

Introduction to Faecal Sludge Management



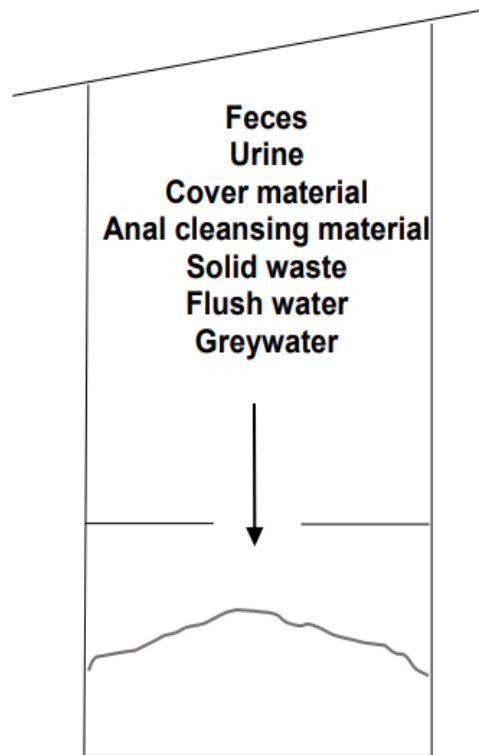
**Asia Pacific Surge Training:
Emergency WASH**

Content

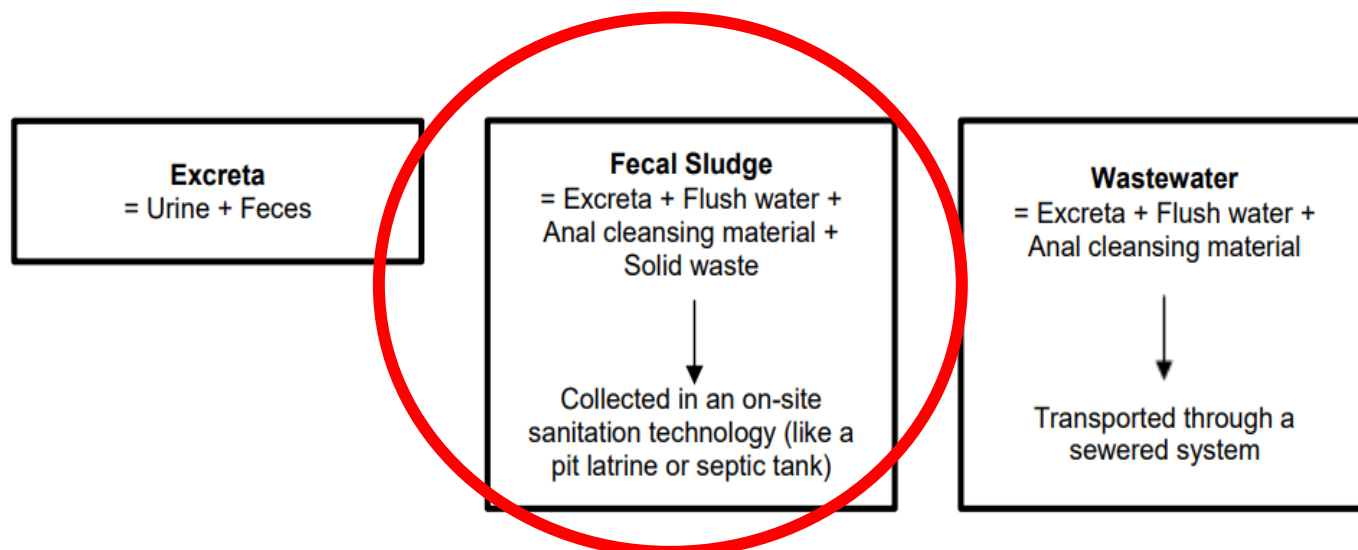
- What is faecal sludge
- Sanitation value chain
- Emptying and transport
- Treatment, onsite and offsite
- Faecal sludge field laboratory
- FSM Tour







Different components of fecal sludge



What is Faecal sludge?

