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

**Pointed gaps in the provision, quality, patronage
and management of toilet facilities in Bawku East District**

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The objective was to assess the level of sanitation and hygiene with baseline information on the impact of on-site sanitation facility development on public health in the Bawku East District using hundred and sixty eight (n=168) respondents from five randomly selected communities according to UNICEF water and sanitation support programs for a survey. Public latrine alone accounted for 43% patronage of toilet facilities in the district. Unfortunately, about 70% of the population who preferred household toilets rather patronized open defecation due to poverty and inadequate good toilet facilities at user ratio of 1: over 500 people with very low seat capacities. Among the subjects encountered, 42% were unskilled labourers whilst 27% students, who, could hardly afford the comfort of household toilet facilities.

Introduction to the problem statement

The increasing popularity, provision and proper usage of on-site sanitation facility (latrines, KVIPs, etc.) and other waste disposal sites in the Bawku East District (BED) by renowned Non Governmental Organizations (NGOs) and development partners such as UNICEF is of great importance in any community in order to improve the health of the people. However, the choice of sanitation technology depends on a number of economic, technical and social issues. Generally, in communities where ground water is used for domestic and drinking purposes and at the same time on-site sanitation happens to be the choice for excreta, and household refuse disposal, there is a growing concern that the widespread use of on-site sanitation systems may contaminate the sub-surface water, ultimately resulting in disease transmission and environmental degradation (Ali, 1996).

There is therefore, the urgent need to investigate the gaps in the provision, quality, patronage and management of on-site sanitation options as a waste disposal method on public health in the Upper East Region particularly, in the Bawku East District with a fast growing estimated population of 307,907 (GSS 2002) where a lot of pressure is exerted on the scarce toilet facilities. This paper summarizes the findings and important lessons learnt and suggest recommendations for development workers and policy makers for consideration.

**Challenges of sanitation development in Upper East Region
and Bawku East District of Ghana**

High population growth, unhygienic practices such as opens defecation, burial of corpses closer to wells and boreholes etc, pose significant environmental/public health hazards to humans (BMA 2006).

Conceptual framework of the research

The *main objective* was to assess the level of sanitation and the people's understanding of hygiene in Bawku East District at a random survey involving one hundred and sixty seven (n=167) respondents from five communities selected according to UNICEF supported Integrated Community Based Development Project and the distribution of water and sanitation facilities. The results could serve as a comprehensive report for UNICEF hygiene and sanitation development field workers, a guide for development of technical documents to regulate, monitor and manage the sustainable use of toilet facilities in rural peri urban communities in Ghana and other developing countries.

Methods of sampling and data analyses

The population of Bawku East District alone with a land size of 2,134 square kilometres is about 307,907 and is 84% rural even though research on population and development reveals that the upper east region in its entirety has a population of 917,251 with a growth rate of 5 % per annum (GSS 2002). The Bawku East District lies within the Sudan Savannah zone and experiences a single maximum rainfall regime of 115 mm between May and October and mean temperature range of between 28°C to 32 °C (Dickson *et al.*, 1980). One hundred and sixty eight (168) sets of questionnaires were administered in the five selected communities along side physical observations and documented photographs to ascertain baseline information on the impact of on-site sanitation facility development and other land use forms on public health. A balanced composition of the people selected from each community for the study was based on the population distribution, educational status and gender type, thus: Mognori (29), Worikambo (30), Bugri (28), Binduri (34) and the Bawku Municipality (47) as shown in Figure 1. Majority (87.5%) of the respondents who were above 20 years of age, were either permanently working or resident in the five communities at the time of questionnaire administration. The questionnaires were analyzed using Statistical Package for Social Scientists, Version 13.0.

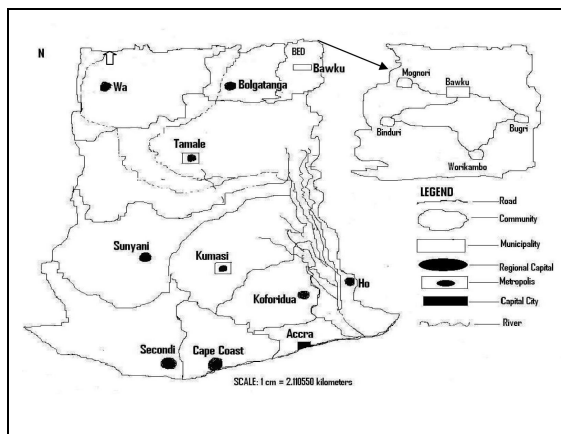


Figure 1: Map of Ghana and the Bawku East district showing the communities from where the surveys were conducted

