

Sludge Bomb

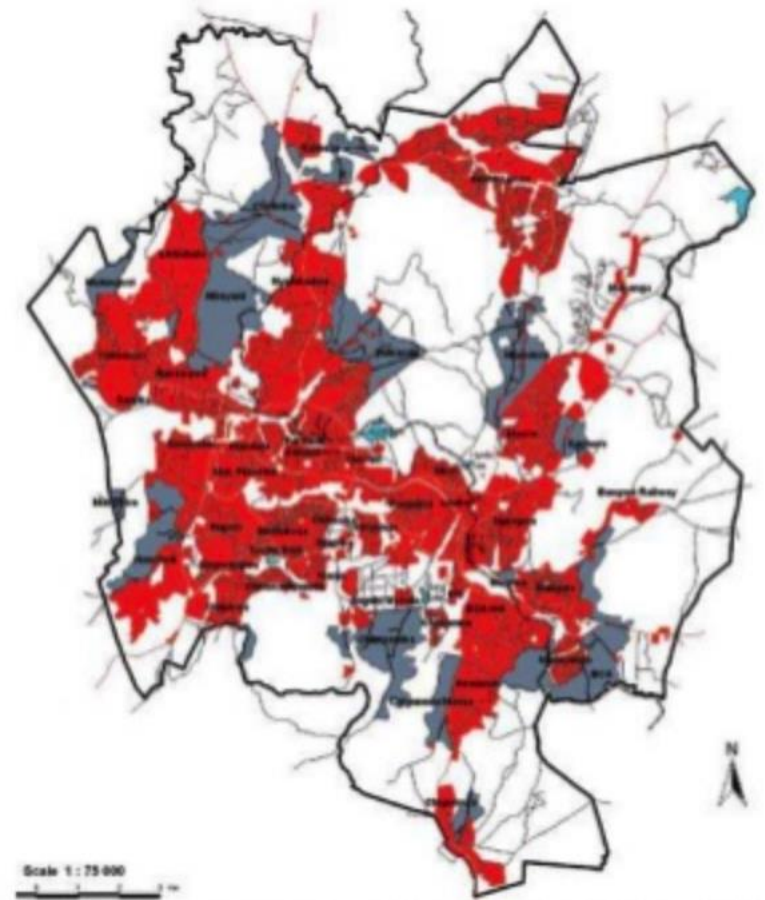


*Managing the growing backlog of unemptied FS in
Blantyre, Malawi*

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Blantyre, Malawi

- Approx. 1,000,000
- 10% sewerred, 10% septic
80% pits, no CBS
- Mix of formal and informal
areas
- 5 WWTPs- one operational
- 1 WWTP accepts sludge



