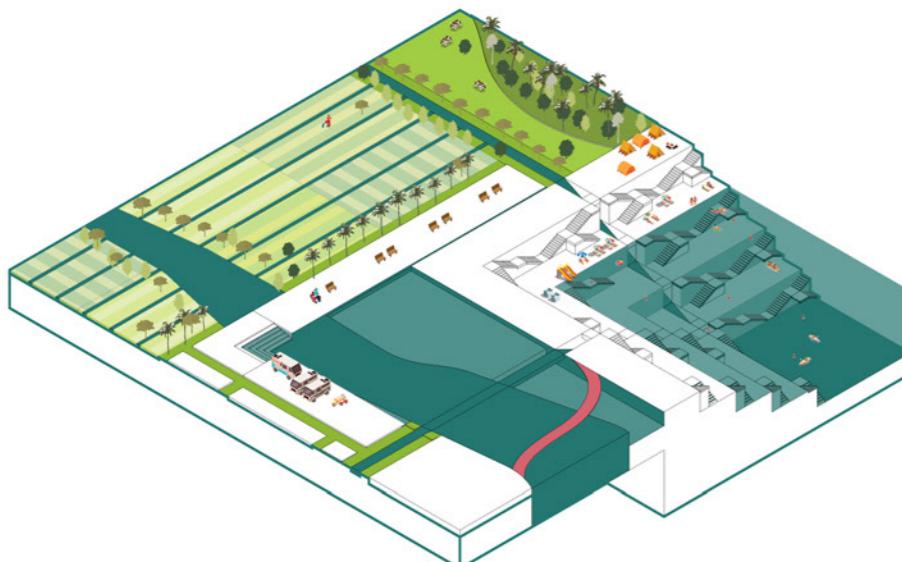
**Grazing Zone**

Livestock grazing promotes soil aeration and nutrient cycling through the natural fertilization process. It also helps in carbon sequestration in the soil.



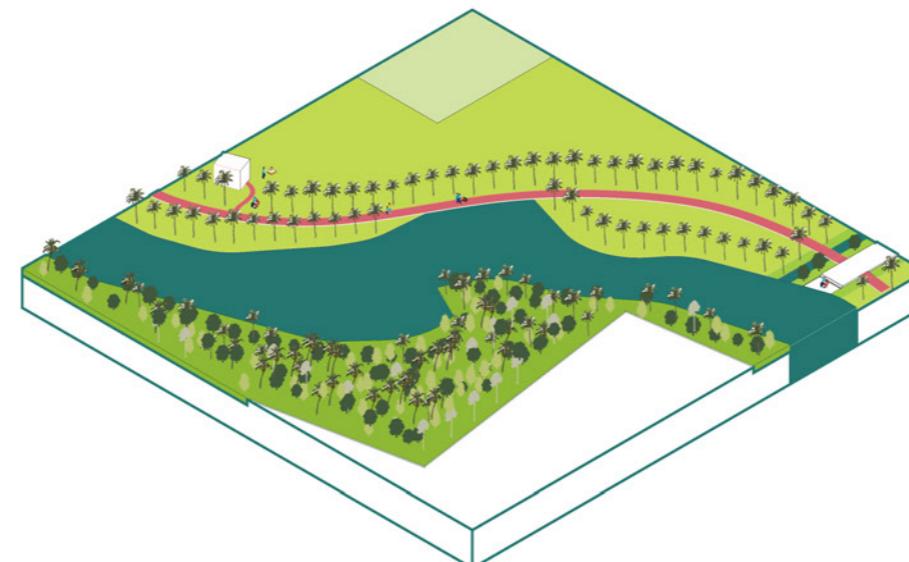
**Strip Irrigation & Agrofarming**

Strip irrigation channels the excess water from the canals into the fields, preventing runoff and soil displacement. Agrofarming enhances biodiversity & microclimate regulation to prevent crops from extreme weather.



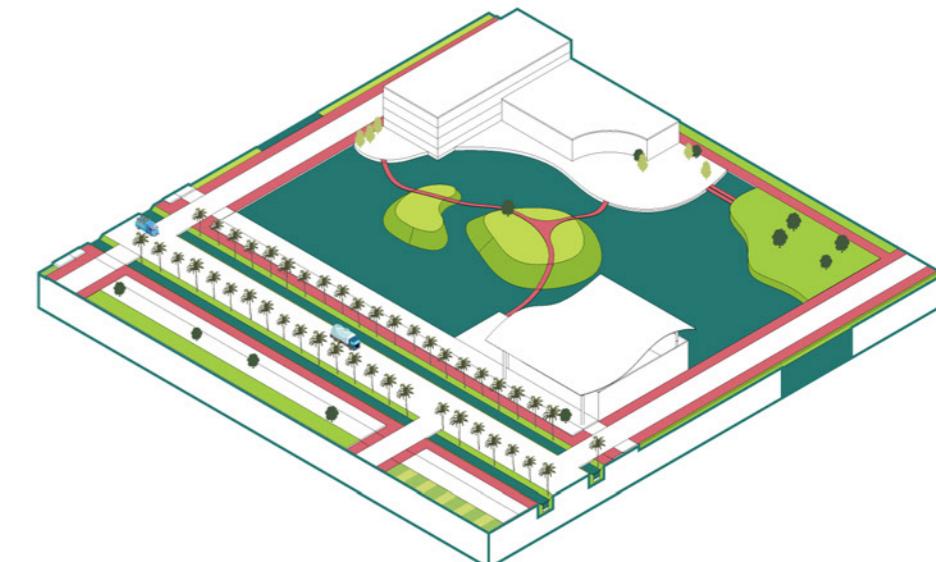
**Public Reservoir**

Capturing and storing excess rainwater, the reservoir mitigates the risk of flooding while also being a reliable source of water for agricultural use.



