

WATER SUPPLY, SANITATION AND HYGIENE PRACTICES IN EVBUOMORE/ISIHOR QUARTERS, BENIN CITY, NIGERIA

Eichie* C. E., Izinyon O. C. and Ihimekpen N. I.

*Department of Civil Engineering, Faculty of Engineering,
University of Benin, Benin city, Nigeria.*

**Email: eichieco@yahoo.com*

Abstract

The issue of sustainable water supply, conducive hygiene and sanitation practices has become a major recurring factor which plays a key role in community sustenance in small communities across developing countries especially in sub-Saharan Africa. This study investigates the water supply availability, sanitation and hygiene practices in Evbuomore/Isihor community in Benin City using data collected from technical assessment and Participatory Hygiene (PHAST) methodology developed by UNICEF. Our results indicate inadequate water supply system and poor drainage facilities, poor sanitation and hygiene practices and low level of public awareness on the public health concern of these poor practices in the study community hence the study recommends regulation of private borehole drilling in the provision of potable water supply, provision of adequate drainage system for stormwater management, enforcement of existing sanitation laws and embarking on public enlightenment on the dangers of identified poor practices.

Keywords: Water Supply; Hygiene, Sanitation, Toilets, Herminth, Disease

Introduction

Water is a basic human requirement for living. The human body is made up of 70% water. People begin to feel thirsty after a loss of only 1% of bodily fluids and risk death if fluid loss is close to 10% (Park, 2002). A daily water supply of 140-160 litres per capita per day is considered adequate to meet the needs for all domestic purposes (Gleick, 1996). Man needs water for drinking, cooking, bathing, sewage

disposal, irrigation for agriculture, industrial uses and for recreational purposes amongst many other uses. Without water no society can thrive, people would wither and die (Joanne, 2000).

According to Antonio (2005), more than 1.2 billion people in the world still lack access to safe drinking water and 2.6 billion of the world's population lack access to basic sanitation. Barney (2005) noted that, over the next 30 years, virtually

all of the world's population growth is expected to be concentrated in urban areas in the developing countries, in which Nigeria occupies a vital position, with its attendant socioeconomic and environmental impact. Hand washing after defecation and before preparing food is effective in reducing disease transmission, but without abundant water in or near homes, hygiene becomes difficult or impossible. The lack or inadequate action of water supply and sanitation has been implicated as reason why diseases transmitted via faeces are so common in developing countries and the most important of these diseases, diarrhoea and intestinal worm infestations, account for 10% of the total burden of diseases in developing countries (Park, 2002).

Water is not only a vital environmental factor to all forms of life, but it also plays a great role in socioeconomic development of human populations. It is in recognition of this that the 34th World Health Assembly in 1981 made a resolution emphasizing that safe drinking water as a basic element of "Primary Health Care" is key to the attainment of Health for all citizens of the world (USAID, 1990). Sanitation is a measure that is undertaken to protect health.

Water poses an essential commodity for the growth, development and general sustenance of life existence, therefore its needs cannot be overemphasized and hence the need for the provision of safe drinking water. Lack of access to water is a major problem in Africa than anywhere else. Of the 25 nations in the world with the greatest percentage of people lacking access to safe drinking water, 19 are in

Africa (WHO, 1995).

In the context of the water and sanitation sector in Nigeria, rural communities have populations less than 5000 and usually do not have electricity, pipe water or tarred roads. The national standard of water consumption for rural areas is currently 30litre per capita per day and access to safe water and sanitation is put at 48% and 44% respectively (MICS, 1999). Obtaining potable water all year round is a problem in Evbuomore/Isihor; a fast growing peri-urban community in Benin City with an estimated population of 10,000 persons made up of mixed tribes with varied occupations ranging from civil servants, public, private individuals and peasant farmers. Benin City is an urban agglomeration with a population of about 1.2 million people (Brinkhoff, 2010). Due to the rapid rate of population growth in Evbuomore/Isihor community, there is a corresponding demand for basic amenities of life such as potable water supply. However; there is a corresponding increase in generation of wastes (especially waste water) without adequate provision for proper disposal and also heavy flooding takes place during the rainy season (Okaka, 2000). Industrial pollutant activities include rubber, timber and wood processing (Obi, 1994). Indiscriminate disposal of wastes such as waste water within the communal environment poses a future threat of epidemic out-break of water borne diseases such as cholera, diarrhoea and typhoid. An earlier cross-sectional descriptive study undertaken in Egor Area of Benin City, Edo State, Nigeria to assess the effect of sanitary provision and hygiene

practices on intestinal heminth burden of primary school children revealed that in most of the schools surveyed, refuse dumping, was a prevalent practice and that pit latrine was the common toilet provided in the schools (Wagbatsoma and Aimuwu, 2008). Again, stagnant water in the environment encourages breeding of mosquitoes with consequent infestation of malaria and rodents. Indiscriminate disposal of faecal matter and other waste materials posed a major contaminant of the surrounding aquifers, thus making such water unfit and unsafe for human use.

