Leveraging Technology for Sustainable Development in Bangladesh

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MI 480 - Section 001

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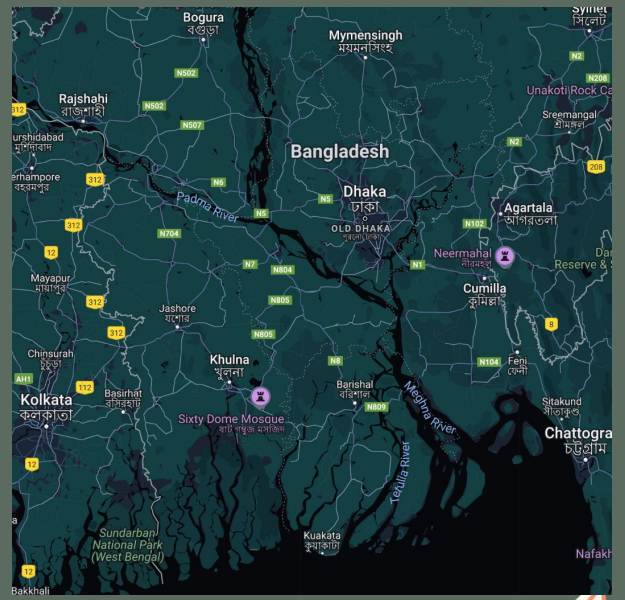
Overview on Bangladesh

- ***Location***
  - Country in **South Asia**
  - Bordered by **India and Myanmar**
- ***Population***
  - About more than **174 million people**
- ***Geographical Characteristics***
  - **Far-reaching** rivers
  - **Crowded** coastal belt
  - Economically heavily **reliant** on agriculture.

Study Audience: Fishermen and Farmers



- Very dependent on agriculture, making fishing and farming so important.
- Nearly half of all the population in Bangladesh are involved in fishing and farming that are employed.
- Most of the Fishing and Farming is done in Mangrove Estuaries which is located in the Sundarban's which is a forest/river in Asia
- 75% of these people living in these areas make on average of $250 a month.
- It is hard for these people to see these floods happening because of how much rainfall they get each year.

Persona - Hasan, 31, Male (Fisherman)

Demographics

- Male, 31-years-old
- Fisherman living in rural town of Bangladesh (Brahmaputra district)
- Father of 2
- Climate activist in his community

"What matters is how we help each other during this time- and with that, we then come together to help our environment."

- **Goals**
  - Better support his family amidst the climate crisis
  - Protect his family and his home better from natural disaster
- **Challenges**
  - Food shortages due to flooding
  - Problems with sustaining an income due to lack of fish
- **Motivation**
  - Desire for change (Strong belief that society can improve and take on action)
  - Educating and raising his children
- **Technology Use**
  - Basic mobile phone with 3G
  - Occasional access to internet

If Hasaan is concerned by the changing behavior of fish during his town's flooding crises, how would he respond?

- *Use an app that uses GPS and fish migration data to determine the severity of flooding in certain areas*
- *Meet with his community to discuss contingency plans during the climate crisis*
- *Establish an evacuation plan for his family, including food and shelter arrangements, after consulting with members of the community*

Main Issues

1

Flooding

Very hard for the community to know when flooding is happening

2

Financial

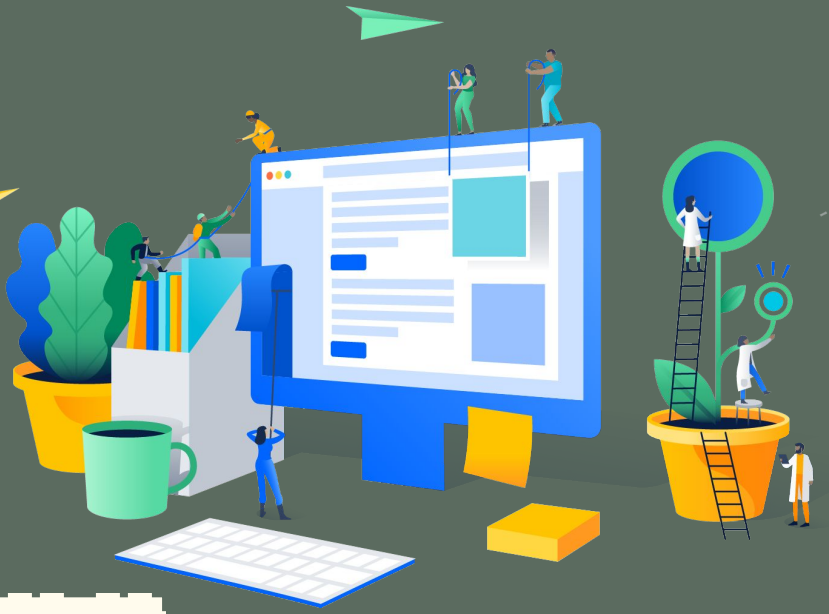
These workers can't afford to fix the damages from the floods

3

Cultural Engagement

Have community gatherings to further connections in the community

Development



Why is development important to us?