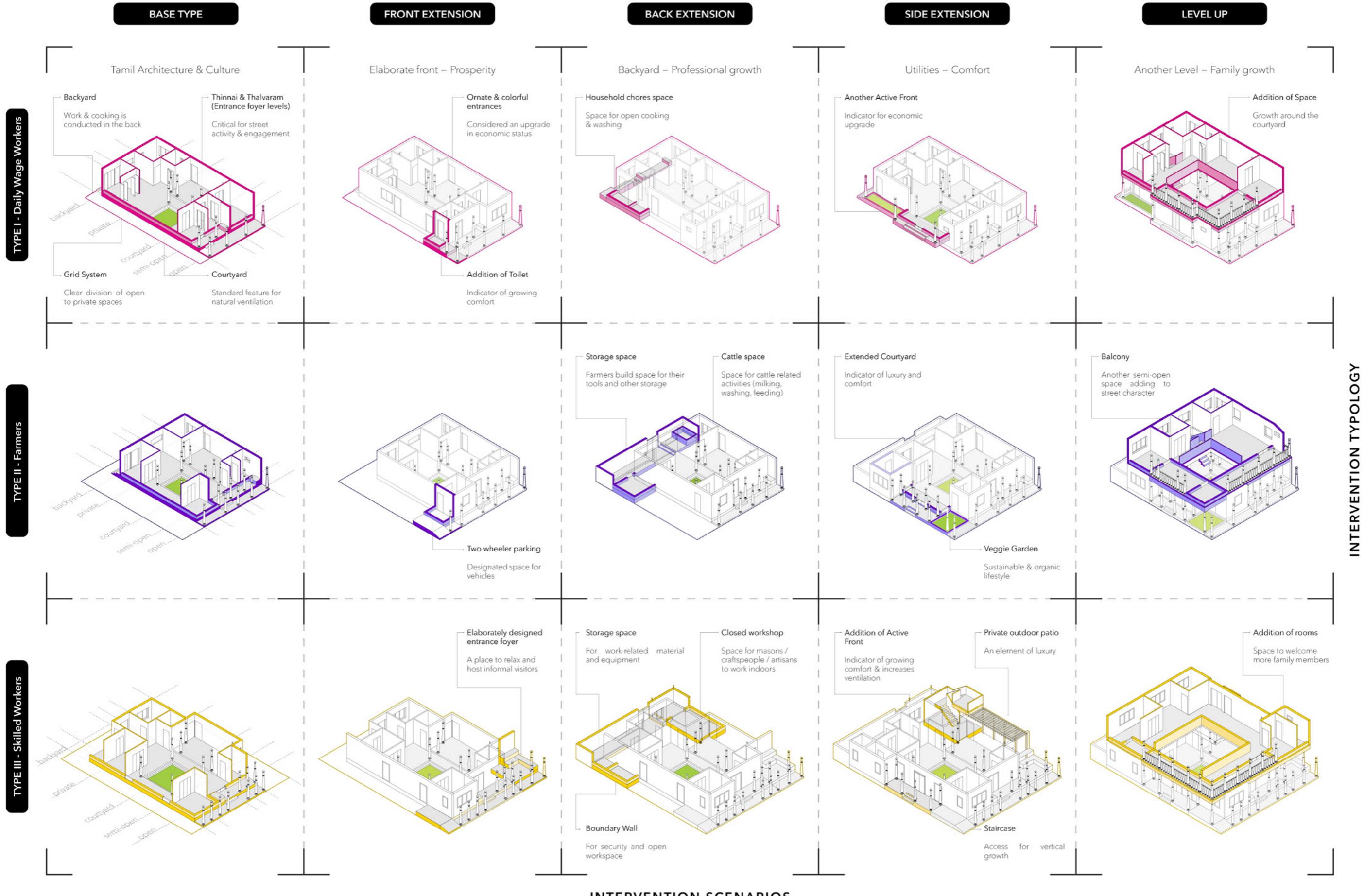
**Riparian Buffer Zone**

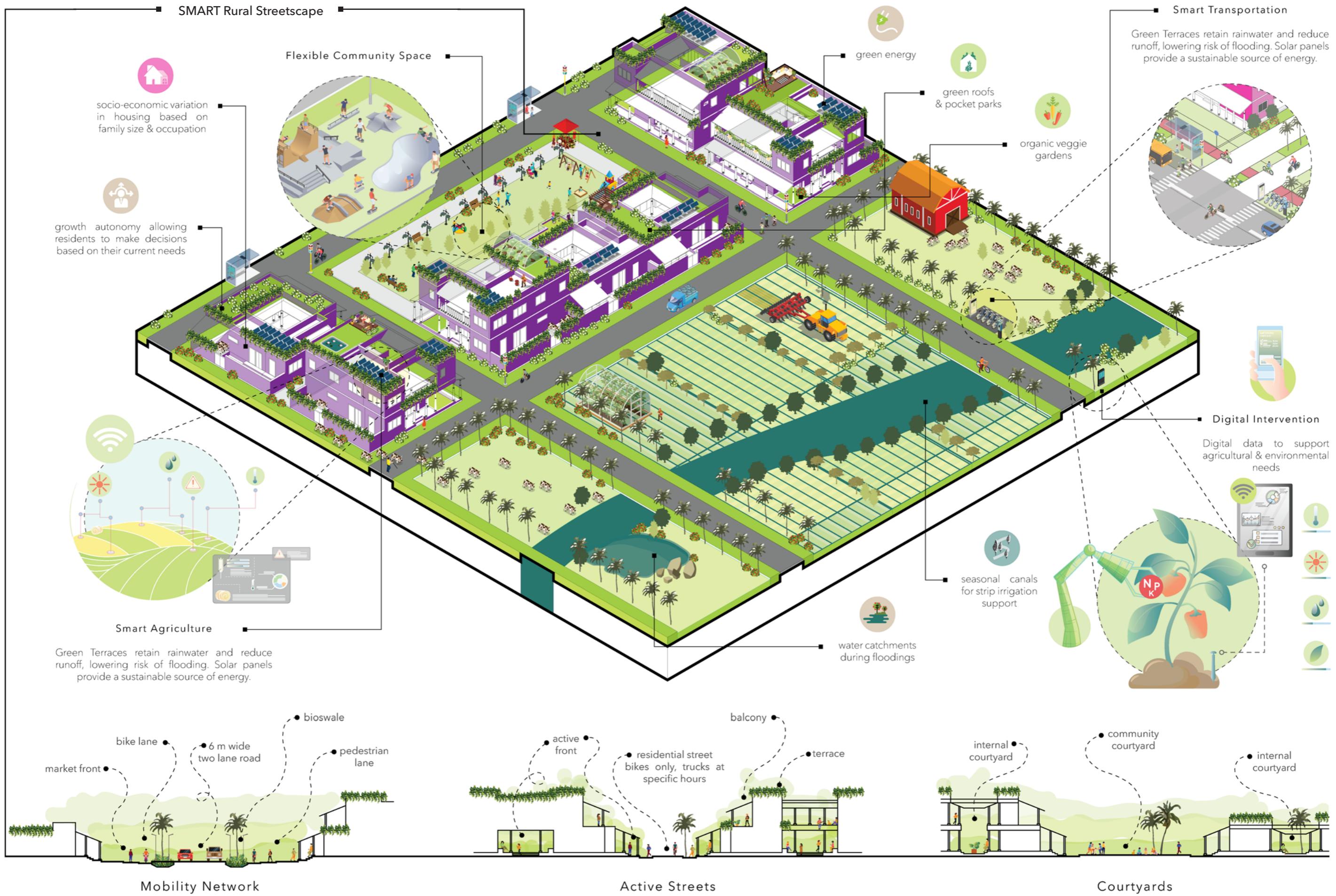
Densely vegetated zones along the canal filter pollutants while also slowing down the runoff, reducing the severity & frequency of flooding downstream.

