# Water Transportation & Collection

**EWB-BU**

| Project Leads | Email | Phone |
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**Project Summary:**

This project aims to create water collection and storage solutions that will support a supply of clean water for the Naluja community during the rainy season. Current sources of water in Naluja are limited to distant boreholes, rivers, and small pools of water that collect in the ground. Wells are only an effective source of clean water for the community members that are close to them. However, collecting water from boreholes and transporting it becomes more difficult for individuals that live further away in the outer zones. Because the distance, community members turn to rivers and smaller pools of stagnant water to meet their water needs. These two sources of water may increase the risk of contracting waterborne diseases such cholera, typhoid fever, or dysentery. The use of poor-quality water currently results in many illnesses and deaths in young children in Naluja.

Unlike the Biosand Filter technical team, this group will not develop ways to clean water that is already contaminated. Teachers in the community have expressed interest in a rainwater catchment system. The 2015 travel team assessment revealed that the schools often collect water from small stagnant pools that accumulate in the ground during the rainy season. Instead of traveling to the borehole, children often collect water from these pools and deliver it back to the

school for the other students and teachers to use. According to teachers, students who fetch water for the rest of the school during the day learn valuable household skills that help them to grow into productive community members. By collecting water from these small pools during the rainy season, students are not only exposed to waterborne pathogens in the short term, but they also taught that these pools are acceptable sources of water and may continue to drink from them later in life. By installing a rainwater catchment system at the school, the students and teachers will have greater access to clean water. In addition, the catchment system integrates itself with the overall education initiative; during the rainy season, they may learn and grow to collect from this system rather than from small stagnant pools.

**Project Goals:**

Develop solutions for one or multiple of the following:

1. Clean Water Storage
2. Water Catchment System
    1.) Comparative analysis (based on following metrics) and building knowledge base with the team members
        a.) Complexity of device
        b.) Ease of construction
        c.) Material Availability
        d.) Cost for community
        e.) Cost for EWB-BU
        f.) Sustainability
        g.) Community acceptance
        h.) Performance (research) - might come after prototyping
    2.) Build Rainwater Catchment in Naluja
        a.) Where should it be built?
        b.) We will aid community members in construction, and we will pay for materials.
        c.) Prototyping and modeling will help give modification suggestions for optimization of catchment system.
    3.) Organize an Education Event
        a.) For school or other locations where the catchment system has been installed.
        b.) Planned with the community in the spring (with the help of SSAAP)

**Metrics**

1.) Cost
    a.) Direct cost to EWB-BU
    b.) Community contribution
    c.) Cost of maintenance
2.) Cost effectiveness

a.) Is the water collected from the catchment per week worth the investment

3.) Lifespan
    a.) How long will the structure stand
    b.) How often/how much upkeep is required
4.) System integration
    a.) How well does it fit into to the overall initiative

**Prospectus:**
Phase 1: Research
Phase 2: Design
Phase 3: Trip prep

**Project Deliverables:**

Educational materials
- Section of poster (or full poster) for school

Construction manual Gutters
Final Gutter design

**Timeline:**
1/31/16 - Have updated project framework complete, decide the goals of the project
2/07/16 - Go over all of the data and research/information collected by travel team, work on 523 report
2/18/16 - Finalize 523 analysis report
2/21/16 - Work on details of the design of gutter system and discuss material choices
2/28/16 - **(Tollgate 1)** Finalize gutter design with list of materials
3/01/16 - Get materials, start prototyping
4/02/16 - **(Tollgate 2)** Finish prototyping design in Tinker
4/10/16 - Begin internal review process
4/25/16 - All materials submitted

IM 1 (Sally):

1. turn of project focus has affected development of tech team's work
2. 523 underway; progress to be uploaded live online
3. new members on the way; matter of bringing them up to speed
4. motive behind submitting 523 in spite of uncertainty about implementation

5. tech lead coordination
6. readjustment of Tollgate 1

IM 1 (Tyler):