

## The Problem of Poop

Unsafe sanitation contributes to an enormous public health crisis, particularly in India, which possesses the world's highest number of people practicing open defecation.<sup>1</sup> Despite toilet building efforts of government and NGO programs, millions of toilets still go unused across India because they fail to meet the needs of users.<sup>2</sup>



Figure 1: Government-constructed latrine with no pit.



Figure 2: Unused latrine with visible cobwebs.

## Human Centered Design and Sanitation

Human centered design is an iterative process that places the user at the center of design.<sup>3</sup> During a semester-long study abroad program in India, I utilized human centered design principles to understand the features of a desirable toilet across 10 villages in a rural of Rajasthan, India.

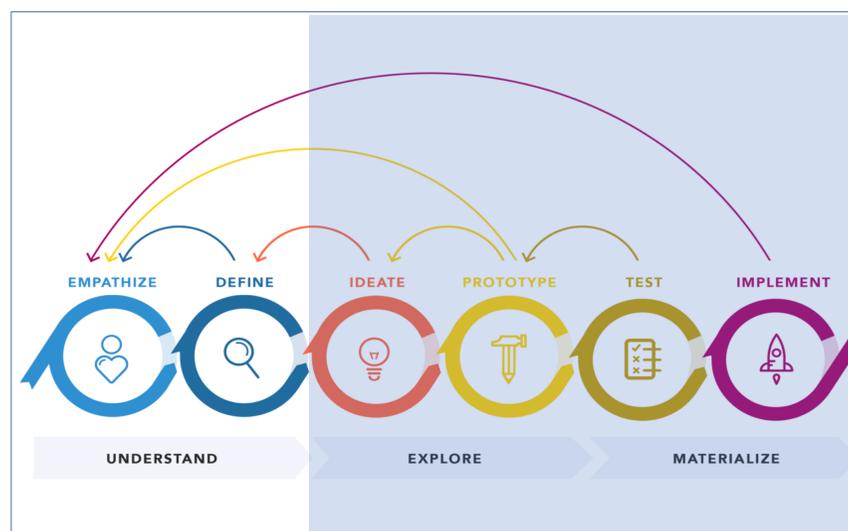


Figure 5. Steps of the Human-Centered Design Process.<sup>3</sup>

## Findings

- 78% of interview respondents reported not using their toilets due to design-related reasons, such as a lack of water connection and adequate size.
- Apparent difference in quality between toilets constructed by household versus government.
- Desire for toilet with water connection, large pits, and other characteristics for comfort.



Figure 6: Household constructed latrine, with deluxe features such as two stalls, floor tiles, and a sink.



Figure 3: Government-constructed latrine being used for storage of construction materials.



Figure 4: Latrine being used as a shower, with a concrete slab placed over the pit.

## Methods

1. **Individual interviews** (n=40) with community leaders, village residents, NGO workers, and government officials
2. **Group interviews** (n=8) with women's self-help groups, community leaders, and village members
3. **Household observations** (n=36) to understand toilet history, usage, and design type

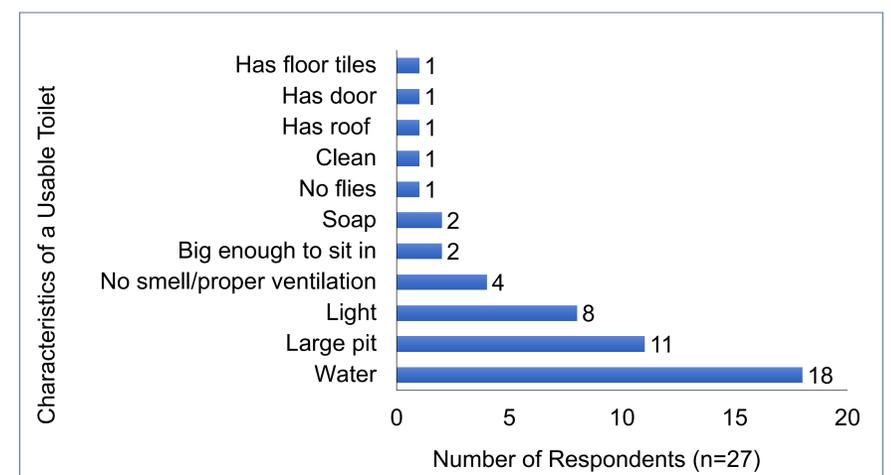


Figure 7: Characteristics of a desirable toilet.

## References

- 1 World Health Organization, "Sanitation," last modified July 2017, <http://www.who.int/mediacentre/factsheets/fs392/en/>.
- 2 Diane Coffey, et al., "Revealed Preference for Open Defecation: Evidence from a New Survey in Rural North India," *Economic & Political Weekly* 49, no. 38 (September 2014): 43-59.
- 3 "Design Thinking 101," Neilsen Norman Group, 31 July 2016, <https://www.nngroup.com/articles/design-thinking/>.

## Conclusion

This study showed that ownership over the toilet construction process was a vital factor for usage, as 94% of household-constructed toilets were utilized post-construction. Governments and NGOs can ensure better sanitation outcomes by including users in the decision-making process through incorporating human-centered design principles into their programs.