

TECHNOLOGY FOR PIT DESLUDGING IN PERI- URBAN MZUZU, MALAWI

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FSM3



INTRODUCTION

- **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

STUDY LOCATION

■ **Mzuzu city** located in the northern part of Malawi.

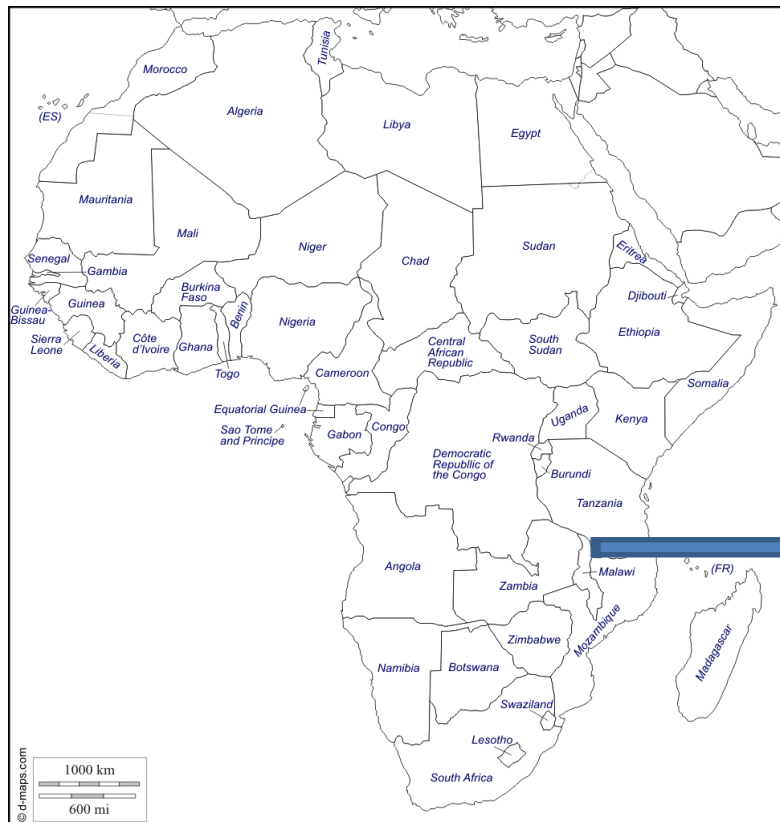


Figure 2: Map of Africa (Source d.maps.com)

Figure 3 : Map of Malawi, Mzuzu (WATSAN, 2014)

