

**MINISTRY OF LOCAL GOVERNMENT AND RURAL DEVELOPMENT**



**REPUBLIC OF GHANA**

**GREATER ACCRA REGIONAL COORDINATING COUNCIL**

*Local Service Delivery and Governance Programme  
(LSDGP)*

**ENVIRONMENTAL SANITATION SUB-COMPONENT**

**ENVIRONMENTAL SANITATION ASSESSMENT AND  
AUDIT FOR SMALL TOWNS  
- OBOM, AKPLABANYA AND KORDIABE -**



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**SEPTEMBER 2010**

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# 1 INTRODUCTION

This assignment forms part of the Government of Ghana (GoG)/Danida-supported Local Service Delivery and Governance Programme (LSDGP). The Environmental Sanitation Sub–Component is expected to carry out environmental sanitation studies in selected small towns in the Greater Accra, Eastern and Volta regions.

The Environmental Sanitation Sub–Component of the LSDGP seeks to support small towns to undertake environmental sanitation assessments and audits that will aid the development of plans for incremental improvement in excreta management and disposal/treatment, refuse collection and disposal/treatment, as well as infrastructure for sullage and storm-water conveyance.

## 1.1 BACKGROUND

In fulfillment of the above programme, the Regional Coordinating Council (RCC), Greater Accra Region acting through the Environmental Health and Sanitation Directorate (EHSD) engaged WasteCare Associates to provide:

‘CONSULTANCY SERVICES FOR SMALL TOWNS ENVIRONMENTAL SANITATION ASSESSMENT AND AUDIT IN GREATER ACCRA REGION’

The environmental sanitation assessments and audits were carried out in three selected small towns in three districts of Greater Accra region, namely *Obom in Ga South Municipality, Akplabanya in Dangme East District and Kordiabe in the Dangme West District*.

## 1.2 OBJECTIVES

The immediate objective of the assignment is *to carry out an assessment and audit of environmental sanitation to determine the existing situation of environmental sanitation in the three small towns*. This will lead to the development of Town Environmental Sanitation and Development Plans (TESDP) for each town that can be incorporated in the District Environmental Sanitation Strategy and Action Plan (DESSAP) for particular districts, and to prepare sub-projects to address prioritized interventions.

### 1.2.1 Expected Outputs

Immediate Output (Draft Report)

- Environmental Sanitation Assessment and Audit report for the three towns.

Final Outputs (Final Report)

- Town Environmental Sanitation Development Plan for each of the selected small towns with optimal solutions (sub-projects focusing on both social and infrastructural services), corresponding preliminary costs and proposed funding sources from (i) the LSDGP and (ii) other sources.

## 1.3 METHODOLOGY AND TOOLS

### 1.3.1 Literature Review

The following documents were assembled and reviewed in planning the assessment and audit protocols and procedures:

- Local Government Act, 1994 (Act 462)
- Revised Environmental Sanitation Policy, 2009
- Environmental Protection Act, 1994 (Act 490)
- Environmental Assessment Regulations, 1999 (LI 1652)
- USAID/EHP Guidelines for the Assessment of Sanitation Policies
- National Environmental Sanitation Strategy and Action Plan, (NESSAP, 2010)

- Local Government Service Act, 2003 (Act 656)
- Local Government (Departments of District Assemblies) (Commencement) Instrument, 2009 (L.I. 2009)
- Strategic Planning for Municipal Sanitation
- SEA Practical Guide for Water and Environmental Sanitation
- Landfill Guidelines
- Health-care waste policy
- District Economic profiles
- Other relevant documents

Material gathered from the review was used to inform the development of the assessment and audit tools and related procedures that were followed.

### 1.3.2 Field Study

The environmental sanitation assessment and audit was carried out by segmenting each of the 3 towns into sampling areas:

- Obom was divided into 3 sampling areas based on housing segments and concentration of population. The sampling areas were as follows:
  - Sample Area 1 – Obom New Site
  - Sample Area 2 – School Area
  - Sample Area 3 – Mosque Area
- Akplabanya was divided into 3 sampling areas based on concentration of households. The sampling areas were as follows:
  - Sample Area 1 – Oblema
  - Sample Area 2 – Mayino
  - Sample Area 3 – Majageh
- Kordiabe was divided into 7 sampling areas based on concentration of households. The sampling areas were as follows:
  - Sample Area 1 – Tesanya
  - Sample Area 2 – Yokuyonor
  - Sample Area 3 – Maklalo
  - Sample Area 4 – Lenordje
  - Sample Area 5 – Magbiem
  - Sample Area 6 – Madaam
  - Sample Area 7 – Salem

(Refer to Maps 1, 2 and 3 for enumeration areas).

### 1.3.3 Study Tools

Three instruments were applied:

- A structured household questionnaire for gathering data on environmental sanitation facilities and services
- Focus group discussions and key person interviews
- Environmental Profiling form

These participatory tools were derived from the Practical Guide on Strategic Environmental Assessment (SEA) of Water and Environmental Sanitation and supplemented with additional information from other sources.

### **1.3.4 Administering the Assessment and Audit Instruments**

The processes adopted for the assessment and audit were highly participatory, in conformity with SEA principles.

District Administration officials, traditional authorities and opinion leaders were briefed on the whole process and their contributions taken into consideration prior to commencement. District Planning officers, District Water and Sanitation Teams (DWSTs), Regional and District Environmental Health officers were involved in the planning and identification of relevant issues in each town.

#### ***Household/Community Survey***

In administering the questionnaire, the following parameters for each town were taken into consideration:

- Population – based on 2000 Population and Housing Census data and projected to 2009 using the generic formula:  
 $P_{2009} = P_{2000} \times (1 + r)^n$ , where  $r$  = district growth rate and  $n$  = number of intervening years (i.e. 9)
- Estimate of household size – based on 2000 Population and Housing Census and site visits
- Physical layout of survey areas – town maps, generated schematic layouts

The survey was designed for gathering information from households on:

- a) Watershed management – including wetlands, surface water embankments etc
- b) Water supply – types of systems, access, quality, quantity etc
- c) Wastewater disposal – practices, effluents, ponding etc
- d) Liquid (faecal) waste disposal – types of facilities, institutional facilities, location, access, management
- e) Solid waste disposal – households, communal facilities, medical/health wastes, industrial wastes, sites, management etc.
- f) Storm water drainage – types of drains, adequacy, capacity, flooding etc
- g) Health and Hygiene practices – hand washing, cleanliness,
- h) Bye Laws – availability, compliance, enforcement, etc.
- i) Other significant features of interest – animal wastes, community mobilization, public spaces, green areas, markets, lorry parks etc

#### ***Focus Group Discussions***

Focus group discussions were conducted with men, women, elders and key local leaders in each of the towns. The list of persons met and consulted during FGDs and KPIs is attached as Annex 3.

#### ***Data Entry and Analysis***

Household data gathered in the survey was entered and analysed using statistical analysis software – SPSS.

### 1.3.5 Mobilization of Personnel

In each of the towns, survey assistants were identified and trained in administering the questionnaires. Each enumeration team was assisted by a survey assistant under the supervision of a senior member of the consultant's team.

Table 1.1: Survey Effort in Towns

| Town       | No. of Enumerators | No. of Days for Enumeration |
|------------|--------------------|-----------------------------|
| Obom       | 3                  | 2                           |
| Akplabanya | 4                  | 3                           |
| Kordiabe   | 4                  | 3                           |

The field studies comprising surveys and profiling were carried out from 18 – 21 February 2010.

