

## Description:

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### *'Bridging' a flood cycle:*

Self-help design strategies for resilient communities

#### OBJECTIVES:

- Understanding resilience and defining role of an architect.
- Assessing existing site conditions with defined role of an architect.
- Understanding hazards and vulnerabilities at all scale.
- Understanding Processes and execution methods of proposal
- Resilience achieved by implementation and execution.

#### RESILIENCE:

Resilience is not only being flexible in hazards but it is also about how efficiently a community can function in daily life. Resilience can be seen as cycles transiting from phase of normal life as well as hazards.

#### ROLE OF A DESIGNER:

The role of an architect is to mediate between the needs of traditional settlements and respective edifices comprising of those individual, families, and communities who build for themselves. Hence, an architect is a facilitator who identifies assets and finds most efficient way for the community to work with them. Proposed scheme minutely talks about role where decision made is being authoritative and when it is participative. So it is well mixture of top down and bottom up approach process.

#### SITE:

Due to its coastal location, site is vulnerable to natural disaster such as flood, storm and earthquake basically vulnerable to water, wind and land. It requires facilitator for reaching resilience. Therefore, life is seen as core within all hazards where life includes the basic livelihoods security, hygiene, energy and income which must be stabilized. The idea is to take intermediate position between bottom up and top down approach where there are some negotiable as well as non-negotiable features of the proposed scheme. Flood expanding stages are seen as alarming feature that helps to derive design guidelines of proposed scheme. Understanding existing water strategy and to derive at various proposals of an urban, cluster and unit scale. To deal with natural hazards, an individual should be aware about its characteristics. One cannot refrain site from its extreme vulnerabilities but an individual can be resilient with the ability of a social system to respond and recover from disasters. It also emphasizes on those inherent conditions that allow the system to absorb impacts and cope up with an event

Dealing with flood is not the primary issue for this settlement as they are facing it since years but livelihood is majorly affected. This design focuses on promising their livelihoods and ways to recover it to normal condition. The vision of design is to unite the community from isolation. In present situation, housing typology enforces them to live in isolation where as in proposed situation they share plinth which bring cohesion between communities. Understanding growth pattern of settlement; utilizing their technique building land and analysing materials available at site. Irregular spaces in between houses were seen as a problem for each family as their own needs and preferences were prioritize rather than adhering to a rational system creating an order that would optimize benefits for all. Understanding their existing needs for accommodation by segregating different existing typology.

## DEALING HAZARDS AT DIFFERENT SCALES

### Urban:

Nurturing mangrove to impede the force of storm water and inhabit more fishes seen as coastal defence and Afforestation at upstream for avoiding desiltation.

### Settlement:

Proposed storm water recharge at cluster level at regular interval that is walkable and approachable. Proposed water tanks are scattered through cluster which are sufficient during flood time. At cluster level, there are bridges (connection at higher level) at regular interval which can be covered in 6 min. Institution being at the centre can be accessed by walk from the housing cluster. A new sociality is reflected in neighbourhood parks and multipurpose hall, where people can congregate and converse, and thereby be transformed from isolated private individuals into community. Intertwined together they form a specific vision of desirable social order. A successful community as locus where an identifiable centre for human interaction and interchange is scaled to social and cultural demographics. Proposal emphasize on connectivity and commutation at the various scales of settlement.

### Cluster:

Instead of keeping water out of sites, space for water is provided within developments by providing space for ponds. Flexibility is given with some non-negotiable feature by understanding typologies existing at site and guidelines given for units which share services. Shared facility and infrastructure are more economical because the cost of laying pipes is lowered and energy loss across distance is decreased. User chooses their own house form which supports existing incremental growth and they also choose how to build. To improvise street edges by softening edge, adding other activities and preventing waste from getting dumped in water. As observed from existing condition there are three types of houses namely formal; informal and makeshift which are seen in isolation are now brought together. Decentralised and equally scattered proportion of informal, makeshift and privately constructed housing is envisioned. Harmonising between existing fabric and proposed fabric

## Unit:

Flexibility is dealt at this level too. Users make their own combination from Elements: stairs; plinth; opening; railing; material which are negotiable and flexible by demonstrating it in one unit. Typology of each informal; formal and makeshift will be varying.

## **PROCESSES:**

Multinodal Network for efficiency of commutation

Working with the community:

- a) To understand the needs of the communities.
- b) Projects that are already under construction.
- c) A series of workshops and the community debated the merits of various approaches.

Stages of lifecycle:

- a. Daily routine
- b. During warning
- c. During hazards
- d. Post Hazards
- e. Returning back to routine

Protection at different level:

- Mangroves (stage 1)
- Shelter bed (stage 2)
- Unit levels (stage 3)
- Bridges and tower (stage 4)
- Off grid rescue centres(stage 5)

Allow water to flow easily:

- Unit uplifted
- Road section
- River section volume to be increased

Leveraging existing condition and connections to reduce hazard risk

- River edge
- Street edge
- open spaces and institutions

### Upgrading Infrastructure:

- Storm water
- Sewage
- Alternative ways of generating energy

### Phases and Stages of execution:

- devastated condition of site
- Construct high plinth and mangroves
- Changes in morphology and mangroves
- Dike improvisation and connecting through bridge

## RESILIENCE:

- Economic
  - Mangrove farm
  - Integrated aquacultures
  - Soft tourism
  - Coastal resilience
- Social
  - Education centre
  - Information centre
- Housing resilience
  - Pallet of Form
  - Typology
  - Morphology
  - Details

## GUIDELINES

- Flood protection and preparations are not a mere line of defence; they must take entire neighbourhoods and districts into account and having vision for the Community that will be able to sleep without fear of a new flood.
- The design should be community driven and local. Emphasis on scale and arguments for importance of locality.
- The system should be compartmentalized and should be able to be built incrementally.
- Physical resiliency should be combined with social resiliency.
- The requirements of different sectors should be addressed.
- Flood protection should be tied to community benefits that are better open spaces, better access to housing and possibility for growth.
- Short term action that will have long term impacts.

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