

नीव NEEV

Developing an inclusive and sustainable vision for cities & improving quality of life of local communities, by building green thriving neighbourhoods



The need to build compact, affordable communities was recognized; India being a developing country with a wide population has to build well structured plans keeping climate action in mind

1.77 Million Homeless people in India, or 0.15% of the country's total population, according to the 2011 census consisting of single men, women, mothers, the elderly & the disabled

81 Million people in India live in urban areas on incomes that are below the poverty line.



In 2019, the Indian government stated that 6.7% of its population is below its official poverty limit.

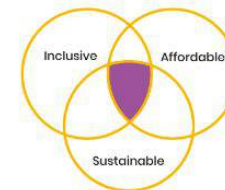
Objectives we aimed to achieve

Achieve a Green Space which is sustainable and inclusive in its nature and develop a vision for city planning

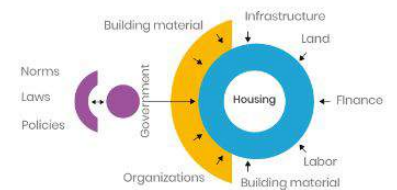
Work closely with city governments to deliver new approaches for low carbon urbanization

Develop a compact, resilient and well-connected communities which preserves our global resources and fragile biodiversity for future generations

The Sweet Spot



Stakeholders and matters affecting housing that we have considered



Team NEEV



Dhruvi Jhanji
Visual and UX
Design



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UX Researcher



Vibhor Agarwal
UX and Service
Design



Aayush Saran
Architect



Jagannathan Kannan
Mentor

As urban populations increase, we recognize the need for building compact, resilient and well-connected communities, by developing an inclusive vision for cities & improving the quality of life of local marginalized communities such as the urban poor population through social housing.



Design Principles

What we want
to take care of

- 1 - Close to home
- 2 - People-centred mobility and thriving streets
- 3 - Connected place
- 4 - A place for everyone
- 5 - Clean construction
- 6 - Energy and buildings
- 7 - Resource management
- 8 - Green space, climate resilient and nature-based solutions
- 9 - Sustainable lifestyles
- 10 - Green economy

Opportunity statement

The majority of the world's GHG emissions come from cities. As urban populations increase, we know that building compact, resilient and well-connected communities is our best chance to preserve our global resources and fragile biodiversity for future generations. Now more than ever, we must harness a model for low-carbon urban development that promotes a thriving and inclusive future for all city residents.



The Neighbourhood Opportunity

Neighborhoods hold a unique opportunity to step up ambition and take advantage of the balance between scale and agility:

- Neighbourhoods are big enough to see additional opportunities from integration, compared with a single system- or sector-based approach.
 - Neighbourhoods are small enough to provide an opportunity to take risks and experiment with innovative city policies, design approaches or partnership arrangements before these are scaled up to the wider city.
- Compared to city scale, neighbourhood projects will typically require a lower level of investment to implement new initiatives. This provides an opportunity to design and deliver 'proof of concept' projects, which can attract further funding.
- Working at the neighbourhood scale provides opportunities to involve the community in collaboration and decision making and to strengthen the needs of local communities



Project Timeline

01

Phase 01

Primary Research

- Literature review
- Brainstorming/Topic exploration
- Problem review
- Stating Opportunity statement
- Design Strategy

