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**WEST AFRICA REGIONAL SANITATION AND HYGIENE SYMPOSIUM**

**Sanitation in Basic Schools- A Case Study in Tano South District**

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*Abstract*

*The Ghana education policy requires all schools to have adequate sanitation and safe water facilities. However, the states of these facilities are not known due to poor monitoring practices. This study therefore sought to determine the existing sanitation conditions of toilet facilities and other sanitary facilities like urinal and solid waste disposal systems available. In addition, the hygienic practices on the school compound were also examined. Out of the 30 selected schools 53% were without toilet facilities while 83% were without safe water on site. Majority of the schools burned their waste on the campus during teaching periods. It was observed that all the students wash their hand before eating but 30% wash their hands with soap while 70% do not use soap in washing their hands before eating. After collecting refuse with their hands, 24% wash their hands with soap, 54% wash their hands without soap and 22% do not wash their hands at all. When a weighting system was developed, 9 schools scored between 21 and 34 out of 40 for sanitation facilities. The rest were in the range of 7-19. Sanitation practices were fairly good apart from 3 schools which scored between 64 and 67 out of 140. The others ranged from 71 to 118. For Food vendors on the schools' premises 10 of the schools scored 50% of the waiting system. Sixty five percent of the SHEP Co-ordinators were not performing their duties effectively due to lack of funds, facilities, personnel and logistics.*

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**Introduction**

The importance of sanitation in the development of every child cannot be over emphasised. Good health and environmental sanitation in schools and institutions of higher learning could only be achieved if schools with access to adequate toilet facilities and drinkable water could be 87.7% and 77.7% respectively by the end of the year 2010 (MOEYS/GES, 2003). The actual sanitation situation on the ground however is not known in most schools.

Ghana faces serious constraints in meeting the challenge of providing adequate water and sanitation for its rural and urban inhabitants (Awuah, unpublished). About 51% and 10% of the Ghanaian population have gained coverage of drinking water and sanitation respectively (WHO/UNICEF, 2008). Lack of basic sanitation combined with poor hygiene each year contributes to the deaths of approximately 15000 Ghanaian children under the age of five from diarrhoea diseases ([www.unicef.org](http://www.unicef.org), 2007). Research shows that more than 40% of the diarrhoea cases can be avoided if hand washing is done at critical times (Bolt and Cairncross, 2004).

Despite these stark statistics however, coverage of sanitation and the awareness about hygiene in schools are very low. Contrary to the Ministry of Education, Science and Sports and Ghana Education Service policy which requires that every school should have sanitation facilities, estimates show that 31% of the schools were without toilets (Ghana Education Service, 2003).

In the Tano South District, the actual sanitation challenges are not well known in most schools. The problems of sanitation if well documented can lead to better sanitation practices in the district and create awareness for policy makers and the Heads of schools to sit up to the tasks outlined in the School Sanitation Policy in Ghana. Considering the these challenges, it was expedient to consider the following

as the specific objectives of the research: to assess the existing situations of human excreta, solid waste facilities, water supply situations; to determine the hygiene behaviour and practices of pupils and the food vendors on schools' premises; and to examine the activities of School Health Committee's established in the schools based on the sanitation policy.

## Methodology

### Study area

Tano South District is the gateway to Brong Ahafo Region in Ghana. It has a current population of about 70,000 people. The communities and small towns in the district are Bechem, Techimantia, Derma, Brosekro, Kwame Nsiakrom, Akuradadaa Biokrom Kwasu, Breme, and Mansini (fig. 1). The main activities of the people are farming and trading. Also there are employments in institutions such as Hospital and health Centres, schools and Banking. The topography of the land is undulating with many primary natural drains in and around the communities. Bechem and Derma are been supplied with water from Community Water and Sanitation Agency (CWSA) projects while Techimantia has water from Ghana Water Company Limited (GWCL).