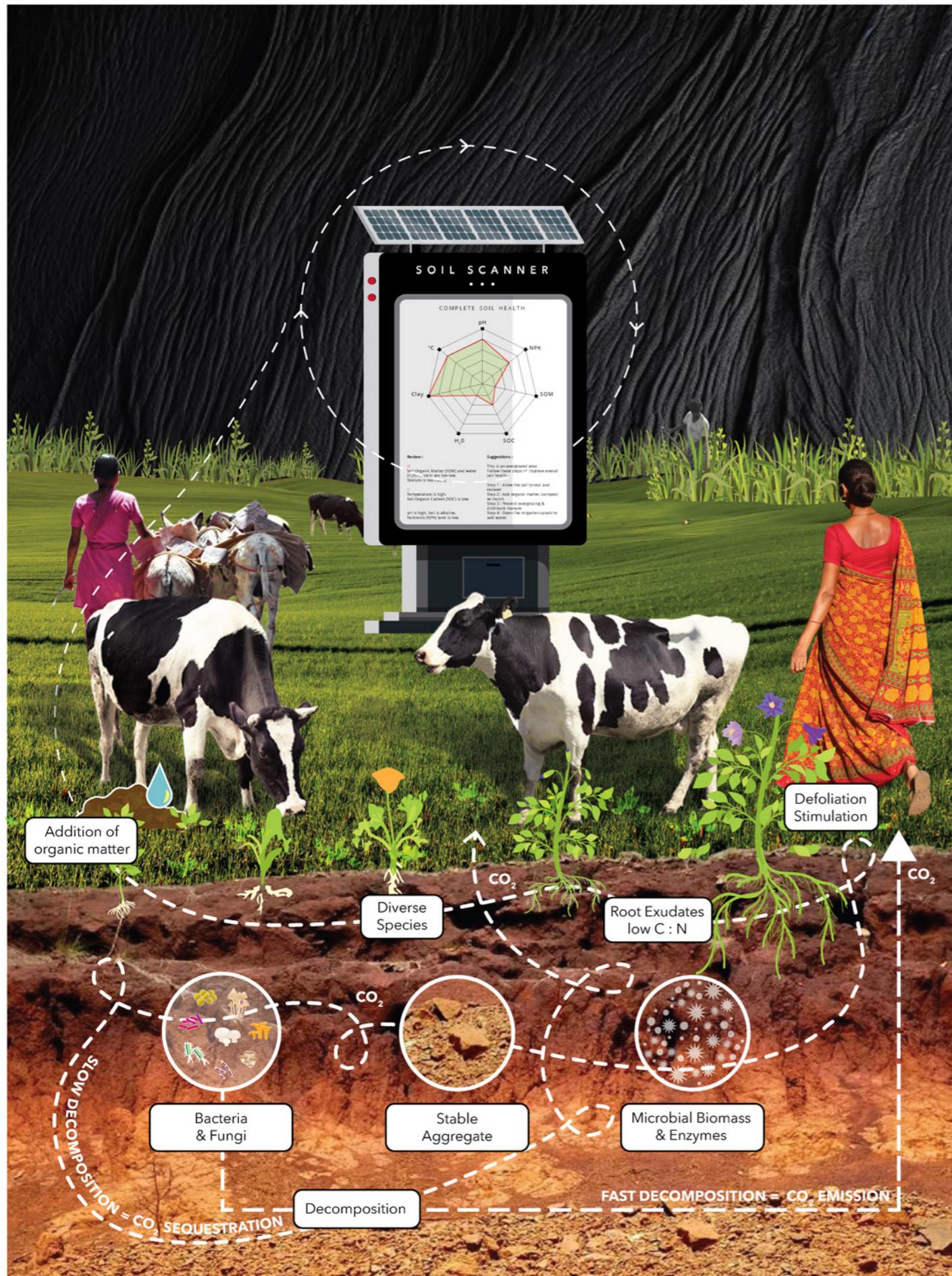


**Bioswales & Ponds**

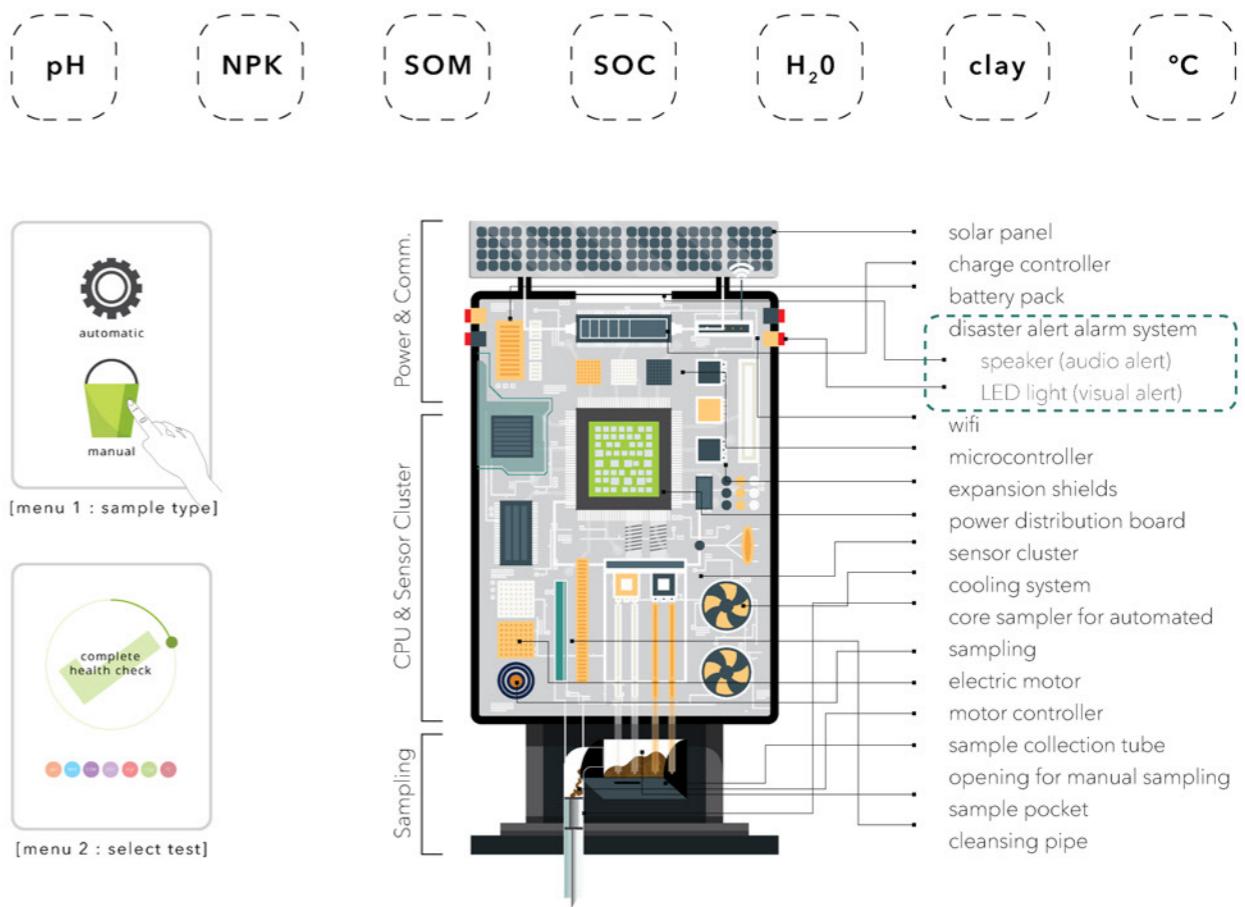
In addition to stormwater management, water quality improvement and temperature regulation, bioswales and ponds allow water to infiltrate into the ground, replenishing the groundwater.