Discover

02

Phase 02

Secondary research
-Ethnographic Studies
-Field Study
-Shadowing

Define

03

Phase 03

Tertiary Research
-Interviews
-Empathy mapping
-Data Visualization

Ideate

04

Phase 04

Iterations
-Concept mapping
-Layout Design
-Rapid Prototyping

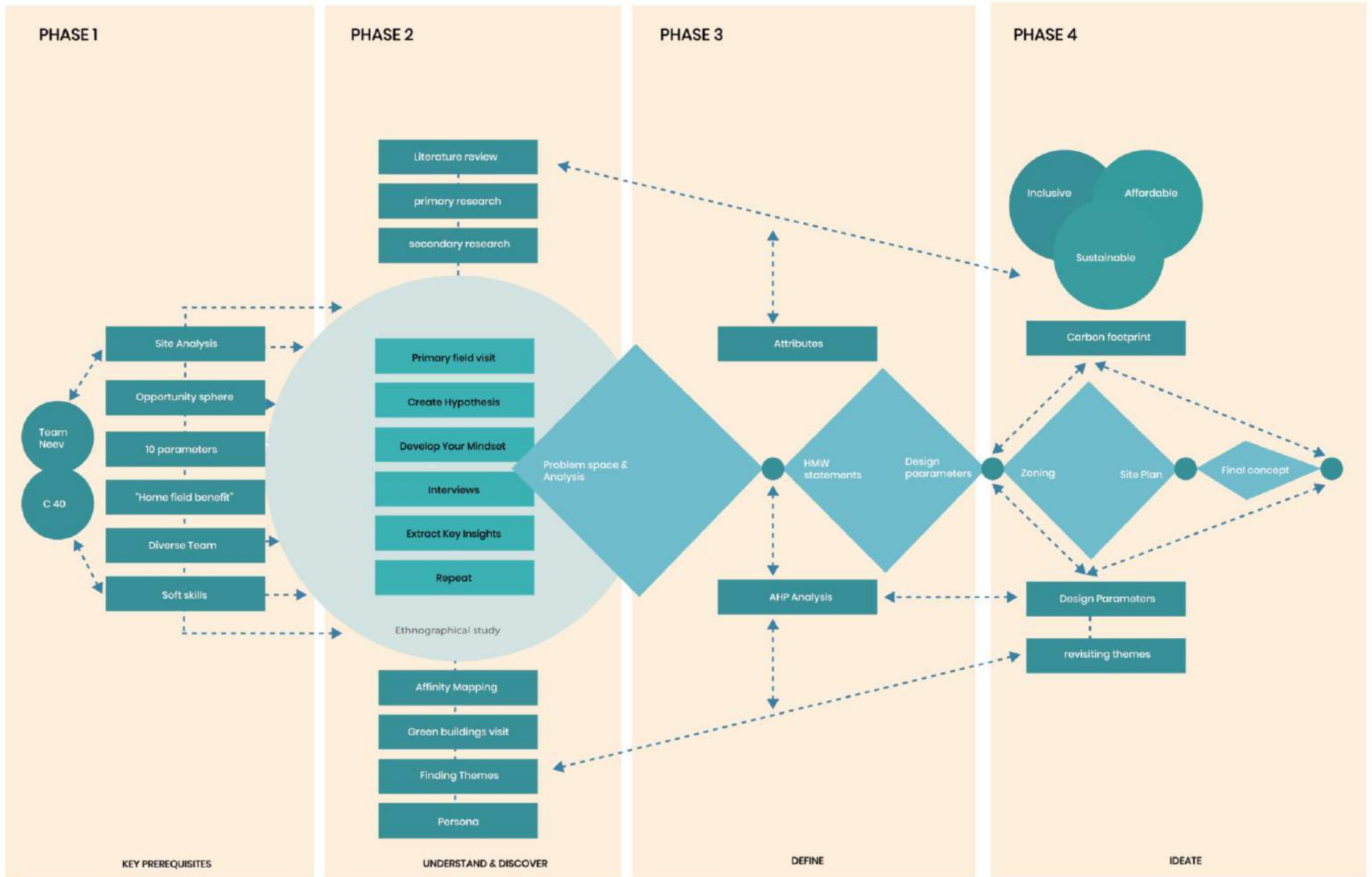
Design

05

Phase 05

Final Deliverable
-High Fed Prototype
-Renders

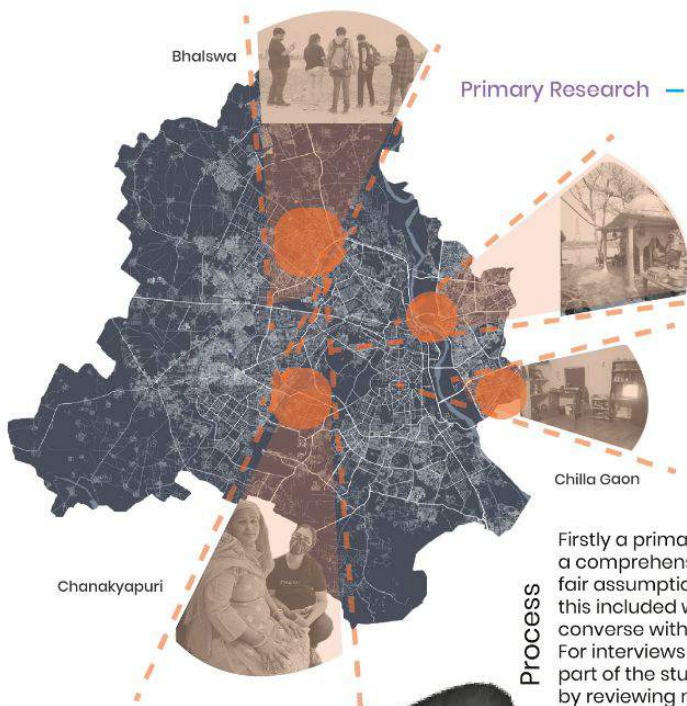
Design Process



The entire journey of this project has been very insightful, thrilling and an exciting one, we viewed the whole ecosystem of the project within a service design framework that was broken into 4 phases, starting with understanding the prerequisite information we had, then moving onto understanding the problem sphere which enabled us to analyse our research data and compile attributes necessary for ideation, post primary research and literature review we went onto a detailed ethnographic study of slums in Delhi.

