Sludge Bomb

Managing the growing backlog of unemptied FS in Blantyre, Malawi

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• Approx. 1,000,000
• 10% sewer, 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?

\[(1-3)/2 = \text{Sludge bomb}\]

321 pits measured
1 month of discharge data
Buried
How much sludge?

- 2m depth $\rightarrow 0.83\text{m}^3$/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 m$^3$ of sludge in pit latrines in Blantyre;
- if only 1/5 of the pits are emptied each year, 23,000m$^3$ of sludge should be emptied annually, or about 2000m$^3$ per month
- 290 m³ of sludge
- 21 m³
- about 0.8 m³/day
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