Community participation is very central to sustainability of environmental services without which there is little likelihood of sustainability being realized (Narayan, 1995; Onyesiku, 1998). It is the position of Abrams (1996) that community engagement and empowerment contributes to the sustainability of water supply and sanitation services hence inhabitants particularly young people of Evbuoumore/Isihor community were major players in assessment of environmental services especially as according to UNICEF (2003) the goal for children and young people is not only to increase their participation but also to optimize their opportunities for meaningful participation.

Methodology

The assessment of water supply, sanitation and hygiene for the community was carried out using the Participatory Hygiene and Sanitation Transformation (PHAST) as developed by USAID (2003). The Participatory Hygiene and Sanitation Transformation (PHAST) approach has the objectives

of improving the hygiene behaviours to reduce diarrheal disease and encouraging effective community management of water and sanitation services. The study design used was a cross-sectional study, which sought to describe the status of hygiene behaviour relevant to water provision and sanitation promotion at one point in time by administering questionnaires to secondary school students. This approach was chosen over other designs because it is simple, straight forward and allows for qualitative analysis of the sanitary/hygiene practices of the inhabitants. One thousand secondary school students between the ages of 13 to 18 years attending either of two selected schools in Evbuomore/Isihor Community were used since they were representatives from different homes in the locality.

A self administered child friendly questionnaire was the main tool used to collect data. The questionnaire was constructed using a perceived education model. The construction idea measured the predisposing, enabling and reinforcing factors in the questionnaire. Diagrams were also used during the process for better understanding of ideas. A focus group discussion was done with one class, and a random selection was done to pick students who filled the questionnaire, for each school. This was done to assess the level of interest exhibited by the children. The focus guide was developed from the child friendly questionnaire. The discussion allowed one to explore the range of opinions/views on hygiene. As earlier applied in previous studies by Isah (2007), intervention in the form of health education

was also carried out among the respondents on various environmental sanitation issues.

The hygiene enabling facilities in the schools were assessed through a structured observation checklist at each school in terms of availability of waste bins, hand wash solutions, wash hand basins, toilet facilities and maintenance of sanitary facilities. Site visitation was also carried out to parts of the community to check the level of water supply available. Issues of interest in the visit and which were recorded included the sources of water supply to inhabitants, whether it was from rivers, boreholes, roof water catchment or water vendors or public water supply. Also checked were whether they used any form of water storage and disinfection system. Also recorded in the visit was the type of sanitation practice carried out, whether central sewerage system existed, on-site sanitation (septic tanks, pit latrines) and how regular they get water from the public water supply system if it existed. The objective of the visit was to carry out informal assessment of the existing situation so that an improved system can be designed if necessary.

Pre-test on validity of the Research Instrument

A pre-test was done on the methodology at a local school in Evbuomore community. The test was done in sequence to assess content validity so that the objectives of the study were met. This was also done to assess if the diagrams used and the research instrument were suitable for the targeted study population and the time available for students to complete the questionnaire.

a. Field visits to schools for data collection.

A brief introduction on the importance of water, sanitation and hygiene was done. The students were also made to understand the essence of these basic practices through stories about everyday life. The teachers of the respective classes in concern also helped in the control and organisation of the students. Data were collected from the two schools in Evbuomore and Isihor from March to July, 2012.

b. Data Management

Data were checked for completeness and consistency at the point of collection on a daily basis. This was done by analyzing each questionnaire critically. Checks for completeness, errors and internal consistency continued during data processing. However incomplete questionnaires were assessed and if too much data were missing the questionnaire was discarded to avoid bias.

Ethical Methodology

The research process was guided by the following considerations:

- i. Informed consent was sought from respondents and permission granted by the school authorities to interview their students.
- ii. Informed consent was sought from the school children as a majority were below 16 years of age.
- iii. Anonymity- the names of study subjects were not used to ensure anonymity of respondents.
- iv. Confidentiality- responses from

study subjects were kept in strict confidence and only used for the purpose of the study.

Results and Discussion

During a brief interactive session with the students, it was perceived that a good number of students were able to differen-

tiate good hygiene practices, and sanitation from improper hygiene/sanitation practices. Areas were spotted where open defecation occurred such as uncompleted buildings, shallow gutters around residential areas, bushes around the stream.

Table 1: Demographic information on the respondent

Parameters	Number
Number of questionnaires administered	1000
Number of questionnaires retrieved	860
% respondents	86

Source: Field data, 2012.

Out of a total number of 1000 questionnaires distributed in both schools, 860 questionnaires representing 86% were retrieved from respondents as can be indicated in Table 1.

Other observations as could be seen from the study in Table 2 included the following:

- (i) Over 40% of the respondents indicated that the waste water and refuse generated was disposed into nearby pit/moats and running water such as stream within the community.
- (ii) Most of the waste water from toilets & sometimes kitchens which were not adequately channelled (most times towards the road) causing stagnant water in the surrounding environment.
- (iii) Absence of good drainage systems

in many areas leading to stagnant waters along the road.