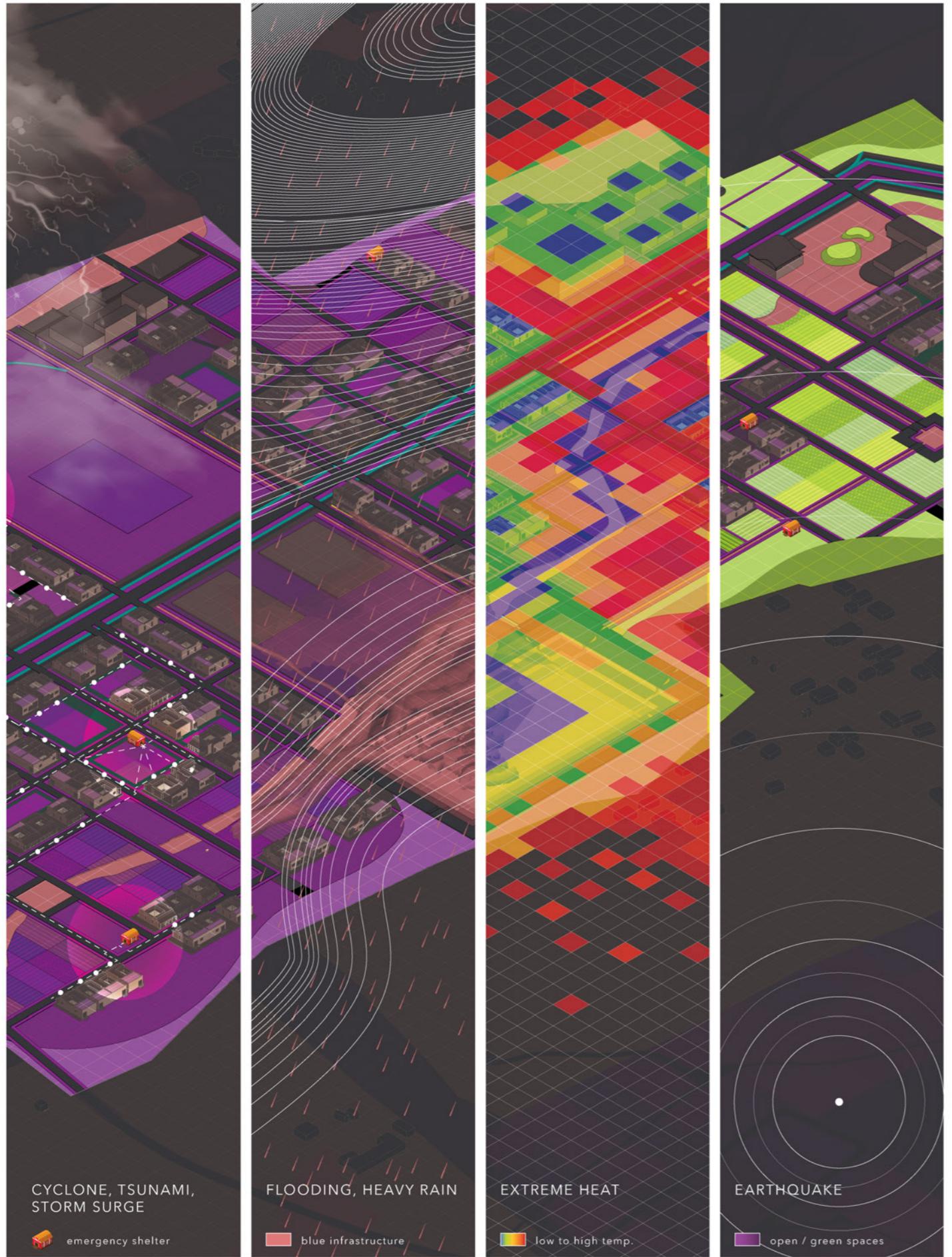






2-IN-1 SOIL SCANNER





## DISASTER ALERT SYSTEM



## 04 // serve\_underserved\_areas

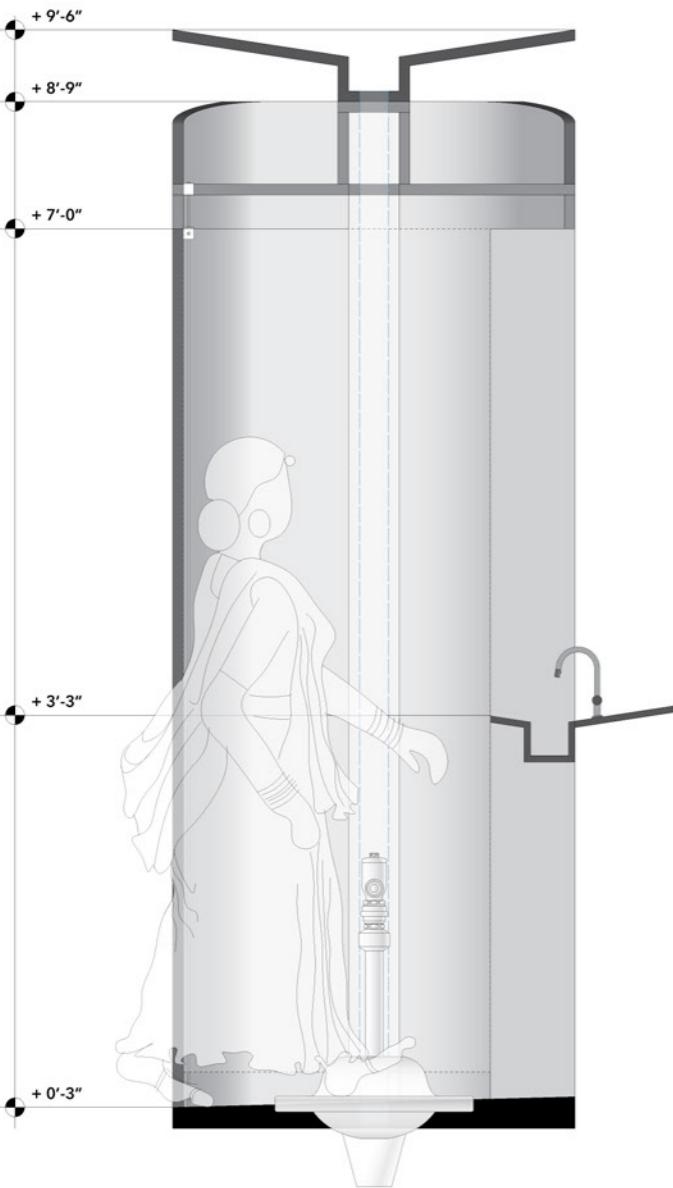
### Easy WC - Public Toilet

Location      Tamil Nadu, India  
Year            2016  
Organization   Anupama Kundoo Architects  
Role            Internship; Design development & execution on site  
\*All drawings in the portfolio have been prepared solely for application purposes by Radhika Saran.

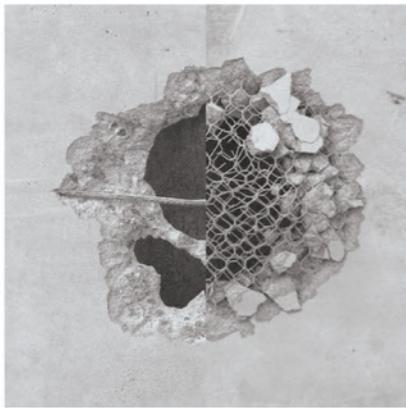
Easy WC was developed as part of an Affordable Habitat workshop conducted by Dr. Anupama Kundoo in rural Southern India. Designed to be material-saving, easily transportable and assemblable, the prototype was built in a span of 2 weeks with a labour force of 8 persons. After testing, ferrocement proved to be a safer construction material in disaster-prone regions & a quick solution to offset the lack of infrastructure in rural areas.

