THE AFFORDABLE SANITATION PROJECT
Gavin Stobie, Adam Pozun, Sydney Schandel

Introduction

The World Health Organization (WHO) currently estimates that only 45% of rural Africans have access to basic sanitation services.

Problems:
- Expensive to line hole with current Pit Latrine designs
- Hole collapses when not lined
- People are afraid to use Pit Latrines
- This fear leads to open defecation
- Open defecation leads to health hazards

In response to this challenge, students and faculty in the Collaboratory at Messiah College are working on the Affordable Sanitation Project.

Goals:
- Stabilize the hole
- Cost-effective design
- Ability to be reused
- Limit use of open defecation

Our Solution: Is to stabilize pit latrines with a reusable cost effective liner

Liner Concept

Design A:
- Top View: Side Panel with Grooves
- Assembly: Design A
- Top View: Panel Connection

Design B:
- Side View: Connector Piece
- Assembly: Design B
- Top View: Panel Connection

Reusability
- Panels can be removed and reused
- This decreases the life cycle cost

Material Selection

Fiberglass:
- Cost effective, strong, water resistant
- Can be made in Africa (does not require a lot of equipment or specialized labor)

Effective Waste Treatment
- There is no bottom component to allow liquid to flow out
- The panel connections are not water tight
- This extends the life of the latrine and limits the spread of diseases
- Note: our design will include a top slab

Future Work

Our goals include: test and improve current designs and design a top piece
Our goal is to have a full prototype in December 2015.

Client

World Vision is a Christian humanitarian organization dedicated to working with children, families, and their communities worldwide to reach their full potential by tackling the causes of poverty and injustice. Murray Fisher is our primary contact at World Vision.

Acknowledgements
- Project Advisors: Dr. Brian Swartz, Mr. Bryan Hoover
- Professional Consultant: Todd Kennedy (McClarin Plastics)
- Additional Project Members: Laura Castilow, Kirsten Lambert