Reviewer’s report

Title: Piloting a low-cost hardware intervention to reduce improper disposal of solid waste in communal toilets in low-income settlements in Dhaka, Bangladesh

Version: 0 Date: 05 Sep 2016

Reviewer: Marieke Heijnen

Reviewer's report:

Firstly, it is great to see more research focused on urban sanitation. This is a growing challenge worldwide and we need to find solutions for the many, highly-complex issues regarding sanitation and health in urban slums. Your study has shown that a focused, iterative method can help find custom-fit solutions for specific communities.

I have a few queries regarding the manuscript.

In terms of materials and methods, how were the two communities selected? Were these two the only communities where WSUP funded Vacutug pumps were being used (and getting blocked) or where there others, thus needing to make the decision to go for Bauniabad and Kolyanpur based on other factors?

When conducting in-depth interviews with residents regarding toilet use, did you encounter any individuals who refused or were not eligible for the interview (page 10, lines 7-19)?

Are the toilets in the two communities only accessible to residents, or can people from outside the community use them? (ie from a nearby trading centre).

It was not clear to me that one type of bin model with foot pedal and one type without foot pedal was tested (only clear once I saw Figure 1). Was it randomly decided to trial one particular one in one setting or the other? Page 10, line 47 onwards. Was there a cost difference between the two different bin models?

Page 11, line 7, were the daily spot checks at random times, or could the residents 'expect' them at a specific time of day.

Page 11, line 21/22. Perhaps 'achieved' or 'reached' data saturation sounds better than 'got', but this may be a personal preference.

Data analysis, page 11, line 40. How many people (and who?) were involved in the manual analysis of the English codes, and how was consensus reached if there were any disagreements?
Results. Page 12, line 54. Do the communities pay for the emptying of the dumpsters by the city's Solid Waste Management System? Is this a communal pay or a household payment?

Did you explore why do the residents throw some waste in the dumpsters (food waste) but other waste in the lakes/bushes/toilets (ie. Children's feces). Page 13, line 9. I assume cost is a major factor, and this gets mentioned later in line 42. Perhaps a small table showing the differences between the two communities and the intervention they received - basic info could be added to Table 1. For example, it is not immediately clear to me whether both areas are served by the city's Solid waste management system, as clearly Bauniabad has other options (lake) for waste disposal (page 13, line 50).

If residents were encouraged to dispose of their sanitary waste in the bins (menstrual rags etc) as well as their household waste, were there any issues surrounding vermin/flies with the bins in the toilets (in addition to any flies possibly present in a communal toilet)? Especially if the waste was occasionally left up to 3 days.

In terms of issues reported on the disposal of menstrual waste products in the bins, were any of the communal toilets separated for men/women? Or were all facilities used by both? Did any of the communities charge for the use/maintenance/cleaning of the communal toilets? (if so, people have an interest in keeping them functional, and thus will be potentially be more concerned if the emptying cost increases due to solid waste in the pits). It would also encourage the 'paid bin emptying' model, rather than the volunteer emptying, if residents are already used to paying for a service.

Overall, the sustainability of a service where bins are provided/emptied will depend on many factors, including cost and potential cost recovery. As this study conducted a thorough analysis of the waste disposal in two specific settings, could you provide some insight into the potential for rolling it out/scaling it up?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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