## 2 PROFILE OF DISTRICTS AND STUDY TOWNS

This section covers findings from desk studies as well as field results from surveys, environmental sanitation profiling and consultations.

### 2.1 GA SOUTH MUNICIPAL ASSEMBLY

**Location:** The Greater Accra region of Ghana

**Boundaries:** The municipal assembly is bounded to the north-east by Akwapim South district, to the north-west by West Akim district, to the west by Awutu Efutu Senya district, to the east by Ga West district, to the south-west by Gomoa district while the Ablekuma North and South Sub- Metropolitan assemblies share its south-eastern border. The municipal assembly has the Gulf of Guinea as its southern boundary.

**Capital:** Weija

**Natural Resource:** Weija dam.

This municipality is one of the newly upgraded municipal assemblies in the Greater Accra region. This step was taken by the government of Ghana as a result of the large size of some of the then 138 MMDAs which constrained the government's ability to fully implement its policies of local governance to the benefit of the entire citizenry.

The municipal assembly, in conjunction with stakeholders, is in the process of collecting relevant data concerning its size, topography and drainage; climate and vegetation; geology and soil; social infrastructure; economy, etc that is required for effective planning and management.

#### **Demographic Characteristics**

Although the municipal assembly is in the process of collating the demographic indicators of the district, data gathered from field surveys carried out for the preparation of the District Environmental Sanitation Strategy and Action Plan (DESSAP, 2008) estimates current the population as 301,147.

Table 2.1 provides the estimated population of the five largest towns in the district.

Table 2.1: Population of the Five largest towns in the Ga South Municipality.

| TOWN      | POPULATION |
|-----------|------------|
| Gbawe     | 39,425     |
| Kokrobite | 30,526     |
| Anyaa     | 20,560     |
| Chantan   | 17,715     |
| Amanfrom  | 17,284     |

Source: DESSAP Field Survey Data, 2008

## 2.2 ENVIRONMENTAL SANITATION PROFILE OF OBOM

### 2.2.1 Population and Household Data

According to the 2000 population and housing census, Obom has a population of 1, 179 (561 males and 618 females) with 178 houses. The number of households is 271 and the average household size is 4.4. Based on the 2000 population figure and the district growth rate of 2.1%, the current estimated population of Obom is 1452 (761 females and 691 males). Data gathered from the DESSAP however puts the current population at 1592.

The total number of households interviewed is 50.

### 2.2.2 Characteristics of Respondents

On characteristics of respondents, the questionnaire addressed the following:

#### Sex of Respondents

32% of respondents were males and 68% females.

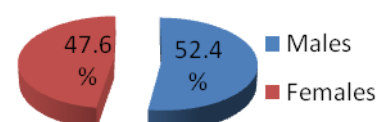
#### Age of Respondents

96% of respondents are above 18 years of age and 4% below 18 years who interpreted for adult respondents.

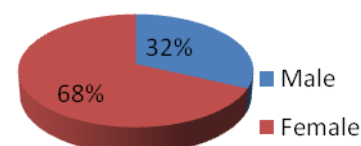
#### Level of Education of Respondents

2% have attained tertiary education, 4% secondary education, 47% primary/JSS/middle school, and 47% have no formal education.

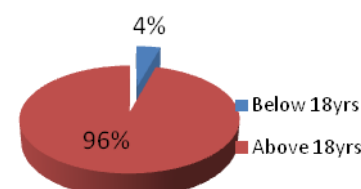
Estimated Current Population Distribution by Sex



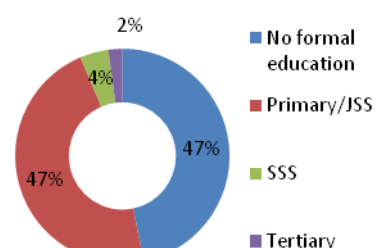
Sex of Respondent



Age of Respondent



Level of Education of Respondent





## 2.2.3 Potable Water Coverage

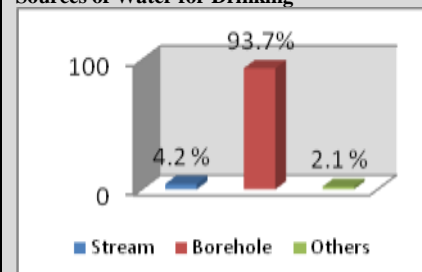
### Water Connection

In Obom, 96% of respondents have no water connection to their houses and therefore depend on the few public boreholes (mechanized) in the community. 4% depend on other sources of water supply which include private boreholes, wells and harvested rain water.

### Sources of Water for Drinking

Data from the survey shows that sources of water for drinking purposes include stream (4.2 %), borehole (93.7 %) and others (2.1%).

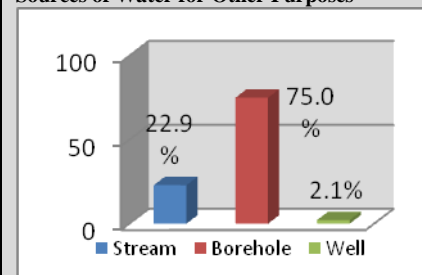
Sources of Water for Drinking



### Sources of Water for Other Purposes

Responses from the survey shows that sources of water for other purposes aside drinking include stream (22.9%), Borehole (75.0%) and well (2.1%).

Sources of Water for Other Purposes



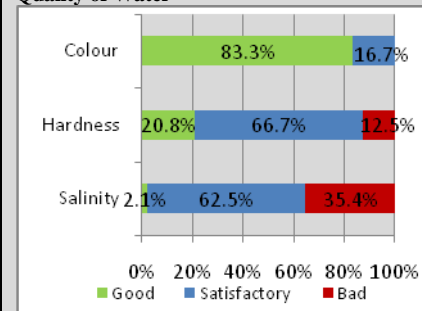
### Quality of Water

For salinity, 2.1% of respondents indicated neutral taste of their water, 62.5% slightly salty and 35.4% salty.

With respect to hardness of water, 20.8% of respondents indicated good lathering, 66.7% said the water lathers slightly well with soap and 12.5% said the water does not lather with soap.

For appearance of water, 83.3% of respondents pointed out the fact that the water was generally clear and the remaining 16.7% pointed out that the water was slightly turbid (coloured).

Quality of Water



## 2.2.4 Refuse Management

### Household Solid Waste Storage

Data from the household survey shows that 58.3% have sanitary dustbins for primary storage of household waste. The receptacles used are not standard and varies from boxes, buckets, cartons etc. 92.9% of respondents use sanitary dustbins of volume up to 50liters whilst the remaining 7.1 % use dustbins of volume between 50 and 100liters.

### **Availability/Access to Refuse Dump Sites**

Data from the survey indicate that 79.2% of households use uncontrolled dump sites for disposing of their refuse.



Plate 2.1: Poor sanitation practices with waste discharged into wetland



Plate 2.2: Domestic and market refuse with high plastic content at an uncontrolled dump

### **Method of Refuse Disposal**

Responses from administering questionnaires show that there are no communal containers for refuse disposal, 6.2% throw at backyard, 6.2% bury them, and 8.3% burn their refuse and 79.27% use refuse dump sites (uncontrolled dumping).

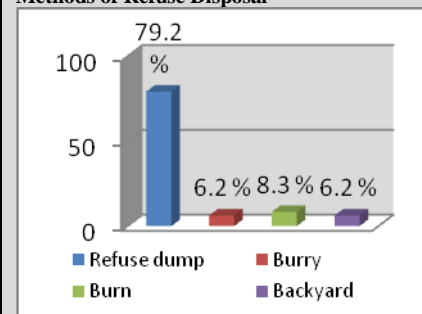
### **Perception of Respondents**

The residents of Obom view refuse management as very poor due to absence of formal refuse collection, indiscriminate dumping and long distances of dump sites to houses. This perception is supported by prevalence of indiscriminate littering.

