

CSE
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Challenges to Affordable Housing in India



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CONTEXT - ISSUES AND OVERVIEW :

Not to see housing in isolation but as a larger reality connected to health , recreation , education , transportation etc.

Affordable housing is not a technologic issue to be solved - it requires a larger holistic approach

Affordable housing is dependant on the context , location , site , community and process of construction

200 million Indian will be residing in slums by 2020 (UN Habitat estimates)



3. Context –

We are all aware of the large deficit of affordable housing and millions of homeless. The deficit is estimated at about 47 million houses in rural areas and about 27 million houses in urban areas. So the emphasis has to be on the process of design, construction and finance for affordable housing – while ensuring it is sustainable ecologically.



4. There are several interpretations to what we mean by affordable housing

1. Should cost within three years of gross earnings of the family
 2. Should be available in the area of work
 3. Should be of a reasonable size of home
 4. Should be of quality construction
 5. Context and location changes several parameters of affordable housing and cannot be generalised
 6. Could mean a house in a urban- or semi urban area costing between 5 to 25 lakh rupees
- Etc

5. Based on this the various processes of creating affordable housing are -

Self-build and capacity building

Builders who avoid speculation

Mass produce with alternative technologies

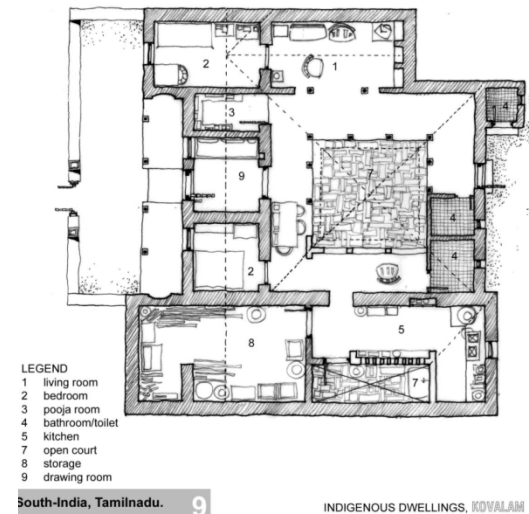
Core house and Incremental housing

High rise

Large scale – with economies of scale

Affordable technologies and materials – canvas, chicken mesh, bamboo, plywood, ropes. Building rubble etc.

Etc . . .



6. ISSUES AND CHALLENGES

Housing, a basic need for humans, could play an important role in the socio-economic growth in India.

However there are several challenges –

high gestation period of housing projects,
limited and expensive capital,
spiraling land and construction cost and unbridled speculation, land costs
can be almost 50-70 percent the cost of the house.

lack of infrastructure and social amenities

high fees and taxes,

unfavorable development norms and studying densities and FAR

Poor quality of mass housing

Bad designs not addressing social conditions

7. Some of the key findings include:

- India requires about 11 crore housing units by 2022 to achieve the vision of 'housing for all by 2022
- Achieving this vision would require over USD 2 trillion, as investments
- About 70 per cent of the housing needs until 2022 would be concentrated in nine states with UP and Maharashtra accounting for 18 per cent and 9 per cent respectively.
- Most of the housing development to be done for EWS/LIG households whose income is less than INR 2 lakh per annum
- Several requisite policies and regulations promoting better coordination between housing stakeholders; delegation of power to urban local bodies; rationalisation of statutory charges and taxes; a relook at development norms; and steps to help reduce project cost and schedule overruns need to be introduced.