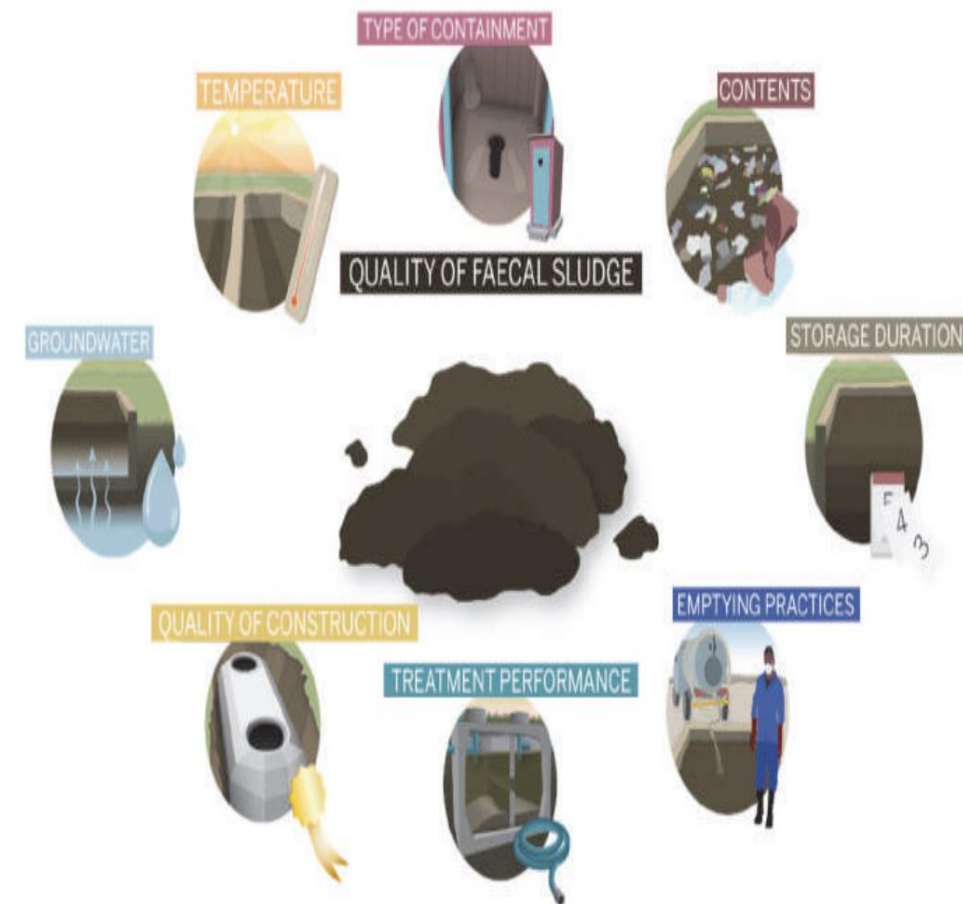


Figure 1.1.3 Parameters that can affect faecal sludge characteristics. Taken from the MOOC *Introduction to Faecal Sludge Management*.