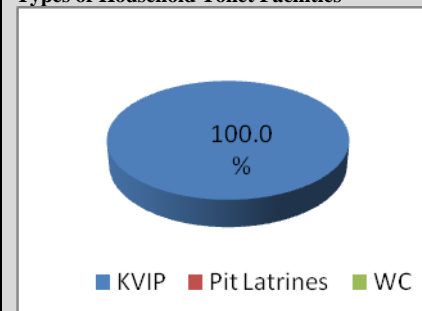
#### **2.2.5 Excreta Management**

In Obom, 35.4% of respondents have a household toilet facility. Most of the household facilities are however all full up and have been closed down due to lack of vehicular access for dislodging. The remaining 64.6% use the only public KVIP in the town. Of those who have household toilet facilities, 69.2%

**Methods of Refuse Disposal**



**Types of Household Toilet Facilities**



indicate that toilet facility is outside the main building and 30.8% indicate that the facility is within the main building.

### **Types of Household Toilet Facilities.**

Data from the household survey shows that all household toilets are VIPs.

### **Methods of Excreta Disposal by Households Without Toilet Facilities**

Human excreta disposal trends for households without toilets shows that 12.5% defecate in the bush and on refuse dump 87.5% use public toilets.

There is only one public KVIP toilet which is in a dilapidated state.

## **2.2.6 Storm Water and Sullage Conveyance**

### **Storm Water Conveyance**

On the issue of flooding 14.6% of respondents indicated occurrence of flooding whenever there is a heavy down pour. This is supported by the lack of storm drains in the town. The few existing earth drains in the town are heavily silted and choked with refuse.

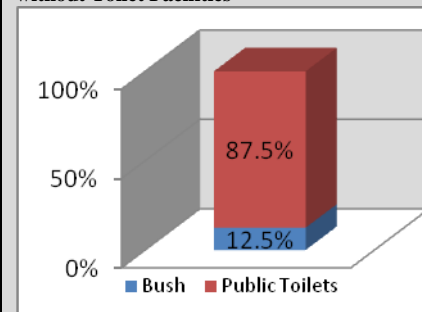
### **Disposal of Sullage from Kitchen and Bathroom**

Disposal of sullage from kitchens and wastewater from bathrooms in Obom is poor. 14.6% use soakaway pits, 8.3% collect in buckets and containers, 4.2% throw into shallow earth channels (drains) and 72.9% dispose in open spaces.

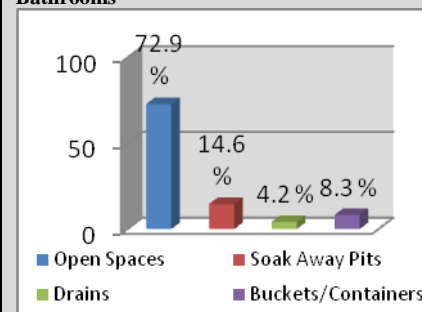


Plate 2.3 Sullage discharged from bathrooms

Methods of Excreta Handling by Households without Toilet Facilities



Disposal of Sullage from Kitchen and Bathrooms



## 2.2.7 Health and Personal Hygiene

### Handwashing Practices

The responses on handwashing practices in Obom are shown in the table below:

| Hand washing with soap practices           | Response  | Proportions of Responses (%) |
|--|-----------|------------------------------|
| Before food preparation                    | Always    | 27.3                         |
|  | Sometimes | 54.5                         |
|  | Never     | 18.2                         |
| Before meals (eating)                      | Always    | 25.0                         |
|  | Sometimes | 68.2                         |
|  | Never     | 6.8                          |
| After using toilet                         | Always    | 29.6                         |
|  | Sometimes | 65.9                         |
|  | Never     | 4.5                          |
| After attending to defaecation by children | Always    | 16.3                         |
|  | Sometimes | 67.4                         |
|  | Never     | 16.3                         |

### General Hygiene Standards in Households and Community

Observations were made in the houses and community on the following:

- Use and keep latrine
- Remove animal or children's faeces from the home and safely dispose of them
- Manage and maintain safe, public sanitary solutions (for human and animal waste)
- Consume safe water
- Keep all water containers covered
- Obtain water for drinking/cooking from the least contaminated source available
- Manage and maintain safe, sanitary garbage disposal

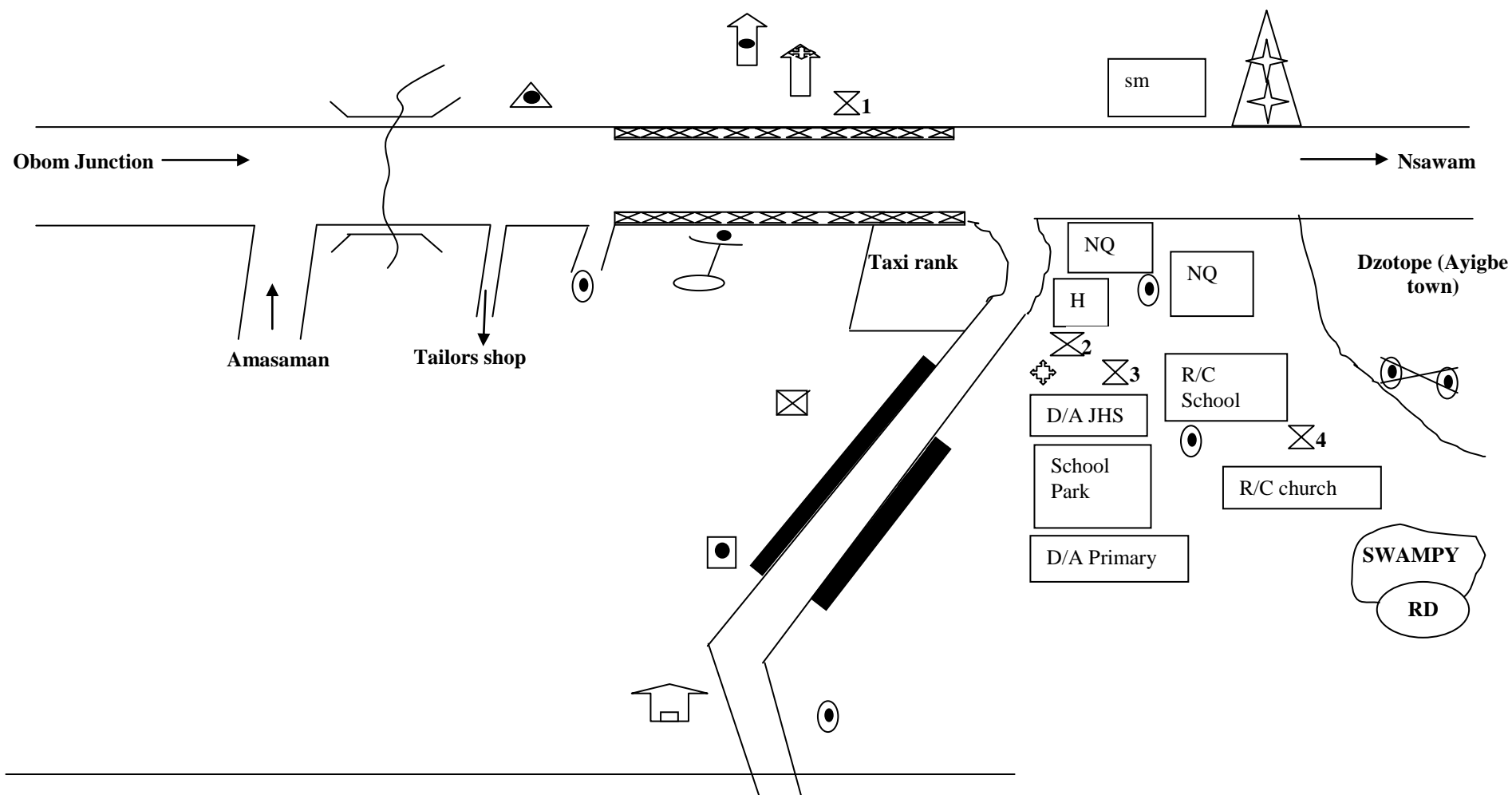
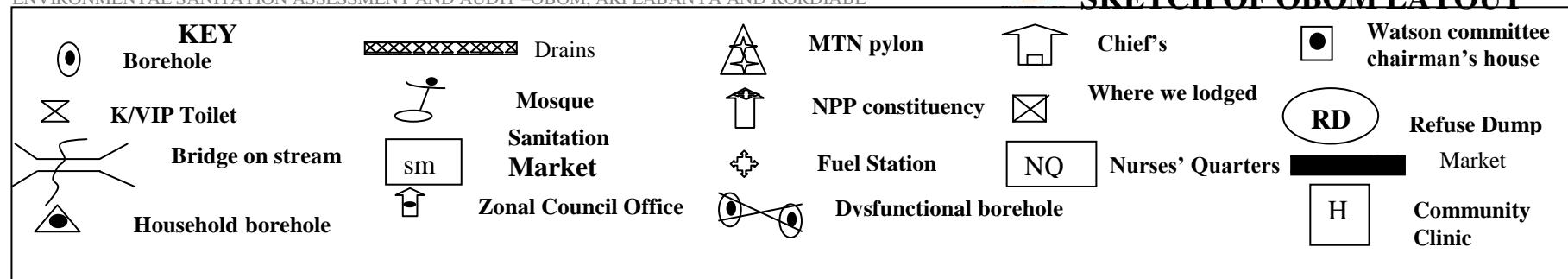
The results have been summarised in Table 2.2 below.

