

New concepts for on-site sanitation based on bio-additives and pit design

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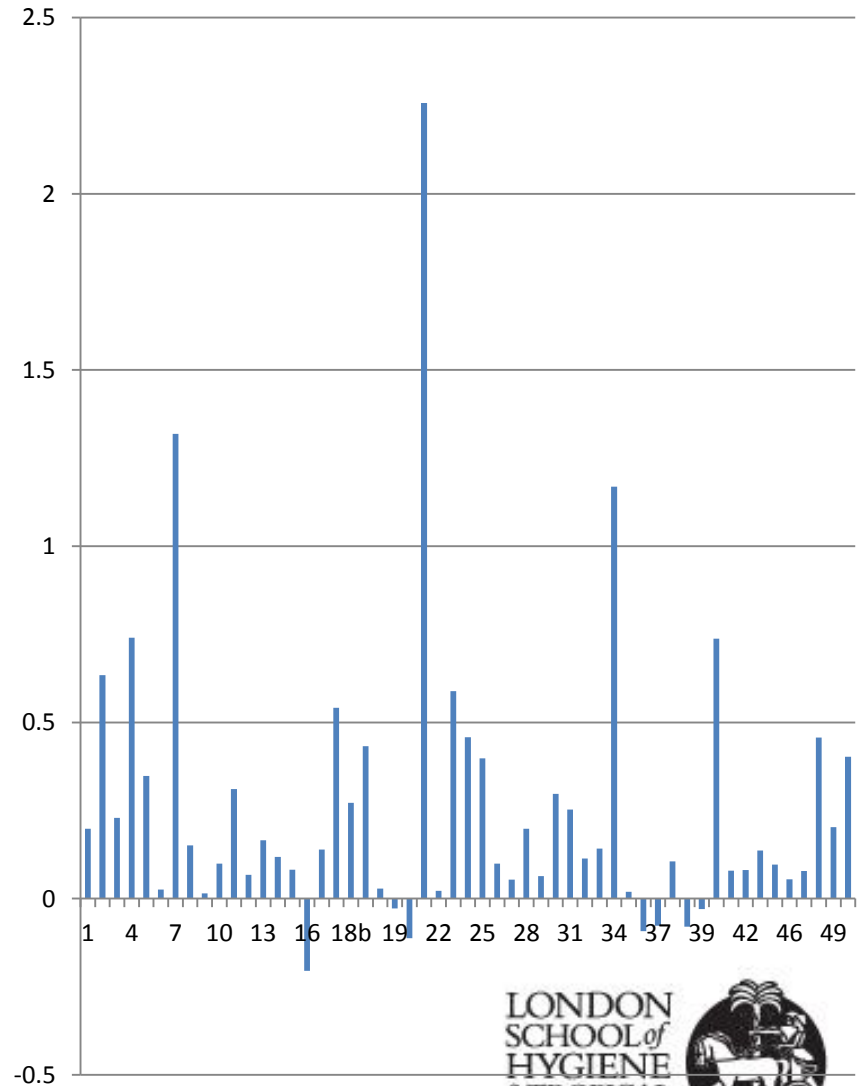
Objectives