Questions

1. How much sludge is buried?
2. When will that sludge need to be emptied?
3. How much sludge is being emptied now?

(1-3)/2= Sludge bomb

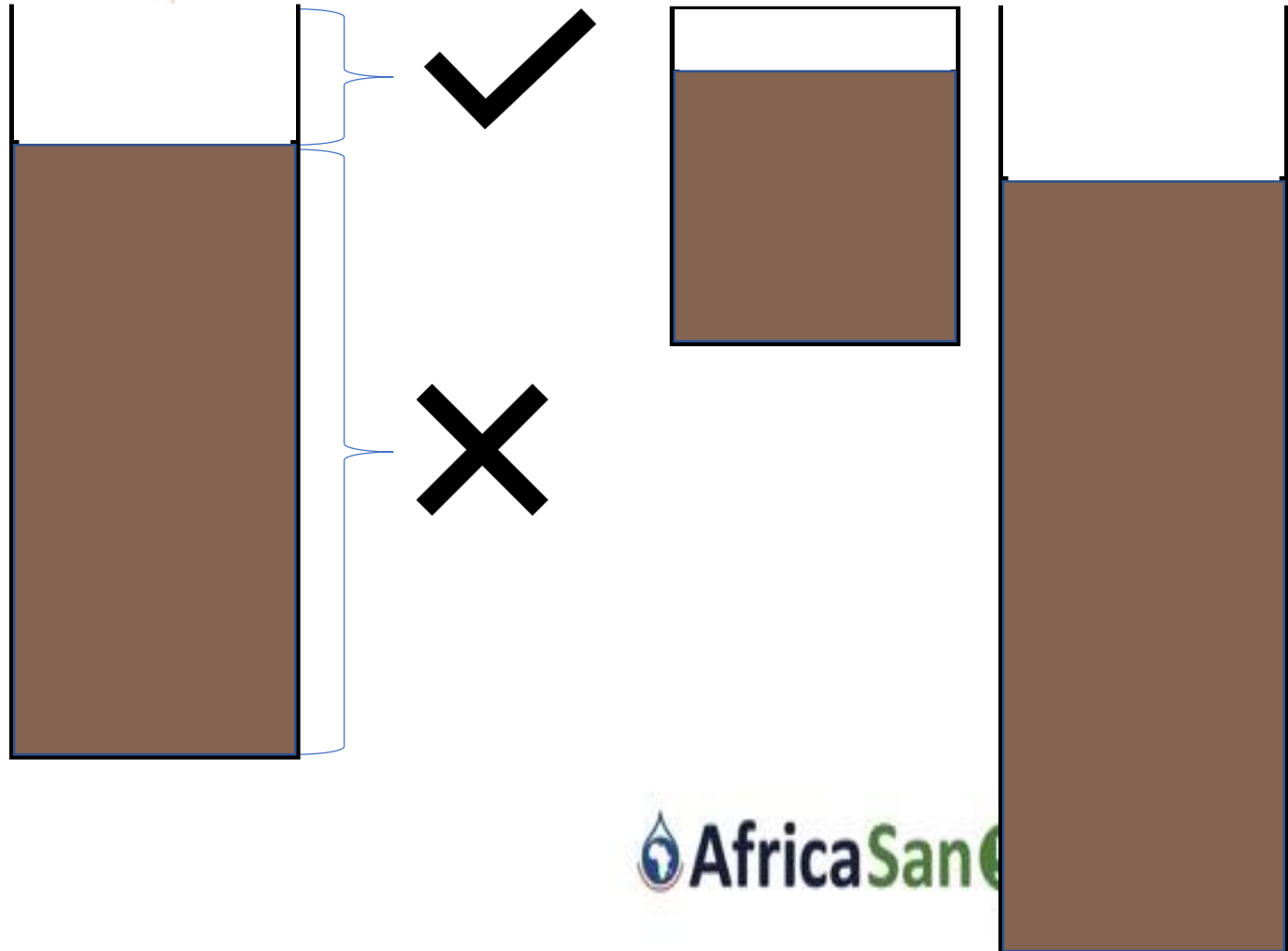
321 pits measured

1 month of discharge data



Buried

e



How much sludge?

- 2m depth \rightarrow 0.83m³/household
- filling rate of either 200 or 450L/pit/year (Brouckaert et al, 2013), time before filling = 1.1-3.3 years
- with 95% of households filling their pits in the next 5 years (assuming that the pit fills to the top)

