Sustainability Efforts for Inclusive WASH

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Outline of Presentation

• Project Background
• Project Goals
• Activities in the 2016-2017 academic year
  • Technology Handbook
  • Handwashing Station
  • Assistive Crawling Device
Disability in Numbers

- 80% of persons with disabilities live in developing countries (UN)
- Mortality for children with disabilities may be as high as 80% in countries (UN Factsheet)
- 90% of children with disabilities in developing countries do not attend school (UN Factsheet)
- A significant cause of mortality in developing countries is due to the lack of access to proper water, sanitation, and hygiene (WASH) services
Barriers in WASH for Persons with Disabilities

Barriers
- Attitudes
- Institutes
- Environments

Solutions
- Education
- Engineering
- Marketing
About Us/Project Goals

• Project Beginnings (2007)
• Highlights of work done so far (Phases 1, 2, 3)
Trainers of Trainers Workshop
Faith Leaders Workshop
Technology Handbook

• The handbook displays assistive technologies designed by AWDS during Phase III
• The goal of the handbook is to promote the sustainability of the project by presenting the technologies in an easy to read booklet
  • Water Cart, Bucket Tipper, and Latrine Chair
• Illustrated by Samuel Bernhardt and Yoanna Mast as part of Design As Service for the graphic design program at Messiah
Latrine Chair

Latrines are known for being unsanitary due to lack of regular cleaning. A way to make latrines more sanitary as well as helpful to older persons and blind persons is to make use of the latrine chair. This chair sits about a foot (30 centimeters) above the hole of the latrine which keeps the user above the ground of the latrine. The chair is also a landmark for blind persons to know where the latrine opening is. The chair is low cost due to the materials being square tubing and some wood.
**Latrine Chair**

**Fabrication Steps**

1. Drill 3 holes in side bar

2. Weld bars together to make sides

3. Weld cross bar and support bars to connect sides

4. Bolt seats down to side bars
Hand Washing Station

- Recognized Need for Sanitation
- Diarrheal Diseases
- Cost
- Accessibility
Tippy Tap

- Simple Water Delivery Mechanism for Handwashing
- Mainly Used in Rural Areas of Developing Countries
- Issues for Persons with Disabilities
  - Accessibility (similar to superstructures)
  - Foot Operated
  - Structural Stability (Falling/Support)
Tippy Tap Designs

- Develop Inclusive Designs
- Modifications/Recommendations
  - Additional Support
  - Foot Pedal
  - Hand Lever
  - Size Variations
Assistive Crawling Device ACD

• Individuals Who Cannot Walk/Need Assistance
• Focus on Infant-Like Crawl
• Protection of the Lower Limbs Without Lower Limb Loss

Assistive Crawling Device ACD

- Current/Future Efforts
- Designs for lower limb protection
- Connected with Ability Prosthetics and Orthotics Inc.
  - Reduction of Design
  - Heat Dissipation
  - Rubber
  - Contact Points
Closing Remarks

- Future of AWDS (Phase IV?)
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Questions/Comments