Common situation



Why do we need FSM



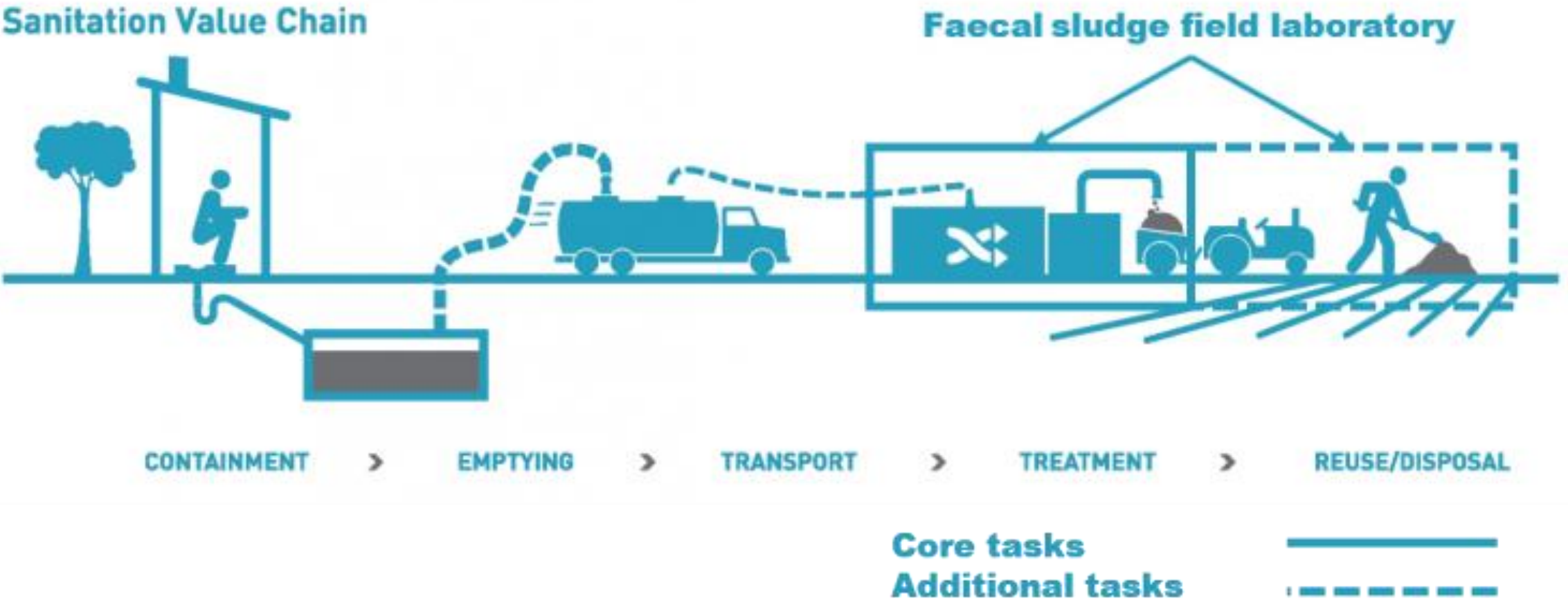
88% of diarrheal deaths are attributed to lack of access to safe sanitation, unsafe drinking water, and inadequate availability of water for hygiene

(Source: Prüss-Üstün A., et al., 2008.)

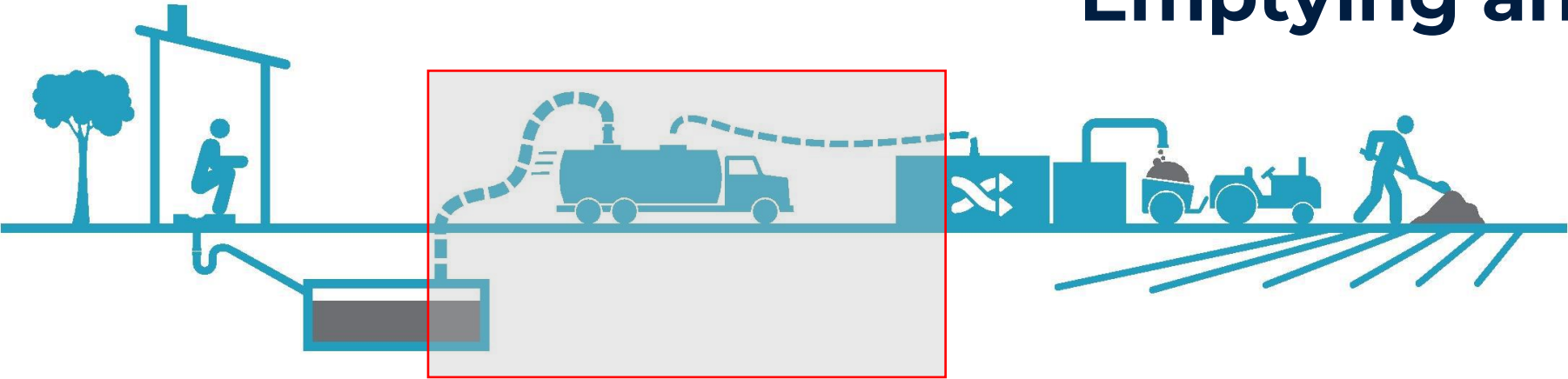
In addition to health and environmental benefits, the economic benefits of improved sanitation are also persuasive. Improved sanitation in developing countries typically yields about US\$5.50 worth of benefits for every dollar spent (Hutton, 2005).