Its users were also given the opportunity to paint the Easy WC as they wished; allowing them to feel connected and take ownership of the space. In 2016, this project was also presented at the Venice Biennale "Reporting from the Front."

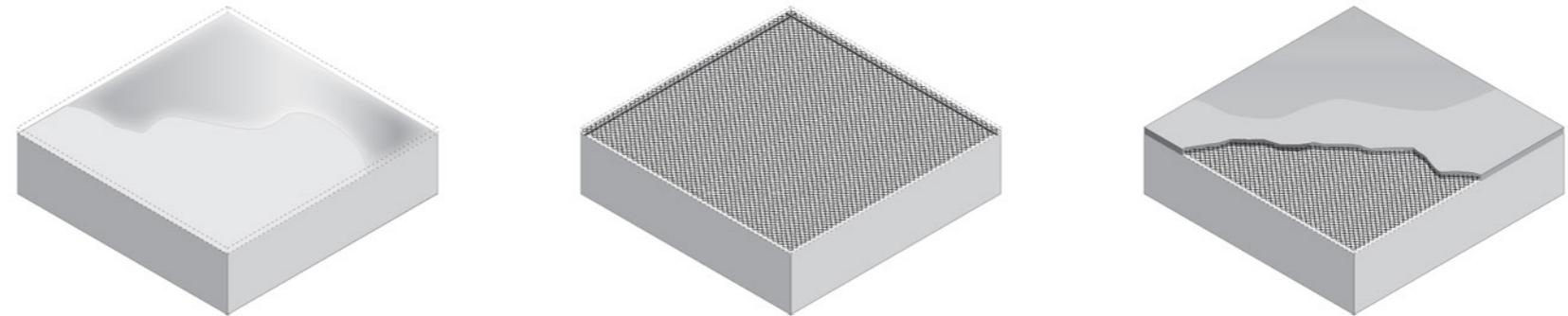




Section X



Concrete Vs Ferrocement



01

mould - oiling

02

steel mesh reinforcement

03

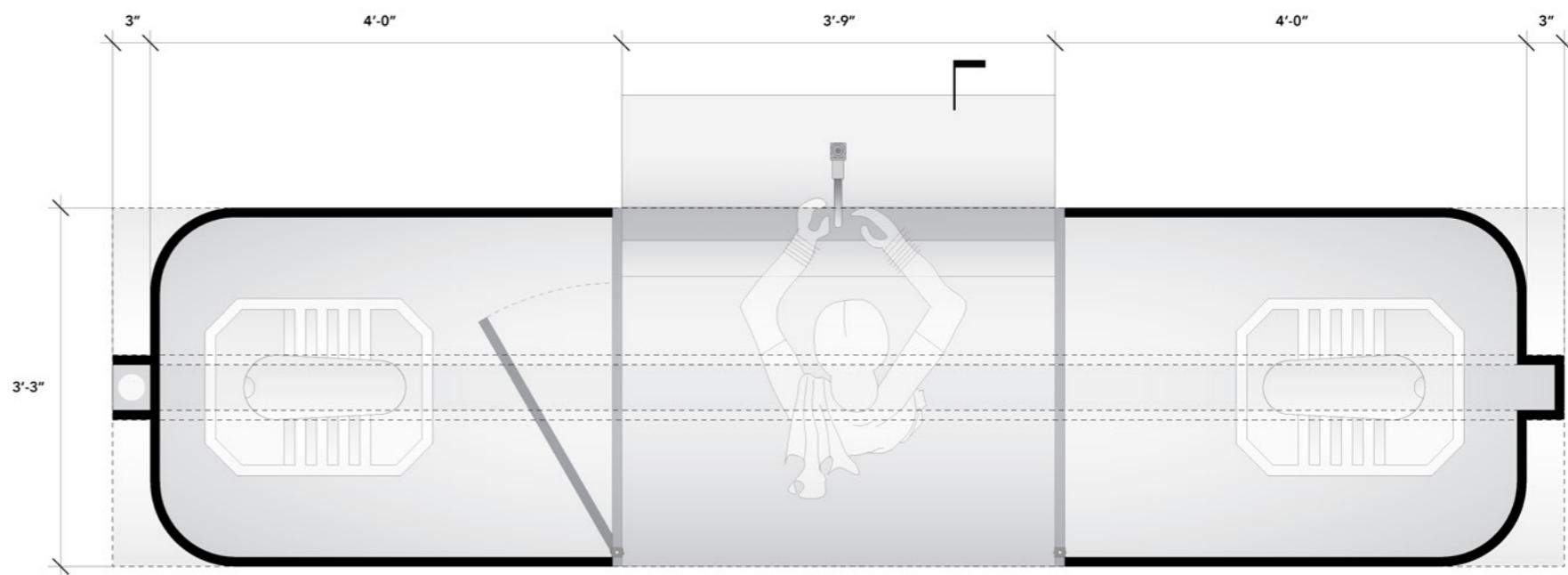
cement - finish - demould



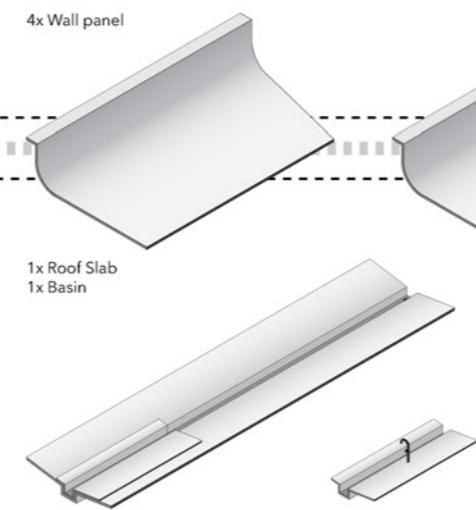
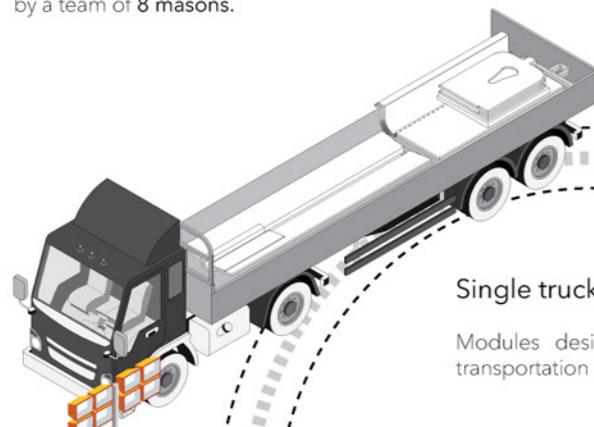
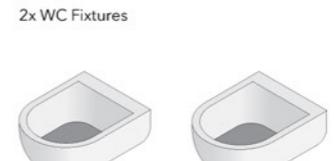
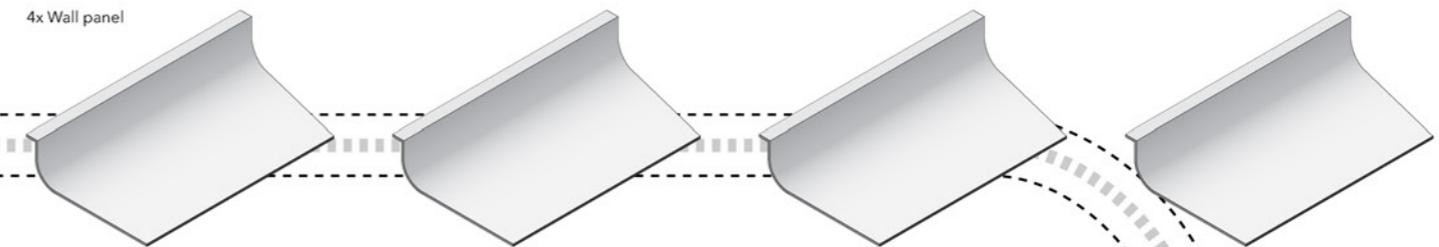
RCC Panel Section



