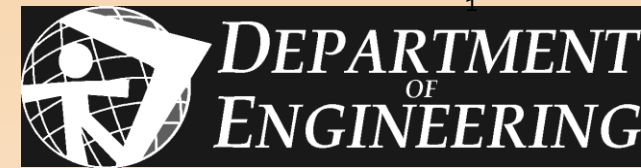
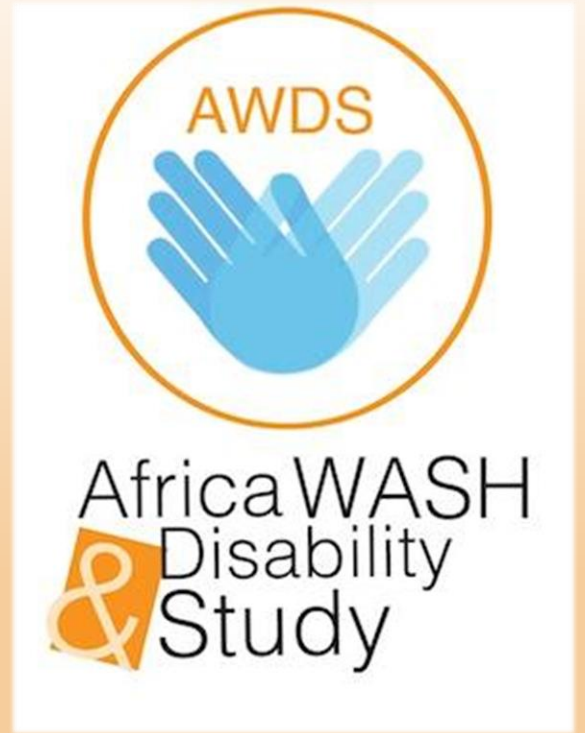


Sustainability Efforts for Inclusive WASH

Jacob Younger and Jordan Birdsall



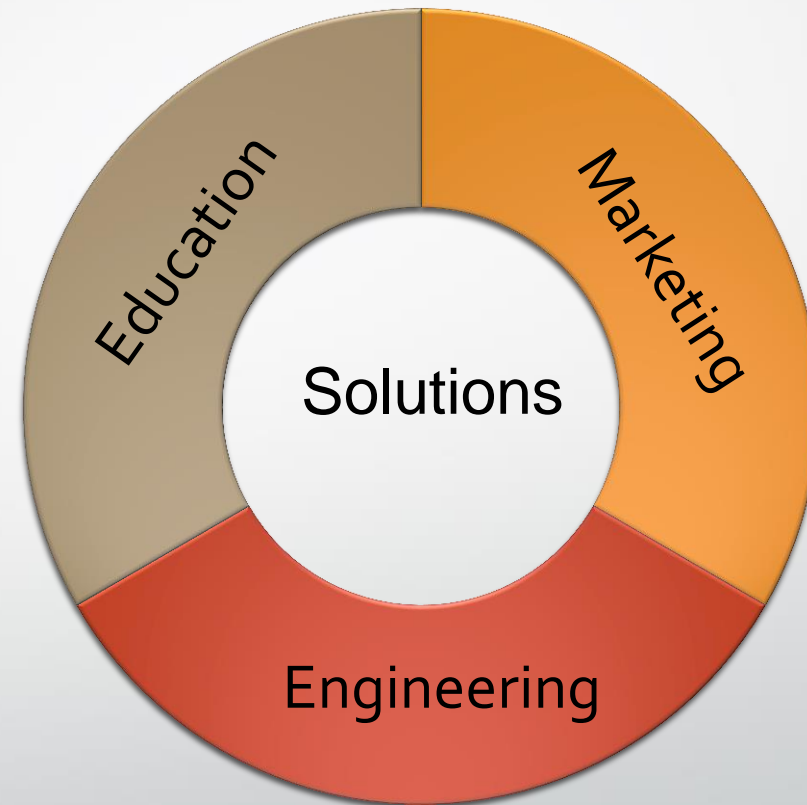
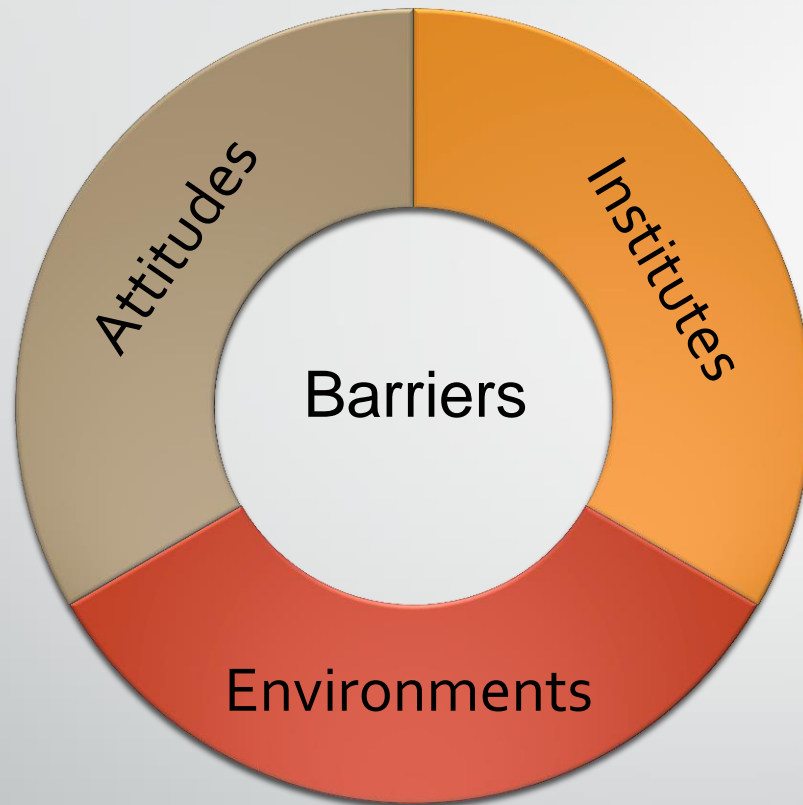
Outline of Presentation

