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ASSESSMENT OF HYGIENIC CONDITIONS OF PUBLIC TOILETS/SANITARY FACILITIES IN SOKOTO METROPOLIS

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Abstract
The contribution of public toilet to the sanitation of the environment cannot be overemphasized as it provides opportunity to people of Sokoto in areas like motor parks, markets, artisans' workshops, shopping centers and in areas of explosive population with little or no sanitary facilities. However in recent times these public conveniences have turned out to be public isols as a lot of users complained about the conditions of hygiene of these facilities. It is against this background that this research has been undertaken to find out the general conditions of these facilities with a view to ascertain their continuous usability. 31 numbers of public toilet facilities were randomly selected from the areas of interest to the study. Structured questionnaires were administered on the attendants of the chosen toilets and checklists were also used to complement information got from questionnaires. It was observed among others that most toilets were dirty, lack proper management, and was built not in accordance with the international standard and best practices. Also, most of the toilets were left without inspection from either health officials or sanitary engineers and they constitute nuisance to the users as well as the environment where they are situated. It was therefore recommended that laws that will regulate design, building and running/operating public toilets should be enacted by the government and implementation committee be constituted among others, so that the operation of these public toilets continue to be blessing to our environment and not a curse.

Keywords: *Sanitation, Public toilet, Hygiene, Sokoto and Excreta disposal*

Background to the Study

'Sanitation' is defined as all conditions that affect health especially with respect to dirt and infection and specifically to the drainage and disposal of sewage and refuse (Franceys et'al, 1996). Sanitation according to the oxford advanced learner's dictionary has been defined as "systems that protect people's health especially those that dispose human wastes efficiently". Drewko, (2007) asserted that in developing countries of the world, the world sanitation gained a meaning of excreta disposal and based on that, he defined sanitation as a method of hygiene that relate to safe collection, removal and disposal of human excreta and wastewater. The world health organization study group in 1986 formally defined sanitation as the means of collecting and disposing of excreta and community liquid waste in a hygienic way so as not to endanger the health of individual as well as the health of the community as a whole. Tandia, (2004) also defined sanitation as excreta and wastewater management as well as run-off water and solid and industrial wastes. It is therefore the whole strategies used to solve problems posed by excreta, solid and industrial wastes and run-off water excluding production and distribution of drinking water. Safe disposal of excreta and wastewater is of fundamental importance, not only for the health of the community, but also because of the social and environmental benefit it brings (W.H.O, 1992)

Communities comprising of low income people, particularly in the developing countries where the installation of sewerage system, with its high cost and the need for piped water supply is barely a feasible option must therefore opt for on-site disposal i.e. dealing with excreta where it is deposited. This however offers a hygienic and affordable solution.

Poor sanitation has serious consequences to health. It can easily be seen on the example of a simple illness like diarrhea that continues to be a major killer in the developing countries of the world due to the fact that basic problem of how to deal with excreta still remained unresolved (WHO and UNICEF, 2000). Inadequate treatment or disposal of human excreta and other wastes can lead to transmitting and spreading of diseases originating from excreta as polluted water and inadequate sanitation cause 5.7% of epidemics (Huuntanen and Laukkanen, 2006).

A toilet is a plumbing fixture and disposal system primarily intended for the disposal of bodily wastes; urine and fecal matter. Additionally, vomit and menstrual wastes are sometimes are sometimes disposed off in toilets in western societies. (Wikipedia, 2009) Public toilets have been defined by different authors, out of who is Shehu, (2006) who defined public toilets/conveniences as commercial sanitary facilities which mainly provide latrine and bathroom services to general public. Also, public toilets, public lavatories, or public convenience are toilets that

are accessible to the general public with common access from the street (Wikipedia, 2010). Public toilets are places where one is obliged to ease oneself in unfamiliar surroundings among strangers of the same sex. Public facilities often have several toilets partitioned by stalls or cubicles. In some instances a public toilet provides opportunity for bathing, toilet and urinals. In other cases, it provides only one service at a time.

