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**WATER, SANITATION AND HYGIENE:
SUSTAINABLE DEVELOPMENT AND MULTISECTORAL APPROACHES**

Sanitation and health challenges in Universities; A status report on studies conducted in Adama University, Ethiopia

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This study is about the hygiene behaviour of students in relation to sanitation arrangements in Adama University, Ethiopia. The study identifies different practices and challenges and pinpoints changes and improvements in the hygiene behaviour of the students which may have a positive impact on health. In addition, the student's perception about ecological sanitation and their attitudes towards the use of urine-diverting dry toilets and recycling of organic matter and nutrients from human excreta were assessed. The existing sanitation arrangements were investigated and the relevant officials of the university were interviewed about the sanitation situation in the university. The methods include observation, conversational interviews, key informant interviews, focus group discussions and detailed structured interviews with 110 students. The interventions proposed to improve the hygiene behaviour of students will also help to raise satisfaction in the existing facilities and build sustainability of sanitation systems and can also be adopted by other Universities.

Introduction

The general objective of the study is to devise strategy and put forward suggestions for changing and/or modifying hygiene behaviour of university students to improve the health situation in Adama University. The strategy can be used as a model for other Universities in the country.

The specific objectives are:

- To identify, describe, measure and understand the students' hygiene behaviours
- To select risky behaviours that needs to be modified or changed
- To suggest behaviours, which-if performed hygienically- are likely to help prevent the transmission of disease and also create satisfaction with the existing toilets.
- To investigate attitudes of the students towards ecological sanitation for the implementation of the demonstration Urine-Diversion Dry Toilets to be constructed in the university
- To identify methods of raising awareness and dissemination of information in the university

Methodology

Different methods of data collection were used in the study. The obvious reason for choosing multiple methods is that no single method can provide sufficient information on the subjects of study (Boot et al., 1993). Throughout this study the methods followed include unstructured observation, conversational interviews, key informant interviews, focus group discussions (FGD) and structured interview.

Results and discussions

Sanitation issues

Type and number of toilets

From the observation made it was found that the toilets in all building were water-flush toilets except for 'Sawa', (G+0) buildings, which are having separate dry toilets. The toilet of the lecture hall is also water-

flush type. However, all the WCs flushing devices are not working. It is therefore closed during the day time so that the regular students do not have access to it. It gets opened only for night students only during the night.

The structured interview indicated that 86% of the female respondents thought the numbers of toilets are not sufficient for the students where as only 45% of the male respondents indicated that the number of toilets available are not sufficient. It was also found that the ratio of toilets to the number of students is 1:20 for female dormitories, 1:15 for male dormitories using with water-flush toilets, and 1:13 for male using dry toilets.

It was observed during the study that new temporary pit latrines are under construction for the newly constructed buildings by GTZ-IS. These latrines do not have a vent pipe and the walls are to be made of corrugated iron sheet. They will be used only for short period of time until the construction of the new wastewater system is finalized. The proposed new wastewater treatment system is an up flow anaerobic sludge blanket reactors.