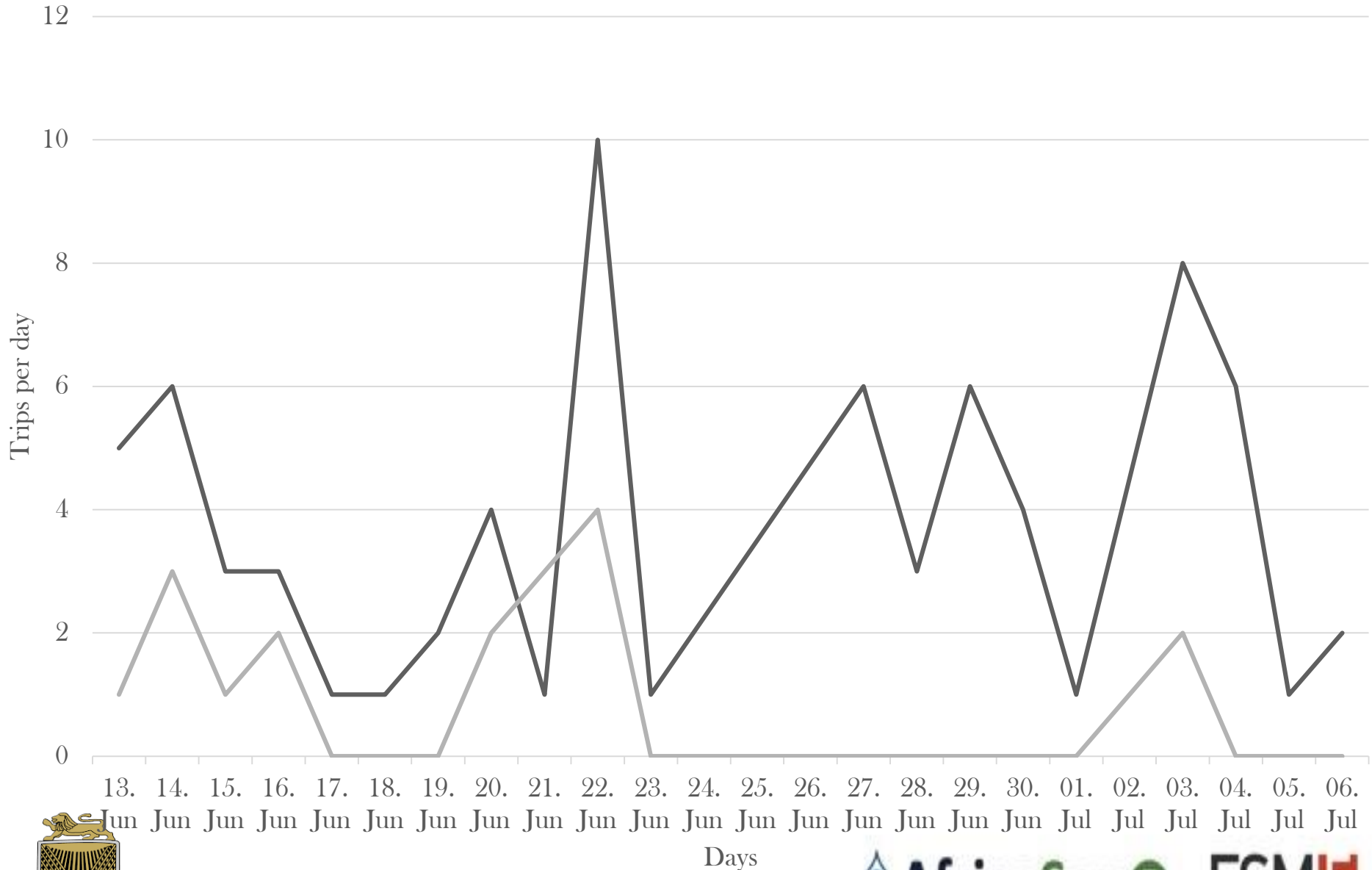


How much sludge?

- household size of 5, population of 700,000 using pit latrines → 140,000 in-use pit latrines
- at least 116,000 m³ of sludge in pit latrines in Blantyre;
- if only 1/5 of the pits are emptied each year, 23,000m³ of sludge should be emptied annually, or about 2000m³ per month