Sanitary facilities / public toilets, run by private individual or group of individuals, where people can ease them of excrete, have been offering ample opportunity for people in places like market, motor parks, mechanic workshops and areas of high population of people with little or no access to personal sanitary facility. Any sanitary facility must therefore conform to some certain hygienic conditions for it to be environmentally safe and hygienic. Agunwamba in 2001 stated that a sanitary facility should be culturally acceptable to the beneficiaries, environmentally friendly, affordable and sustainable. He added that good sanitation should not contaminate the surface and groundwater sources, should not admit flies, should not have smell and be unsightly, need minimum fresh excreta handling and be simple.

Diseases (pathogens in excreta) spread through hands, flies, enter food and from there directly enter human from hand to mouth which can be deadly to human life (WHO, 2004). In Sokoto state particularly, Sokoto city, motor parks, markets, workshops areas have all been served by public toilets which is making the environment neat and tidy and safe from diseases associated with excreta. There was a need to improve environmental health in the community; need to conform to religious demand for privacy while answering calls of nature; and need to adhere to religious requirement of cleanliness before praying. Sokoto is a predominantly Muslim state.

However, in recent times, most of these public toilets have been turned to another thing totally different from what they are expected to be. For example, some of these so-called sanitary facilities have been producing bad smell which constitutes an environmental pollution to the areas involved. Moreover visitation to some of the toilets by users revealed that heaps of excreta were left littering the toilet which thus generates maggot and flies.

Hand washing facilities were absent at most of the public toilets which means there are no adequate provision for post cleaning after defecation. This is no doubt a means by which disease-causing pathogens can be transferred. This research work therefore made effort at assessing the general conditions of hygiene of some selected public toilets within Sokoto metropolis so as to determine how suitable

they are, with a view to drawing reasonable conclusion about the toilet/user's relationship and its health implication.

Methodology

Data related to the research has been collected through both primary and secondary sources. Primary sources include the use of structured questionnaires and checklists while the source of secondary data includes relevant government agencies documents such as SEPA (Sokoto Environmental Protection Agency) etc. Preliminary survey shown that over 50 public toilets exist within Sokoto metropolis, out of which 31(thirty - one) were selected from areas of interest to the study.

Six numbers of toilets were selected at the Sokoto central market, one each at old market, kara and Tudun wada areas of Sokoto city. Also, two were selected at Sokoto central Motor Park, two at Dendima Motor Park and only one toilet at Kwannawa areas of Sokoto city. Two numbers were selected at Maituta road, two numbers at Koko road and two numbers at J'Allen for the benefit of the mechanic workshop. Lastly, for areas of high population density, a total of three toilets were selected, one at each of Marina, Ungwa Roggo and Sokoto Cinema all within Sokoto city.

The questionnaire used contained questions on attendants' bio-data (age, sex and qualification). Ownership of the toilet facility, year of construction, services rendered by the facility, average number of users per day, and cleaning up materials provided for the users. Also, questions related to sources of water for operations, toilet cleaning frequency, use of disinfectant for cleaning and the type used, visitation of inspectors and frequency of inspection as well as the type of excreta collecting systems which are all connected with hygienic state of the facilities. In the case of the checklist, fact on conditions of hygiene of an acceptable public toilet based on the best practices as explained by Sim (2009), were listed with options. Therein, were preset conditions like the facilities present, numbers of toilet/bathroom cubicles present, presence of separate urinals and type, excreta disposal method, internal wall and floor finishes, condition of wall and floor (clean, very clean, dirty and very dirty), presence of odor and production of flies and other insect. Facts were also sought on the presence of wash basin and waste bins and the appropriateness of toilets ventilation. Information gathered from this are therefore presented in the following section.

Results

The results obtained were presented in two forms based on the fact that the instruments used for data collection were questionnaire and checklist. The tables below summarize the outcome of the survey in a sequential order.