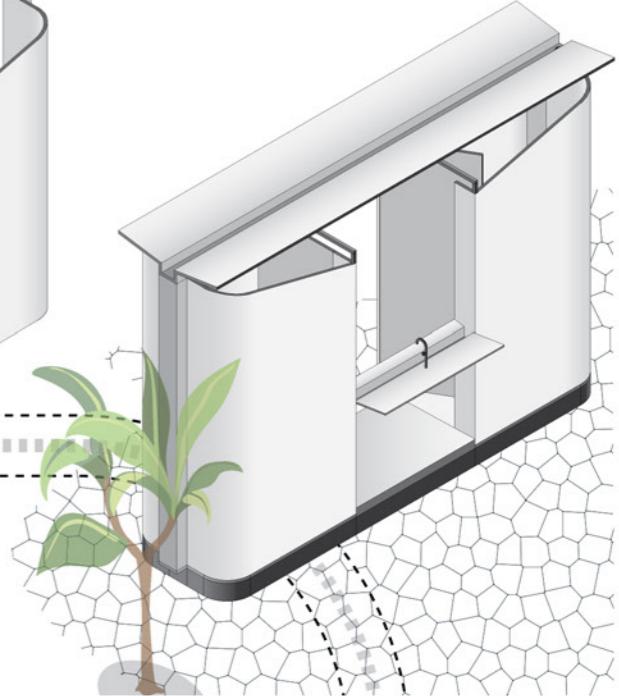
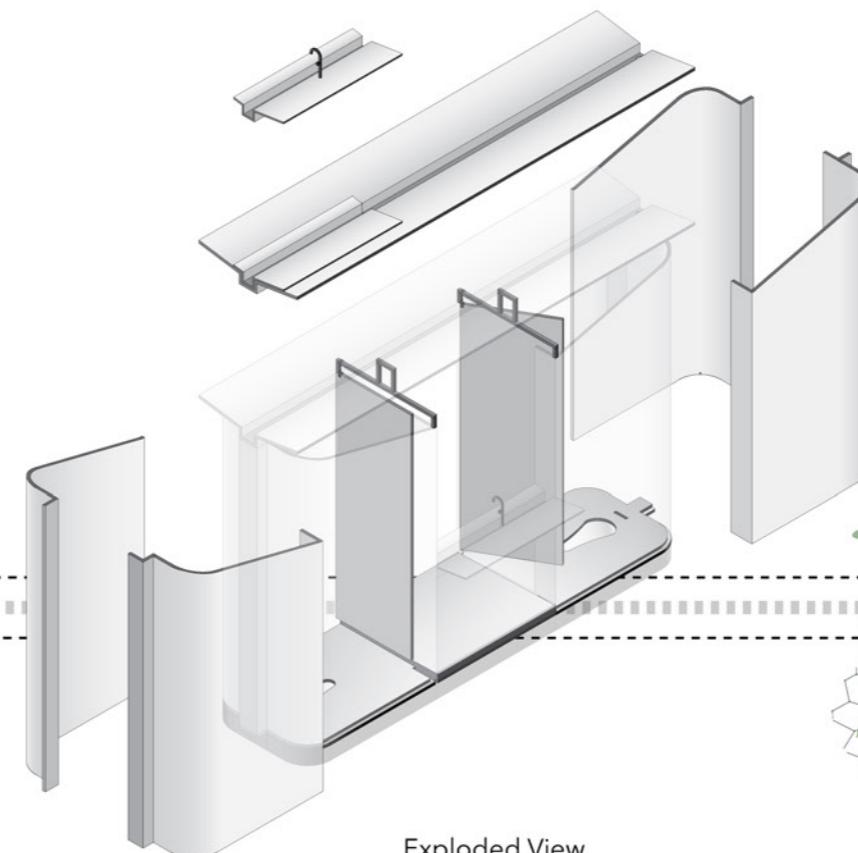
Ferrocement Panel Section  
Tensile strength



Plan

1x Roof Slab  
1x Basin

**Kit of Parts**  
Modules designed for 75% reduction in cement and steel, while maximizing tensile strength through bent parts.