*Goes **beyond** economic growth*

*Developing technology for **climate change***

*Connecting with **local communities***

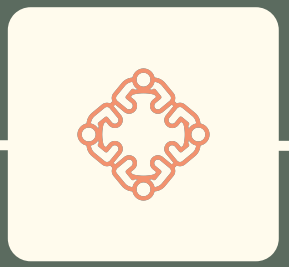
*Brainstorming **opportunities** for everyone*

Process of our Solution

Initial Problem Identification

Challenge: Climate change and flooding in Bangladesh disrupt agriculture and fishing, causing income loss.

- Flooding hampers livelihoods and access to resources.
- Another problem rural communities lack smartphones and internet connectivity.



Brainstorming

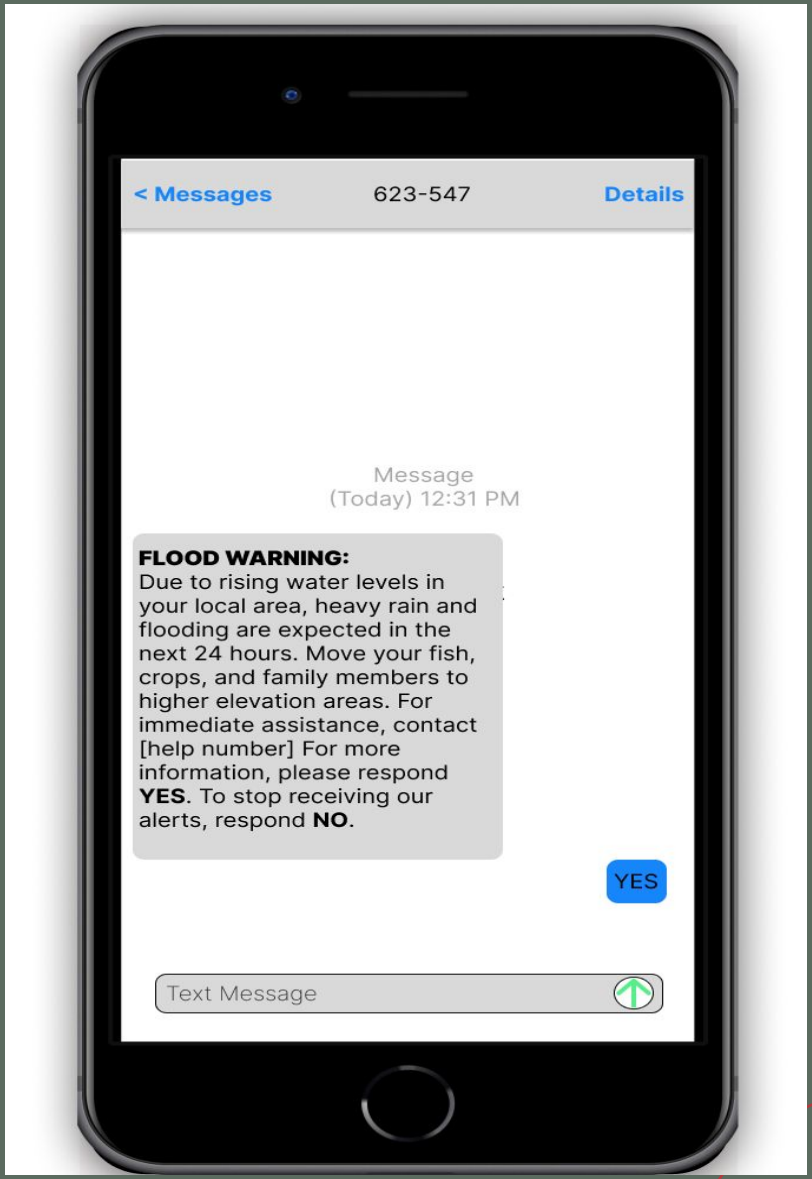
Previous possible ideas:

- Educational Workshops
  a. Training sessions for disaster preparedness
- Community Alert Systems
- Microloans
  a. Help rebuild after a disaster has occurred
- Community festivals & events
  a. Informal gathering to exchange information
- Smartphone App Development

SMS - based intervention

- **Key Insight:** Basic mobile phones are widely used in rural areas.
- **Pros:**
- Accessible without internet (helps with our location of focus)
- Simple, direct and effective for critical information.
- Familiar to our users.