Table 1; Summary of Public Toilets' Attendants Bio-data

S/N	Description	No in Each Category	Percentages (%)
1	Sex		
	Male	31	100
	Female	0	0
2	Age (Year)		
	below 20	02	6.45
	between 20& 40	27	87.1
	Above 40	02	6.45
3	Academic Qualification		
	No formal Education	28	90.3
	O' Level	02	6.45
	OND/NCE	01	3.20
	HND/B.Sc.	Nil	0

Source; (Field Survey, 2010)

From table, 1 it could be deducted that 100% of the attendants were men; only 6.45% of them were below 20 years of age as well as above 40 years while 87% fall between 20 and 40years.

Table 2: Descriptions of the Public toilet facilities as obtained from the questionnaires

Descriptions	No in Each Category	Percentages (%)
Ownership of the toilet		
- Private	- 14	- 45.2
- Government	- 17	- 54.8
Age of the facility		
- less than 10years	- 10	- 32.3
- Above 10years	- 21	- 67.7
Services Rendered		
- Toilet alone	- 02	- 6.5
- Toilet and Bath	- 29	- 93.5
- Urinal alone	- 00	- 00
Average no of users per day		
- Below 100	- 08	- 25.8
- Btw 101&200	- 12	- 38.7
- Above 200	- 11	- 35.5
Cleaning up Material provided for users		
- Water	- 31	- 100
- Tissue paper	- 00	- 00
Source of water for operation		
- Tap	- 16	- 51.6
- Buying from vendor	- 15	- 48.4
Frequency of cleaning toilet, daily		
- Once	- 2	- 6.5
- Twice	- 6	- 19.3
- Thrice	- 12	- 38.7
- Often	- 6	- 12.9
- Irregular	- 7	- 22.6
Use of Disinfectants		
- Yes	- 23	- 74.2
- No	- 08	- 25.8
Visitation of Govt. officials		
- Yes	- 23	- 74.2
- No	- 08	- 25.8
Inspection frequency		
- Weekly	- 02	- 6.5
- Twice a week	- 07	- 22.6
- Monthly	- 07	- 22.6
- Twice a month	- 07	- 22.6
- No inspection	- 08	- 25.7
Frequency of Dislodging		
- Yearly	- 04	- 12.9
- Twice a year	- 08	- 25.8
- Once every 2-years	- 06	- 19.4

Source; (Field Survey, 2010)

The summary of information obtained from the sampled public toilets with the aid of Checklist is as shown in tables 3 and 4 that follows.

Table 3: Description of Public Toilet Facilities as Obtained with the Checklists.

Description	No. in Each Category	Percentages (%)
Type of facility present at the sampled public convenient.		
- Toilet only	- 02	- 6.5
- Toilet and bath	- 29	- 93.5
Toilets and Bath arrangement.		
- Combined	- 21	- 67.7
- Separated	- 10	- 32.3
Average no of cubicles.		
- 1- 5	- 13	- 41.9
- 6-10	- 13	- 41.9
- >10	- 05	- 16.2
Separate urinal present?		
- Yes	- 00	- 00
- No	- 31	- 100
Excreta Disposal method.		
- W/C with septic tank	- 00	- 00
- Pit system	- 18	- 58.1
- VIP latrine	- 01	- 3.2
- Pour flush	- 11	- 35.5
- Aqua privy	- 01	- 3.2
Cubicles' internal wall and floor finishes.		
- Tiled	- 01	- 3.2
- Plastered with sandcrete	- 30	- 96.8

Source; (Field Survey, 2010)

Table 4: Conditions of Hygiene as observed with the use of checklist.

Description	No. in each category	Percentages (%)
Conditions of floor.		
- Very clean	- 00	- 00
- Clean	- 02	- 6.5
- Dirty	- 09	- 29.0
- Very dirty	- 20	- 64.5
Conditions of wall.		
- Very clean	- 00	- 00
- Clean	- 03	- 9.7
- Dirty	- 21	- 67.7
- Very dirty	- 07	- 22.6
Odour strength		
- Strong odour	- 24	- 77.4
- Mild odour	- 06	- 19.4
- No odour	- 01	- 3.2
Flies production.		
- Much	- 23	- 74.2
- Not much	- 06	- 19.4
- Minimal	- 02	- 6.4
Wash hand basin present?		
- Yes	- 00	- 00
- No	- 31	- 100
Waste bins present?		
- Yes	- 07	- 22.6
- No	- 24	- 77.4
Appropriate ventilation?		
- Yes	- 01	- 3.2
- No	- 30	- 96.8

Source; (Field Survey, 2010)

Discussion

The discussions here are based on the result of the analysis of the surveyed public toilets.