References for passive design and exploring socio-cultural continuity
Even as new housing typologies are evolved to meet new conditions



9. Case studies of Artes – Human settlements research collaborative

Sirkazhi

Nagapatinam tsunami housing

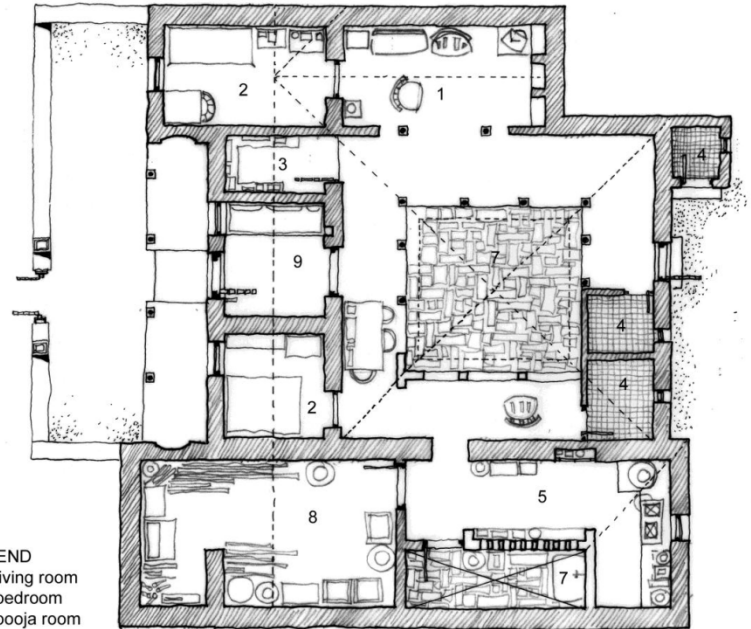


SITE CONTEXT AND PARTICIPATORY PLANNING PROCESS

- Study of indigenous settlements and house types.
- Local resources and building development of house types and cluster.
- Local resources and building skills.



- LEGEND
- 1 living room
 - 2 bedroom
 - 3 pooja room
 - 4 bathroom/toilet
 - 5 kitchen
 - 7 open court
 - 8 storage
 - 9 drawing room



Architecture of coastal settlement, South-India, Tamilnadu.

9

INDIGENOUS DWELLINGS, KOVALAM

Mapping of community plan

Mapping each house plan, trees,
water source, drainage etc

Family size and occupation/income

Mapping local skill base

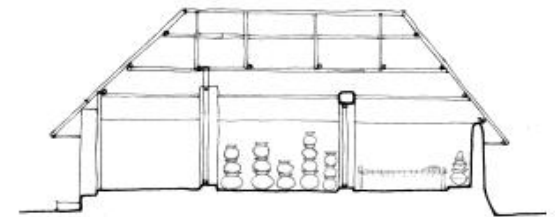
Indegenous knowledge systems

Mapping local materials

Qualitative mapping – social and
cultural practices, indigenous
knowledge



KONAYAMPATTINAM



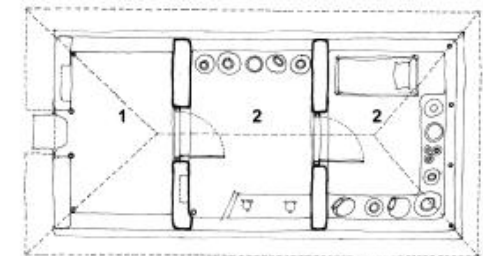
Occupants

Adult Male: 1
Adult Female: 4
Children: 1

Owner's Name: Pappa and Kaliyaperumal

Legend

1 Front Room
2 Room



KONAYAMPATTINAM, MATAMPATTINAM, TENNAMPATTINAM
Documentation of 3 Villages- Thiruvengadu - Tamil Nadu, South India.

12

HOUSE NO. 11, DWELLING TYPE

CAPACITY BUILDING

Masons training programs and related disciplines
For self-build process



13. Technology

Tile making, brick manufacture, hollow blocks, flyash, rice husk etc.