Source: Ben Tiimub's KNUST/UNICEF Field Survey, 2006

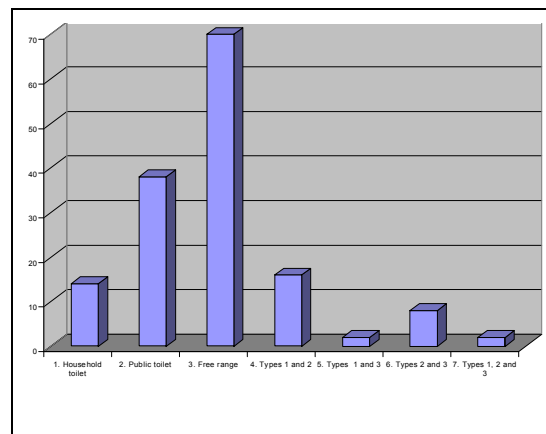


Figure 2: Percent (%) total distribution of toilet facility patronized in five peri urban communities of the Bawku East District

Source: Ben Tiimub's KNUST/ UNICEF Field Survey, 2006

Results and discussion

The scale, quality, patronage and management of on-site sanitation facilities

Toilet facilities encountered in the survey area include public, household and surface latrines (open pits covered with durable sticks on the surface to enhance squatting and ease defecation). The use of surface latrine alone accounted for about 43% of the patronage of toilet facilities in the district. Majority (about 70%) of the respondents patronize open defecation due to inadequate sanitation facilities revealing a toilet to user ratio of 1: over 500 people with very low seat capacities. The levels of poverty and underdevelopment could account for the high patronage of surface latrines in the area (BMA 2006). Majority of the subjects

encountered were either unskilled labourers (42%) or students (27%) who could hardly afford the comfort of household toilets even though they preferred that as compared to the other available options such as open defecation, public and surface latrines.

Sanitation problems identified with the types of toilet facilities were varied and included: Breeding of houseflies due to untidy nature of public toilets in particular; creation of dirty surroundings following the conversion of toilet premises into refuse dumps; consequently leading to breeding of rodents, flies, various household pests and disease outbreaks (CDC 1991). The free range/open defecation system contributes to breeding of houseflies, outbreak of cholera and diarrhoeal diseases whilst the public toilets were mentioned to be inconvenient due to lack of regular cleaning, privacy, repairs and draining of faecal piles. In most residential areas it produces a lot of unpleasant/offensive odors to the people and even had inadequate spaces due to smaller seat capacities (BMA 2006). It often filled up within short periods of time and requires very frequent draining. At worst, domestic animals feed or play with faecal matter from the public toilet vicinities and return home with several pathogens, underlying the causes of some contagious diseases often passed on to both children and adults in endemic societies of zoonosis (CDC 1991).

Besides, various unhygienic practices such as spitting and filthy defecation lifestyles, coupled with muddy growths or maggots proliferation were commonly visible in public toilets. The lighting systems in most toilets were said to be poor. Consequently, some people who refuse to patronize the facility at night rather practice open defecation which leads to the incidents of diarrhoea and cholera (CDC 1991). Hence, rain water transport sediments and faecal materials from toilets and waste dump points to pollute surface and sub-surface water bodies down streams whereas other contaminants pollute groundwater through seepage of leachates into aquifers (WHO 2003).

The survey revealed that 89.2% of the population in Bawku East District uses the immediate environment around toilets as refuse dumps and 90.4% of the respondents percept that this phenomenon contributes to breeding of rodents and other household pests. Unexpectedly, 64.7% of the population viewed that the toilets were located less than 50m closer to water wells while 93.4% of those interviewed opinionated that toilets located closer to wells could contribute significantly to groundwater pollution contrary to the perceptions of a smaller section of the population (6.6%) in Bawku East district.



Photograph 4: A typical KVIP in Bawku serving as a garbage dump, located adjacently to 2 wells

Source: Ben Tiimub's KNUST/ UNICEF-Field Survey, 2006

Some wells were sited close to toilets and major drainage systems choked with piles of garbage and liquid wastes. In instances that pit latrines and drainage systems were sited on high elevation but closer to wells, groundwater contamination with nitrates and ammonia, during heavy rainfall had been observed in France, Gambia and Uganda (Barrett and Howard, 2002) following leakages from bases of pit latrines and drainage systems. A vertical safety distance between wells and latrines will depend on the prevailing soil permeability and structure as well as the water table (ARGROSS, 2001). This highlights the necessity of implementing sound social sanitation marketing principles through integrated approaches such as Participatory Hygiene and Sanitation Transformation (PHAST) models towards the management of water and sanitation facilities in deprived communities confronted with high population growth.

