Bangladesh is a deltaic country located on the Ganges, Brahmaputra, and Meghna basins. Natural disasters are common in the country, and it is especially sensitive to the effects of climate change. Cyclones along Bangladesh's coasts have been a common phenomenon of the country's climate vulnerability for centuries. Bangladesh suffers massive destruction practically every year as a consequence of the regular cyclones and tropical storm surges. Our coasts are battered by major cyclones every two years, wreaking havoc with property, natural features, and untold numbers of casualties. Furthermore, a blurry line of fate surrounds this riverine country at all times.

Maintaining a sustainable livelihood becomes more difficult as impoverished people living in marginalized territories are subject to dangers. People dependent on natural resources have limited livelihood diversity alternatives and are most vulnerable to climate variation. It's time to rethink alternatives for adapting to and mitigating losses, putting in place what's needed, and introducing a dignified and resilient way of life for the people of coastal Bangladesh. Local inhabitants in this disaster-stricken area create their own way of life to combat the calamities, organize settlements to resist them and keep a livelihood to sustain entire losses. This academic project aims to extract these vernacular knowledges in order to strengthen the settlement's resilience and build a structured settlement development strategy.

This project proposes dwellings for the floating people of Latabaria, Barguna (one of Bangladesh's coastal zones), in which they would be provided with a planned 1100sqft domain of land and a 600sqft constructed area, as well as a sanitary toilet. If they desire to expand, there is a planned incrementation guide. The intended population is 1600 individuals, with each family consisting of six members.

To create resistance to disaster vulnerabilities, the design used local knowledge-derived settlement features. The incorporating facilities include “foodbank” (a two-story-high shared-multipurpose granary + cattle-shed that generates biogas for use), rainwater harvesting plant (gable roofs collecting rain and storing it in polycarbonate drums, and on dry periods aquaculture), and shared pond with deep tube-well. There are PSF ponds (dedicated to salinity-free water), community-managed gardens that function as windbreaks, and bazaars (small markets) with praying places and 'boithok khanas' (two-story-high community gathering spaces). The main canal, which is built to connect the two ends of the river, addresses the site's water-logging problem while also providing chances for livelihood such as fingerling farming, floating seedbed cultivation, high-yield saline crops, etc. and acts as a transportation medium.

The scheme of implementation will be supervised by a body known as the "Livelihood Support Facility," which will be in charge of teaching the floating individuals within their skill group, regulating the project's general administration, and assisting the people in their quest for a better future. With the integration of modern technology, this project focuses on community participatory resilience as well as promoting vernacular sustainability learnings.
LIVING IN THE COASTAL ZONE: TOWARDS A CYCLONE RESILIENT COMMUNITY

**Bangladesh**

Bangladesh bears an enormous loss of life and livelihood because of the frequent cyclones and tropical storm surges. Every two years our coasts are hit with severe cyclones and becomes devastated with

**Barguna district**

is a coastal polder under Barisal division, surrounded by Jhalokathi, Pirojpur, Patuakhali, Bagerhat districts and with the Bay of Bengal to its south. It is a coastal town with a discharge mouth for the river Meghna, the Bhishkhali river, which separates it from its neighbor, Patharhat. Every two years, a severe cyclonic storm hits the coasts of Bangladesh with a swirling wind speed up to 240km/h and storm surges upto 6 meters high. The potential of the surge is mostly transformed through the Bhishkhali River to the Northern part of Barisal, flooding along the villages of Barguna.

**Latabaria village**

where the site is located, is adjacent to the Barorista Ferry ghat. It is only 5.7 km westward from the Barguna Pouroastha and lies alongside the Bhishkhali river. Barguna being one of the coastal Polders, specifically polder no. 41/1, has its embankment broken on this side and surrendered to the river erosion caused by the Bhishkhali river.

With the attraction of the moon, the high and low tides are created, keeping the delta in a state between land and water. The water from the brackish flows through the ganges delta, the fertile land of Bangladesh, creating life and livelihood of the vernacular bengali people.

The ganges delta geography is itself a self-sustaining preventive measure created by the nature itself. When a cyclone hits the coast, the Bay of Bengal comes a storm surge, and a cyclonic wind with a speed of devastating at 240km/hour (Gait, 2008)

**Analysis of the site**

And cumulative identification of issues.

- Water penetration from the river, during overflow and surge
- Broken embankment due to river erosion
- Average direction of wind flow during cyclone (both ripple effect and track direction)

13 feet High Embankment, serves as a 30feet wide Motorable road

Frictional direction of natural resistance, perpendicular to the cyclonic wind direction

**The Conceptual Aims**

- Environmental Mitigation From adverse climatic situations
  - Addressing the possible Climatic Solutions
  - Environmental protection of site
  - Flood water drainage
  - Stability of soil and water

- Informal Planning Through Incremental Organic Growth
  - Addressing the Traditional Fabric
  - Road schemes
  - Community facilities (toilet and water tank)
  - Storage tanks (Silos and Vertical tanks)
  - Drinking water and waste water management
  - Improved building forms
  - Sanitation

- Vernacular Construction Methods And rephrasing of the learnings
  - Addressing the distinctive local characters
  - Wind pressure handling
  - Self sustainable indigenous building structure
  - Sustainable indigenous materials

**Waves & Winds: Welcoming the fluidity**

Inspiration from the Maxims of Khona

Adapting to survive
This chart here consists of the identified fields after analyzing the site and context, for a contextual masterplanning to suit the community.

Inspired by the TRM Excavation project, a canal is designed to connect the two ends of the river to solve the waterlogging problem, which benefits into a transport medium and a core support for local livelihood.
Traditionally, Barishal divisional districts have a distinctive local character of making their houses. Barguna being one of them, they follow this same double-roofed style. They mainly use timber to make the frame, and in this project it is tried to keep the same spirit in the design with a provisional use of bamboo.

Cluster Analysis

Cluster of 12 families

Ground Floor Plan

Legend
1. PSF Pond
2. Bazaar (Community Market)
3. Multipurpose School
4. Multipurpose Medical & Livelihood support
5. Prayer space
6. 7 feet Higher Ground for festivals and flood support
7. Ghazati (Boat landing)
8. Playing and Cattle grazing Fields with boat parking
Resisting: Welcoming the Wind

Creating resistance against nature can only be done by nature itself. As humans we can only seek to find adaptive measures to sustain, so these are 5 guiding strategies implemented here:

1. guiding tree hierarchy to pressurise the wind to lift higher than the habitable spaces
2. designing "Streamlined" shaped compact clusters with plantation barrier to deviate the wind around the clusters
3. Facing the shorter length of houses towards windward side
4. Placing community dense gardens as a dead end to wind tunnels to create more friction
5. Placing roads with tree belt perpendicular to windward direction as to create more and more friction to slow down the wind.