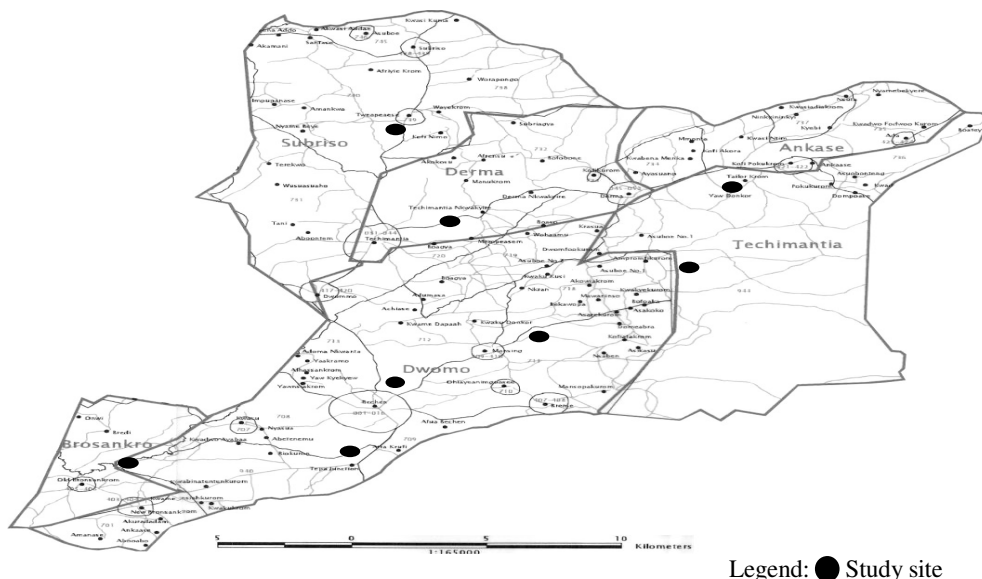


Fig 1: Map of Tano South District

### Data Collection

Structured questionnaires were administered to pupils from the schools to solicit for information on the existing solid waste and human excreta facilities, and water supply in the schools in terms of quality, quantity, appropriateness, and operations and maintenance of sanitation facilities. Thirty schools (primary and Junior High School (JHS)) were involved in the study. Also, 60 food vendors in the schools were interviewed on hygienic behaviour and practices. Data from the Out Patients Department records on water and sanitation related diseases were collected from all the health institutions (i.e. Bechem Government Hospital, Techimantia health centre, Dermaa health centre and Brosankro health centre.).

Stakeholders of Tano South District Assembly, Parents Teachers Association in some schools, Headteachers and Health teachers of some schools, Regional Community Water and Sanitation Agency, and Distinct Director of Education and District SHEP Coordinator were interviewed using designed check list.

Random inspections without prior notice were made to the schools to access and ascertain sanitation behaviour and practices. Also, field visits were made to observe the location of water and sanitation facilities in the community and schools and their accessibility to pupils. These visits were possible with the assistance of the School Health Coordinator employed at the District Assembly.

### Data analysis

A weighting system for indicators of facilities and hygienic practices were used to measure the overall sanitary performance of the schools. Indicators used were availability of toilet facilities, urinal facilities, water facilities, hand washing facilities, and waste collection facilities. The others are hand washing of children before and after eating with and without soap, refuse disposal methods, and food vendors' practices. Basis for assigning weights to indicators to measure availability of facilities were type of technology, quality of facilities, presence or absence of structural defects, reliability, aesthetics, gender considerations, closeness to school, cleanliness of surroundings, and hand washing with and without soap.

Rating(R) = Number of Respondents (N) \* weight assigned to facility/Practice,

Where n is number of indicators for a facility / practice. Weighting ranged from zero to five.

Total score =  $\sum_{i=1}^n R_i$  (i=1,2,3...n), for each school

Weights were assigned to indicators for practices based on behaviour and practices that are safe and hygienic. This implied that high quality practices were assigned high scores.

### Results and discussion

#### Toilet and Urinal facilities

Forty seven (47) percent of the schools had toilet facilities in the school while 53% had no toilet facilities. The toilet facilities comprised of 17% two-seater KVIP, 17% six-seater KVIP, and 13% pit latrine. This was very low in the District comparable to the expected 70% by the Ministry of Education, Youth & Sports and National Development Planning Commission Operation Manual for Education Planning, Budgeting, Monitoring and Evaluation at the District Level (2003). The remaining 53% used public toilets which were about 250 to 400 m away from the schools. They sometimes use the toilet facilities in nearby sister schools resulting in congestion of the facility at these locations.