Rat-trap bond

Filler slab

Self-build processes

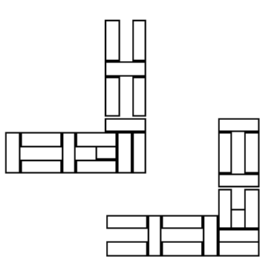
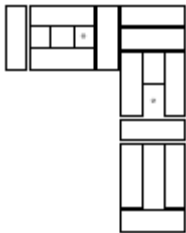
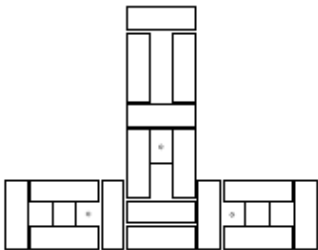
Re-cycled materials – becomes an ecological process.

Search for new materials – bamboo, etc- but there is resistance.

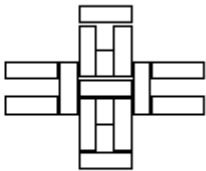
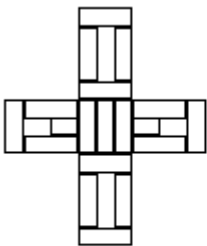
Etc



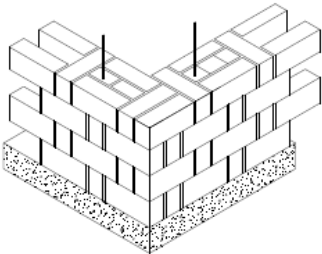
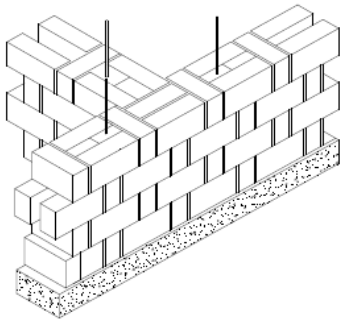
TECHNOLOGY AND CONSTRUCTION DETAIL



"L" joints

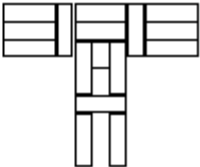
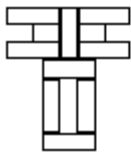


Cross joints

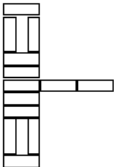
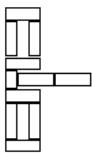


Reinforced corner in rat-trap brickwork

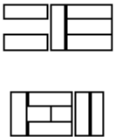
Reinforced T-junction in rat-trap brickwork