### Availability of Bye-Laws

100% of respondents indicated that there are environmental bye-laws in the town. These bye-laws are usually enforced by the town council authorities.



## SKETCH OF OBOM LAYOUT



**Table 2.2: OBOM COMMUNITY PROFILE**

| ENVIRONMENT CATEGORY  | DESCRIPTION   |
|-----------------------|---|
| WATER SHED MANAGEMENT | <ul style="list-style-type: none"> <li>• Pollution of river Ponpong through bathing and washing of cars in and along the river banks.</li> <li>• Dumping of solid waste into the wetlands.</li> <li>• Run-off water pollution into river Ponpong.</li> </ul>                              |
| WATER SUPPLY          | <ul style="list-style-type: none"> <li>• Four (4) public boreholes and one (1) private borehole.</li> <li>• Water from river Ponpong</li> </ul>   |
| WASTE WATER DISPOSAL  | <ul style="list-style-type: none"> <li>• Waste water from bathhouses and kitchens (sullage) disposed of into open space.</li> </ul>   |
| LIQUID WASTE DISPOSAL | <ul style="list-style-type: none"> <li>• One ten (10) seaterpublic KVIP toilet facility and 3 KVIP toilets for the two schools and clinic</li> <li>• About thirty (30) household KVIP toilet facilities.</li> <li>• Indiscriminate defecation at open spaces and refuse dumps.</li> </ul> |
| SOLID WASTE DISPOSAL  | <ul style="list-style-type: none"> <li>• One large refuse dump</li> <li>• Crude dumping and burning of solid waste</li> </ul>   |
| STORM WATER DISPOSAL  | <ul style="list-style-type: none"> <li>• New primary drainage system under construction</li> <li>• Gulley erosion at open spaces</li> </ul>   |
| PROMINENT FEATURES    | <ul style="list-style-type: none"> <li>• Health Centre</li> <li>• Sanitary market</li> <li>• Okada (motor cycle transport system)</li> <li>• MTN telecommunication mast.</li> <li>• Gari Processing</li> </ul>  |

## 2.3 DANGME EAST DISTRICT

### Geography

**Location:** The Greater Accra Region of Ghana

**Coordinates:** The Dangme East is located in the Eastern part of the Greater Accra Region within Latitudes 5°45' south and 6°00' north of the equator and from Longitude 0°20' west to 0°35' East of the Greenwich Meridian

**Area:** 909km<sup>2</sup>

**Boundaries:** The North by the North Tongu District, the East by South Tongu District, the West by the Dangme West and the South by the Gulf of Guinea.

**Climate:** Mild temperatures ranging from 23°C to 28°C  
Relative humidity of 60%

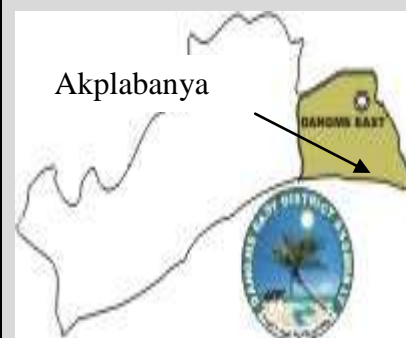
Average Rainfall is about 750mm

**Topography:** The Municipality forms part of the Central portion of the Accra plains, depicting a topography that is generally gently undulating. A few prominent boulders are scattered irregularly over the area, with the highest part being about 240 metres (800ft) above sea level. The rest of the area is about 60 metres (200ft) above sea level. The major river in the Municipality is the Volta River. This runs along the south-eastern section, forms part of the eastern boundary and enters the sea southwards. Other major water bodies are the Futue River, Sege River, Akplaba, Luhue, Kajah and the Songor lagoon.

Most of these streams are seasonal and dry up during the dry season. This has led to the creation of dugouts and ponds of varying sizes for the purpose of irrigation, domestic use and rearing of livestock. The sea also covers the southern portion of the Municipality and feeds or drains the major lagoons during high or low tide periods. Despite its numerous economic and social values, the sea also increases the salinity of water from dugouts and wells close to it, making water from such sources unwholesome for domestic use.

**Natural Resources:** *Coastal Savannah* -Fuel wood  
*Minerals* – Salt.

**Capital:** Ada Foah





### **Demographic Characteristics**

The Dangme East District has a population of 93,112 with female population slightly higher with an estimated population of 48,913 while male population was estimated at 44,199 (NHPC, 2000). The data from the 1960, 1970 and 1984 census suggest that the population of the Dangme East district rose from 43,844 in 1960 to 52164 in 1970 and 71,550 in 1984. This shows that the inter census growth rate was 1.7% per annum from 1960 - 1970, and 2.3% from 1970-1984. Current estimates using a growth rate of 3.0 % is likely to put the population at 125,135 comprising 59,439 males and 65,696 females. The district population constitutes almost 3.2% of the Greater Accra Region population.

## **2.4 ENVIRONMENTAL SANITATION PROFILE OF AKPLABANYA**

### **2.4.1 Population and Household Data**

According to the 2000 population and housing census, Akplabanya has a population of 4,272 (2,100 males and 2,172 females) with 248 houses. The number of households is 579 and the average household size is 7.4. Based on the 2000 population figure and the district growth rate of 3%, the current estimated population of Akplabanya is 5,741 (2,824 males and 2,917 females). From observed population trends the proportion of females to males has remained the same<sup>1</sup>

The total number of households interviewed is 115.

