



# Behavioral Drivers of Fecal Sludge Management in Rural Cambodia

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## Background: Rural Sanitation and Hygiene in Cambodia

- Increasing coverage
- On-site waste containment
- Fecal sludge management (FSM) a growing problem
- FSM research in Cambodia focused on urban areas (sewage system) & technologies:
  - Limited information on social aspects of FSM
  - Knowledge of social behaviors of FSM needed to inform appropriate (technological) solutions

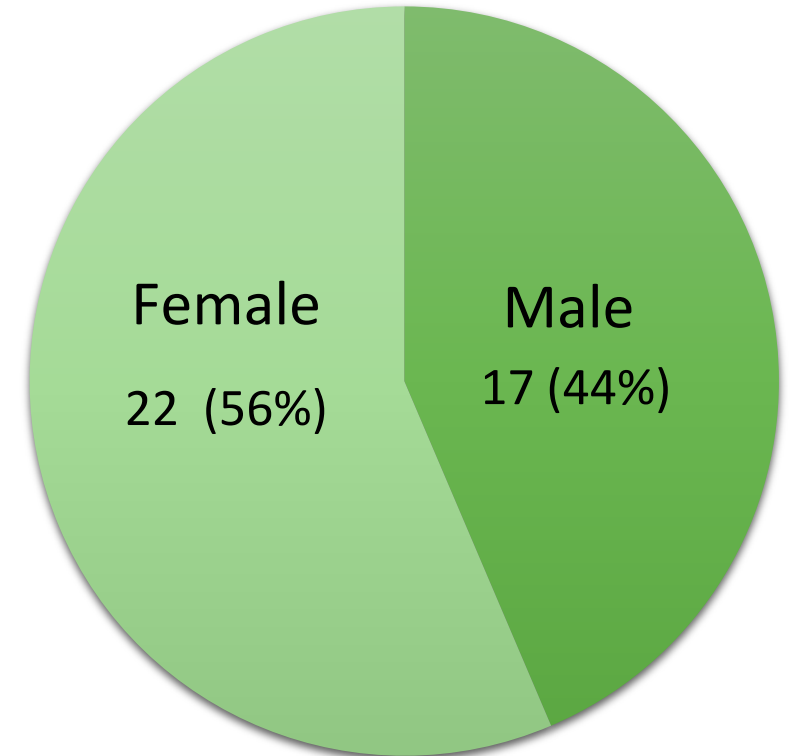


## Research Questions

1. What are the current fecal sludge management (FSM) practices in rural Cambodia?
2. What are the behavioral drivers that constrain or motivate Cambodian householders to safely manage their pit wastes?

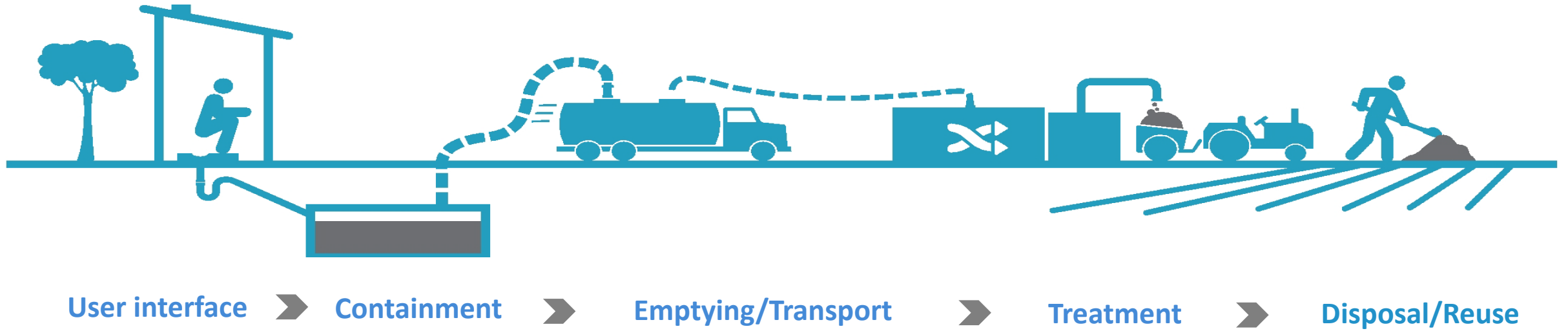
## Data Collection & Analysis

- 39 semi-structured, in-depth interviews (IDIs)
- 3 provinces (19 villages)
- Maximum variation sampling method
- Interview in Khmer, then transcribed into English
- Data analysis via. Atlas.ti 7.5.7





# Sanitation Service Chain (SSC)



# Current Practices

Safe

Moderately Safe

Unsafe

Reported Responses		No Pit Filling (n = 21)	Pit Filling (n = 18)	User Interface	Containment	Emptying/ Transport	Treatment	Disposal/ Reuse
DIY pit emptying	Manually	1	6	Safe	Safe	Moderately Safe	Unsafe	Unsafe
	Mechanically	1	3	Safe	Safe	Moderately Safe	Unsafe	Unsafe
Hire pit emptier	Manual	1	0	Safe	Safe	Moderately Safe	Unsafe	Unsafe
	Service	12	6	Safe	Safe	Safe	Unknown	Unknown
Drain pit		4	1	Safe	Unsafe		Unsafe	Unsafe
Add new pit		1	1	Safe				
Build new toilet		1	1	Safe				



## Risk Perceptions of Fecal Sludge (FS)

- Some awareness of pathogens in FS
- Liquid vs. solid

*"If [we] talk about bacteria, then feces are 100% dangerous and this one (fecal sludge) is 50% [dangerous] or even less."*

- Family vs. non-family feces

*"I know what diseases the people in my family have, but people from outside never tell me what [diseases] they have."*



## Perceived Values of Reusing Fecal Sludge (FS)

- FS viewed as better & safer than chemical fertilizer

*“It (fecal sludge) is good for the soil; it’s not the same as chemical fertilizers, [which] can affect our health.”*

- Contradictory views on how to use FS as fertilizer

*“Some people even taste the sludge after they mix it with water [...] to know how salty or bland it is.”*





## Smell & Physical Environment

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- Household location
- Distance between households
- Ownership of & distance to agricultural land

*"We can empty [pit] easily because our house is at the end of the village. For those living in the middle, it's hard because they don't know where they can put [the waste] if they pump it. [...] They can't leave it in the village since the smell affects others."*



## Season

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- Cash flow problem in rainy season
  - “Seasonal debt”
  - Unexpected crop failure

*“We’re experiencing a loss in our harvest [...] but we still haven’t paid the big tractor rent. So we don’t have the ability to afford the service. In the dry season, we may be able to if we get income from the harvest.”*





## How Do These Behaviors Spread?

- Historical factor (e.g., Khmer Rouge)

*“For feces, during the Khmer Rouge [regime], people even squeezed it bare hands and there was no [health] effect at all.”*

- Social dynamics: the tendency to follow each other

*“[We] paid the same [amount] as the person before [us] had done. [...] If price increases and other people agree to pay, we’ll follow them. If they’re not willing, we won’t be either.”*



## Going forward

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- Current FSM practices show significant level of public health & environmental risks
- Quantitative survey to test/validate research findings
- Sector coordination
- Human-centered design (HCD) with local commune councilors
- Acknowledgement: Stone Family Foundation, the study participants





# Thank You!



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