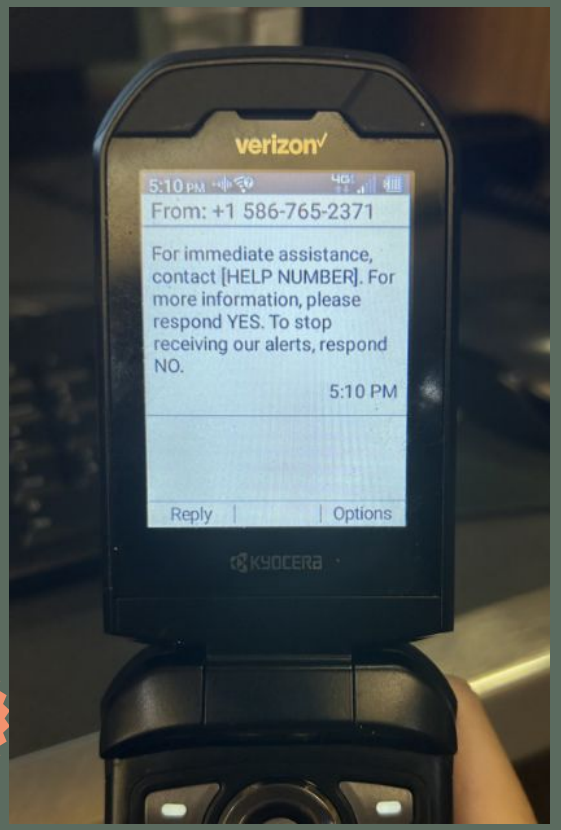
Technological Solution - Wireframe

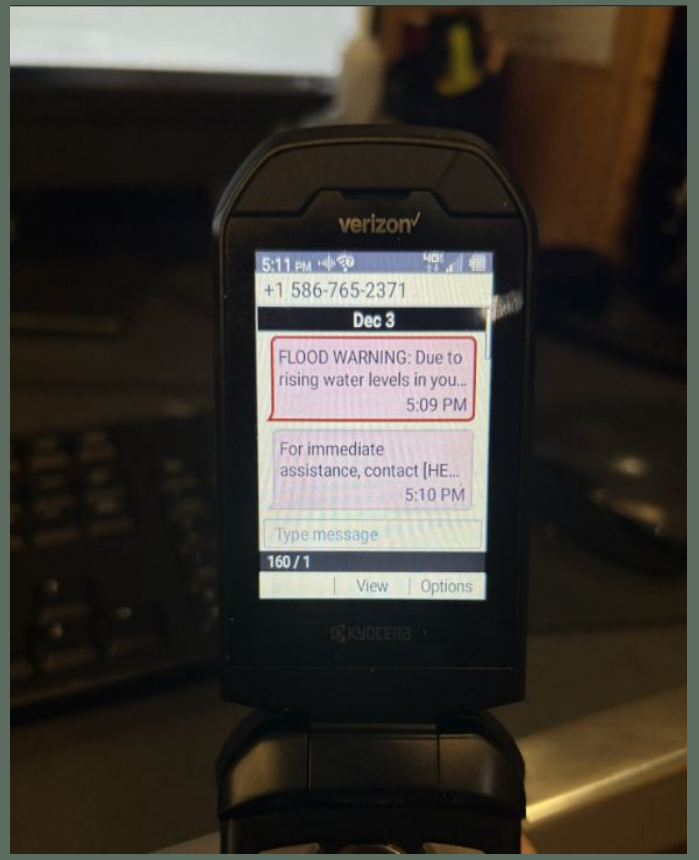


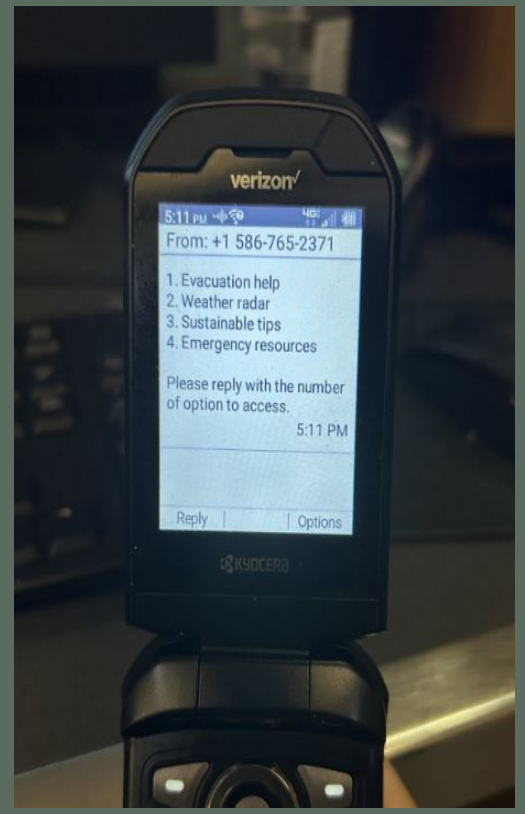
Can combine weather alerts, sustainability practice tips, and help-line resources.

Navigation can be “YES” and “NO” with more options being displayed.

Technological Solution







SMS

Role in Development

- *Technology as an Amplifier in International Development*
  - Differential access, capacity, and motivation

Digital Literacy and Access to Public Services (BRAC University)

96% Use a mobile phone

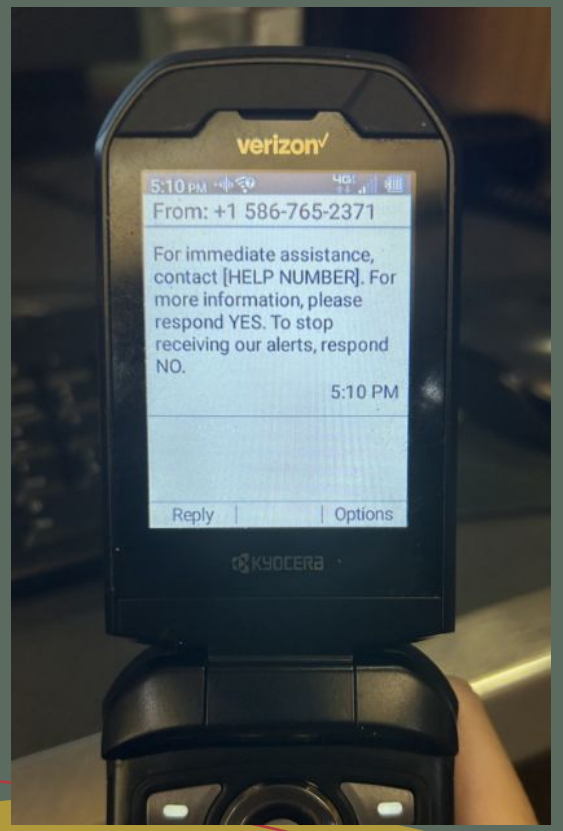
59% Do not have access to a smartphone

37% Have internet access

68% Can read/write SMS

2/6,500 Scored 1.0 on DLI

50% Scored less than 0.25

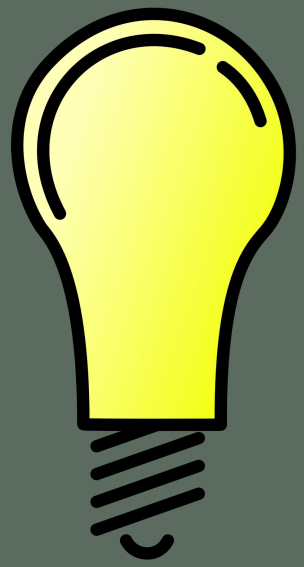


Challenges & Anticipated Barriers

- Limited Access to Technology
  - Stats showed that most farmers and fishermen in rural areas rely on basic mobile phones, limiting the potential of advanced technological solutions.
- Climate Change and Environmental Vulnerability
  - The unpredictable nature of floods makes it challenging to plan for disasters, leading to loss of income and livelihoods.
- Financial Constraints
  - High poverty levels in rural areas reduce the feasibility of implementing and maintaining costly technological interventions.
- Cultural and Language Barriers
  - Some community members may distrust new technologies or struggle with technical terms in SMS messages.

Solutions

- Limited Access to Technology
  - Having digital literacy programs tailored to basic phone functionality, such as SMS.
- Climate Change and Environmental Vulnerability
  - Resilience through an SMS-based early warning system, empowering communities to make informed decisions
- Financial Constraints
  - Partnerships with microloan providers or NGOs to subsidize cost and promote affordability.
- Cultural and Language Barriers
  - Collaboration with local media, leaders, universities or NGOs on site to adapt content into regional languages (local dialects) and align with cultural norms.



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