PROBLEM STATEMENT

- **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

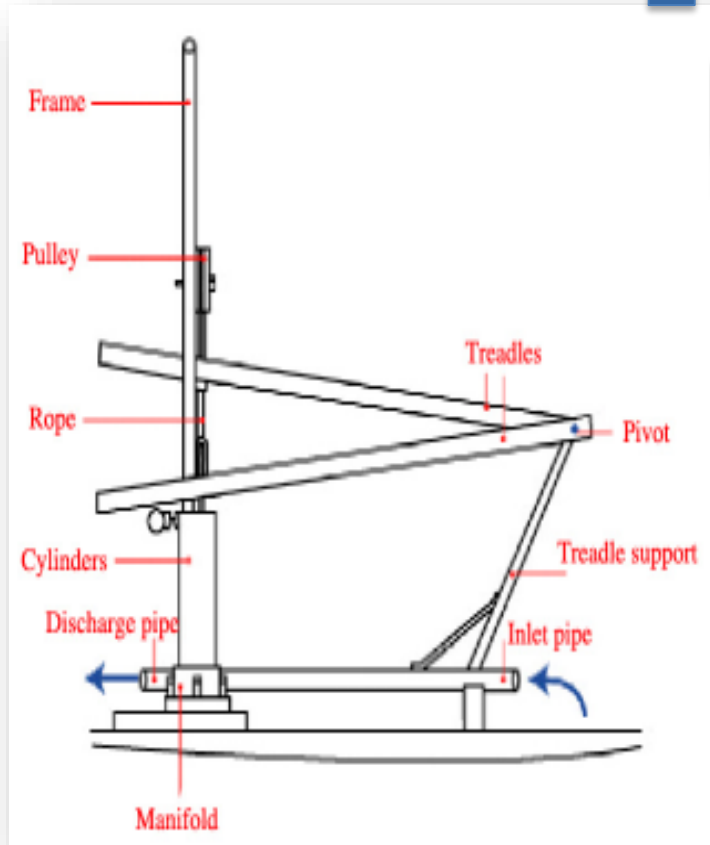


Figure 5: Basic components of a treadle pump Source : FAO, 2000

A MODIFIED TREADLE PUMP TO BE USED FOR EMPTYING LATRINE

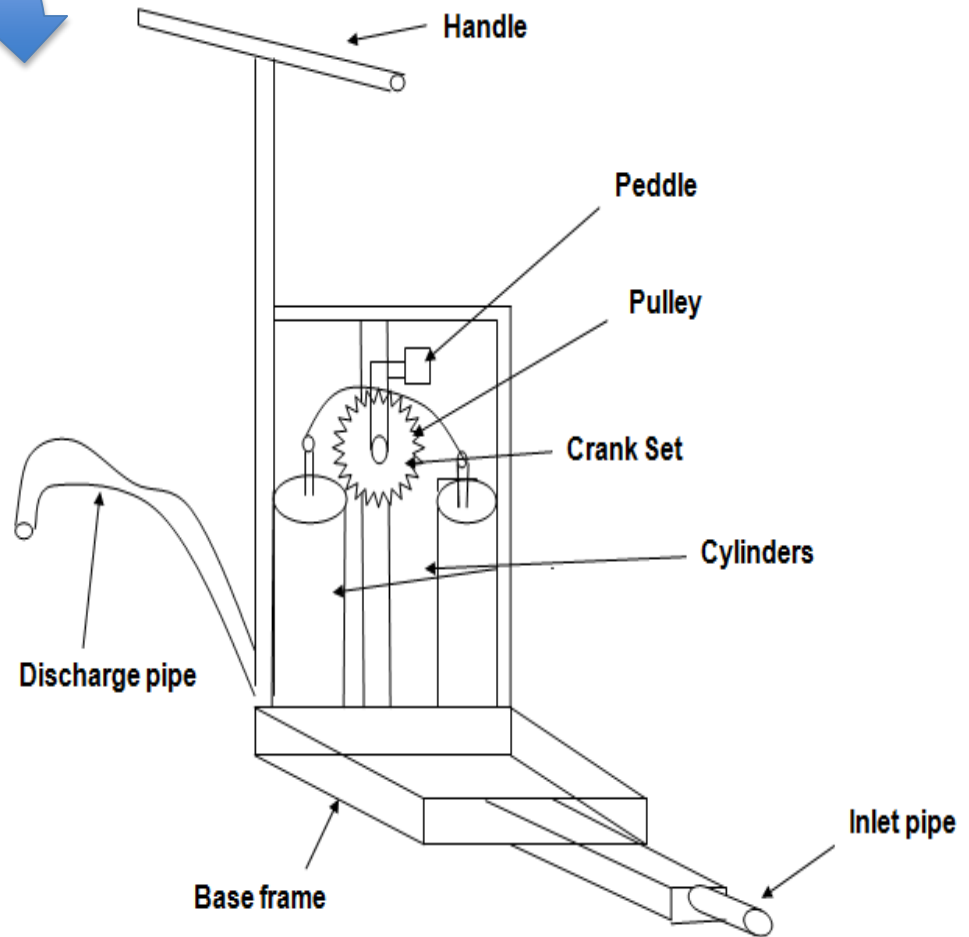


Figure 6: Sketch diagram of the Pit pump (Authors Design)