The two-seater and six-seater KVIP were both used by 5 schools with enrollment between 200 and 260 pupils. The least number of pupils per squatting hole for the two-seater and six-seater KVIPs were 100 and 82 respectively. These were above the recommended 50 persons per squatting hole by Community Water and Sanitation Agency (CWSA, 2004). The pit latrines were in poor conditions, unhygienic and unsafe for the pupils especially those at the Lower Primary. There should definitely be a new design for children especially with regard to the size of the squatting hole. No school had adequate toilet facilities except Akobro Community JHS where the number of persons per squatting hole was less than 50.

The common anal cleansing materials used by pupils were old/used exercise books. These have very serious implications, since the pupils lose materials which could have served as reference materials. However, the anal cleansing materials were burnt daily.

All the schools visited had urinal for both boys and girls, except Dwomo Community JHS which had no urinal at all. Some of the urinals were not hygienic. About 70% of the schools had urinals without proper drains while 27% had urinals with drains. This created unhygienic surroundings inside and outside the urinal resulting in odour nuisance. Some basic schools in the Volta Region have started the collection of urine for school farms and this is worth emulating.

Indicator weighting system for sanitary facilities based on hygiene, convenience, adequacy and technology type showed that 15 schools had total scores between 10 and 14 points out of 15 points for availability of human excreta facilities. These were the schools with hygienic and adequate toilet and urinal facilities for boys and girls which were close to the pupils. However, the schools without toilet facilities had low points of 6 and 8, since the schools had only urinals.

#### Solid waste facilities

From the study, 18% of the schools owned dustbins with lid, 23% had dustbins without lid, 12% used basket, and 47% had no dustbins. It was observed during the field visit that the schools without the bins had littered their compound with polythene and papers during school hours creating unsightly environment and insanitary conditions. Dust bins and dust pans are essential for refuse collections in schools to always ensure good sanitation and hygienic practices and behaviours of pupils. The basket used

as litter bins were opened hence, the waste was scattered on the compound by the wind. The environment of the schools using dustbins with lid was hygienic.

Indicator weighting system for solid waste facilities disposal methods based on hygienic status, convenience, adequacy, and technology type showed that 12 schools had total scores between 8 and 10 points out of a maximum of 10 points for solid waste collection facilities and disposal methods.

### **Water and Hand washing facilities**

Seventeen (17) percent of the schools had water facilities on campus. These were a hand dug wells with hand pumps and 4 mechanised boreholes. About 3% had rain water harvesting facility while 80% fetched water from public stand pipe and boreholes, or mission houses. The coverage in the District was relatively low comparable to the 77.7% expected to be achieved in Ghana by 2010 (MOEYS/GES, 2003). All the schools with water facilities were in Derma community which had benefited from CWSA projects, except Techimantia Holy Trinity.

None of the schools visited had proper hand washing facilities prescribed by the Ghana Education Service (GES) though, 60% of the schools visited had hand washing facilities and 40.0 % did not have any. These were facilities such as communal washing bowl, with towels or napkins, and soaps, where every child washed his/her hands in the same bowl and wiped the hands with the same towel. This method of hands washing could cause may be worse than before if people do not wash their hands properly. This increases the chance of diseases transmission.

The indicator weighting system for water and facilities based on hygienic status, convenience, adequacy, and technology type indicated that 2 schools had a total score between 10 and 12 points out of 15 points with 19 schools obtaining zero or 2 points. This indicated that all the 19 schools scored no point for water and proper hands washing facilities. The facilities were not available therefore the children in these schools were denied proper hygienic practices which could affect their health.

The study also revealed that 30% of the pupils washed their hands with soap before eating while 70% of them washed their hands without soap before eating. The 70% were at risk of being infected with diarrhoeal and worm diseases while the 30% had significantly reduced the possibility of infections. Similarly, 44% of the pupils washed their hands with soap after eating while 56% did not wash their hands with soap.

