

1. Life
2. Increased risk of Natural Hazards
3. Environmental change (Long term/Short term)
4. Development pressure
5. Living with water (Excess or scarcity of water)
6. Making space for water (Livelihood)
7. Renewable energy sources (Technology supports)

ABSTRACT

For the settlement with centre as life, the immediate events that take place, are risk of natural hazards, environmental changes caused by them, and developmental pressure. They experience excess and shortage of water caused by natural hazards. Use of excess of water helps in generating livelihood for the community and an opportunity as a renewable energy source.

Looking into the existing urban fabric, there has been an attempt to change the density to deal with disaster creating smaller scale of interdependence. The features required at larger scale are intervened at smaller scales. There are changing scales of interdependence, bringing the community together, increasing their communal strength leading in decentralisation. It deals with scale of moving in and out enabling access, rescue, and evacuation.

An important aspect of the design is community participation. Given the diversity of materials used in the region, the community is provided with set of diverse materials instead of a single technology. This enables the community to support their livelihood and to take their skills further, creating empowerment and decentralisation of the community along with collective actions. It would demonstrate the potential for an indigenously - led sustainability transition using renewable energy, water and energy conservation, and high self-sufficiency regional food production. This is enabled by a strong local culture of sufficiency and technologies. Along with social, there is an attempt to create resilience in ecological surroundings.

Resilient community is building a community that is flexible, has ability to absorb, deal with hazards, and return to usual conditions.

DESCRIPTION:

SWOT ANALYSIS AND PROGRAM

Strength:

The main local culture and livelihood is premised on small scale farming and shallow ocean fishing. The morphology and diverse topography that connects their living and working space which further defines their typology of house and public place.

Well and water tower of the village is used for drinking water purposes.

Weakness:

The fields are submerged in monsoon and there are no alternate spaces where fodder can grow. The access to this village is completely cut off during monsoon floods. The only access is embankment made at mouth of water.

Opportunity:

Existing ecology: River, Roads, Hills, Valleys, Mangrove Flats.

Houses: 300

Program for more employment and economic resources, the fisher and the farmer who co-existed in the local economy have started restoring to other ways and means for increasing their income, where food and economical resources are depleting in quality and quantity. Propose to restore it back to its origin and encourage the local occupation and cherish them. Aquaculture and Agriculture

Natural landscape: mangrove flats, river Brooke, hill

Artificial: Cultural pond, Aquaculture

Threats:

The level of confidence of households that their houses will not be affected (submerged or collapsed) by future floods. It is necessary to convey information about lacking features and drawbacks in existing houses. Awareness on safe housing and Implications of this vulnerability should be conveyed to the community.

Proposal:

Working with natural processes to provide room for rivers and the sea to expand in times of flood and reducing reliance on defence. Integrating the means of managing flood water within; also improves preparedness for flooding and helping to maintain continuity in daily life before and after flooding. Permanent awareness and preparedness in terms of public information and well-trained response scenarios. Instead of keeping water out of sites, space for water is provided within developments.

Space for water by channelizing river, rainwater harvesting, underground aquifer Catchments, Weir, Levee, Revetments and Spillways. All the benefits are clear and widely shared.

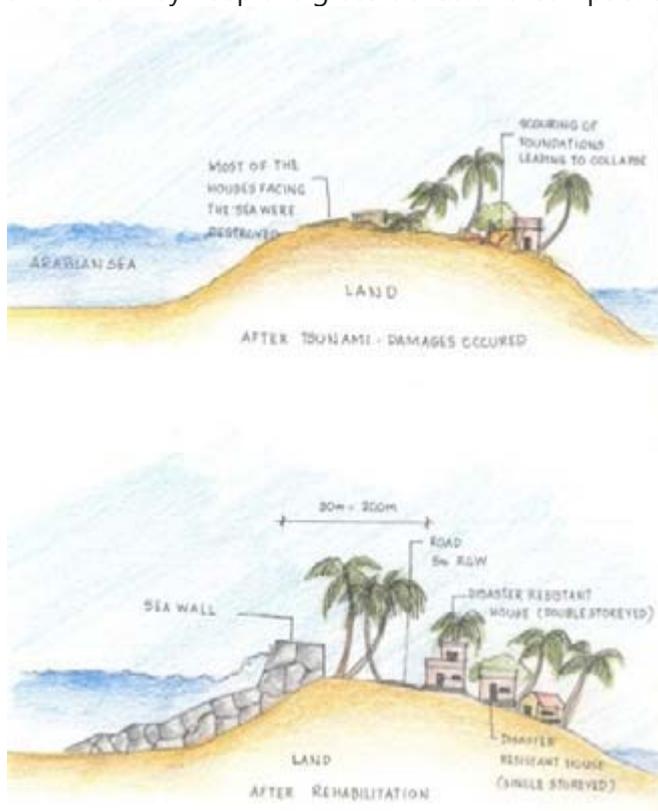
Settlement will not be island but its metabolism (a process that occur within to maintain life) interlinked to surrounding ecosystems and its people and culture networked to existing urban fabric to form a living and developing tissue. It is no longer 'parasite'- in the next evolution it becomes a net primary producer. The river, sea and forest would be interwoven in to the urban fabric. Create fractured natural landscapes, urban islands evolve and melt into sea of nature. A high quality of life dense and diverse yet dispersed, built around communities and institutions of governance which generates vibrant development.

Proposed development intends to protect settlement and provide future guidelines for them to reorganise and deal with hazard in response to a threat. Development which is to empower their skills at individual and community level through their collective action.