Post all the studies, we went to the defining stage where we used How might We statements and AHP ANALYSIS for prioritization and finally using all the pointers to reach the ideation state and coming up to the final concept, with aligning ourselves to the 10 principles and hitting the sweet spot between Inclusivity, sustainability and affordability.

With a team so diverse, Designers and architect student collaborating with Ye-Prayas, a team of environmentalist in conducting a carbon footprint of a similar site and we also involved the most important people of the project, The urban barefoot warriors, URBAN POOR people of Delhi, We did an extensive study with the help of people of Delhi, we picked 4 places, Bhalswa chilla Yamuna ghat and Chanakya Puri for this we followed a 6 step process
Firstly a primary field visit to Recognize Existing Knowledge- Observe + Discover- primary field visit to get a feel of the area and people to be better equipped for interview round
Second create hypothesis & formulated a comprehensive list of questions to be answered on the basis of fair assumptions, we also recognized the challenges we would face to conduct such a study in a rural setting which led us to developing a proper mindset - this included what to wear, what to say, taking notes, how to blend in and converse with the urban poor population



Primary Research — Field Study — Ethnographic Study — Shadowing — Affinity Mapping — Final Parameters

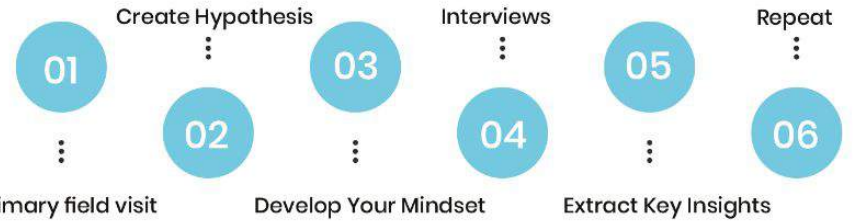
Ethnographic/ Stakeholder Study

To Understand the demographic of urban poor population- the population (Urban Poor) that creates the "Neev" of India to create meaningful products for them, we visited these 4 places and interacted with the people there to find out their needs, goals and aspirations.

A detailed ethnographic study was conducted in slums of Delhi, we picked 4 places, Bhalswa, Chilla yamuna ghat and chanakyapuri - for this we followed a 6 step process.

Process

Firstly a primary field visit. Second create hypothesis & formulated a comprehensive list of questions to be answered on the basis of fair assumptions, which led us to developing a proper mindset - this included what to say, taking notes, how to blend in and converse with the urban poor population. For interviews a loose research guide was prepared, an important part of the study was constant analysis and extraction of insights by reviewing notes to find themes, to be well informed about what to ask in our next visit.



Key Insights

- Observations
- Insight



Occupancy pattern of a typical household in bhalswa

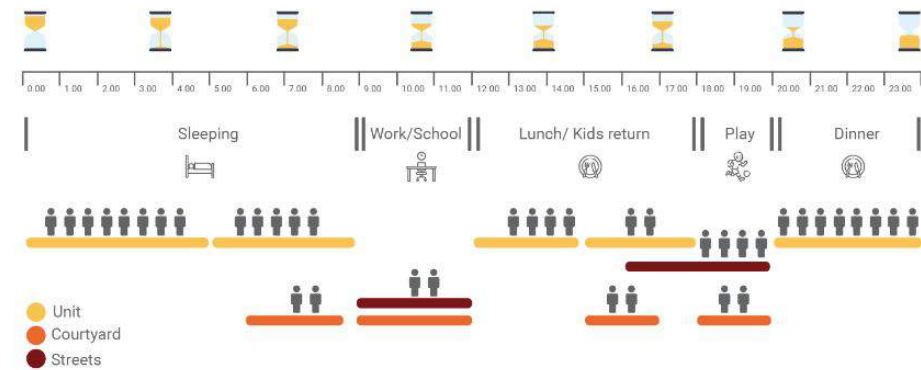
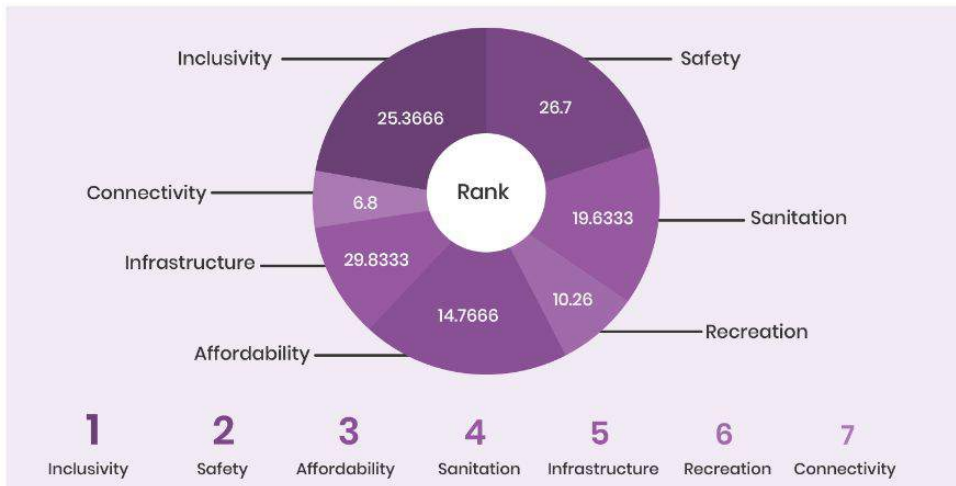
We mapped out certain details like occupancy patterns, day in the life of residents, and With all this data in hand we went onto Affinity mapping and finalised on 7 key attributes, which then required a prioritisation Analysis and we chose AHP Analysis. While this data was being synthesised this data with We calculated the carbon footprint of sample site in bhalswa w Ye prayas team, which is a team of env enthusiasts