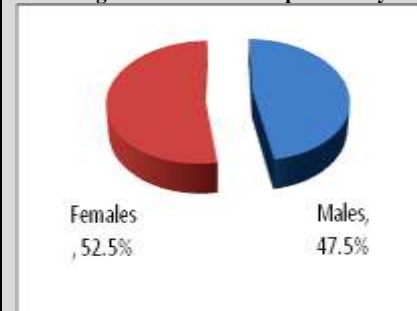
### **2.4.2 Characteristics of Respondents**

On characteristics of respondents, the questionnaire addressed the following:

#### **Sex of Respondents**

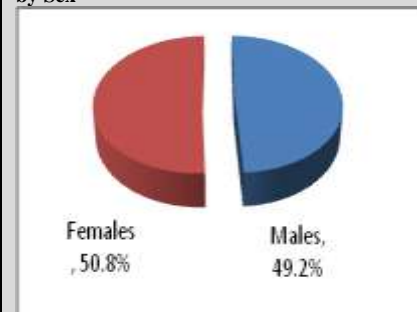
31% of respondents were males and 69% females.

**Percentage Distribution of Population by Sex**

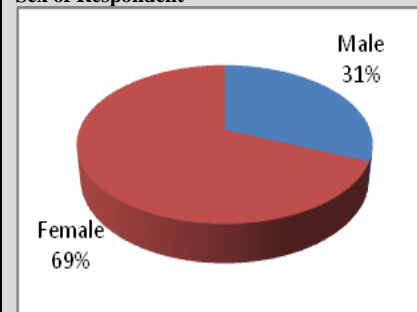


(Source 2000 Pop. Census)

**Estimated Current Population Distribution by Sex**



**Sex of Respondent**



<sup>1</sup> From the Ghana Demographic Health Survey, 2008, the proportion of female to male in rural areas is about 51% to 49 %.



### **Age of Respondents**

98% of respondents are above 18 years of age and 2% below 18 years who interpreted for adult respondents.

### **Level of Education of Respondents**

8% have attained tertiary education, 6% secondary education, 36% Primary/JSS education and 50% have no formal education.

## **2.4.3 Potable Water Coverage**

### **Water Connection**

In Akplabanya, 100% of respondents have no water connection to their houses. This is due to the fact that for the entire community, the main scheme of water supply is through standpipes which have been evenly distributed in the town.

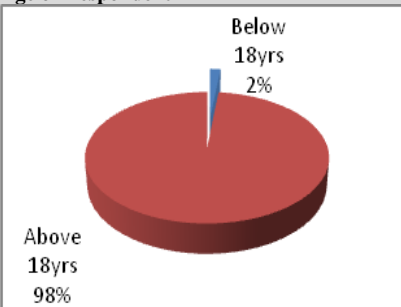


Plate 2.4: One of the ten standpipes distributed in the town

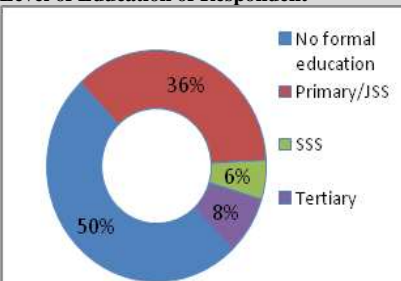
### **Sources of Water for Drinking**

Data from the survey shows that standpipes (100%) supplied with water from the '3 Districts' Water Supply scheme are the only source of water for drinking purposes. The community is served by water tank service providers from Aveyime (in the North Tongu District) when supply is interrupted. The water is stored in locally designed "concrete reservoirs" and covered. (See Plate 2.5)

### **Age of Respondent**



### **Level of Education of Respondent**



### **Water Connection to Households**

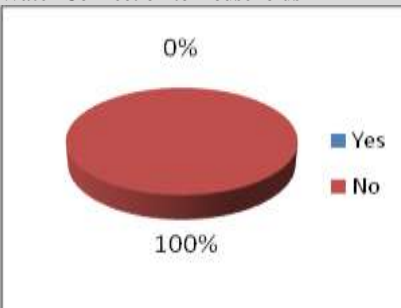
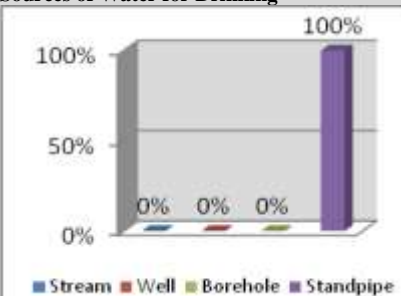


Plate 2.5: Locally designed water storage facility.

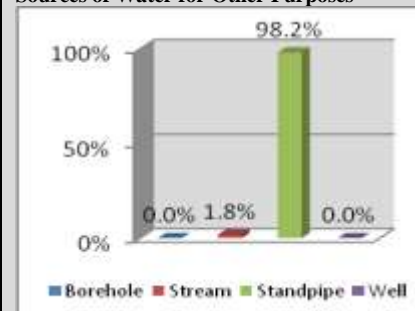
### **Sources of Water for Drinking**



### **Sources of Water for Other Purposes**

Responses from the survey shows that sources of water for other purposes aside drinking were mainly standpipe (98.2%) and stream (1.8%). The stream is however used during the rainy season since it dries up in the dry season as hence not a reliable source of water.

### **Sources of Water for Other Purposes**



## **2.4.4 Refuse Management**

### **Household Solid Waste Storage**

Data from the household survey shows that 36.5% have sanitary dustbins for primary storage of household waste. The receptacles used are however not standard and varies from boxes, buckets, cartons etc.

### **Method of Refuse Disposal**

Responses from administering questionnaires show that 8% dump household refuse in backyards, 11.6% burn their refuse and 80.4% use refuse dump sites (uncontrolled dumping).

### **Methods of Refuse Disposal**

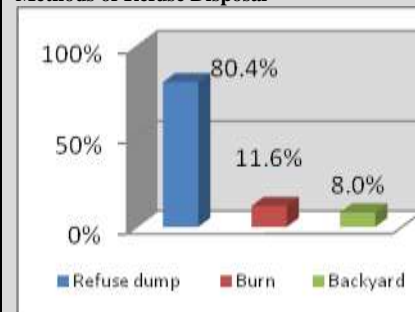


Plate 2.6: One of the crude dumps in Akplabanya



Plate 2.7: Indiscriminate dumping in the Akplaba basin

### **Perception of Respondents**

The residents of Akplabanya view refuse management as very poor due to absence of a formal refuse collection system. There are no communal containers in the town and this has encouraged the practice of indiscriminate dumping and hence the prevalence of several crude dumpsites and dumping of refuse around the Akplaba lagoon basin.

#### **2.4.5 Excreta Management**

All respondents in Akplabanya did not have any household toilet facility. From the survey data, human excreta disposal trends shows that 38.2% of the households use public KVIPs and 60.9% defecate in the bush and along the beach. The KVIPs are however in dilapidated states due to lack of maintenance. The community also has a 12-seater WC toilet put up by DANIDA but yet to be operationalised. Reasons given for delay include lack of water pump and institutional disputes on who to manage the facility when in operation.