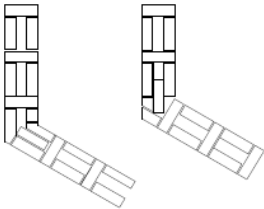
"T" joints



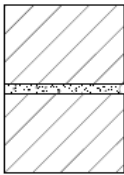
"T" joints with 3 walls



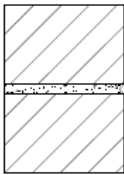
End situations



Obtuse angle joints



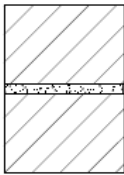
Concave



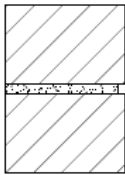
V-shaped



Weathered



Flush



Raked

Pointing

HOUSING AND AMENITIES

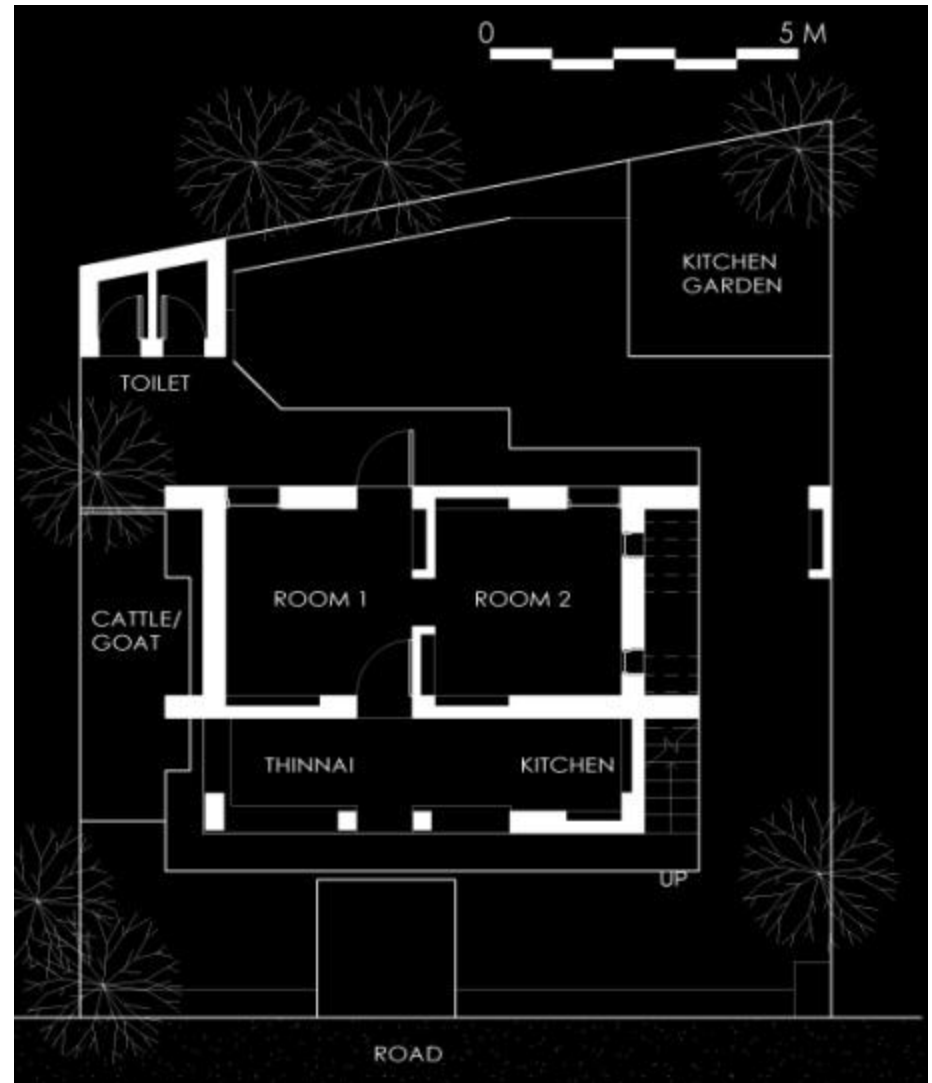
- Amenities accessible to all - EQUITY
- A self contained process at neighbourhood level.

Water recycling
Rain water harvesting
Solar street lights



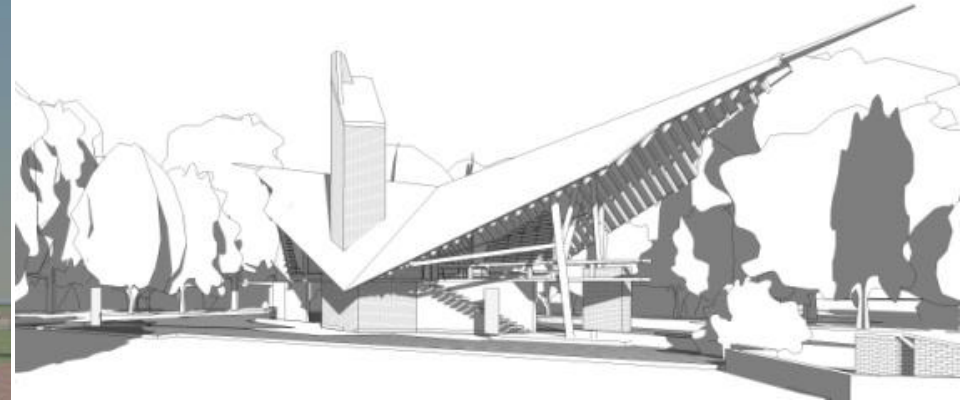
THE CORE HOUSE

Design of house types based on existing life patterns, desires for change, local skills and materials, costs and timeframes