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Dyke and dune systems:

Earth dikes with a protective layer of seaweed. In places where seaweed will be unavailable other materials such as reeds or wicker mats can be used. Dikes without a foreland having a layer of crushed rock below the waterline to slow wave action. Up to the high waterline the dike covered with carefully laid volcanic rocks. The remainder is covered by grass and maintained by grazing animals. They keep the grass dense and compact the soil, in contrast to cattle.



1) Water (Type of Water)

Developing self-evolving ecological system to stop groundwater from becoming contaminated, and protect a large area of land from the storm tides. The agricultural land that is contaminated by salt received through back water from sea which would lead to crop failures followed by continuing to cost farmers a lot of money.

Wetlands

Rainwater Catchment:

Collecting surfaces such as roofs or pavements (to harvest rainwater), linked to storage vessels, such as water butts or underground tanks (to store water), and sometimes combined with pumps and filtration systems (to recycle the water). There are two types of system, direct feed or header tank. Direct feed is the most common, with the tank linked directly to the use, such as garden. With a header tank harvested rainwater is pumped into a tank, typically in the loft, and mixed with mains water. Entire building needs to be provided with drinking water. Determine the best location for

the tank depending on the system (direct feed or header tank). Consider the quality the water needs to be treated to. To detain run-off and release it slowly into watercourses or to ground. Rain gardens interspersed between parking areas and buildings they can also create visual interest. Detention/attenuation ponds and Permeable paving
Gravity systems require natural falls across the site.

2) *Livelihood + Strength of Place*

Public Facilities:

Community culture room, outdoor sports ground, clinic, commerce, bus station, garden, toilets, etc.

Common Amenities among each Cluster which then combines with one primary source. Granaries, Market places, etc.

Neighbourhood:

Community level intervention through architecture: A multipurpose area which offers gathering during every ceremonies, festivals, floods, schooling and sports, etc through minimal infrastructure, Yard area market place and an area for other migrating community as place to arrive at land, Cultural centre and culturally integrated commodity markets, Temple recreational places, school, hospital, open theatre, rehabilitation zones- parks, garden, etc. High plinth zones- institution or public building, etc.

3) *Self-Sustenance*

The degree to which households are capable of self-organization. The capacity for self-organization comprises several dimensions of livelihoods with people being mostly concerned about the impacts of previous flood events. These dimensions are confidence that they have sufficient food to eat during the flood season, confidence that they do not need to borrow informal credit during the flood season and can find a safe place to evacuate to during future extreme flood events; and confidence that the health of their family members is secured. The amount of disturbance that a system can cope with, while still maintaining its function in terms of the housing sector. Cultivating the capacity to transform and innovate. The subjective well-being approach of measuring households' resilience would be to reflect the actual capacity of households to cope with flood events.

Community Participation

A House Unit:

As part of internal evacuation; consider the depth of flood water within the building, can susceptible uses, such as kitchens

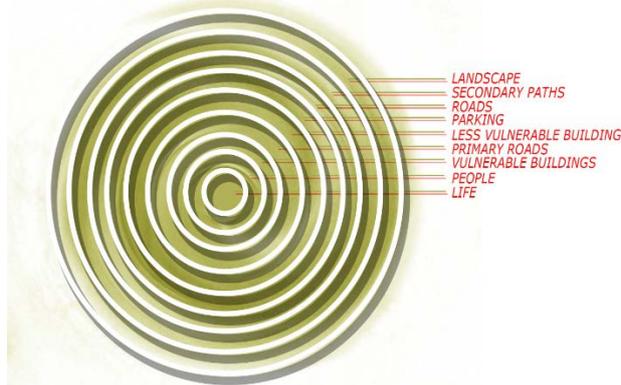
It is important to consider the construction and composition and not just the surface finish, as water is likely to penetrate through the whole building fabric. In response to wind forces, proposal to work out on typology of roof. The materials of the house are familiar and largely produced locally, stimulating economies and connecting communities. To uplift vernacular traditions and techniques, updating them into their vision. Though local building materials and expertise will be imperative during the construction process, the designs provided labor with new building skills and introduced sustainable material options, such as smart board, timber, bamboo and palm.

Horizontal bands at plinth, lintel and eave level are provided. The cyclone hooks are present to tie the tiles. All the roof members are tied together and there is load wall present so that

the roof does not fly off. Diagonal in-plane bracings in the roofing under structure will encourage diaphragm like behaviour of the roof making the structures. As the roof members are not tied to each other and tiles are not secured to rafters, the tiles will fly with cyclonic winds. To avoid roof from flying off as it is secured with wall and have load walls on its gable ends.

Settlement:

Diagram explains layers in which water will enter development.



Proposed Area to be cited for Minimal Building footprints, Rain water harvesting, Wetlands, Sustainable Drainage, Space for water, Green Street, for harvesting Storm water, Aquifer recharge area, Public parkland and open spaces by Identifying surrounding land that would be set aside for reducing flood levels in future in a manner that it interwove river, sea , forest and life. Warehouses to store all the supplies and accessible during disaster. Cultivate Mangroves for flourishing fish breeding and as natural shelter bed for ships along with settlement.

AIM:

This means they use an integrated approach to mitigate disaster risk and enhance livelihoods, particularly by addressing climate change and ecosystem management and restoration. **Needs, Desires, And Capabilities of a Vulnerable Community.**

An integrative framework of design that view cities an ecosystems and addresses aspects of resiliency in broader sense.