Plate 2.8: Open defecation along the beach

#### **2.4.6 Storm Water and Sullage Conveyance**

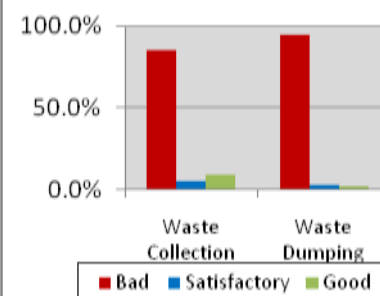
##### **Storm Water Conveyance**

On the issue of flooding, 27% of respondents indicated occurrence of flooding whenever there is a heavy down pour. This is supported by the lack of storm drains and the presence of pools of stagnant water in the town.

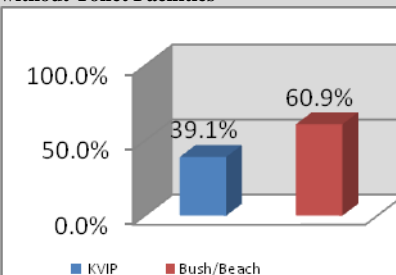


Plate 2.9: Stagnation of rainwater due to lack of storm drains

### **Perception of Respondents on Solid Waste Management**



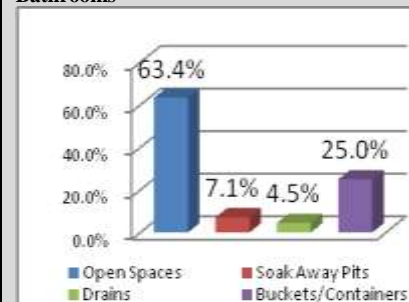
### **Methods of Excreta Handling by Households without Toilet Facilities**



### **Disposal of Sullage from Kitchen and Bathroom**

Disposal of sullage from kitchens and wastewater from bathrooms is poor. 7.1% use soakaway pits, 4.5% through shallow earth channels (drains) and 63.4% dispose in open spaces.

### **Disposal of Sullage from Kitchen and Bathrooms**



## **2.4.7 Health and Personal Hygiene**

### **Handwashing Practices**

The responses on handwashing practices in Akplabanya are shown in the table below:

| Hand washing with soap practices          | Responses | Proportions of responses (%) |
|---|-----------|------------------------------|
| Before food preparation                   | Always    | 53.1                         |
|   | Sometimes | 37.2                         |
|   | Never     | 9.7                          |
| Before Meals                              | Always    | 60.9                         |
|   | Sometimes | 27.8                         |
|   | Never     | 11.3                         |
| After using the toilet                    | Always    | 45.2                         |
|   | Sometimes | 52.2                         |
|   | Never     | 2.6                          |
| After attending to defecation by children | Always    | 23.2                         |
|   | Sometimes | 61.6                         |
|   | Never     | 15.2                         |

### **General Hygiene Standards in Households and Community**

Observations were made in the houses and community on the following:

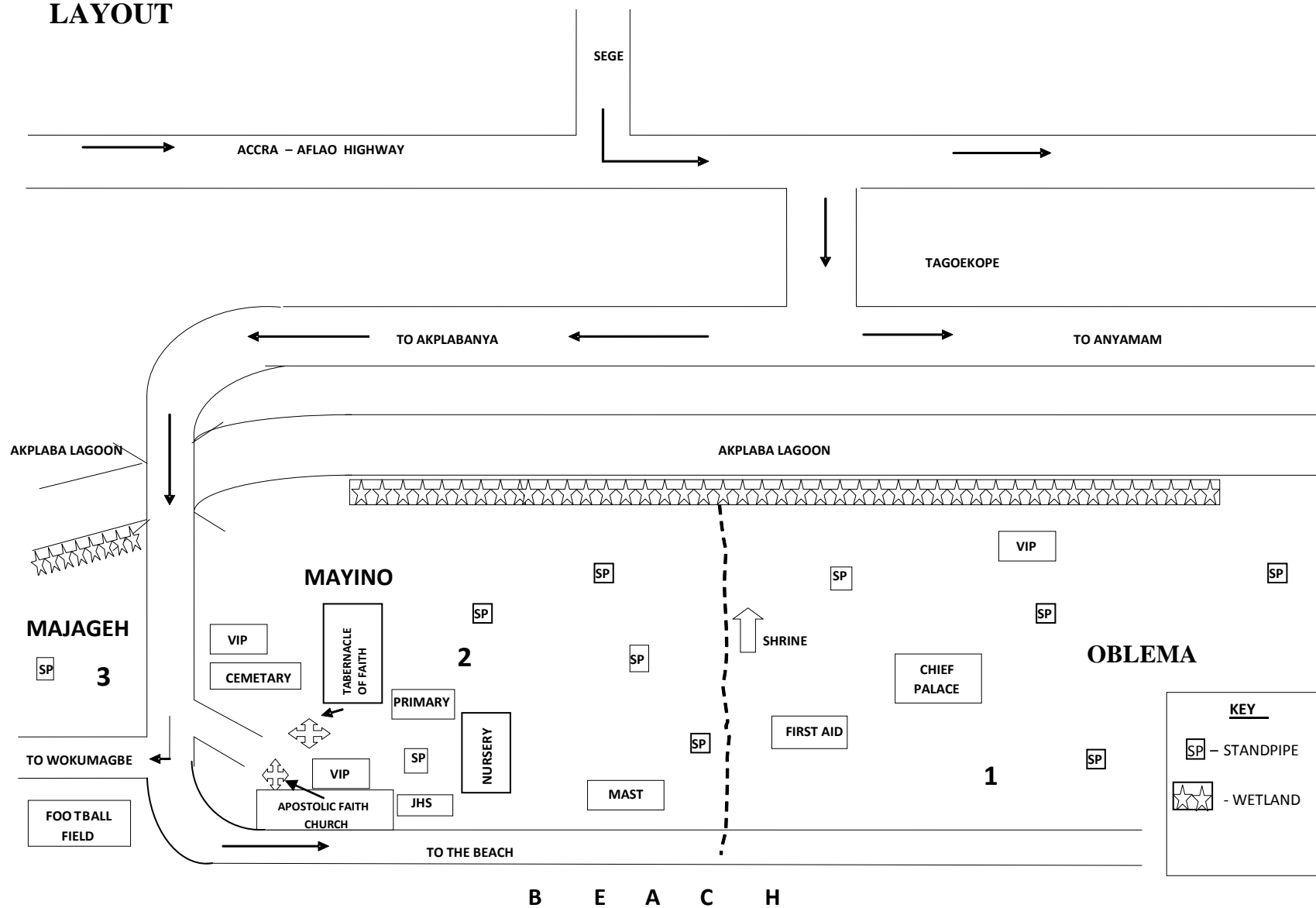
- Use and keep latrine
- Remove animal or children's faeces from the home and safely dispose of them
- Manage and maintain safe, public sanitary solutions (for human and animal waste)
- Consume safe water
- Keep all water containers covered
- Obtain water for drinking/cooking from the least contaminated source available
- Manage and maintain safe, sanitary garbage disposal

The results have been summarised in Table 2.3 below.

### **Availability of Bye-Laws**

87.5% of respondents indicated that there are environmental bye-laws in the town. These bye-laws are usually enforced by the district assembly authorities.