Community facilities – like health center, primary school,
community hall

Proximity to Ration shop, provision stores, bus stop,
recreation facilities, place of work,



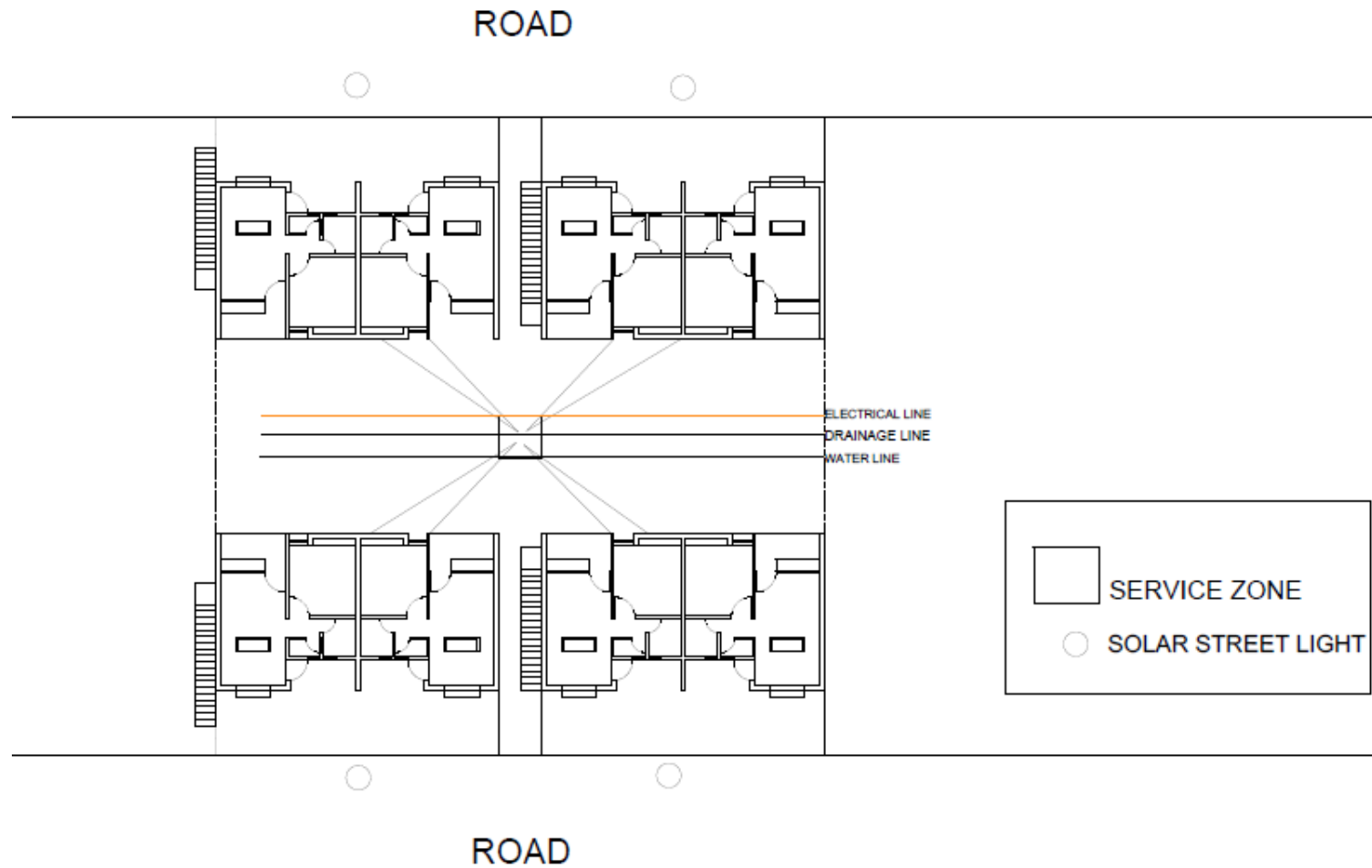
NEIGHBOURHOOD

- Formation of smaller clusters .
- Allowing for addition and growth over time.
- Small shops.
- Community hall, school, playground, urban .
- Trees create micro climate.
- Streets are community spaces.