1. Mould Preparation for Wall Panel



2. Steel Mesh Reinforcement of Wall Panel



3. Demoulding Wall Panel



4. Floor Steel Mesh Reinforcement



5. Floor Casting



6. Curing and Slope testing



7. Roof Mould Preparation



8. Roof Casting with Steel Mesh



9. Roof being used as Basin Mould



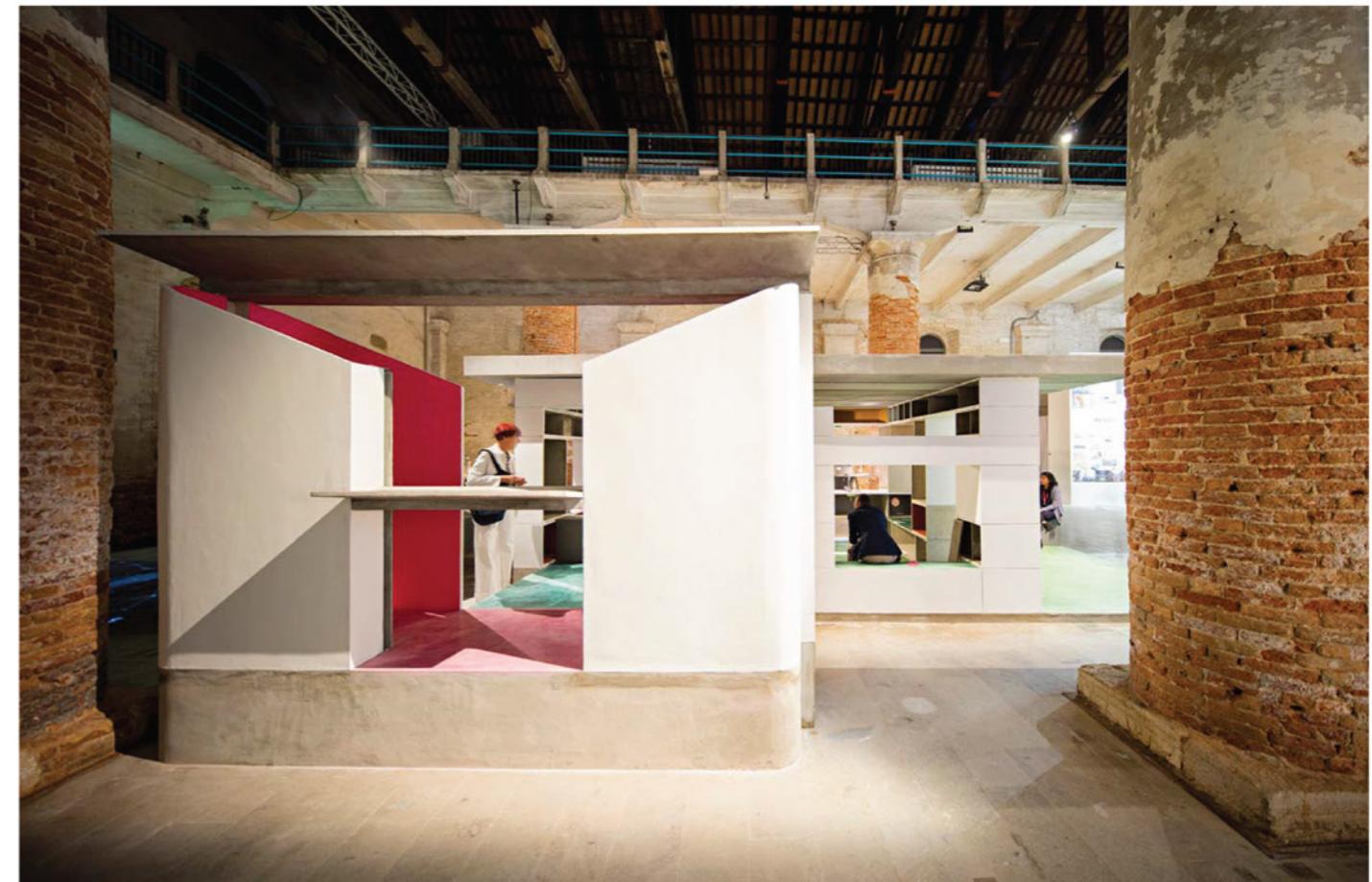
10. Brick Foundation



12. Color and Lime Plaster Mix for Finishes



12. Color Selection with the Community



Easy WC Prototype, Auroville (Top); Copy of Easy WC Prototype at Venice Biennale 2016 (Bottom)