## SKETCH OF AKPLABANYA LAYOUT



**Table 2.3: AKPLABANYA COMMUNITY PROFILE**

| ENVIRONMENT CATEGORY  | DESCRIPTION   |
|-----------------------|---|
| WATER SHED MANAGEMENT | <ul style="list-style-type: none"> <li>• Man-made Dam (Akpelefa Dam) polluted by waste water from Sege Salt company.</li> <li>• Akplaba lagoon dried up because of indiscriminate dumping of solid waste into the river basin.</li> <li>• River Sangalate swallowed up by the sea</li> </ul>  |
| WATER SUPPLY          | <ul style="list-style-type: none"> <li>• Pipe borne water provided but not connected to houses.</li> <li>• 10 standpipes available</li> <li>• Water tanker services from Aveyime (North Tongu district) provide water twice daily when water supply is interrupted.</li> </ul>  |
| WASTE WATER DISPOSAL  | <ul style="list-style-type: none"> <li>• No treatment prior to disposal</li> <li>• Disposed off through earth drains and soakaway pits.</li> <li>• Underground PVC pipes connected to outfalls.</li> </ul>  |
| LIQUID WASTE DISPOSAL | <ul style="list-style-type: none"> <li>• Three 10-seater Public KVIP toilet facilities and one public 12-seater WC with 12 cubicle bathroom facilities (by DANIDA) yet to be commissioned due to lack of a water pumping machine</li> <li>• Public KVIP in deplorable state</li> <li>• Defective chambers</li> <li>• 1 Private household latrine</li> </ul> |
| SOLID WASTE DISPOSAL  | <ul style="list-style-type: none"> <li>• Indiscriminate crude dumping in river basin.</li> <li>• Open defecation on crude dumps</li> <li>• No communal skips for secondary storage of refuse</li> <li>• No final disposal sites and sanitary sites</li> </ul>   |
| STORM WATER DISPOSAL  | <ul style="list-style-type: none"> <li>• No drainage system.</li> <li>• Erosion by the sea destroying properties (houses)</li> </ul>  |
| PROMINENT FEATURES    | <ul style="list-style-type: none"> <li>• Sege salt company and Iodine Salt Company.</li> <li>• Fleet of canoes (156) at beach for fishing</li> <li>• Beach littered with empty sachets of polythene and human excreta.</li> </ul>   |



## 2.5 DANGME WEST DISTRICT

### Geography

**Location:** The Greater Accra Region of Ghana

**Coordinates:** Latitude 5°45' to 6°05' North of the Equator and Longitude 0°05' to 0°20' West of the Greenwich Meridian

**Area:** 1.442km<sup>2</sup>

**Boundaries:** The West by Akwapim North District, the North West by Yilo Krobo District, the North East by North Tongu District, the South West by Tema Metropolitan and the East by Dangme East District. The North Eastern and Southern Portions are washed by the Volta River and Atlantic Oceans respectively.

**Climate:** Appreciably high temperatures with an absolute maximum temperature of 40°C  
Relative humidity is 84%.  
Rainfall figures ranges between 762.5mm on the coast to 1,220mm to the North and North West close to the foothill of the Akwapim Range.

**Topography:** The district forms the central portions of the Accra Plains. The relief is generally gentle and undulating with heights not exceeding 70m above sea level. The area is drained by a number of rivers, streams and dams including the Volta River Dam (Natriku) and Dawhenya Dam on the Dekyidor stream.

**Natural Resources:** *Forest* - Timber products, Fuel wood, Game resources  
*Minerals* – Kaolin, Feldspar, Beryllium, Crude Oil, Diamond, Manganese, Salt.

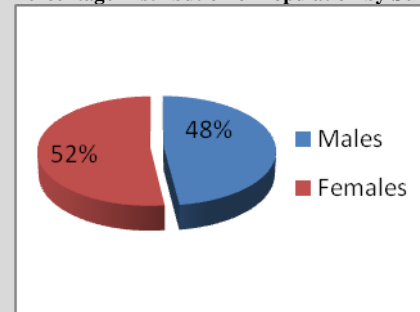
**Capital:** Dodowa



### Demographic Characteristics

Based on the inter-censal period 1984-2000 the annual population growth rate is estimated as 2.1%. From the 2000 population and housing census, the district has an estimated population of 96,809 comprising 46, 550 males and 50, 259 females. The current estimated population is 119, 172 comprising 58, 275 males and 60, 897 females.

Percentage Distribution of Population by Sex







## 2.6 ENVIRONMENTAL SANITATION PROFILE OF KORDIABE

### 2.6.1 Population and Household Data

According to the 2000 population and housing census, Kordiabe has a population of 1669 (733 males and 936 females) with 283 houses. The number of households is 378 and the average household size is 4.4. Based on the 2000 population figure and the district growth rate of 2.1%, the current estimated population of Kordiabe is 2,055 (902 males and 1,153 females). From observed population trends, the proportion of females to males has remained the same<sup>2</sup>.

The total number of households interviewed is 80.

### 2.6.2 Characteristics of Respondents

On characteristics of respondents, the questionnaire addressed the following:

#### Sex of Respondents

43% of respondents were males and 57% females.

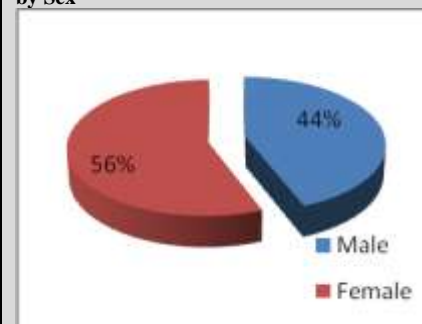
#### Age of Respondents

92% of respondents are above 18 years of age and 8% of respondents are below 18 years.

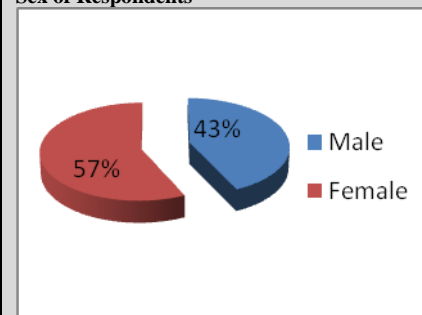
#### Level of Education of Respondents

6% have attained tertiary education level, 22% secondary education, 52% JSS/Middle school and 20% have no formal education.

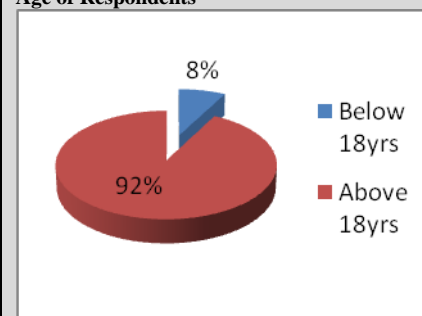
Estimated Current Population Distribution by Sex



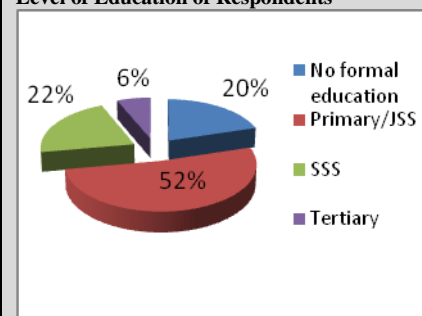
Sex of Respondents



Age of Respondents



Level of Education of Respondents



<sup>2</sup> From the Ghana Demographic Health Survey, 2008, the proportion of female to male in rural areas is about 51% to 49 %.





### 2.6.3 Potable Water Coverage

#### Water Connection

In Kordiabe, 30% of respondents have water connection to their houses, of which only 24.1% are reliable. Hence only 7.2% of respondents in Kordiabe have water connection with reliable flow.

#### Sources of Water for Drinking

Data from the survey shows that sources of water for drinking purposes include stream (8.2 %), borehole (1.4%), standpipe (83.6%) and well (6.8%).