Hand washing

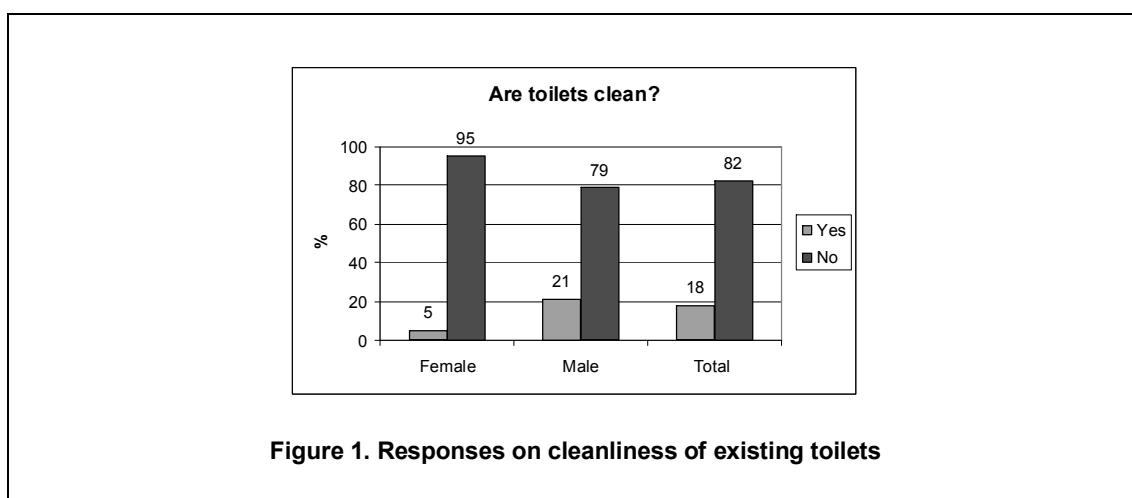
70% of the respondents indicated the presence of hand washing facilities and 30% not. However, from the observation made all dormitories have hand washing facilities. It is the interviewer's effect or the understanding and perception of the interviewees about hand washing facilities that the 30% responded as if there is no hand washing facility. The focus group discussions indicated that students wash their hands after defecation, if there is water and they are not in a hurry. One participant in an FGD said that "I wash my hands if there is water and only when I remember that I have to wash my hand". As far as availability of soap is concerned it was found that soap was not provided for students for hand washing. In all hand washing basins soaps were also not seen.

Cloth washing

There are good facilities for washing clothes. It is the responsibility of the students to wash cloths. During the visit of the facilities it was observed that the drainage of the floors of the laundries is not proper. Stagnant grey water was observed on the floor. The floor needs maintenance to have a good slope otherwise it should be cleaned daily to prevent the breeding of mosquitoes and also odor problems.

Cleanliness of toilets

82% of the interviewees revealed that the existing toilets are not clean (refer Figure 1).



During the site visit paid in the toilets of the university most of the toilets were not clean.

Janitors are employed by the university to do the cleaning work. However, 59% of the interviewees claimed that the toilets they are using are not cleaned regularly by the janitors, while 41% confirmed that the toilets are cleaned regularly.

The reasons for the toilets not to be clean were discussed in the FGD and also in the interviews. The main reasons are the following:

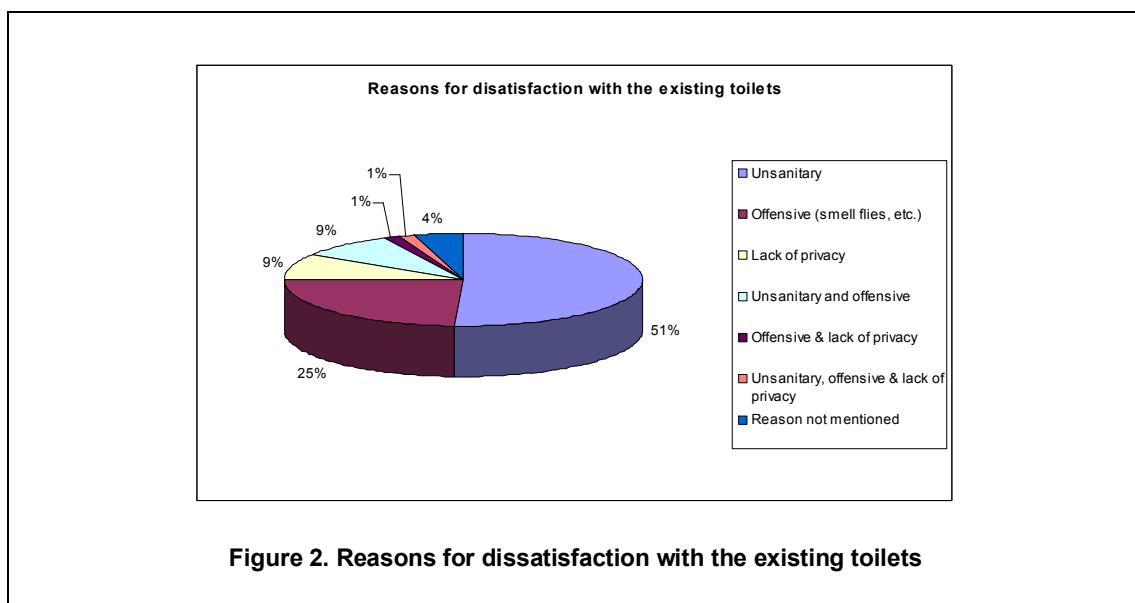
1. Frequent water cut-off
2. The improper and unhygienic use of the toilets by some students which include the following behaviours
 - Not flushing water before and after defecation
 - Dropping anal cleansing material in the WC hole
 - Using the toilet when there is no water for flushing
 - Defecating outside the WC hole.
 - Feeling irresponsible for toilet cleanliness
3. Janitors do not work on Saturday & Sunday and on holydays
4. Janitors do not work in the afternoon
5. High number of users
6. Carelessness of some students