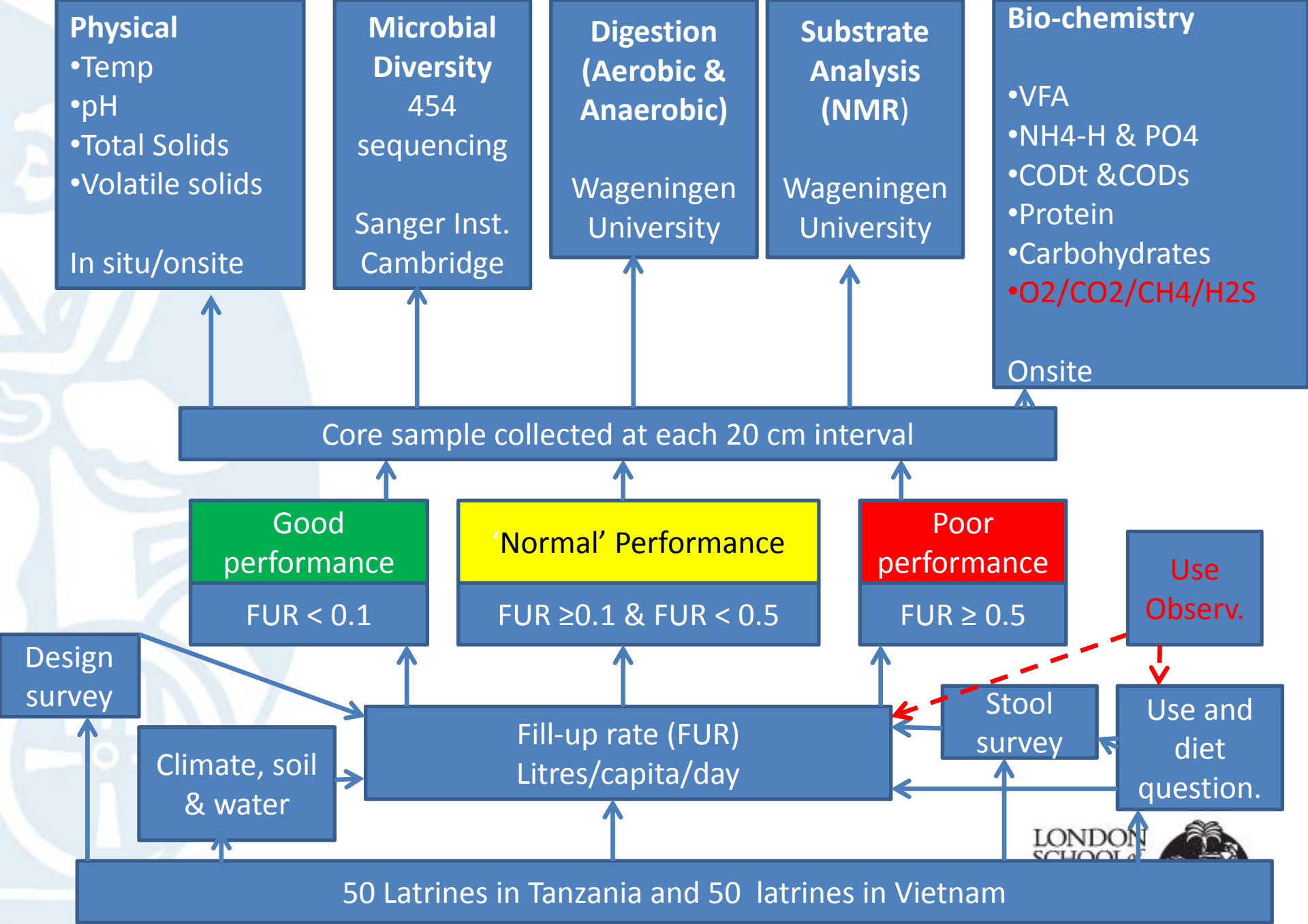
workstream 2 & 3

- To analyse pit latrine contents for the identification of major targets for accelerated decomposition
- To identify the influence of pit design, pit usage, environmental conditions and location on decomposition rates and pit lifetime