In addition, 61% and 29% of the pupils washed their hands with soap and without soap respectively after visiting the toilet while 10% do not wash their hands at all after visiting the toilet. The results were due to the fact that only 30% of the schools provided cakes of soap to the pupils and was available for use after visiting the toilet. Pupils who do not wash their hands with soap or wash their hands at all could infect themselves and/or others with excreta-related diseases if they have been already infected. These happen when they touch their eyes, mouth, or nose and shake others as well.

The worst hygienic practice carried out was hand washing after the collection of refuse. Only 24% and 54% washed their hands with soaps and without soaps respectively after collecting refuse. The other 22% did not wash their hands at all. Refuse collection is also another means of harbouring microbes especially in the finger nails, particularly when the refuse is made up of rotten cabbages, tomatoes and peels of banana.

Some of the reasons cited by children who washed their hands after toilet and refuse collection were to: avoid food contamination; prevent diarrhoea; minimise worm infestations through finger nails; and to be healthy. This knowledge acquired and put in practice by the pupils emphasizes the fact that it is good to teach the children on hygienic practices while they are young. The washing of hands with water and soap in schools can be improved if access to hand-washing facilities is close to latrines and eating-places. Research has shown that 42% of the diarrhoea cases could be avoided if hand washing with soap is done after visiting toilet facilities and after collection of refuse (Curtis and Cairncross, 2003). This practice must be encouraged among the pupils.

Evidence suggests that improved hand washing can have a major impact on public health in any country and significantly reduce the two leading causes of childhood mortality– diarrhoea diseases and acute respiratory infection. It can also reduce skin infection and trachoma. This is because hand washing with soap can prevent the transmission of a variety of pathogens. Promoted broadly enough, hand washing with soap can be viewed as an essential do-it-yourself vaccine. If the millennium development targets for reduction in child mortality are to be met, hand washing habits must be improved along with access to safe water and sanitation at home and in schools. Curtis and Cairncross (2003) suggested that hand washing with soap, particularly after contact with faeces (post-defecation and after handling a child's stool), can reduce diarrhoea incidence by 42-47 %. This remains true even in areas that are highly contaminated with faeces and have poor sanitation. Also Luby *et al.* (2004) found that children under 15 years living in households that receive hand washing with soap had half the diarrhoea rates of children living in control neighbourhoods.

### **Collection of refuse**

The analysis revealed that 88% of the pupils used dustpans to collect refuse after sweeping papers and litter on the compound which was picked by the hand. Twelve percent used their bare hands to collect refuse such as “kenkey” peels, banana peels, garbage, rotten vegetables, etc. These children were unhygienically unsafe and always at risk when they pick refuse from the ground in the morning especially if it rains.

Seventy one percent (71%) of the schools burned their refuse at least once a week while 29% buried their refuse for at least once a term or until the pit is full before they are burnt. Burning causes environmental pollution and also interrupts with lessons if the site is in close to the classroom blocks. Earlier research conducted in Kumasi metropolis by Awuah (unpublished) indicated that disposal of refuse on school compound was 20%. Fifty five percent put solid waste in the public skip containers, 22.5 % in refuse bins provided by the schools and 15% burn the refuse. This means that schools in cities do not burn large volumes of refuse but rather put them in public receptacles to avoid environmental pollution compared to schools in small communities. The Districts should endeavour to collect solid waste from School compound and dispose of them in hygienic manner.

Forty percent (40%) of the schools had their refuse dump site within 50m from the classroom blocks; the rest had their refuse sites located at least 50m away from the classroom blocks.

### **Food vendors' hygienic behaviour and practices**

About 57% of the vendors dished out food with their hands when serving food on campus. The remaining 43% used either spoons or ladle and the ladles were always inside the bowls after dishing, avoiding hand contact with food and resulting in contamination if especially hands are not washed with soap. Also, 78% of the vendors were into unhygienic practice of taking monies with the same hands used to dish out food, while 22% used different hands to accomplish both. However, all the food vendors responded that they washed their hands with soap before selling food every morning and after visiting toilet facilities; but only 6 vendors out of 22 who were nursing mothers washed their hands after breast feeding.

