Permanent Housing in Bangladesh

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Introduction

- Located in the Ukhia Upazila of Bangladesh
  - This region faces floods, cyclones, and storm surges
  - Varying monsoon season causes up to 15 days straight of constant rain

- Poor, rural area
  - Most farmers live on "less than three acres of land"^2
  - Average wage for males is $3.76 and for females is $2.16 per day

Objectives

- To protect residents from floods, cyclones, and storm surges
- To provide permanent and affordable housing
- To incorporate the residents’ culture in the design

Conceptual Design

- Hexagon-shaped shelter and Hip-roof
  - Aerodynamic
  - Maximizes interior space
  - Improves interior ventilation
- Stilts and Ramp with railings
  - Raised 7.56 feet to prevent floodwaters from damaging the house
  - During flood, ramp floats to serve as a dock
- Verandas
  - Traditional feature of Bangladeshi homes
  - Used to cover windows in rain and harsh winds

Background

- Natural Disasters
  - Highest Multiple Mortality Risk Index
  - Climate change increases vulnerability
- Culture
  - Once adult sons get married they live on the same homestead as their father, but have their own house
  - Courtyard is a shared space for the nuclear and extended family while providing a space for Muslim women to maintain their modesty
- Traditional houses
  - Made by the residents themselves from local materials, such as bamboo and straw
  - Efficient with limited resources, but need engineering help

References


5.4 Average Family Size

Ukhia is at high risk for cyclones, storm surges, and floods.