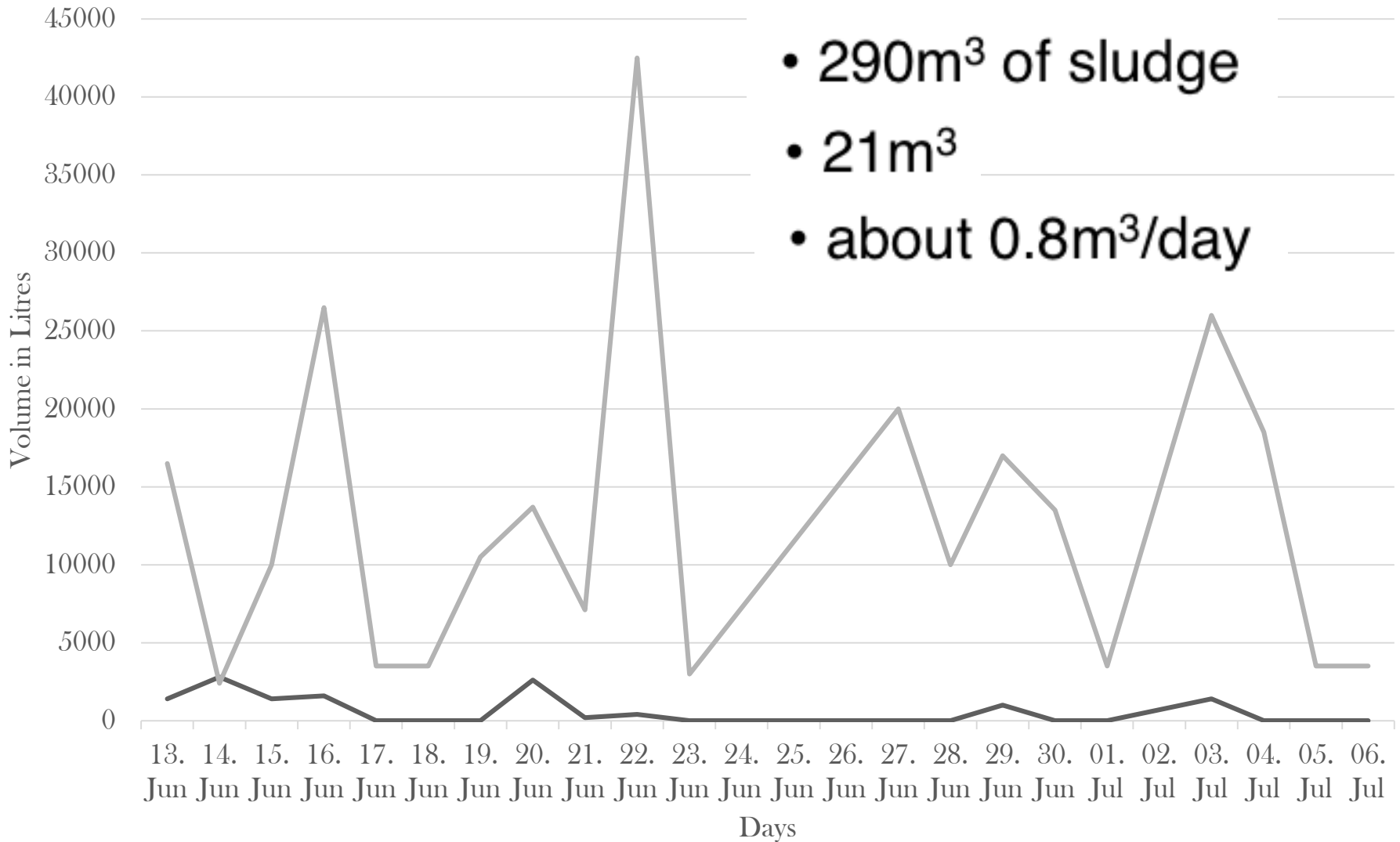
Manual and Mechanical Discharge Trips per day



— Mechanical trips — Manual trips

Sludge volume

- 290m³ of sludge
- 21m³
- about 0.8m³/day



— manual Volume — Mechanical Volume



And so



- Sludge bomb is ticking
- Utilities unprepared for future emptying and treatment needs
- Incentives to empty and dump correctly required
- New facilities coming on line (WASTE): 2 unserved areas