Satisfaction with the existing toilets

Most of the interviewed students are not satisfied with the existing toilets and only 37% of the 110 interviewees are satisfied with the existing toilets (refer Table 1). The data reveal that works should be done in relation to the existing toilets to raise the satisfaction in the students.

Table 1. Satisfaction with existing toilets		
Satisfied	No of respondents	%
Yes	41	37
No	69	63
Total	110	100

The reasons for dissatisfaction of the interviewees are shown in Figure 2.



Anal cleansing

It is common practice in Ethiopia to use papers and tissue papers for anal cleansing. Anal cleansing with water is common, particularly among Muslims and increasingly these days also among some Non-Muslims. Figure 3 shows the types of anal cleansing material and the percentage of users among the interviewees.

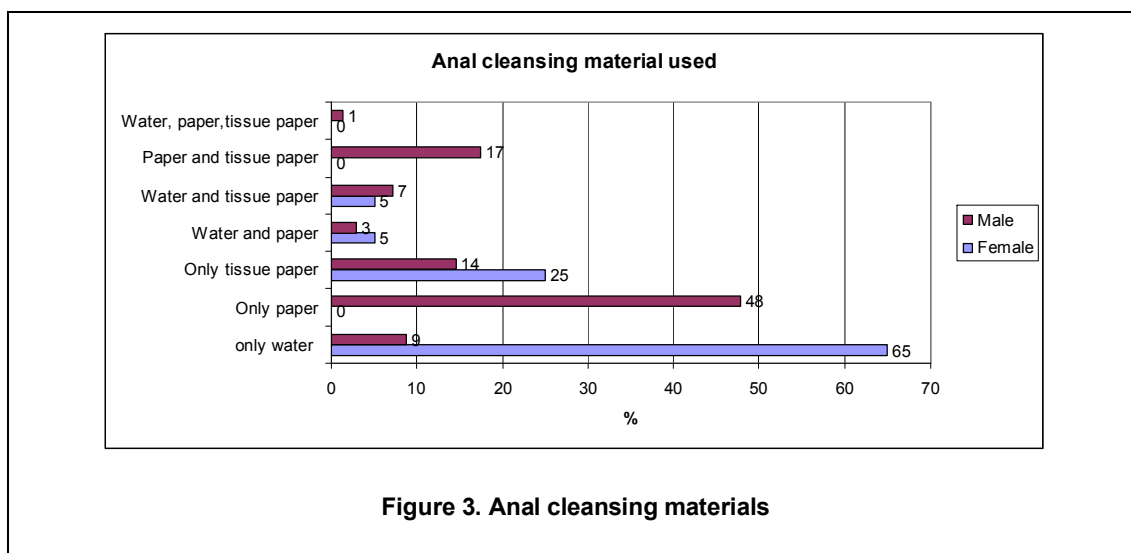


Figure 3. Anal cleansing materials

The interviewees were also asked about the availability of the material they prefer for anal cleansing. 57% of the participants said it is not readily available. This shows that strategies should be devised to make anal cleansing material readily available. It is the responsibility of the student to avail the cleansing material. Two years ago there was a very good arrangement. Every student was given one roll soft paper per month and was getting one egg less per week for breakfast.

Practices to change

In this study an attempt is made to identify hygiene practices which carry high risk and are feasible to change. It is important to target only a very few practices (certainly less than five) to avoid dissipation of message (Cairncross et al.). The following are the main ones selected:

1. Flush toilets after defecation
2. Dispose anal cleansing matter in the basket
3. Wash hands with soap after defecation
4. Do not use toilets if there is no water for flushing

The concern here is to make a behavioural change in the students and there by keep the toilets clean and improve the sanitary condition of the toilets. This will in turn avoid illness and spread of diseases. The method used for hygiene promotion for making the necessary behaviour changes are described in the subsequent section.