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

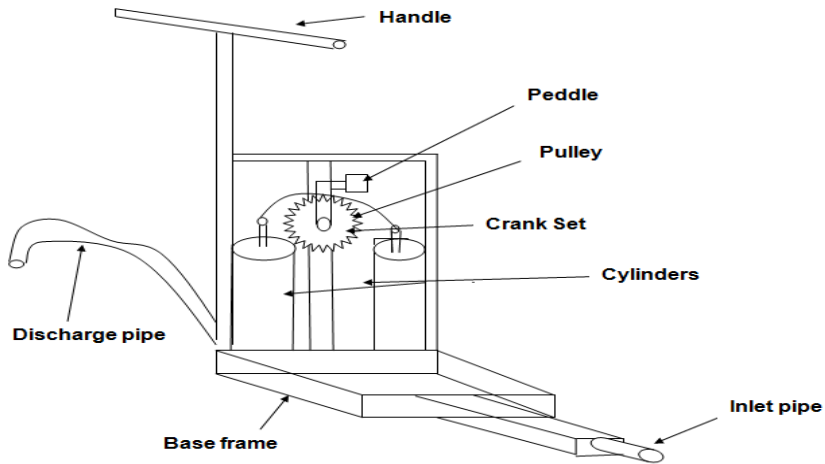
Requires Priming

Clogging of suction hose/ in let pipe

Reduced transmission capacity

FABRICATION CYCLE PHASE 1

A MODIFIED TREADLE PUMP TO BE USED FOR EMPTYING LATRINE



Designing



Gathering materials