Structures Housing the Public Toilets

For a public toilet to be hygienic and meeting the minimum international standard, the structure must provide privacy, internal wall and floor finishes must be good (preferably tiled), and there must be adequate ventilation.

Materials for construction and finishes; the internal walls and floors of the sampled toilets are made of concrete/ sand cement finishes except only one that is made of ceramic tiles which is conforming to international standard. None of the sampled public toilet provides appropriate ventilation.

Excreta Disposal Method

Assessment of excreta disposal methods were based on the criteria like handling of fresh excreta, production of flies and other insects, exclusion of odour and visual nuisance.

1. *Handling of fresh excreta;* all the public toilets that were sampled indicated the use of vacuum pump tanker in the evacuation of the pits. This to certain extent prevented the contact with fresh excreta.

2. *Production of flies and other insects' e.g. mosquitoes;* among the sample toilet 58.1% uses traditional pit toilet which account for production of more flies. During the assessment of this toilet, 74.2% of the whole samples produce many flies. The condition of hygiene of any public toilet threatened by the presence of much flies as flies act as the agent of disease transfer. (Franceys *e' tal* 1992).

3. Odour production; Production of bad odour by any toilet shows poor hygienic condition of the toilets facility. Odours are associated with pit latrines which forms 58.1% of the sampled / surveyed toilets in the Sokoto metropolis. Bad odour inconveniences the user, the attendants and the entire people living or working around the location of the facility. 24 out of 31 sampled toilets i.e. 77.4% produce strong odour, this shows that the majority of this toilets produce strong odour. Despite the fact that the attendants claim to be using disinfectant in cleaning, the toilets still produced bad odour. Bad odour produced by the toilets is not unconnected with the use of these toilets cubicles as urinal toilets.

Toilets/Bathrooms Arrangement.

Sim, (2009), explained that arrangement of toilet and bathroom should be in such a way that toilets are separated from the bathroom. This enhances easy usability and regulates exposure of user to health threat. However, 21(67.7%) of 31 sampled toilets have both toilets and bathrooms combined together.

Cleaning/Maintenance of the Toilets

Toilet cleaning /maintenance are very important in improvement of the condition of hygiene of public toilets. For these toilets to serve the intended purpose there should be regular cleaning, use of disinfectant, high education of the attendants or cleaners' education.

1. Use of disinfectant is very important in maintaining public toilets as it reduces the exposure of the users to infection from the excreta related diseases.

2. Jack Sim (2009) stated that the frequency of cleaning of public toilets in market squares, motor parks and other areas where the patronage is very high should be done every half an hour. From all the sampled public toilets within the metropolis, greater percentages says they wash once or twice daily while other do not have regular cleaning pattern.

3. Attendants' education; most attendants do not have formal education. This thereby may be responsible for their inability to maintain the facilities as they are expected to be maintained. It is very important for every attendant to at least have a basic knowledge of personal and environmental hygiene to keep them safe as well as the users of the facility they run.

Visitation of Sanitary Inspectors

One of the cardinal objectives of the sanitation programme is to make the environment safe for the inhabitants. This is the main reason why the health officers should make sure there is regular inspection to these toilet facilities. It was obvious that some people do visit the toilets but their names could not be ascertained. A further investigation shows that the visitors are not health officials but the tax collectors from the local government area within which each of the toilets belong.

Internal Wall and Floor Conditions

Clean and very clean floors and walls are essential for good hygienic condition of public toilets. Dirty and very dirty floors and walls are not hygienic for the users as well as the attendants and the general public. Very dirty floor give rise to flies production and bad odour.