The benefits of improved sanitation also extend beyond better health and economics. No one wants to live, work or go to school in dirty, smelly, and unsanitary conditions. Improved sanitation also contributes to the general well-being of a population.

Sanitation chain



Sanitation Value Chain



CONTAINMENT > EMPTYING > TRANSPORT > TREATMENT > REUSE/DISPOSAL

Emptying and transport





Poo Pump Oxfam, 2007

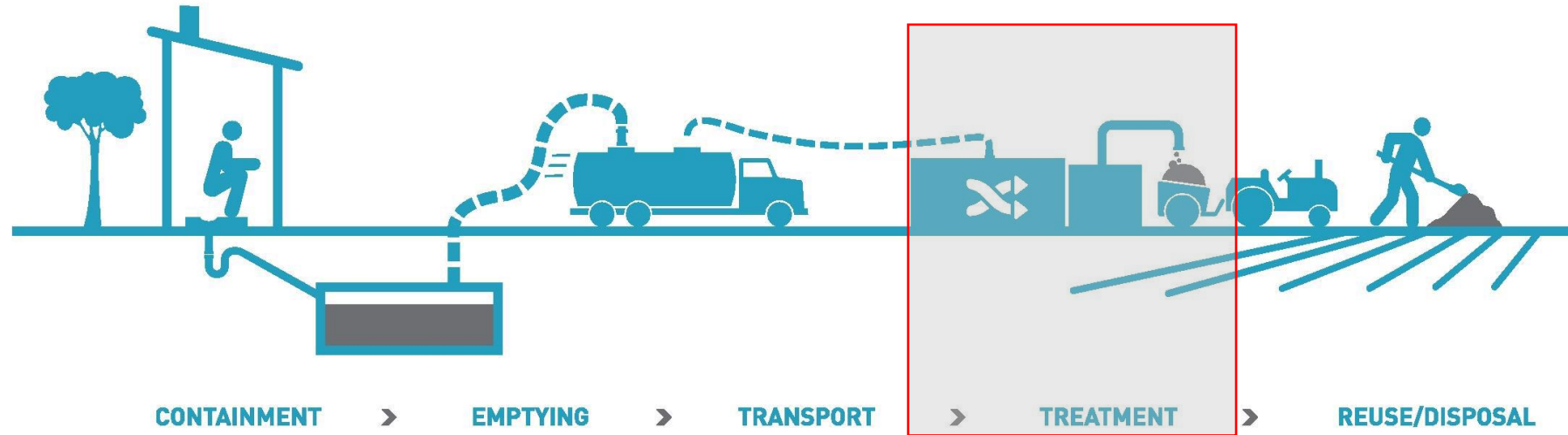


Diaphragm desludge pump



Small bore sewage network

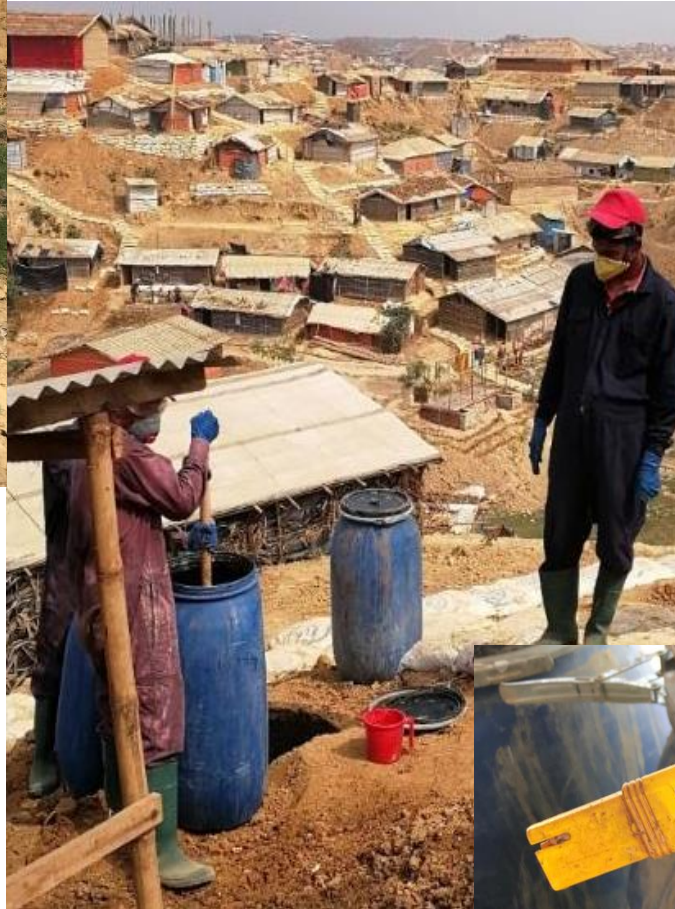




Some examples are:

