SIFUNI MUNGU
TEAM 9
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Outline

• Context
• Project Overview
• Design Decisions
• Results
• Challenges
• Assessment
• Acknowledgements
Context
Project Overview

• The mission

• Desired facilities

• Strain on current water supply
Project Overview

• Current Facilities
  – Health Clinic
  – Church
  – Airstrip
  – Primary School
  – Girls’ Secondary School
  – Girls’ Dormitory

• Desired Facilities
  – Boys’ Secondary School
  – Boys’ Dormitory
  – Water Treatment
    • Collection
    • Storage
  – Waste Treatment
Project Overview

• The mission
• Desired facilities
• Strain on current water supply
The Site
Structural Design

• **Layout**

• **Loading**

• **Truss Design**

• **Wall Design**

• **Footing and Foundation Design**
<table>
<thead>
<tr>
<th>Room</th>
<th>Closet Space</th>
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Dimensions:
- 4.0m
- 1.0m
Structural Design

- Layout
- Loading
- Truss Design
- Wall Design
- Footing and Foundation Design
- Rain Load
- Gutter Load
- People Load
- Roof Load
- Solar Panel Load
- Wind Load
- Self-Weight Load
- Earthquake Load
Building Design

- Layout
- Loading
- Truss Design
- Wall Design
- Footing and Foundation Design
Water Management Design

• **Drinking Water Management**
  – Rainfall Runoff Storage
  – Slow Sand Filtration

• **Wastewater Management**
  – Pit Latrine
Water Management Design

• Drinking Water Management
  – Rainfall Runoff Storage
  – Slow Sand Filtration Design

• Wastewater Management
  – Pit Latrine
Latrine shelter designed and built with appropriate local materials

Air vent

Latrine slab of wood or concrete at least 0.15m above ground level with hole, preferably covered when not in use

Foot-rest

Mound of excavated soil to seal pit lining and to prevent flooding of pit by surface water

Gases escape into the atmosphere

Pit lining extends at least 1.0m below ground level (deeper if soil is unstable)

Pit should be at least 2m deep and 1 to 1.5m round or square

Liquids percolate into the soil

Solid residue decomposes and accumulates

Image courtesy of WEDC. (c) Ken Chatterton
Site Layout
Challenges

• Communication
• Lack of Information
• Availability of Resources
• Cultural Differences
• Lack of Experience
Project Assessment

• Nuances and details of design

• Vary reliance on sources of information

• Real-world applications
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Questions and Comments