

Effectiveness and Use of On-Site Safely Managed Sanitation Solutions in Rural Cambodia

Rana Abdel Sattar

James Harper

Marlaina Ross

Tyler Kozole

iDE & Causal Design

Cambodia



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FSM Challenges in Rural Cambodia

- Climate change will exacerbate sanitation system failures and unsafe coping FSM practices.
- Few pit-emptying service providers
- Lack of enforcement of safe disposal of fecal sludge
- Households tend to empty pits on their own unsafely
- Only on-site rural FSM solutions are studied/recommended



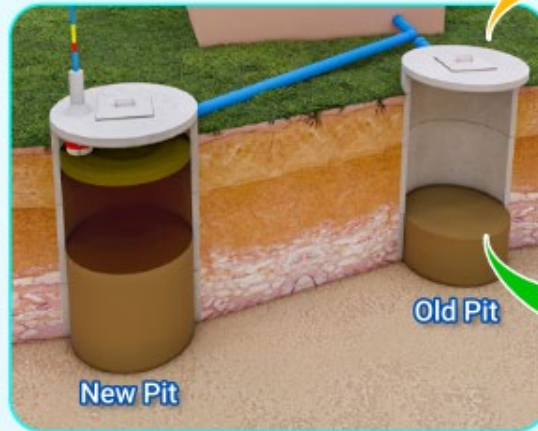
On-site FSM solution – Alternating Dual Pit (ADP)

How to use ADP correctly in the future

2

When the new pit is full, before alternating to the old pit, you need to empty the treated content of the old pit - even if it is not full.

If you don't empty it before alternating, you'll run out of space and end up with two non-treated, unsafe full pits.



1 If the content is less than 3 years, the meruk is not killed, emptied content needs to be buried in a safe place.



If the content of the old pit has been treated for more than 3 years, it can be used as a fertilizer. Not recommended for leafy vegetables. For example, OK on rice crop, not OK on lettuce.



2 Call LBO to alternate the pit and treat the full pit with lime.



Call the LBO so you can start using your old pit again!

Enabling SMS Access to Rural Households

22,000+ ADP upgrades installed and in use since 2017

By early 2022, 8,000+ ADP in use for at least two years.



ADP effectiveness study

Biological Research:

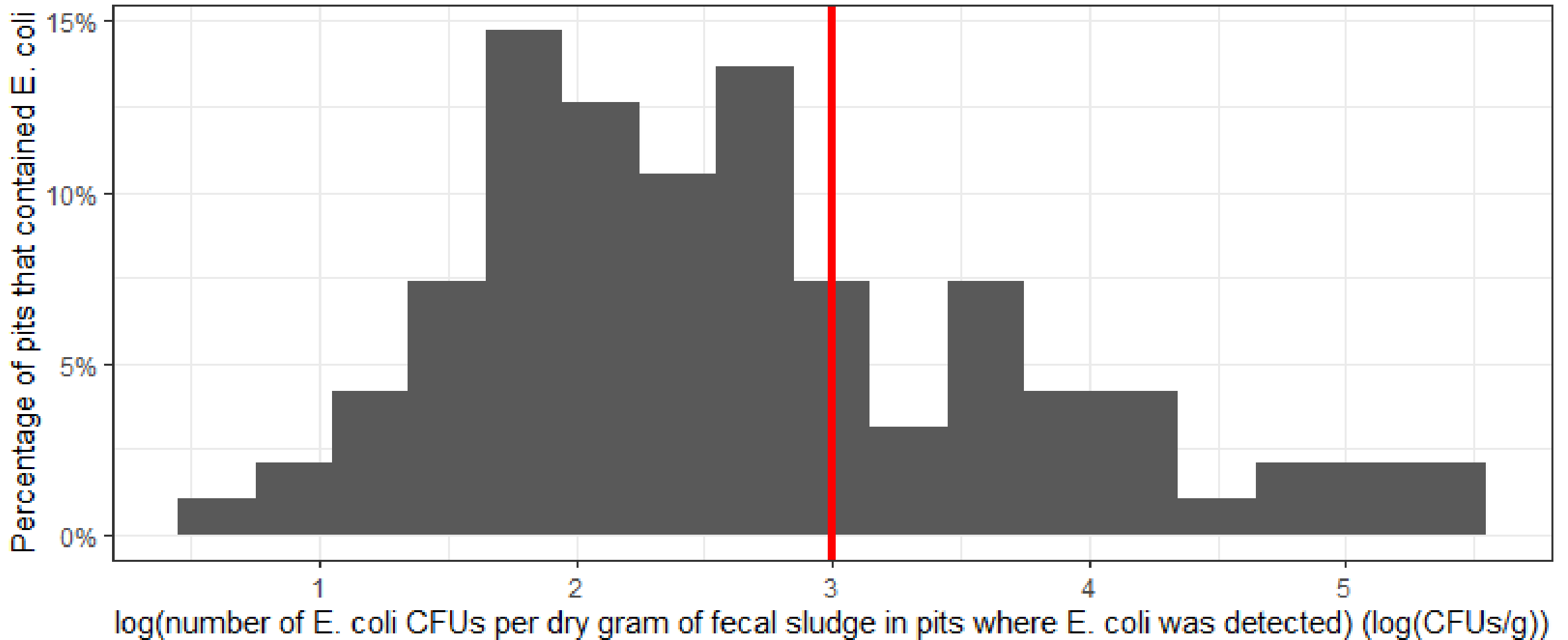
Can households safely empty pits that received lime mixing and two years of storage treatment as recommended by WHO standards?



Biology Methods

- 147 fecal sludge samples collected from pits that received **lime mixing and two years of storage treatment**
- Linear and logistic regressions of presence and number of **E. coli and fecal coliform CFUs** with sludge pH, temperature, and solid content; number of pit users; and presence of animals near pit





Two-year storage treatment with lime mixing reduces pathogen concentrations to **safe levels in two of three latrine pits** in rural Cambodia. **31% of pits exceeded 1000 E. coli CFUs** of per dry gram of fecal sludge.



ADP effectiveness study

Behavioral Research:

In various contexts of rural Cambodia, do households appropriately operate and maintain their ADPs as recommended by iDE?



Behavior Methods

- Conducted **770 households survey** (interview + observations) in 5 provinces of rural Cambodia
- Targeted households that had **performed FSM practices** (e.g. emptying, switching pit connection)
- Regressions with **five novel indices that describe households' FSM practices** around the ADP were calculated



Behavior Findings

- 60% of households **did not know how long storage treatment must proceed** until emptying can be performed safely
- 34% of households **pierced their pits**
- Only 14% of households **followed recommended practices** to switch their pits after emptying



Call to Action - Sector Recommendations

- The duration of FS storage should be re-evaluated as practical and effective for on-site FSM in latrine pits
- Improve access to reliable, safe, and affordable rural FSM (treatment, emptying, disposal) service providers, particularly in climate vulnerable environments
- Support governments in developing clear, practical FSM protocols and enforced regulations



Call to Action - Sector Recommendations

- When designing FSM and climate-resilient solutions, both technical and behavioral aspects must be considered.
- Develop more practical tools to easily, accurately and affordably identify climate vulnerability and monitor progress towards safely managed sanitation.



The urgent challenge is NOW – for the benefit of both public health and climate resilience – we must improve access to safely managed sanitation.

Thank you!

Questions, Comments or Suggestions?

Contact:

Rana Abdel-Sattar at rasattar@ideglobal.org

James Harper at james@noblepursuits.us

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