Attributes

The analytic hierarchy process (AHP), also analytical hierarchy process, is a structured technique for organizing and analyzing complex decisions, based on mathematics and psychology. AHP has been extensively studied and refined since then. It represents an accurate approach to quantifying the weights of decision criteria. Individual experts' experiences are utilized to estimate the relative magnitudes of factors through pair-wise comparisons. Each of the respondents compares the relative importance each pair of items using a specially designed questionnaire.

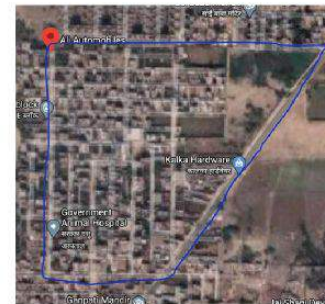


AHP Analysis
Analytic hierarchy process



Steps to Analyse site & calculate the carbon footprint

1. Inventory
2. Geographic boundary
3. Time period
4. GHG Emission sources
5. Stationary energy



Calculations



Scope 1
LPG Emission: 15.7 (kg/month) * 2.98 (EF) = 46.786 kg CO2/month

Scope 2
Electricity Consumption: 265.4 (kWh/month) * 0.85 (EF) = 225.59 kg CO2/Month

Scope 3
Offsite Waste Burning (wet): 15 (kg/Month) * 0.036 (EF** CH4) * 28 (GWP: CH4) + 15 (kg/Month) * 0.991 (EF***) = 29.98 Kg CO2/Month

Average Indian Annual Carbon Foot Print (World Bank 2016): 1.818 Mt CO2/Year. It was observed that the residents of the sample area had an annual Carbon Foot Print of 0.61 Mt CO2 which was almost 1/3rd of the National Average.

Total CO2 Emission per House (excluding Scope 3) = 3.26 Mt CO2/ Year

Total CO2 Emission per House (including Scope 3) = 3.63 Mt CO2/ Year

Total CO2 Emission per Resident (including Scope 3) = 0.61 Mt CO2/ Year

Number of Residents per Dwelling Unit: 6
Margin of Error: ~10%

footprint was calculated of a site close to the target site in Bhalswa and the Carbon footprint was calculated to map out emission sinks and sources to envision areas for design intervention



Communities play an important role in every aspect of our lives. We have communities in our friends, our families, our employment, our neighborhoods, and in so many other places. A strong community is a place of opportunity. Big or small, a community can provide countless opportunities for growth and experience. With a community of people looking out for your best interests and working together for a common goal, there is no shortage of opportunities to strive for something that you want. Having a sense of belongingness, and empathy in social aspects of one's surrounds drastically increases their quality of life.

← **WHAT IS NEEV?**

The roots of a plant provide the agency to the plant to grow into a big strong tree, similarly, the foundation or "NEEV" of a community largely impacts the quality of life of the people living in that neighbourhood. Nature's design is such that a tree acts as a central point for socializing, the space becomes alive and thriving, as students trying to make impactful designs enabling communal interactions, the scope for individual growth, and overall improved quality of life we have tried to look at sustainable and affordable housing in a more holistic way. Here we do not limit sustainability to environmental concerns, rather a more social understanding of the same is being constructed. The houses are built for the people to live in, and to want to grow as a family there for a long period of time.