All the 60 food vendors who were selected in the 30 schools had been issued with identification cards after successful screening by the Environmental Health Officers in collaboration with the Medical Officers and Health Personnel in the District. The cards were issued to only those who were considered healthy. Those who were usually screened out were referred to hospitals for proper medical treatments for 3 months before another screening is carried out. The medical examinations included some easily transmittable diseases such as Tuberculosis, Measles, Typhoid fever and Chronic Respiratory Diseases. In addition, 75% of the vendors washed their plates and kept them in safe places while 25% either do not frequently wash their plates or kept the plates on the tables after washing, exposing them to houseflies which can consequently result in enteric disease outbreak.

The indicator weighting system for hygienic behaviour and practices of food vendors showed that 9 schools scored between 30 and 35 points out of 40 points while 10 schools scored at most 20 points which meant the vendors' behaviour and practices were unsatisfactory. These low scores were due to the wrong practices such as dishing out of food and collection of money with the same hand due to vendors'

ignorance and illiteracy. Unfortunately, the vendors' responses showed indifference and ignorance about their practices.

### Summary of available facilities

The summary of the score of sanitation facilities and practices showed that Bechem R/C Primary scored the highest point of 143 out of 180 points (Table 1). The results however did not affect the academic performance of the pupils in the district.

<b>Table 1. Overall score for available sanitation facilities and sanitation practices for 30 schools</b>			
<b>Name of School</b>	<b>Facilities (40 points)</b>	<b>Practices( 140 points)</b>	<b>Total (180 points)</b>
Akobro Comm.	17	65	82
Bechem R/C J.H.S	15	113	128
Bechme ST. Joseph	11	100	111
Bechem S.D.A.	24	82	106
Bechem Presby	18	106	124
Bechem R/C Prim.	25	118	143
Bechem Meth. Prim.	29	84	113
Bechem Meth. J.H.S.	15	112	127
Girls Model J.H.S.	13	90	103
Breme J.H.S	14	90	104
Brosankro Comm.	14	99	113
Brosankro R/C	19	82	101
Dwomo R/C Prim.	11	71	82
Dwomo Comm.	7	67	74
Dwomo Meth.	9	80	89
Derma S.D.A	17	66	83
Derma R/C	13	92	105
Derma Islamic	26	97	123
Derma Presby	15	79	94
Derma Comm.	11	82	93
Derma Meth.	24	72	96
Holy Trinity	34	96	130
Titia Islamic	22	78	100
Titia Comm.	19	82	101
Titia Meth. Prim.	23	72	95
Titia Meth J. H. S.	16	95	111
Titia Presby J.H.S	16	64	80
Titia St. Joseph	18	85	103
Titia Presby Prim.	18	76	94
Titia Hope Prep.	21	94	115

### Supervision of sanitation activities

The school compounds visited were well swept and looked clean especially in the mornings. The weedy portions of the schools were also cleared during the first and second weeks after re-opening. Trees were planted on the entire school compound which creates conducive environment with fresh air for studies. However, 36% of the schools had their canteen areas (where the food vendors) littered with fruit peels, food wrappers and plastics. About 47% of schools without litter bins had littered the compound with plastics and papers in the afternoon. This shows that if facilities for proper sanitation practices are not available good hygienic practices cannot be enforced.

The activities of school vendors in schools were not supervised frequently. Out of the 30 Head teachers who responded, only 2 had been monitoring the quality of food and the sanitation at the canteen. The remaining 28 Head teachers only inspect the vendors' certificates after which they are allowed to sell on the schools' compound. The teachers did not show much concern about the kind of foods that were sold

on the compound. Also, the District Environmental Health Officers did not frequently inspect vendor's certificates after the certificates have been issued or renewed. This gives room to those who do not possess the certificates to sell.