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

Disability in Numbers

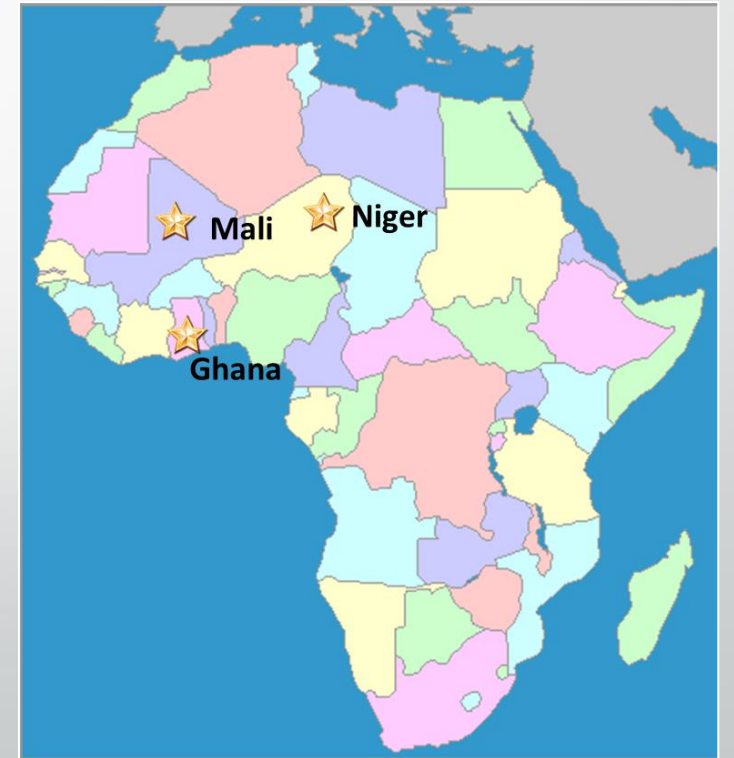
- 80% of persons with disabilities live in developing countries (UN)
- Mortality for children with disabilities may be as high as 80% in countries (UN Factsheet)
- 90% of children with disabilities in developing countries do not attend school (UN Factsheet)
- A significant cause of mortality in developing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

Barriers in WASH for Persons with Disabilities



About Us/Project Goals

- Project Beginnings(2007)
- Highlights of work done so far (Phases 1,2,3)



Assistive Technologies



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

WATER • SANITATION • HYGIENE






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

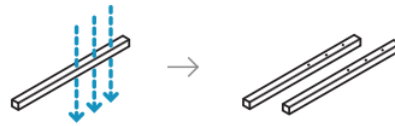
latrine which keeps the user above the ground of the latrine. The chair is also a landmark for blind persons to know where the latrine opening is. The chair is low cost due to the materials being square tubing and some wood.