Recommendations and comments on lessons learnt:

Towards proper development and management of toilet facilities in peri urban communities:

(a) Management strategies:

Design standards: UNICEF/KNUST should intensify its social sanitation marketing programs whilst exploring realistic avenues to organize more appraisal workshops for sanitary engineers to:

- avoid siting toilets in water logged areas to improve patronage and environmental sanitation and additionally, canvass for an increase in seat capacities in public toilets to avoid congestion.
- Good drainage systems should be constructed to channel waste waters from public and household toilets to appropriate disposal end probably a sewerage or waste water treatment plant.
- Concrete lining should be made at the bottoms and sides of dugouts used for the construction of pit latrines to avoid seepage of leachates to pollute groundwater. Water wells should be sited up streams beyond 50m from toilets and refuse dumps. Thus, KNUST/UNICEF should partner with communities and stool lands to release more land at appropriate sites for such developments.

Municipal functions:

- KNUST/UNICEF advocates that, within the local governance development agenda, where public latrines are provided, it should be a water tight latrine with dislodging option (septic tanks).
- The Bawku Municipal Waste Management Department should ensure proper handling of solid wastes collected from households and toilets premises using refuse bins to bulk it at vantage points at the community level with the corresponding disposal practice.
- The Municipal assembly should employ cleaners to assist with regular cleaning of public toilets and acquire more waste management vans to facilitate frequent carting of solid wastes and draining of public toilets.

Private sector operations:

- KNUST/UNICEF advice and encourage that where communities are densely populated and space is a challenge, concerned private entrepreneurs should invest in the development of safe public toilet facility as useful business to trigger and improve upon access to sanitation in rural areas.

Community management aspects:

- KNUST/UNICEF should partner with the local town councils to raise funds for construction of improved toilet facilities. As part of corporate responsibility they should educate the communities to organize routine clean up exercises around the toilets. i.e. much emphasis on safe environmental practices and safe latrine usage must be regarded.
- KNUST/UNICEF provides communities with base line data to enable them appoint committees to manage affairs in relation to operation and maintenance of public toilet facilities. It is ubiquitous; to further strengthen their capacities to introduce public-private-partnership in the management of pit latrines.
- KNUST/UNICEF should help the Bawku Municipal Assembly develop a realistic criterion for appointment of people in rural communities to collect public toilets user fees to cater for daily operations

and maintenance costs. These funds should be used to procure disinfectants for regular cleaning or disinfection of toilets.

(b) Management policies:

- UNICEF and other development partners should provide district environmental officers and sanitary inspectors scheduled for routine duties at the communities with means of transport (motor bikes) and build their capacities through community hygiene management workshops to embark upon vigorous sanitation campaign and monitoring programs to change peoples' perceptions or local beliefs, encourage patronage of improved toilet facilities and reduce incidents of open defecation.
- KNUST/UNICEF should entreat the Bawku Municipality to strictly enforce sanitary by-laws in the form of arrests and imprisonment of offenders at the local community level in order to stop open defecation and irresponsible attitudes of waste management.
- UNICEF to ensure that appropriate engineering techniques are sought and applied to avoid shoddy work done in terms of contract specifications for their sponsored toilet development pilot programs in the peri urban communities. Management and maintenance schemes should be drawn to ensure periodic siphoning and repairs of toilets by district assembly environmental department.
- The Bawku Municipal Assembly should foster introduction of open-defecation free communities as a sign of moving towards sanitized communities based on the sanitation ladder approach.

Conclusion

The efforts to improve global water and sanitation supplies as part of the Millennium Development Goals (MDGs) to prevent water related diseases has been heralded by UNICEF in Ghana, leading to provision of water and sanitation facilities in rural and periurban communities of Bawku East District of Upper East Region. However, the poor management of some of the facilities vis-à-vis the unsightly dumping of human and house hold wastes still pose significant public/environmental health threats in areas of the district where there is land limitation, flood disasters and ethnic conflicts. Generally, housing and construction should include toilet facilities in building plans to improve upon human waste disposal. It is therefore worth knowing that technology alone cannot overcome the challenges of meeting the MDG targets on water and sanitation unless it is supported by a strong social and behavior change component.

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Note

Pollution – contamination of the land, water and air due to direct and indirect activities of humans.

Keywords

Pollution, groundwater, open defecation, surface latrine, KVIP, sanitation, hygiene.

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