- **Remote:** lime + infiltration pit
- **Offsite:** some that has been used in the emergency context:
 1. Constructed wetlands
 2. Aerobic treatment
 3. Upflow filters
 4. Biogas GeoTubes
 5. Lime
 6. Anaerobic baffled reactors (ABR)
 7. Anaerobic lagoons
 8. Aerobic treatment

Remote treatment



- Dig a hole
- Bring treatment team to site
- Treat with lime (pH 12 minimum 2 hrs)
- Pour into pit
- Secure site
- Allow to infiltrate
- Fill in with soil

Lime stabilization

1)



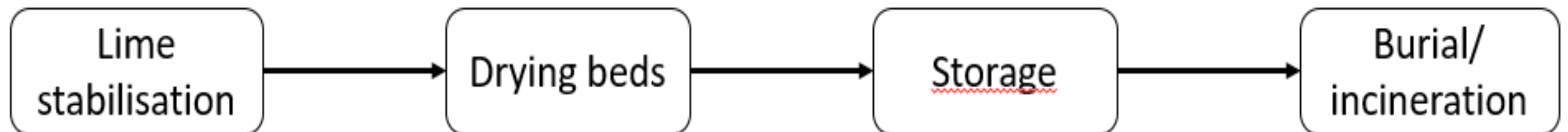
2)



3)



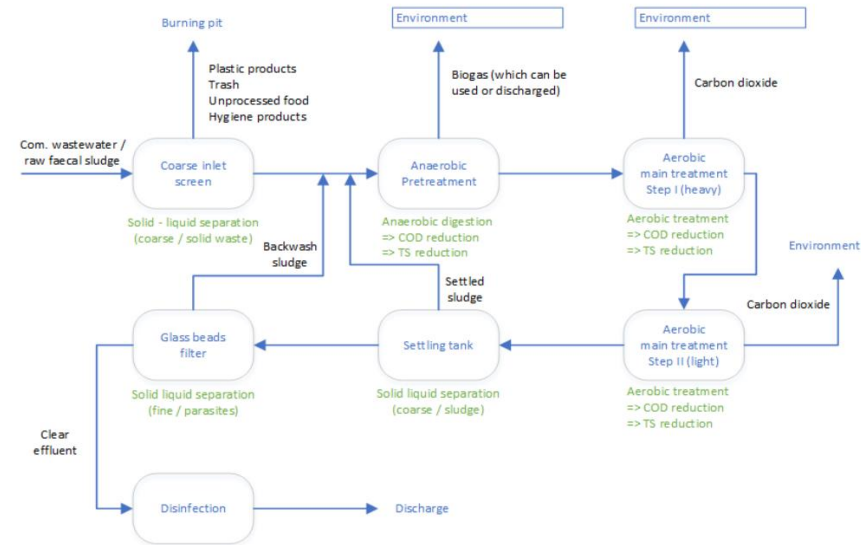
4)



IFRC Aerobic Faecal Waste Treatment Unit (AFWTU)



Process Flow



Main modules

Module 1
"Public Health"



Module 2
"Process Control"



Support modules



Support module 1
"Basic Laboratory
Support"



Support module 2
"Personal Protection"



Support module 3
"Power supply"