Latrine Chair

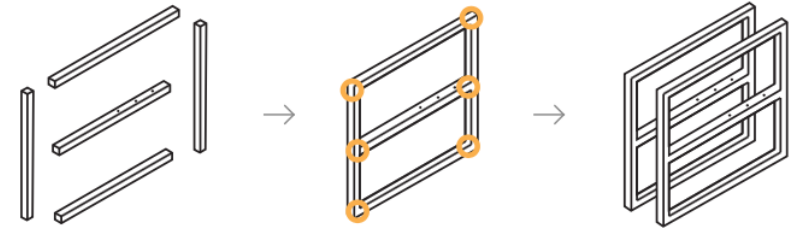
FABRICATION STEPS

-  weld
-  drill
-  bolt

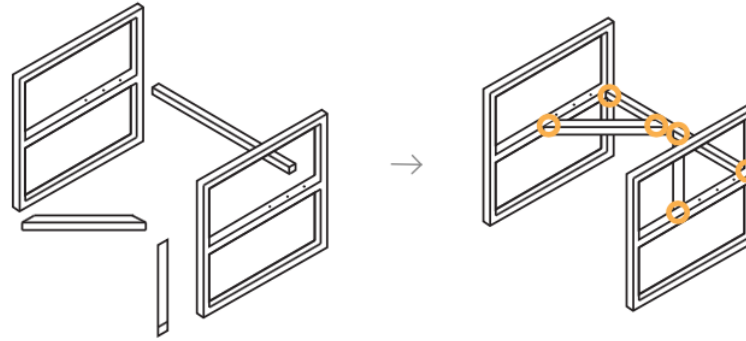
1. Drill 3 holes in side bar



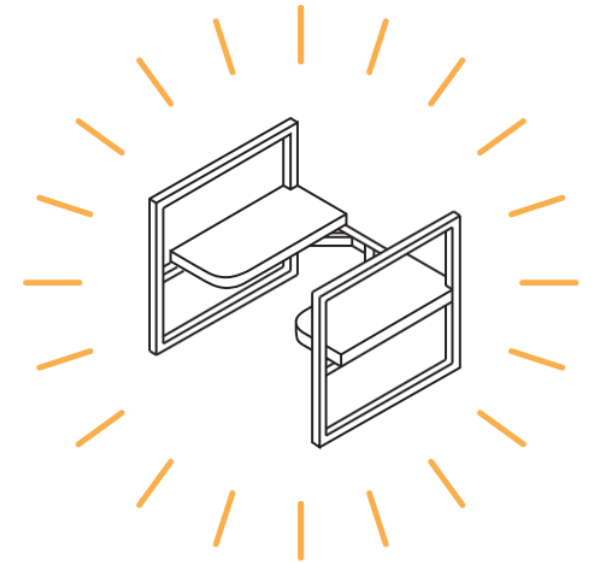
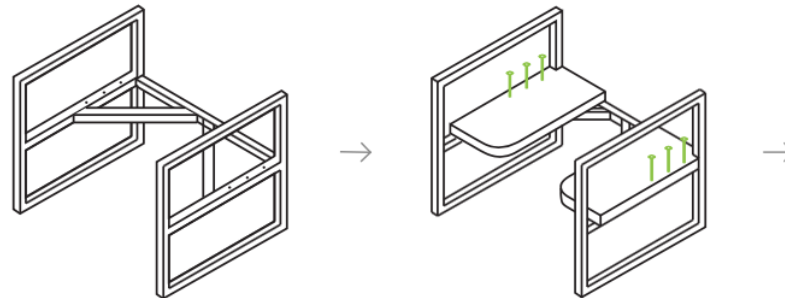
2. Weld bars together to make side