HIERARCHY OF ROADS

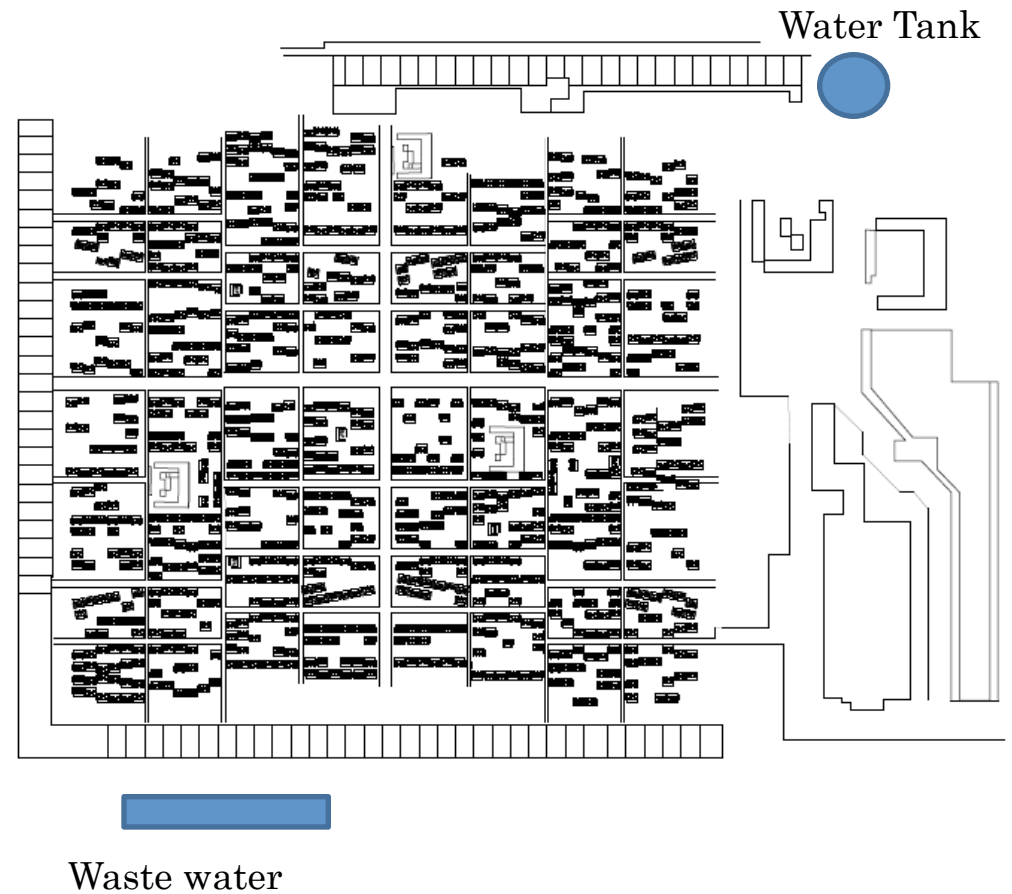
- Internal courtyards
- Efficiency of services



SITE PLAN / HIERARCHY OF OPEN SPACES

TOPOGRAPHY INFLUENCES ROAD PATTERNS AND SERVICES.

- Water tank highest point (GRAVITY)
- Waste water at lowest point



CLIMATIC RESPONSE – PASSIVE DESIGN

- Shaded open spaces .
- Balconies protect from
- Rainwater harvesting

TREATMENT SYSTEM

- Recycling water
- Rainwater harvest
- Street light / solar



Selection of site and commencement of project
with self build
Project management – with clear bill of
quantities and costs



Innovative Financing

Micro finance Organisations – community bases

Incremental housing

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