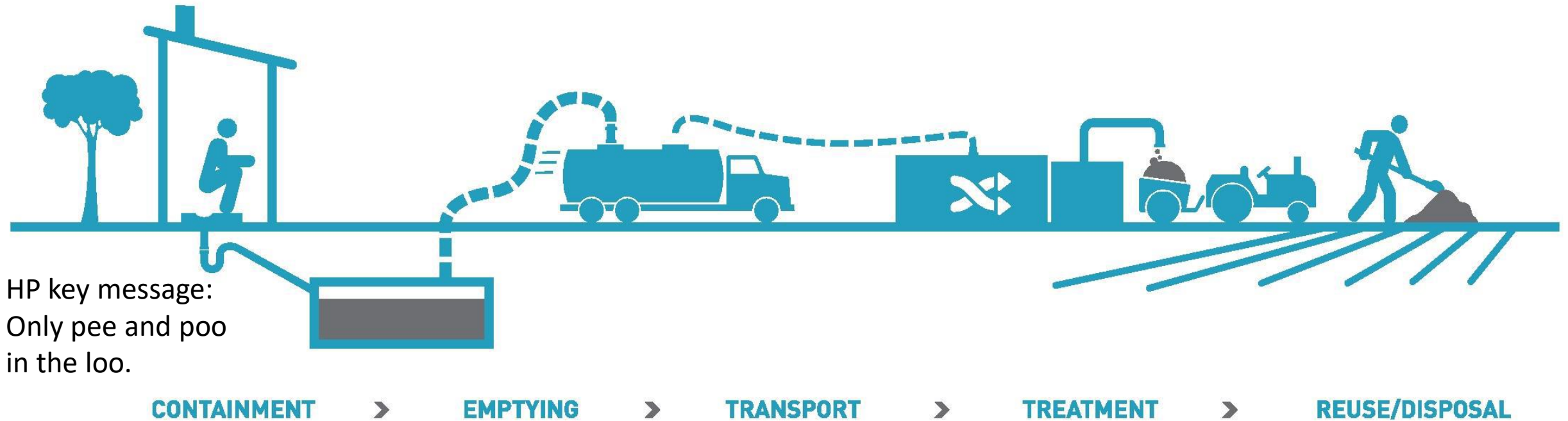
Faecal Sludge Field Lab



FSM is possible, scalable and transferable!

Taking a holistic view through the whole chain to identify bottlenecks and understand the impact of any change made impacts on the whole chain. Consider the type of emergency, length of displacement, current practices etc.