Attitudes towards ecological sanitation

General

According to GTZ-IS, the University Capacity Building Program is going to introduce innovative and future-oriented sanitation systems for the new universities in Ethiopia. Therefore one demonstration unit of dry toilets with urine separation and reuse of urine and faeces is going to be constructed at the Adama University site. In this study information was gathered to help the sustainable operation of the demonstration UDDT (Urine-Diversion Dry Toilet). The attitudes of the students in various issues were investigated and are presented in the subsequent sections.

Use of excreta as fertilizer

To check the perception of the interviewees towards human excreta, they were asked about if there is any difference between human excreta and cow dung and urine. The response of the interviewees is shown in Table 2.

Is human excreta different from cow dung and urine?	No of respondents	%
Yes	88	94.6
No	5	5.4
Total	93	100.0

This shows that there is resistance to consider human faeces to be similar to cow dung and urine. In Ethiopia it is also known from experience that getting in contact with human faeces is generally unacceptable in most cultures. There fore much work should be done to raise the acceptance of reuse of excreta.

Regarding the information about the reuse of human excreta, 4 out of 11 participants heard about use of human excreta as fertilizer and only 2 out of 11 participants of the FGD seen when excreta was reused.

The perception of the students was assessed in the interview. 55.4% of the interviewee responded that they will eat bread baked of crop grown using excreta as fertilizer. None of them said it is repulsive. The other responses are shown in Table 3.

Feeling	Number of respondents	Percentage
I do eat	57	55.4
I do not feel bad	23	22.3
I do not eat	23	22.3
It is repulsive	0	0
Total	103	100

Use of urine as fertilizer

Urine is rich in nitrogen and can be used for fertilizing most non-nitrogen-fixing crops after proper treatment to reduce potential microbial contamination. The students were asked about their attitude towards using urine as fertilizer. Only 41% of the respondents imagine/believe using urine as a fertilizer to fertilize crops in their home garden. This indicates that there are negative views on the reuse of urine. This may be due to cultural taboos and also lack of awareness about the contents of urine.

Impression about UDDT (Urine-Diversion Dry Toilet)

In the interview, the interviewees were asked whether they have heard about reuse of UDDT products (faeces and urine). Only 46% of the interviewees heard about separating urine and faeces in toilets and using the urine as fertilizer and dried faeces as soil conditioner. This indicates that the students should be well informed about the UDDT.

Only one participant out of eleven has heard about Ecosan toilet from a course given in construction department. The title of the course is ‘‘ water supply and sewerage’’. No body has seen the UDDT toilet fixture.

From all the evaluations made; the students have good impression for the system and appreciated the reuse of urine and faeces. However, much work should be done to raise the awareness of the students in the use, operation and maintenance of the UDDT.

Methods of raising awareness and dissemination of information in the university

The following are the methods which were identified in the FGD and the interviews as the best methods for raising awareness and dissemination of information. Students strictly recommend that the method should be not boring and too long.

1. Funny posters
2. Brochures
3. Entertaining videos
4. Allowing lecturers to spend 10 to 15 minutes for disseminating the required information to the students.
5. Raising the awareness of dormitory representatives by lecture or by any other means. That representative will in turn raise the awareness of his roommates and inform them what he has learnt. There are 81 students who are selected from the 81 classes democratically.
6. Students usually do not like lengthy meetings. It is better to use recreational means like funny dramas and attractive advertising.
7. Putting advertisement/notice on notice boards, student's dormitories, in places where students usually gather and in toilets.
8. Giving orientation during the beginning of the year for fresh students.

In addition, the student union in the university should be consulted and involved in the awareness raising and information dissemination process

Conclusions

The hygiene practices selected for change can be achieved through hygiene education intervention and the intervention should be monitored and evaluated. Awareness raising campaign should be made before the demonstration UDDT is opened for use. Students should be given orientation about the proper use of existing sanitation facilities at the beginning of each academic year. Special focus should be made on fresh man students and the health committee of the student's union together with proctors should actively be involved in monitoring of the hygiene behaviour of the students.

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