### **School Health Policy**

The school health policy states that School Health Committee should be formed in all schools to perform their functions. According to GES Policy for Education Planning, Budgeting, Monitoring and Evaluation (2003), School Health Committees should be made up of: the Head teacher, the Health teacher / SHEP Co-ordinator, a member from the community / PTA and other member(s) of staff. Unfortunately these committees were not present in all the 30 schools visited. However, the Head teachers and SHEP Co-ordinators performed the functions of the Health Committee with the assistance of teachers on duty and/or other teachers. The functions of the Health Committee which were as follows:

- supervision of sanitation in schools
- supervision of the activities of school vendors
- provision of good drinking water and sanitation facilities
- provision of proper refuse disposal sites
- provision of proper hands washing facilities
- development and implementation of health education programmes at school.

### **Views of stakeholders**

The responds and records from the District Directorate of GES showed that plans had been made for the provision of water and sanitation facilities on schools compound. But the problem was a nationwide problem which could not be solved within a short time. Long term measures were put in place to consider a certain number of Districts every year. Tano South District was one of the districts to be considered next year, if all things being equal. On the food vendors, circulars are usually sent out to Headteachers to warn the pupils on dangers of some foods and candies' that are sold on schools' compound.

The records from Water and Sanitation team leader, at the Tano South District Assembly showed that most of the schools lack water and sanitation facilities. There is package for provision of latrines to institutions in the District by the year 2009. The schools, PTA and the communities would be sensitize on the needs of showing interest and applying for the facilities so that the 5% initial investment cost that is paid by the community or the schools would not be setback for them, but rather to motivate or alert them to know that the facilities belong to them and therefore greater care should be taken for its operations and maintenance.

From the Regional Director and the Regional Engineer of Community Water and Sanitation (CWSA), the main roles that CWSA plays is to seek for funds and use the funds to provide water and sanitation facilities for communities which have applied for such facilities. This is done by considering some districts at a time. Some projects are design specific; in such cases one could not change the design. For instance the water supply to Derma which was founded by the World Bank had the design together with the project; and it had included the schools hence 5 out of 6 schools in Derma were connected, while that at the Bechem which was founded by EU had different design which did not include schools. However, the CWSA have started with uniform design for current projects in the Region, so that once the project is brought to the community the schools can also benefit.

The Parent Teachers Associations at the basic levels are not vibrant so it is very difficult to get contributions from members for development projects. The P.T.A.s. have not considered provision of water facilities in the schools as priority but the toilet facilities are the major concern since funds are not available. About 20.0 %of the PTAs had provided the two seater KVIP and urinals to schools to minimize the problems, from the records of the PTAs in the District. However the design of the P. T.A. facilities in the schools did not meet standard. For instance, most of the urinals constructed by them did not have drains to allow the grey water to drain out.

### **Conclusion and Recommendations**

The coverage of water and sanitation facilities in schools in the district was very low contrary to MOEYS/GES policy. The low sanitation facilities and practices and hygiene promotion means pupils are susceptible to sanitation and hygiene related diseases. Sanitation and hygiene practices and behaviours in

the schools were below the recommended guidelines by MOEYS/GES. The numbers of schools without toilet facilities, safe drinking water, hand washing facilities, and dustbins, were 53%, 83%, 40%, and 47% respectively. Also 10%, 22%, and 70% do not wash their hands after visiting the toilet, collecting refuse, and before eating respectively. About 57% of the food vendors dished out food with their hands and 78% received money with the same hands for dishing out food. However, 75% of the vendors washed their plate and kept them in safe places. The School's Health Committees did not visit schools to supervise and ensure good sanitation and hygiene practices and behaviours. The food vendors were also not frequently monitored to evaluate their practices.

Even though the research was carried out in 30 schools, all the schools in the district were visited to observe their facilities and practices which were not selected; and similar observations were made therefore the results obtained was the true reflection of sanitation and hygiene facilities and practices in schools in the district.

Sanitation, hygiene, and health education should be carried out in schools to sensitise pupils understanding on the dangers of poor sanitation and hygiene. The District Environmental Health Officers should be contacted by the schools' Head teachers or PTAs for their expertise as to the siting of school toilets, urinals, refuse dumps, and canteens to reduce odour nuisance and aesthetics on schools' compound. Proper hands washing facilities such as buckets with taps beneath, towels/napkins should be provided to promote proper hands washing in schools. The provision of toilet facilities in schools should be one of the government priorities when awarding contracts for building of blocks in any school without such facilities.

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