Sanitation Value Chain

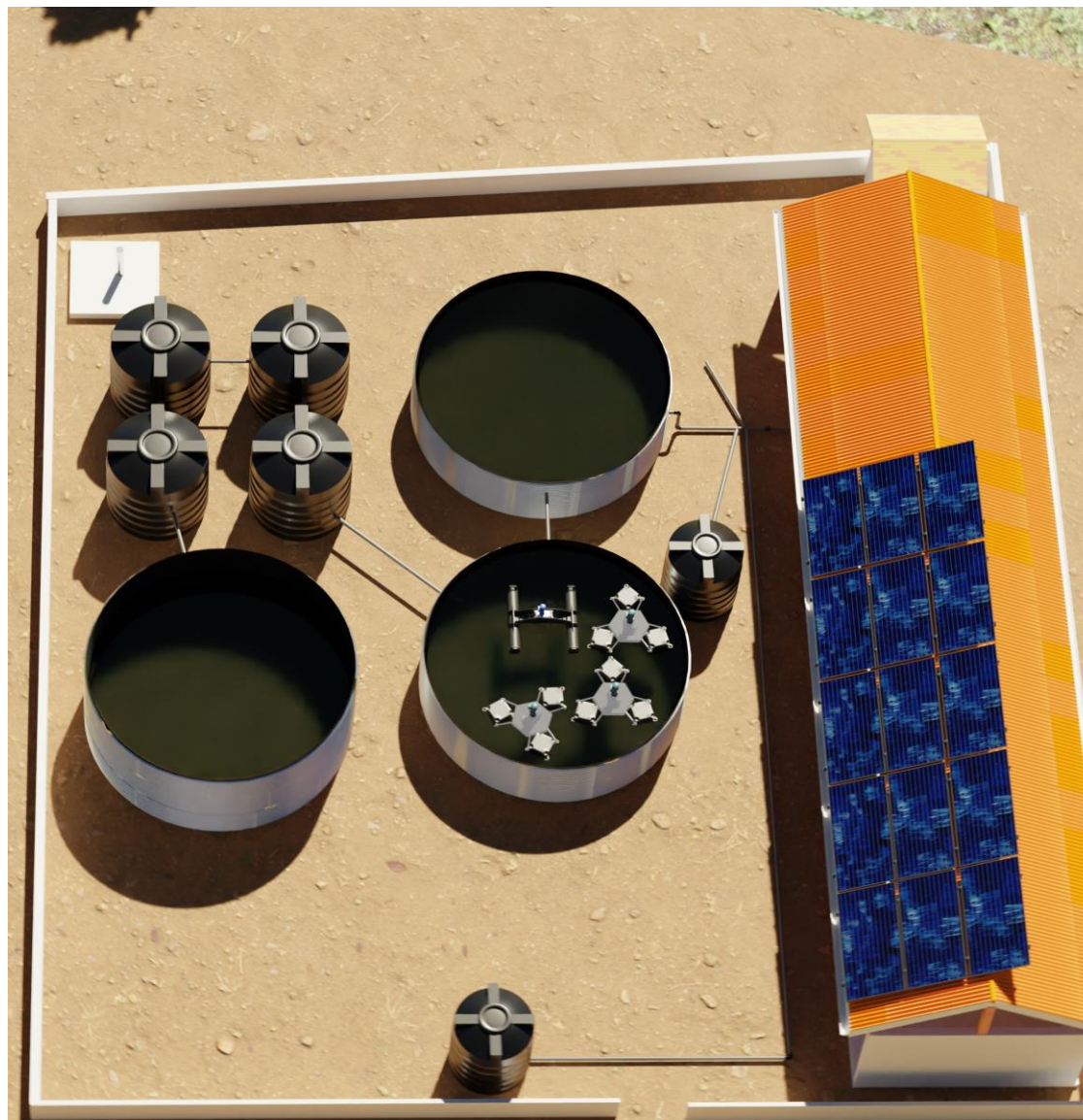


Stopping open defecation and containing excreta is a good first step, but sooner or later pits and tanks will fill up and require faecal sludge management services!!!!

FSM Tour



IFRC Aerobic Faecal Waste Treatment Unit (AFWTU) – 2nd Treatment plant







+C IFRC

World Toilet Day 2021

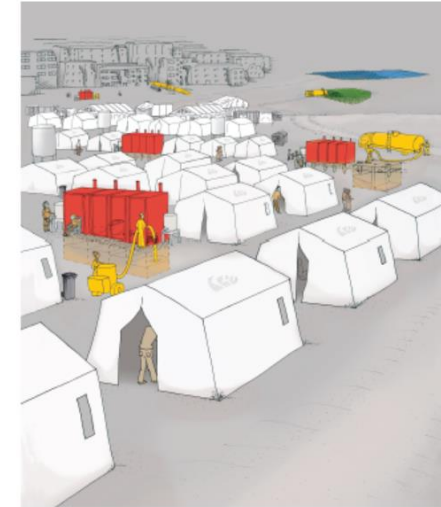
Untreated wastewater is a problem across the world,

Resources

- <https://emergencysanitationproject.org/ifrcafwtu/>
- <https://emergencysanitationproject.org/wp-content/uploads/2019/08/ifrc-afwtu-pilot-final-narrative-report-excerpted-from-esp-phase-2-final-report.pdf>
- https://www.eawag.ch/fileadmin/Domain1/Abteilungen/sandec/publikationen/EWM/FSM_Book_Highlights_and_Exercises/FSM_Highlights_and_Exercises_Final-compressed.pdf
- https://www.susana.org/_resources/documents/default/3-3145-7-1523526949.pdf
- <https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620943/rr-faecal-sludge-management-cxb-040220-en.pdf;jsessionid=FA1F1E0198F520E0F734ACF6743AF482?sequence=1>
- <https://drive.google.com/file/d/1Vuw8bQD2Fh1OC9mRxjWZNmCgRvvCtQzb/view>
- http://desludging.org/1.%20Manual%20of%20MDHP/MDHP_manual_English_Version.pdf
- <https://cdn.sanity.io/files/r8bm187e/production/939376054327022f03a148a5eec05fc67bd5a9a2.pdf>

Compendium
of Sanitation Technologies
in Emergencies

1st Edition



WASH
NETWORK

eawag
aquatic research



sustainable
sanitation
alliance

OXFAM UNHCR ARUP

**Faecal Sludge Management
for Disaster Relief**

Technology Comparison Study

Thank you! Questions?