Availability of Water for Toilets' Maintenance

Though, water seems to be adequate at many of the visited public toilets as about 48.3% indicated presence of enough water for toilets' cleaning. However, 51.6% indicated inadequate water for maintaining the hygienic condition of the facility. Inadequate water supply to the toilets makes it difficult get enough cleaning / washing water and subsequently lead to poor hygienic condition of the facilities.

Presence of Wash Basin

For the hygiene of the users to be guaranteed, there is need for the presence of wash basin at every public toilet. This will provide opportunity for the users to take good care of their hands after using the toilets. It is however observed that none of the sampled toilets have provision for hand washing after using the facilities. This is

dangerous to the health of users and the general public .Let us take the market people into consideration, who may use the toilet and any attempt not to take good care of their hands can easily lead to transfer of disease from their hand to the general public.

Presence of Waste Bins

Waste bins / buckets are very important in maintaining good hygiene of the public toilets most especially at places of where inadequate water supply is experienced which lead to finding alternatives in anal cleansing materials. Waste buckets collect the solid wastes generated within the toilets' environments and increases the cleanliness of the surrounding thereby creating conducive and hygienic environment for users. However, only 7(22.6%) out of 31 sampled toilets have waste bins present while the remaining 24 (77.4%) do not have. So, generally the public toilets environments are dirty and unhygienic.

Users Education and Awareness

Users attitude also contribute to the condition of the public toilet facilities. In the sense that, some users do not follow instruction. They litter the floor of cubicle with heaps of feaces as well as leaving their excreta in the squatting plate without flushing in case of pour flush toilets e.t.c. these actions of some users usually cause inconveniences to other users and the entire public. While rating the performance of users, attendants have rated their users in Sokoto metropolis as being fair as 74.2% indicated so.

Conclusions

Based on the result of the survey and the assessment made on the sampled toilets within Sokoto metropolis, the following conclusions are drawn;

1. Materials used for internal wall and floor finishes are not in compliance with the international standard
2. Excreta disposal method / on-site sanitation method employed are generally inappropriate as they encourage the production of flies, mosquitoes and other insects.
3. The practice of combining toilets with bathroom is dominant and it is a potential source of ground water pollution.
4. The general condition of hygiene of the wall and floor is poor.
5. Low level of attendants' formal education which brings about their low knowledge of basic toilet hygiene.
6. Inadequacy in the water needed to maintain the cleanliness of the facilities.
7. Inadequate visitation and inspection of health / sanitary inspectors to the facilities to regulate their activities.

8. Wash basin is generally absence in all the public toilets and inadequacy of waste bin in the public toilets was observed.
10. The provision of public toilets is seen as an economic ventures rather than providing environmental sanitation to the populace.
11. There is minimal use of conventional toilets/ sanitary facilities that are in compliance with the international standard.
12. Users' education related to sanitation is very low.
13. Toilets and bathrooms floors are commonly used as urinal which is highly unhygienic.

Recommendations

The following measures are recommended in order to improve the hygienic conditions of public toilets in Sokoto metropolis (both existing and subsequent ones to be built)

1. Government should enact a law, which will govern the design, erection and operation of public conveniences within the state as well as assign committees that will be implementing the law.
2. The use of pit direct or partly offset as on- sanitation method should be discouraged and all the existing ones should be upgraded to meet the international standard.
3. There should be proper visitation of the appropriate health / sanitary official who will from time to time inspect the activities of the toilets in the city.
4. Government should set a level of education standard for sanitation facility attendants so that illiterate will cease to be operating the public toilets. This will eliminate the inherent danger associated with no knowledge of sanitation by attendants.
5. Government as well as other stakeholders should see to the provision of enough water for the toilets operation as this will aid cleaning and general hygienic conditions.
6. Urinal toilets should be provided separately at different strategic locations in the city to prevent using the toilet floors as urinal toilets.
7. Finally government as well as other NGO's should shoulder the responsibility of public awareness / enlightenments on the proper use of public sanitary facility and the danger inherent in their wrong use.

If all the aforementioned recommendations are strictly followed there is going to be a great improvement in the general conditions of hygiene of public toilets within Sokoto metropolis and an improvement in public health in general.

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