3. Weld cross bar and support bars to connect sides

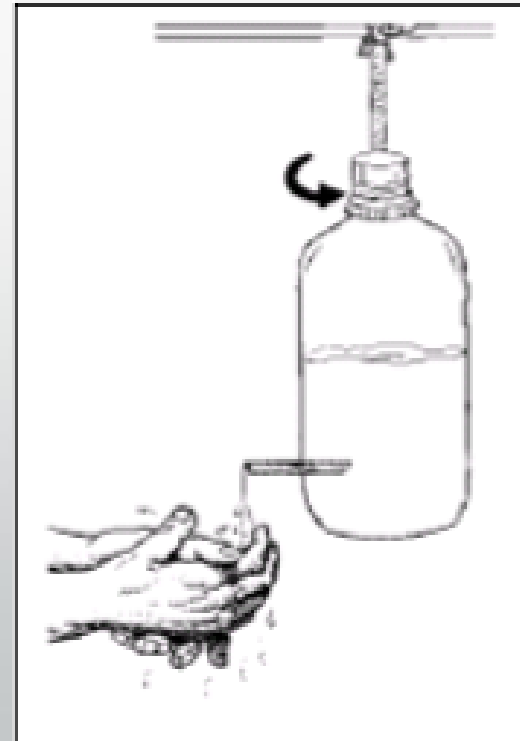


4. Bolt seats down to side bars



Hand Washing Station

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



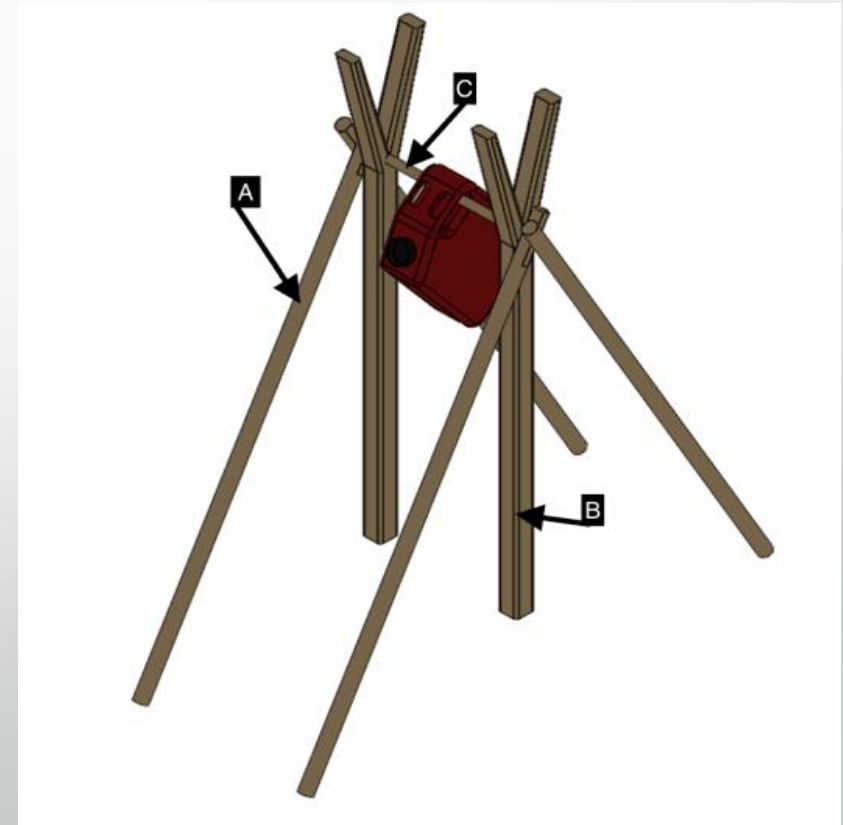
Tippy Tap

- 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

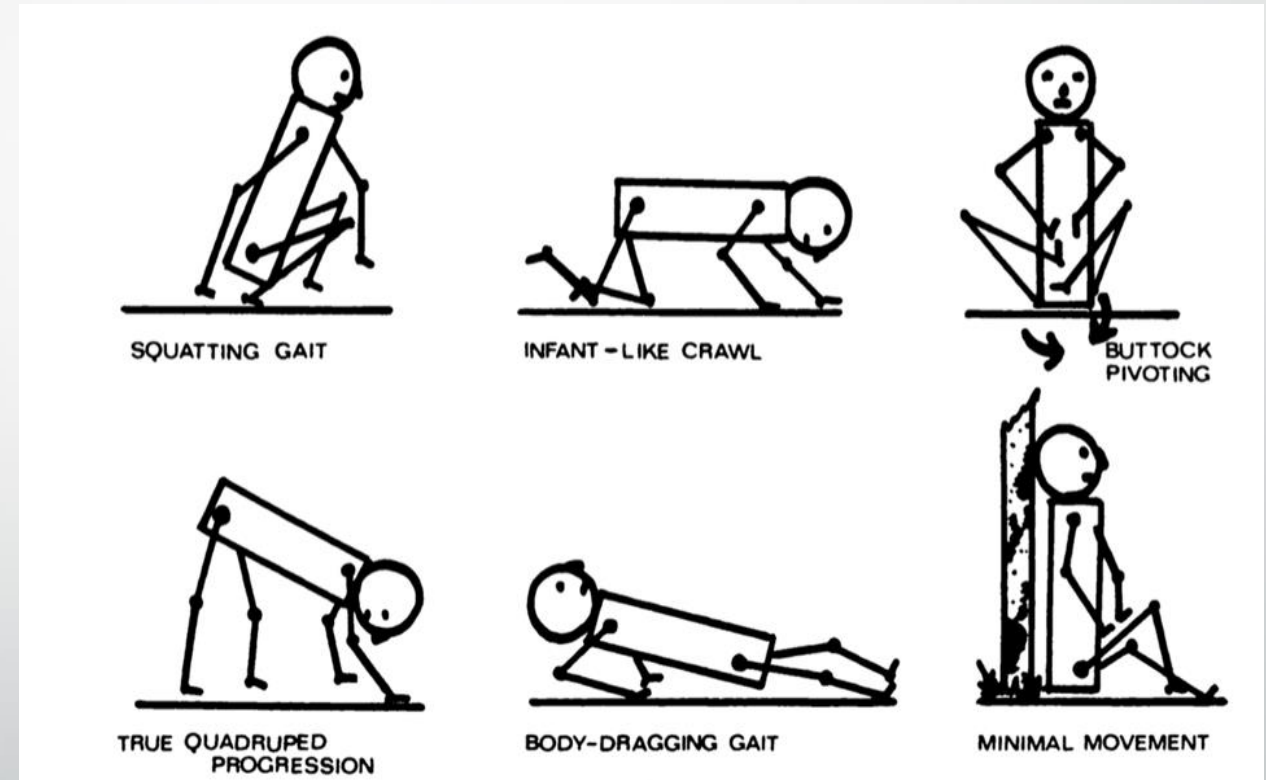