Bubble Diagram

SWOT ANALYSIS OF SITE

S STRENGTH



Lake near the site providing a spectacular view



Site is located near railway station, bus stop and metro station providing a good connectivity to the residents



There are plenty of open spaces around



Absence of compound, allows interaction between the neighbourhood



Adequate educational facilities



Abundance of locally available materials for constructions for sustainable

W WEAKNESS



Landfill near the site causing foul smell and noise



No proper roads and street lights



Poor sanitation and



Park needs to be more developed having more recreational facilities



Lake is littered with garbage



No MCD proper waste disposal from homes to landfill

O OPPURTUNITIES



Great need for EWS housing for slum dwellers



Political support from state government



To create recreational space near the lake to promote tourism



Developing existing parks



Providing electric charger as alot of the residents own eriksha



Providing proper under ground sewage system

T THREATS



Health issues because

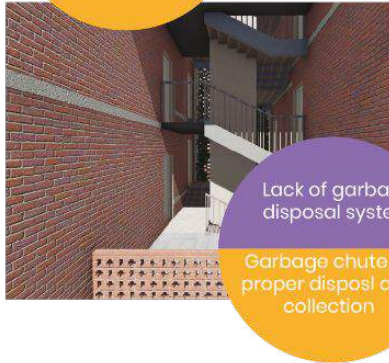
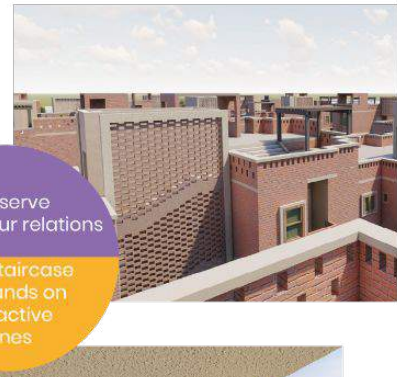
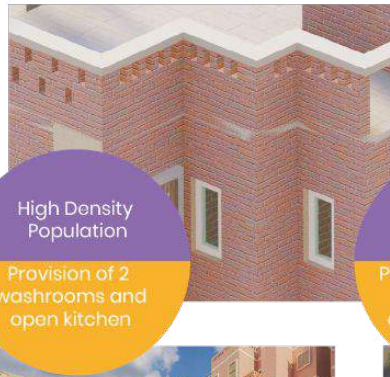
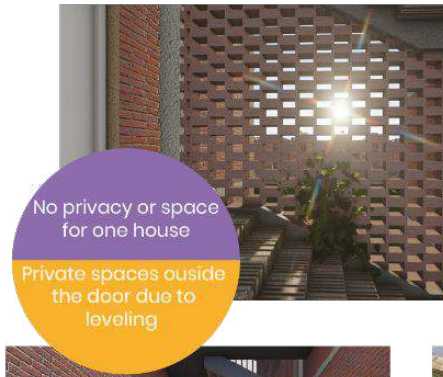