- (iv) Major sources of water were obtained from rain harvest and water vendors (water tankers) which were stored in wells, and they constituted 51% and 36% respectively. There was no pipe borne water in the community. The study revealed that about 10% of the people depended on private boreholes. The boreholes were constructed by simple hand drilling without any regulatory checks for standards construction including siting adequacy with a potential to predispose consumers to public health issues if not properly constructed.
- (v) Also only about 10% of the

respondents indicated that they do any form of water treatment and the method used was boiling/filtration

before consumption. A summary of the responses and the percentages is presented in Table 2.

Table 2: Analysis of responses on Water, Sanitation and Hygiene Conditions

Variables	Number of respondents	Percentage (%)
Type of Toilet Facility		
Water closet system	206	24
Bucket system	95	11
Pit latrine	111	13
Others (including open defecation)	448	52
Mode of Waste Disposal		
Refuse collectors (Waste Management Board)	129	15
Surrounding (bush, pit, moat)	577	67
Stream	154	18
Hand wash after defecation/before eating		
Yes	283	33
No	577	67
Practice of water treatment before use		
Yes	88	10
No	772	90
Any previous history of diseases (any) suffered		
Yes	636	74
No	224	26
Total	860	100
Type of disease suffered		
Malaria	482	56
Diarrhoea	232	27
Chicken pox	52	6
Ringworm/Eczema	94	11
Total	860	100

Conclusion

From the study carried out the following conclusions are made:

- (I) The water supply to the people of the community is inadequate and there

is non-existence of pipe borne water.

- (ii) There is no sufficient awareness in the need for treatment of water before use.

- (iii) Inadequate storm water drainage systems also exist in the community.
- (iv) Existing method of waste water and solid waste disposal is unsatisfactory.
- (v) Awareness in basic sanitation and hygiene practices is still very low and rudimentary.

Recommendations

Arising from the study the following recommendations are made:

- (I) There is need to extend pipe borne water to the community. Hence, the local government should support in providing a sustainable means of potable water supply systems such as wells and pipe-borne systems (hand pumps) to be managed by the community. This would increase community participation thereby enhancing self sustainability. Again, Local Government support should also be sought for in providing good toilet systems and drainages as this would reduce the practice of open defecation and indiscriminate disposal of refuse and waste water.
- (ii) There should be regulation on the construction of private boreholes in terms of persons to drill the wells, correct siting of wells in terms of location and spacing, depth, maintenance on wells, etc.
- (iii) Enforcement of sanitation laws is advocated.
- (iv) There is need for public awareness through health education on the

need for safe sanitation and hygiene practices.

- (v) Practically, the community should be empowered through health, hygiene education and sensitization programmes/schemes. Women and children should be encouraged to participate fully in programmes such as these. Aids from external bodies such as World Health Organisation, Water Aid, etc could be sought for in achieving this.

References

- Antonio G. F, (2005). The European response to the challenges of water and sanitation in developing countries: In TRIBUNE, the document of European Commission.
- Barney, C. (2005). Urbanization in Developing Countries: current trends, future projection, and key challenges for sustainability. *J. Technol. In Soc.* 28: 63-80.
- Brinkhoff, T. (2010). City Population. <http://www.citypopulation.de>
- Gleick, P. (1996). Basic Water requirements for human activities: Meeting basic needs. *International Water*, 1996; 21(2): 83-92
- Joanne G. Global Environmental Outlook, 2000, UNEP
- MICS (1999). Multiple Indicator Cluster Survey, WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation.
- Narayan, D. (1995). The Contribution of People's Participation: Evidence from 121 Rural Water supply Projects. *Environmentally Sustain-*

- able Development Occasional Paper Series. No. 1, World Bank, Washington DC, USA.
- Obi, R.U. (1994). Urban agriculture in Benin City, Nigeria: A study of small scale crop farmers. : *Dialog* 4(43): 40-43.
- Oyesiku, O. O. (1998). *Modern Urban and Regional Planning Law and Administration in Nigeria*, Kraft Books Limited, Ibadan.
- Park, K. (2002). Environment and Health In: *Park's Textbook of Preventive and Social Medicine*. 2002 Edition (17)
- UNICEF, (2003). *The state of the world's children, 2003: Children must be heard*.
- United Nations Children Fund, (2003). *Waterfront*. A UNICEF publication on water, Environment, Sanitation and Hygiene. UNICEF, Geneva, issue 16, 2003; 2-42.
- United States Agencies for International Development (USAID), 1990. *Participatory Hygiene and Sanitation Transformation. Strategies for drinking water and sanitation programmes to child survival*. Washington D.C.; USAID; 1-62.
- Wagbatsoma V.A, Aimiwu U (2008). Sanitary provision and helminthiasis among school children in Benin City, Nigeria. *Niger Post-grad Med J*. 2008 Jun; 15(2):105-11.
- WHO (1995). *Bridging the gaps, The World Health Report, 1995* (41).