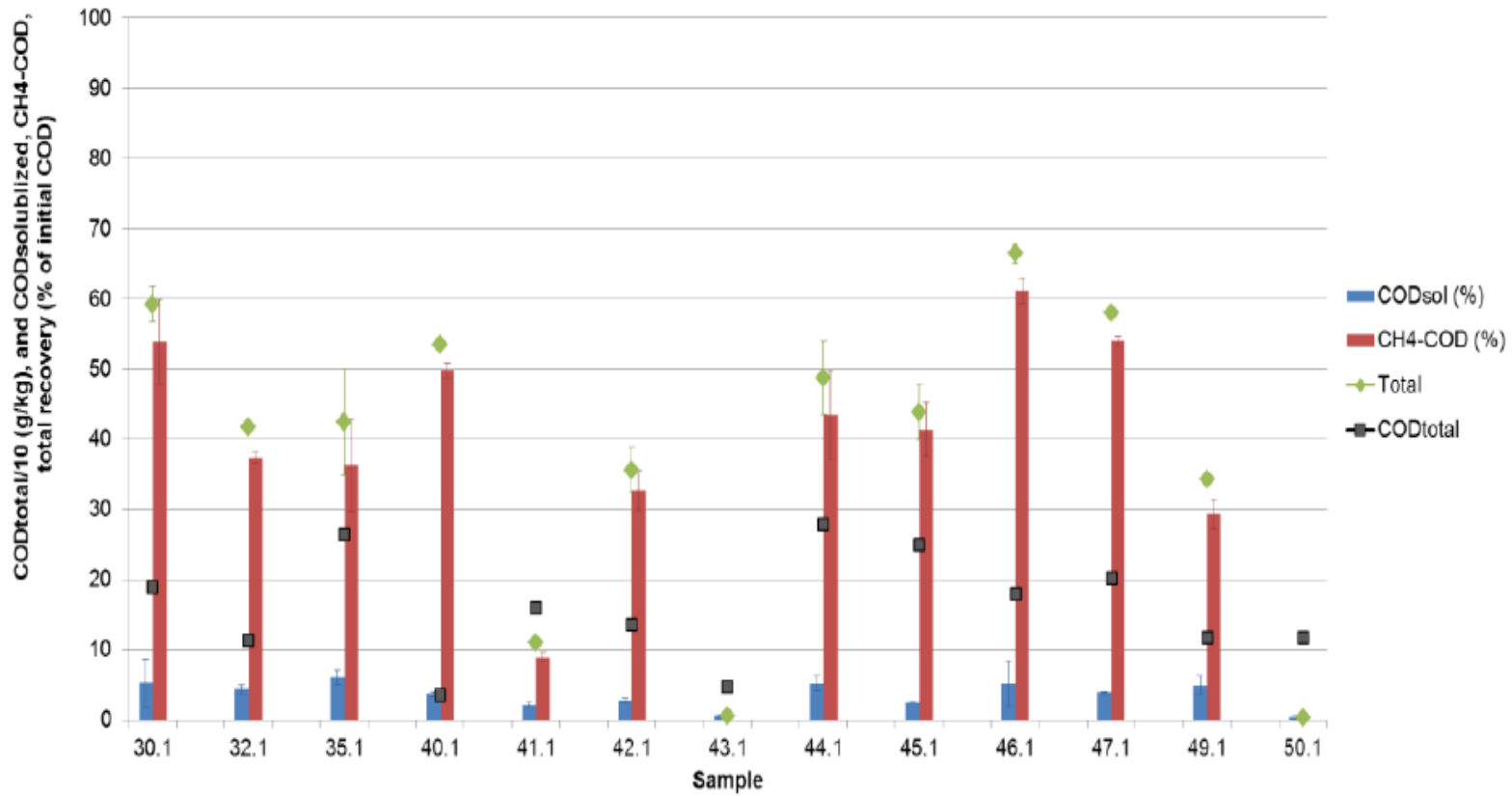
Latrine fill-up





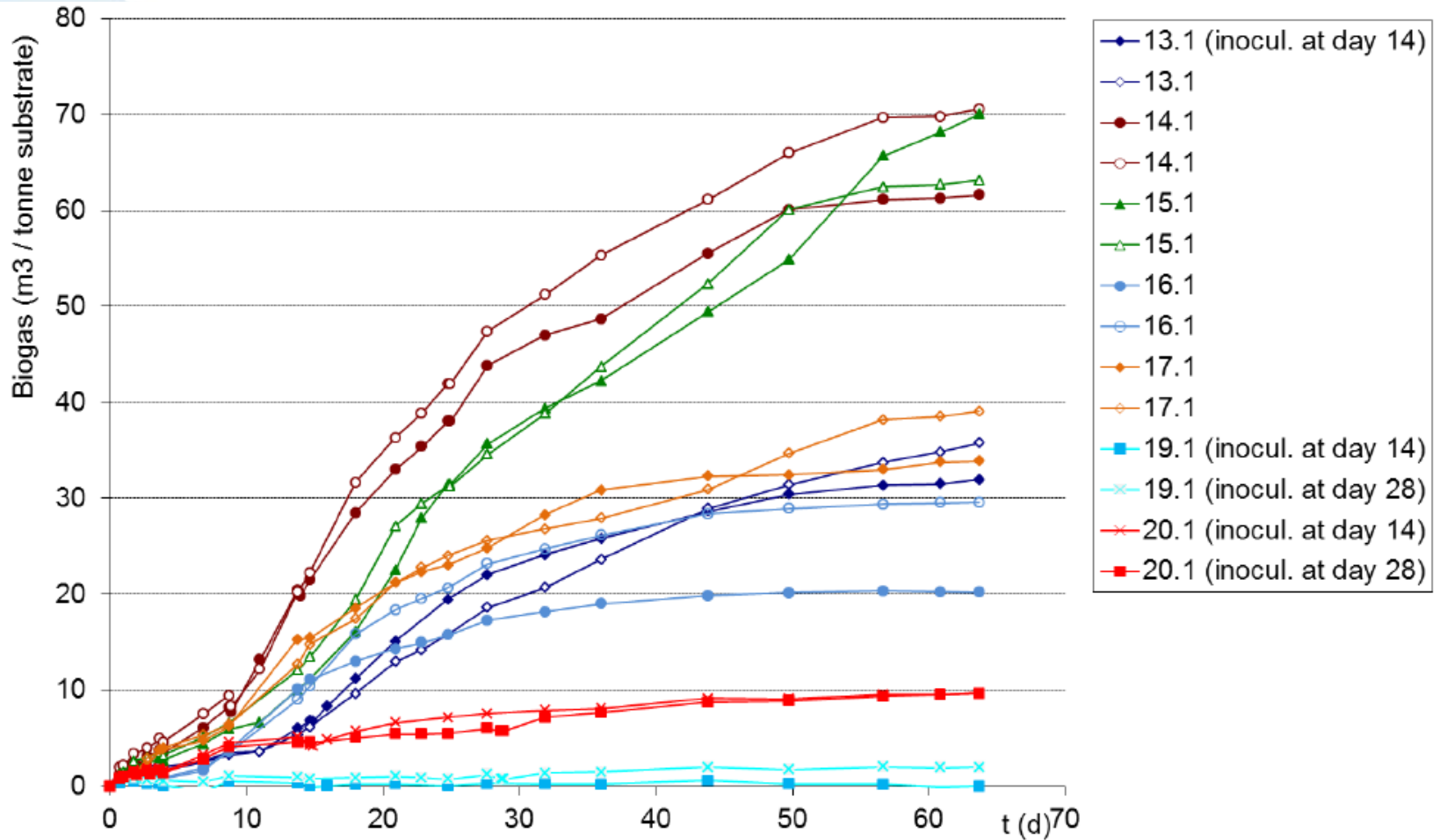
Biodegradation (1)

remaining fraction



Biodegradation (2)

Latrine types



Assumptions of rate limiting steps

- **There is a fraction of faecal matter which is difficult to degrade**
 - Through characterising this material we will be able to identify whether specific organisms, or enzymes exist which could break it down and be added to the latrine
- **Environmental conditions are unsuitable to support the microbial communities needed for breakdown**
 - to alter them either through physical action (eg aeration, mixing, or adding water), or design (adding a roof, lining, improving drainage) or chemical addition (eg for pH control) or additives which provide a suitable “niche” for the right bacteria
- **There is a lack of a key microbial family needed for biodegradation**
 - (See first) + seeding of latrines with faecal material of successful pits?



Who are we?

- Project run by the London School of Hygiene and Tropical Medicine
- Funded by a five-year grant (2009-14) from the Bill & Melinda Gates Foundation
- Leading global partners from academia, development and business
- International Advisory Group of sanitation, scientific, development and new-business experts
- www.sanitationventures.com



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