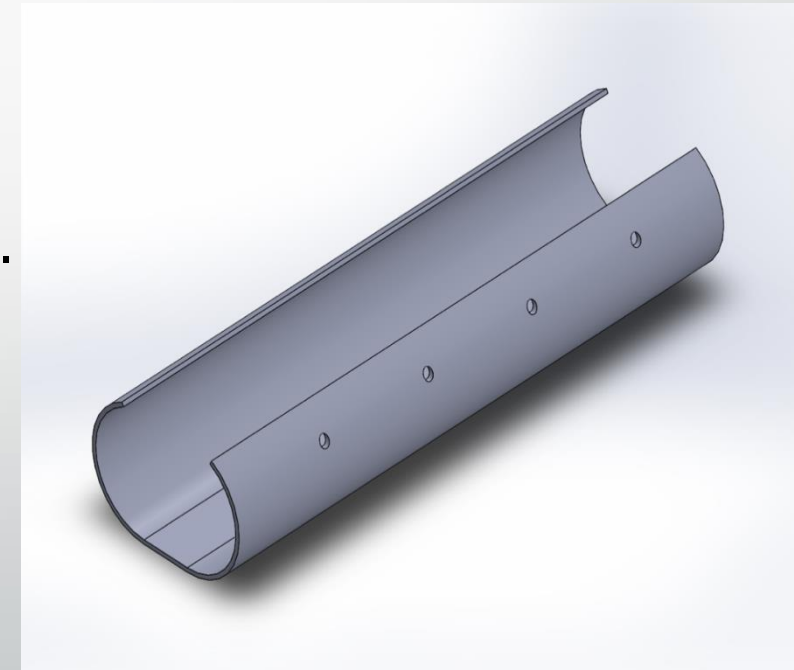
Assistive Crawling Device ACD

- 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?)

Acknowledgements

- Dr. Yacob
- Dr. Widmer
- Dr. Hare
- Nate Kamban
- Tony Beers
- Sam Babbitt
- Sam Bernhardt
- Yoanna Mast
- Josh Charney
- Jason Polansky
- Jason Price



Questions/Comments