Lake may overflow during monsoon

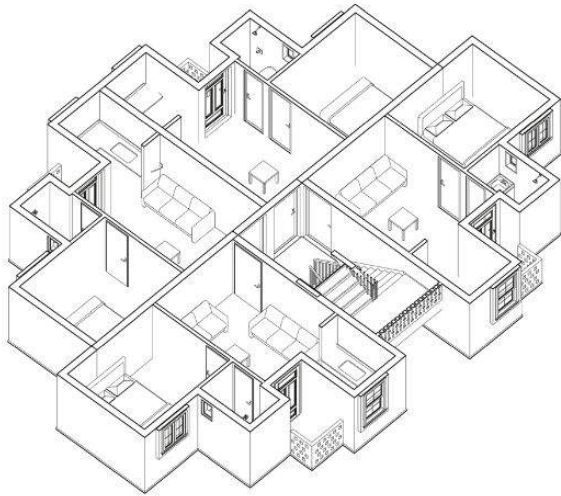


Security

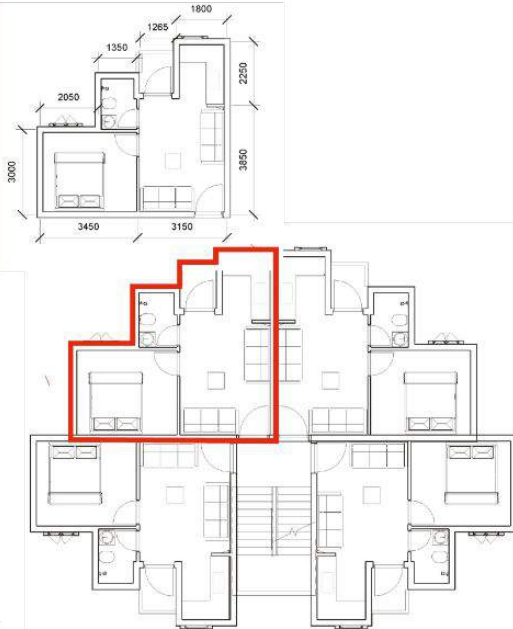
Design Interventions



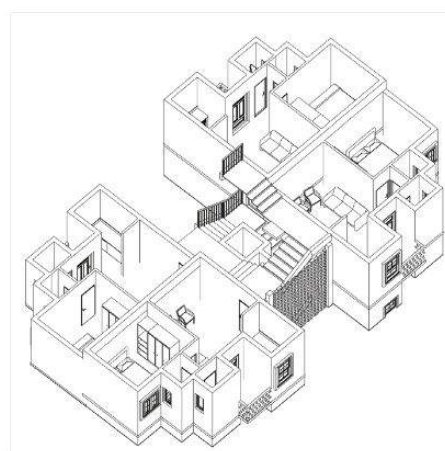
CARPET AREA 26SQ.M



SUPER ECONOMIC

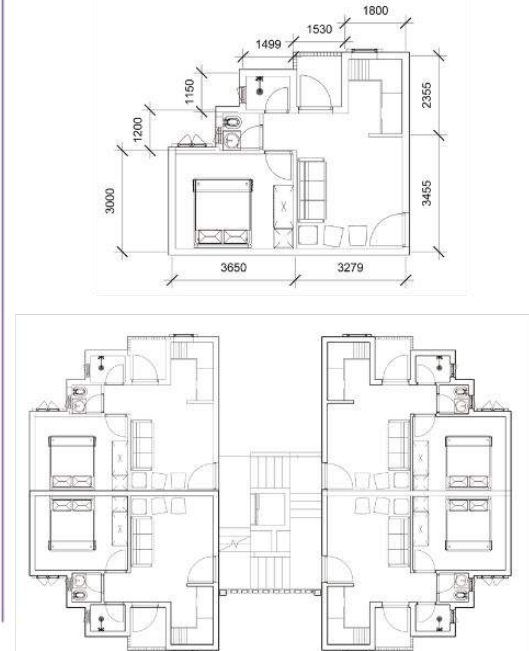


CARPET AREA 29SQ.M



COMMON POINTS
 All rooms have access to Natural sunlight and ventilation
 It consist of Studios, 1BHK, 2BHK
 All regulations and bylaws have been followed
 GFRG Panels have been used on the facades