# 05 // explore\_sustainable\_construction

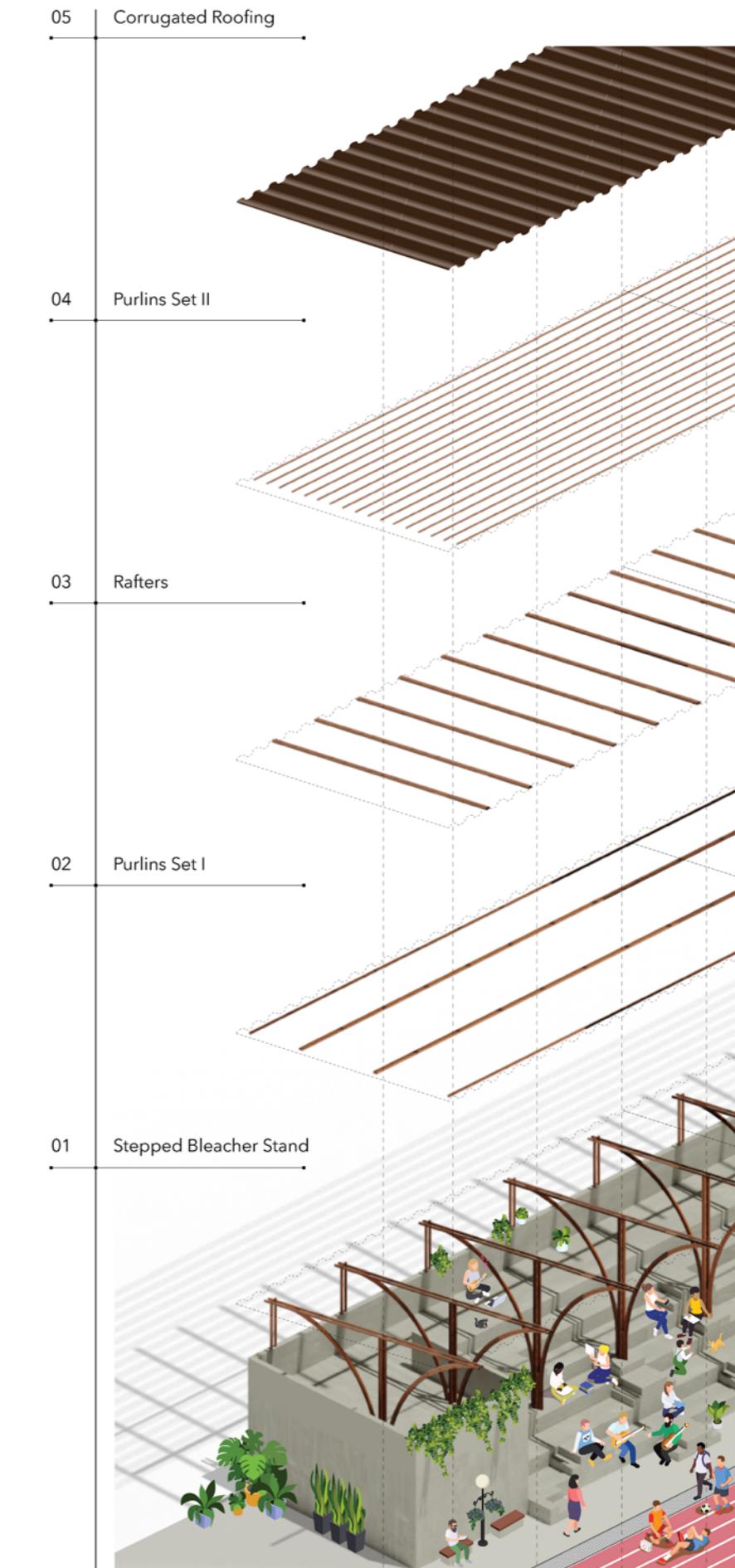
## Bamboo Bleachers - GEAR School

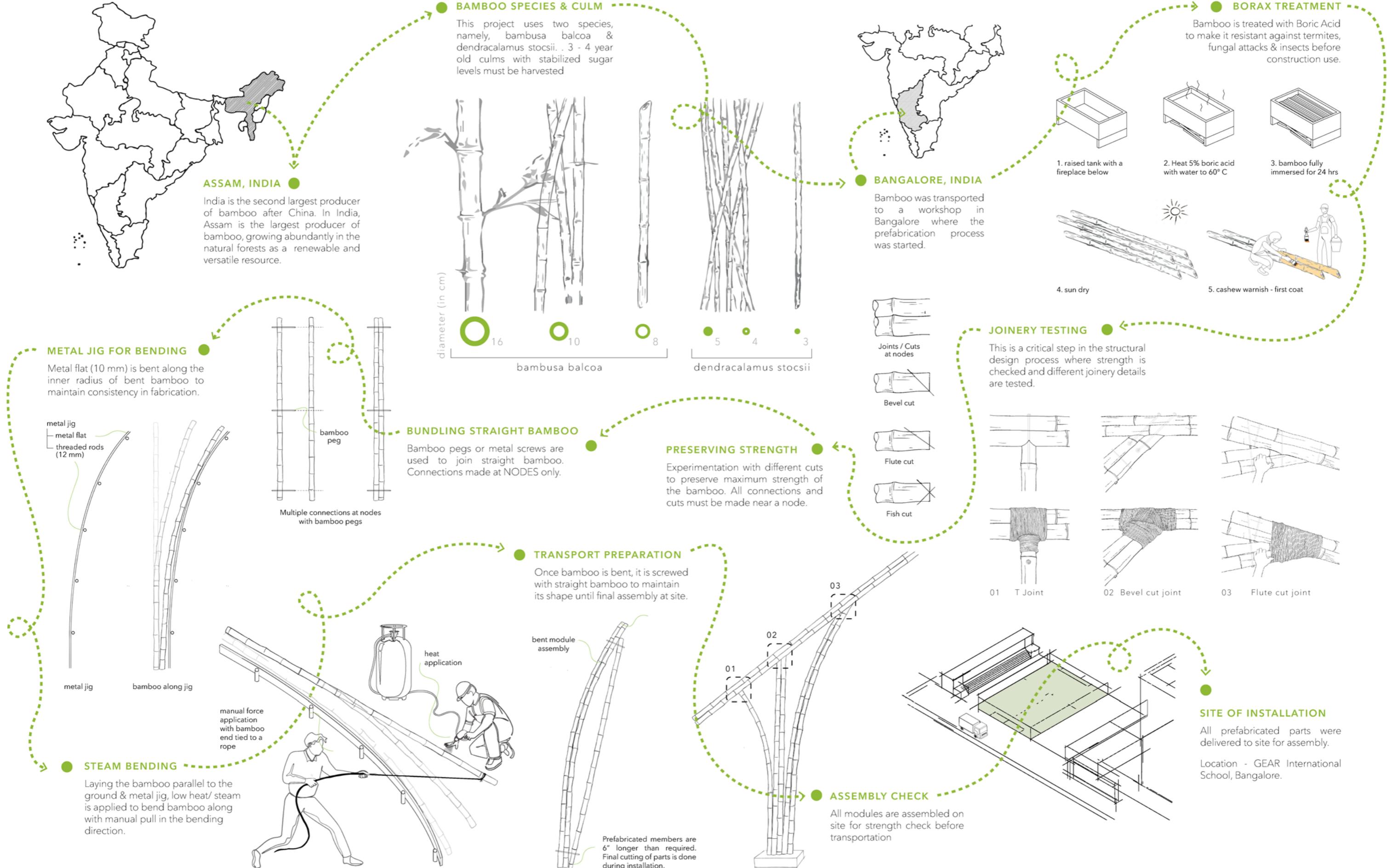
Location	Bangalore, India
Year	2020
Organization	Bamboopecker
Team	Project Architect - Design development, structural design, visualization, & fabrication *All drawings in the portfolio have been prepared solely by application purposes by Radhika Saran.

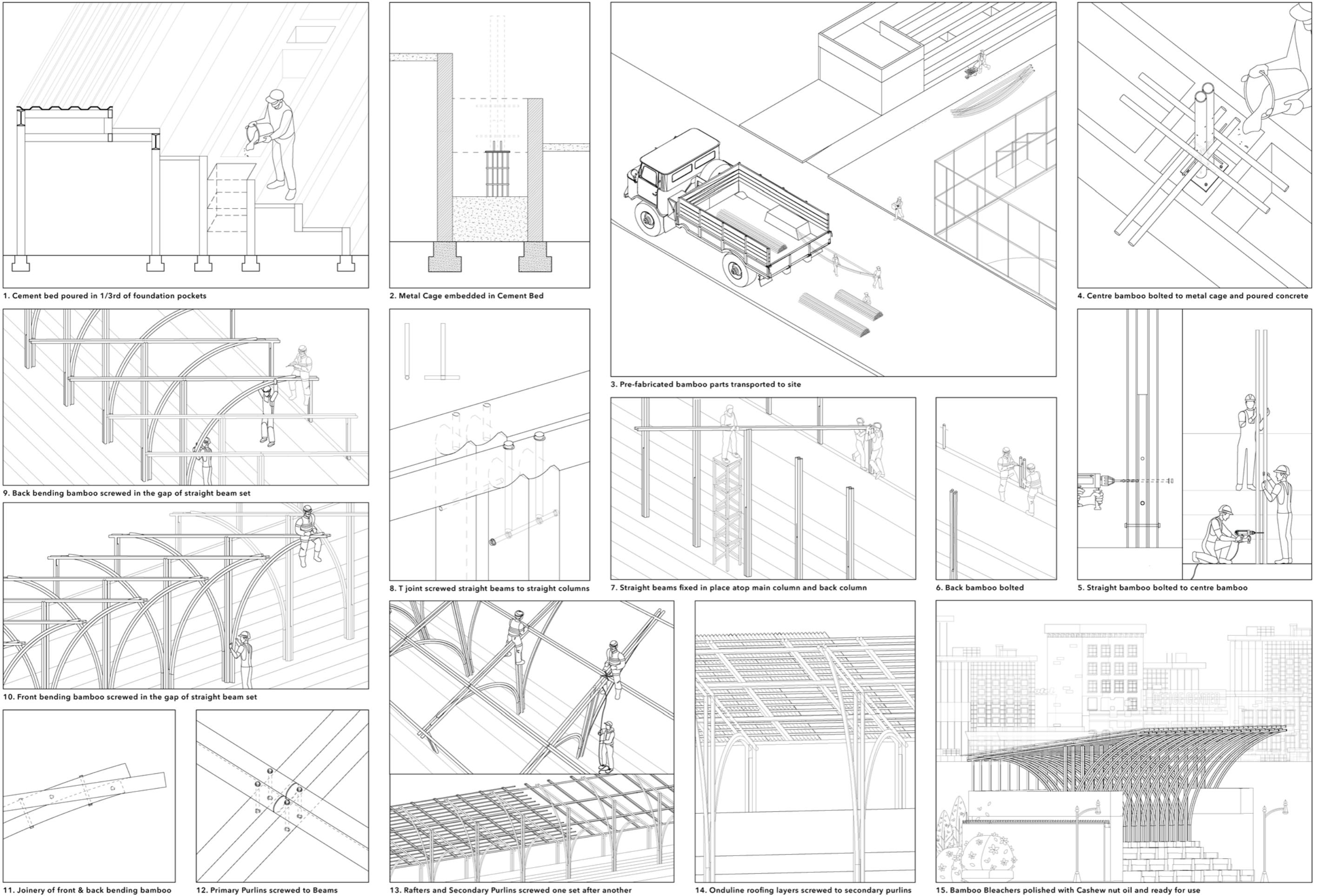
GEAR International School is highly motivated to spread awareness about sustainable development amongst their students and teach them to lead by example. Bamboo bleachers were developed as part of this mission as an engagement space next to the football field, the most commonly used space by all students.

The bleachers are a space of congregation, collaboration & comaraderie in the school. With 16 modular columns spanning 45 meters (~ 148 ft), the bleachers offer a unique and tactile experience to the students, showcasing the beauty of local materials weaved into the current urban fabric.











1. Site @ GEAR International School



2. Bamboo Concrete Pockets



3. Column Base bolted to embedded bamboo



4. Fixing straight bamboo



5. T joint detail of Beam with Back Column



6. Fixing straight beams angle



7. Fixing bending bamboo



8. Bending bamboo joinery detail



9. Main frame structure repetition



10. Fixing layers of purlins and rafters



11. Fixing Onduline roof panels



12. Team Photo



Bleachers in use during a football match

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