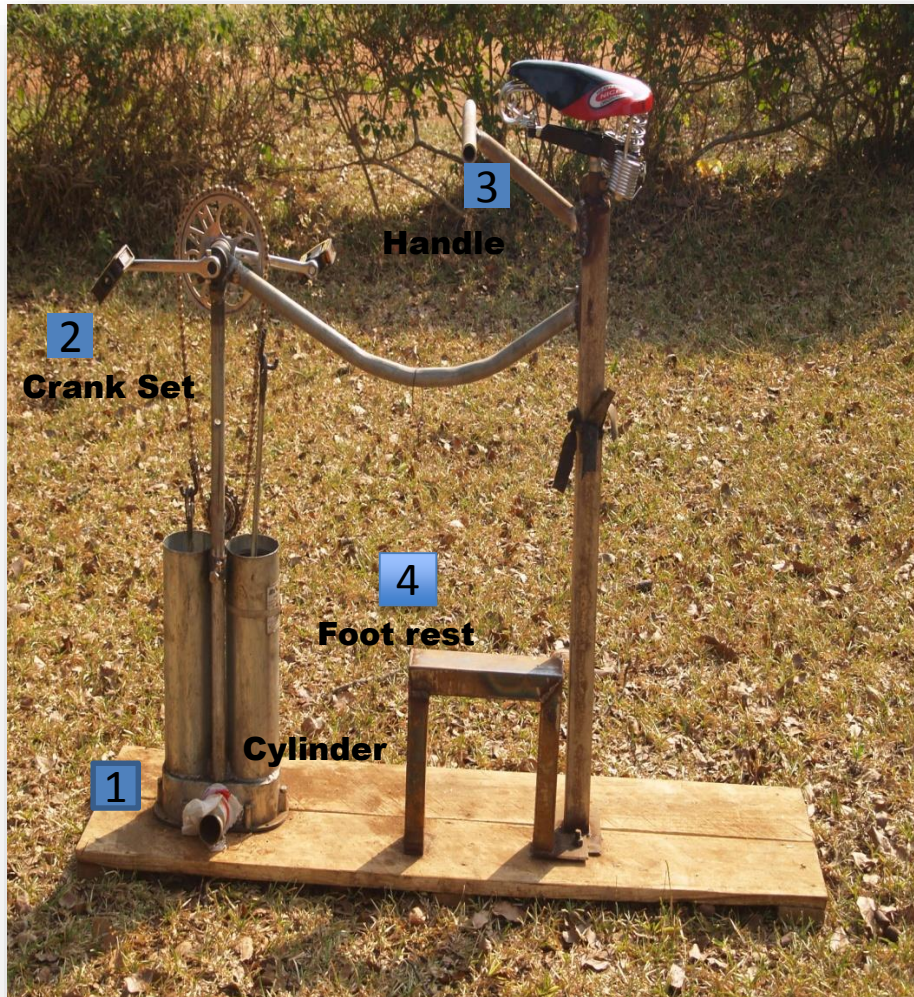
Testing prototype



Fabricated Prototype

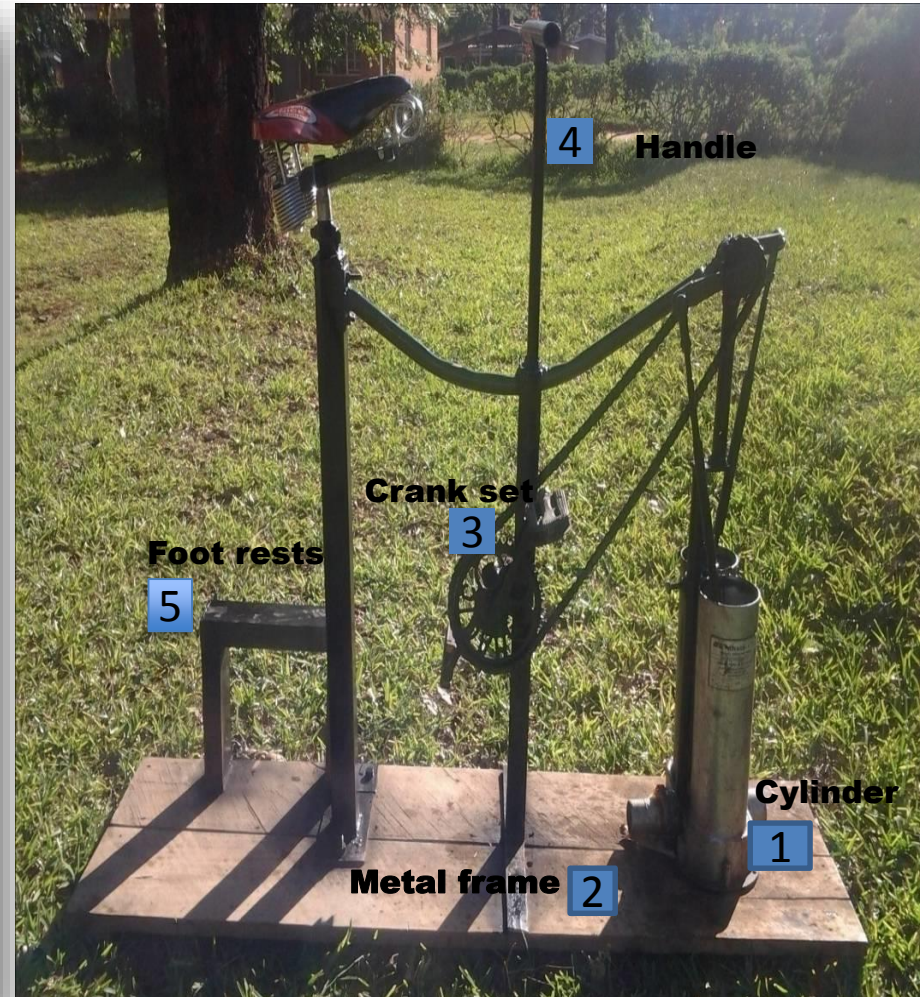
FABRICATION CYCLE PHASES

Phase 1



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

Phase 2



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



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