TECHNOLOGY FOR PIT DESLUDGING IN PERI-URBAN MZUZU, MALAWI

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FSM3
5.2 million people in Malawi rely on onsite sanitation facilities (WSP, 2012; NSO & ICF Macro, 2011).

Management of these onsite sanitation facilities poses challenges.

Figure 1: Pit Latrine in Luwinga, Mzuzu, Malawi Photo: Chipeta 2014
- **Mzuzu city** located in the northern part of Malawi.
• Lack of appropriate pit desludging technologies within Mzuzu City limits.
• Diarrhoeal cases account for approximately 8,800 deaths with 4500 children under five dying annually in Malawi (WSP, 2012).

Figure 4: An Aerial view of a full pit latrine at Chiputula Township, an informal settlement within Mzuzu city Photo: Chipeta, 2014
PROPOSED TECHNOLOGY

Figure 5: Basic components of a treadle pump Source: FAO, 2000

Figure 6: Sketch diagram of the Pit pump (Authors Design)
DISCUSSION ON MODIFICATION OF TREADLE PUMP

Pros

- Low cost and sustainable
- Easy to operate
- Safe pit desludging
- Pumping with leg muscle is less straining

Cons

- Performs only optimally with fluidization
- Requires Priming
- Clogging of suction hose/inlet pipe
- Reduced transmission capacity
FABRICATION CYCLE PHASE 1

Designing

Gathering materials

Testing prototype

Fabricated Prototype
**Fabrication Cycle Phases**

**Phase 1**
- Cylinder
- Crank Set
- Foot rest
- Handle

**Prototype 1:** $101 USD (LEXR:MK500)

**Phase 2**
- Cylinder
- Metal frame
- Crank set
- Foot rests
- Handle

**Prototype 2:** $175 USD (LEXR:MK500)
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