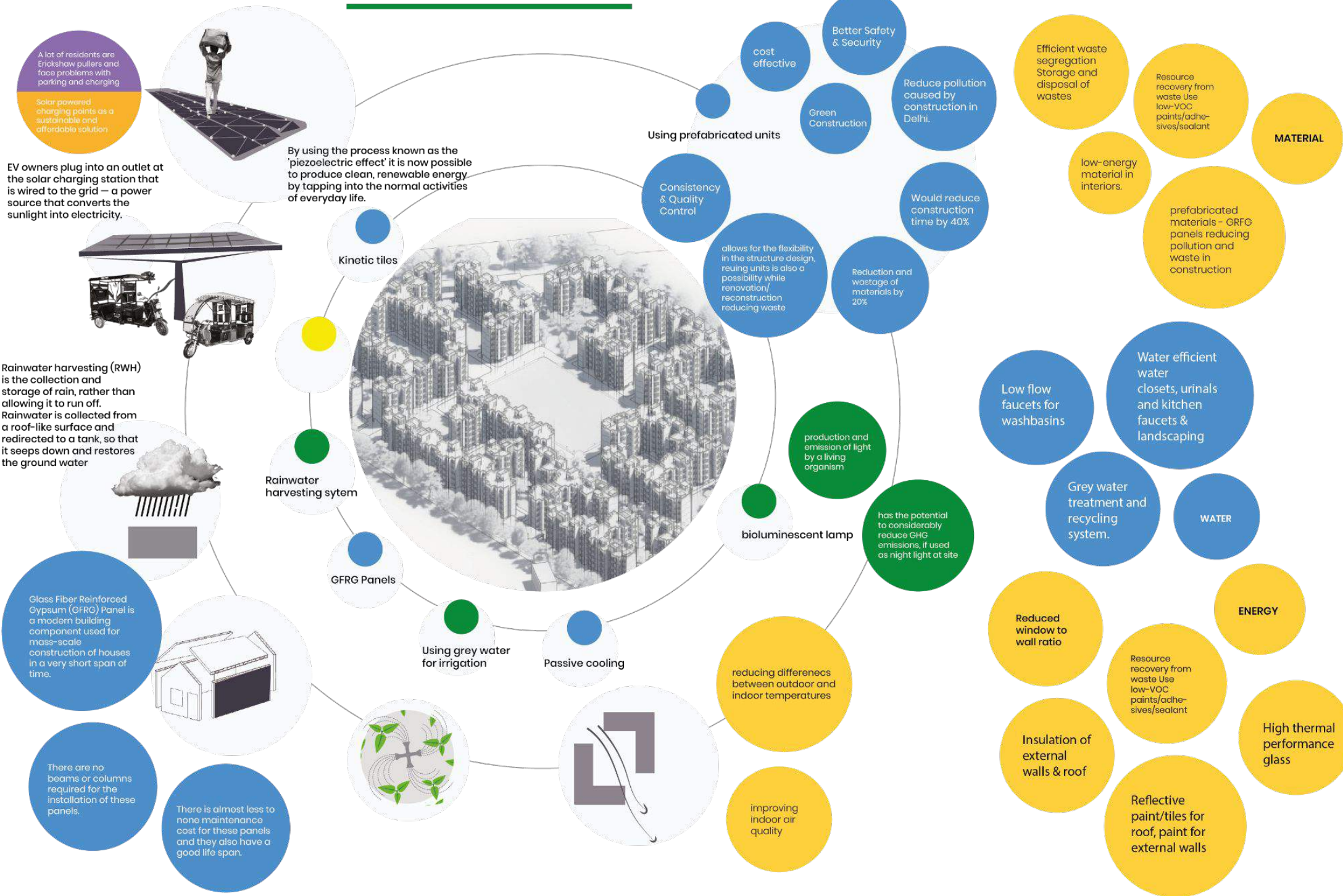
ECONOMIC



Site plan



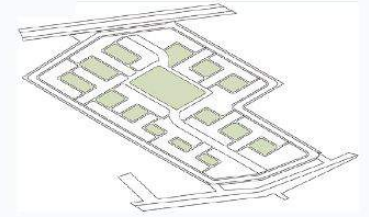
How our design concerns the environment



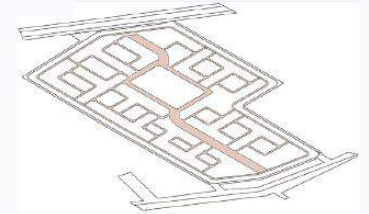
How our design concerns the principles



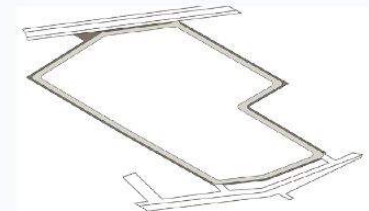
infrastructure



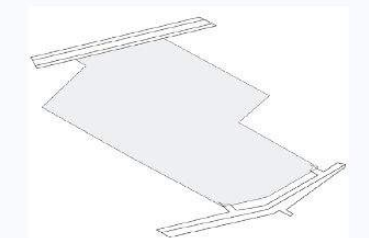
Open space



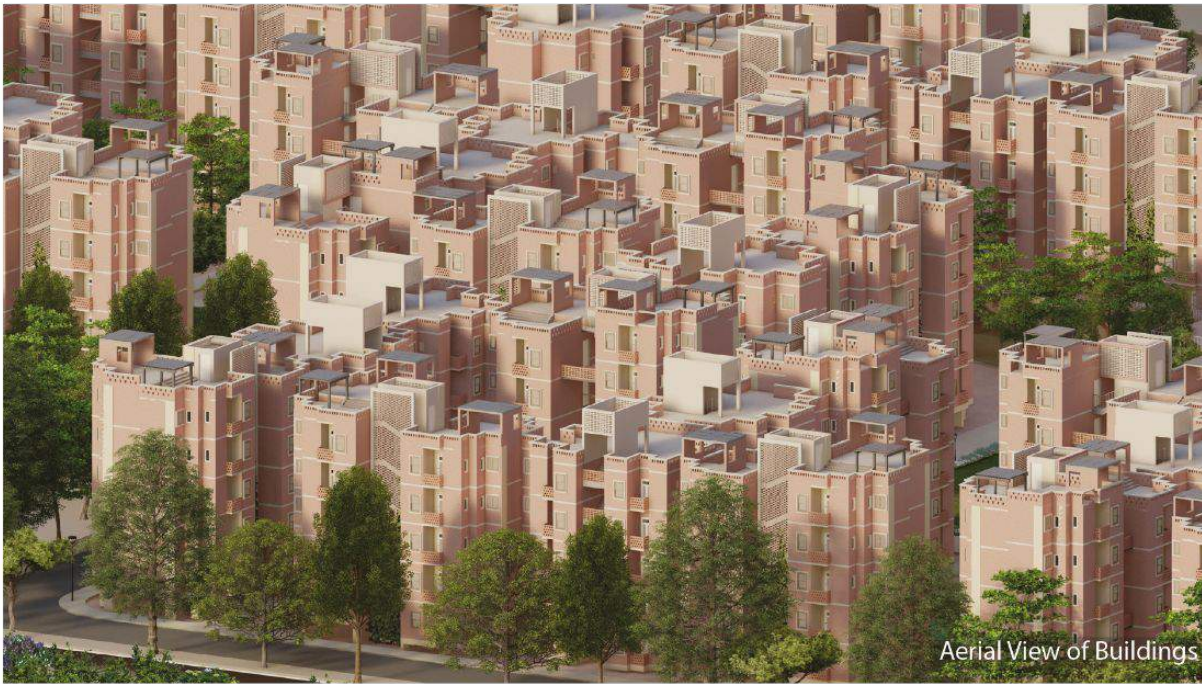
Walkability



Vehicular movement



Site



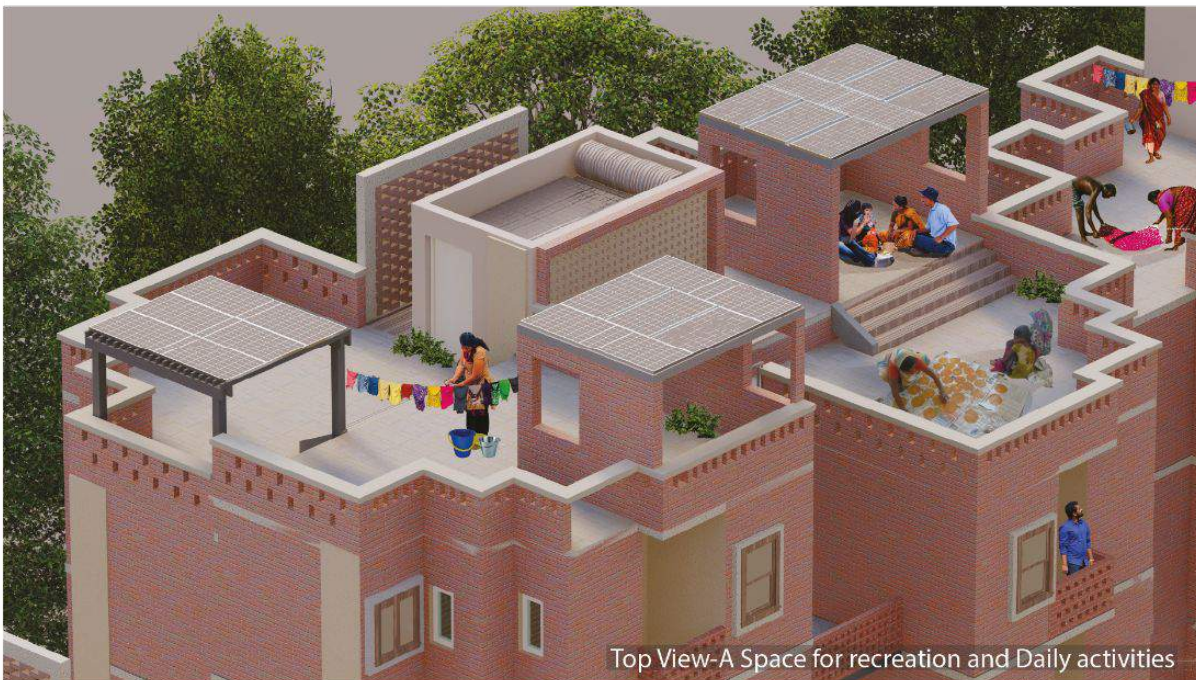
Aerial View of Buildings



Walking Spine and above is path to community centre



Entry for community centre alongside walking spine



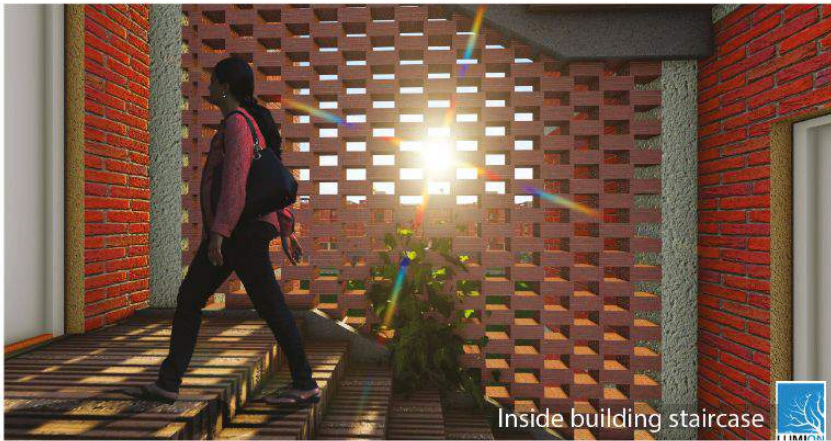
Top View-A Space for recreation and Daily activities



Basketball court



Inside view of community center, main park



Inside building staircase



Stepwell sitting area between building



Informal market area for thriving cities



Night view, Community area and neighbourhood park

We recognise the future scope of the project with the same intention that the project started out with, it being that housing and strong, sustainable communities in India can be a solution to many problems that it's citizens face, and more work in this field is always required

We are in fact - "not creating a solution for this pandemic, but preparing for the next one.."