#### Sources of Water for Other Purposes

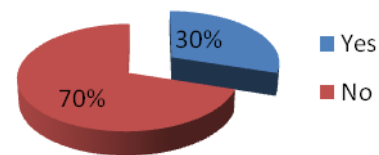
Responses from the survey indicate that, sources of water for other purposes aside drinking include dam (71.4%), Borehole (3.6%), standpipe (21.4%) and well (3.6%).

From above 7.2% of the respondents patronize either well or boreholes indicating the presence of groundwater in Kordiabe. Further studies could be undertaken to investigate the viability of using mechanized boreholes if high yielding aquifer sources can be located.

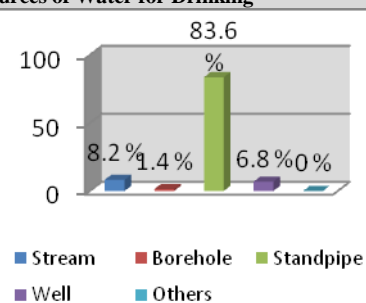


Plate 2.10: The dam which serves as a source of water for other purposes.

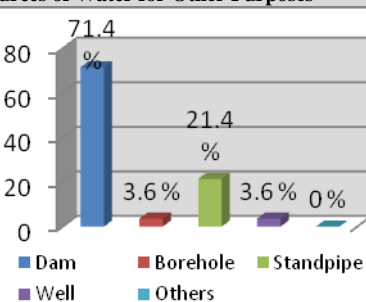
#### Water Connection to Household



#### Sources of Water for Drinking



#### Sources of Water for Other Purposes





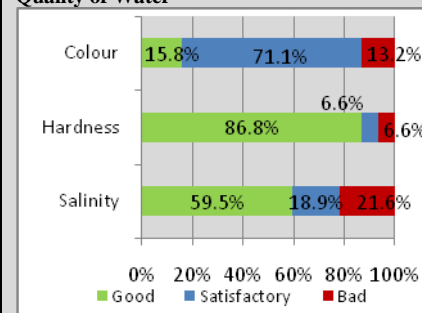
### **Quality of Water**

For salinity, 59.5% of respondents indicated neutral taste of their water, 18.9% slightly salty and 21.6% salty.

With respect to hardness of water, 86.8% of respondents indicated good lathering, 6.6% said water lathers slightly well with soap and 6.6% said water does not lather with soap.

For appearance of water, 15.8% of respondents pointed out the fact that the water was generally clear, 71.1% slightly turbid (coloured) and 13.2% turbid.

### **Quality of Water**



## **2.6.4 Refuse Management**

### **Household Solid Waste Storage**

Data from the household survey shows that 26.9% have sanitary dustbins for primary storage of household waste. The receptacles used are not standard and varies from boxes, buckets, cartons etc. If primary collection service (House-to-House or Block) is to be introduced then education campaigns have to be embarked on to raise awareness on the advantages of using standard storage bins.

### **Availability/Access to Refuse Dump Sites**

Data from the survey indicate that 54.2% of households have access to uncontrolled dump sites for disposing of their refuse.



Plate 2.11 An uncontrolled refuse dump by footpath



Plate 2.12 Poor solid waste disposal



### **Method of Refuse Disposal**

Responses from administering questionnaires show that 1.4% use communal containers, 23.6% throw at backyard, 16.7% burn their refuse, 55.5% use refuse dump sites (uncontrolled dumping) and another 2.8 use other refuse disposal methods.

### **Perception of Respondents**

The residents of Kordiabe view refuse management as poor due to absence of formal refuse collection system.

## **2.6.5 Excreta Management**

In Kordiabe, 30% of all respondents have a household toilet facility.

### **Types of Household Toilet Facilities**

Data from the household survey shows 64% use simple pit latrines, 4% use Pan Latrines, 8% use W/C and 24% use VIPs.

### **Methods of Excreta Disposal by Households Without Toilet Facilities**

Human excreta disposal trends for households without toilets shows that 26.9% defecate in the bush, 32.7% use Public KVIPs and 40.4% use Public Pit Latrines.

## **2.6.6 Storm Water and Sullage Conveyance**

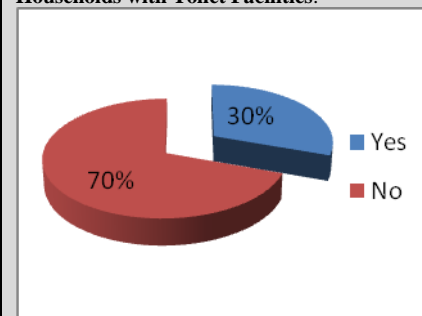
### **Storm Water Conveyance**

On the issue of flooding 46% of respondents indicated occurrence of flooding whenever there is a heavy down pour. This is supported by the lack of storm drains in the town. The only existing drain in the town is along one side of the main road.

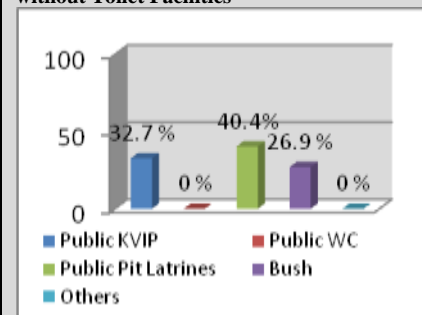
### **Disposal of Sullage from Kitchen and Bathroom**

Disposal of sullage from kitchens and wastewater from bathrooms in Kordiabe is poor. 37.5% use soakaway pits, 12.5% through earth drains, 31.9% dispose in open spaces, 15.3% in Buckets/Containers and 2.8% in Septic Tanks.

**Households with Toilet Facilities.**



**Methods of Excreta Handling by Households without Toilet Facilities**



**Disposal of Sullage from Kitchen and Bathroom**

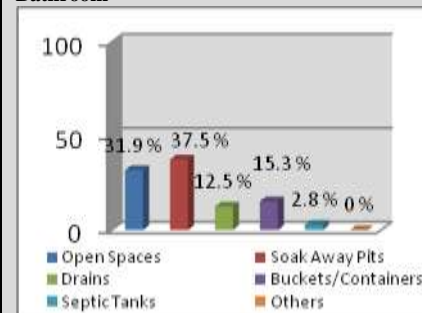




Plate 2.13 Shallow earth channel for sullage discharged from bathrooms

## 2.6.7 Health and Personal Hygiene

### Handwashing Practices

The responses on handwashing practices in Kordiabe are shown in the table below:

| Hand washing with soap practices           | Response  | Proportions of Responses (%) |
|--|-----------|------------------------------|
| Before food preparation                    | Always    | 54.5                         |
|  | Sometimes | 32.5                         |
|  | Never     | 13.0                         |
| Before meals (eating)                      | Always    | 62.3                         |
|  | Sometimes | 31.2                         |
|  | Never     | 6.5                          |
| After using toilet                         | Always    | 81.8                         |
|  | Sometimes | 14.3                         |
|  | Never     | 3.9                          |
| After attending to defaecation by children | Always    | 69.4                         |
|  | Sometimes | 18.0                         |
|  | Never     | 20.6                         |

### General Hygiene Standards in Households and Community

Observations were made in the houses and community on the following:

- Use and keep latrine
- Remove animal or children's faeces from the home and safely dispose of them
- Manage and maintain safe, public sanitary solutions (for human and animal waste)
- Consume safe water
- Keep all water containers covered
- Obtain water for drinking/cooking from the least contaminated source available
- Manage and maintain safe, sanitary garbage disposal

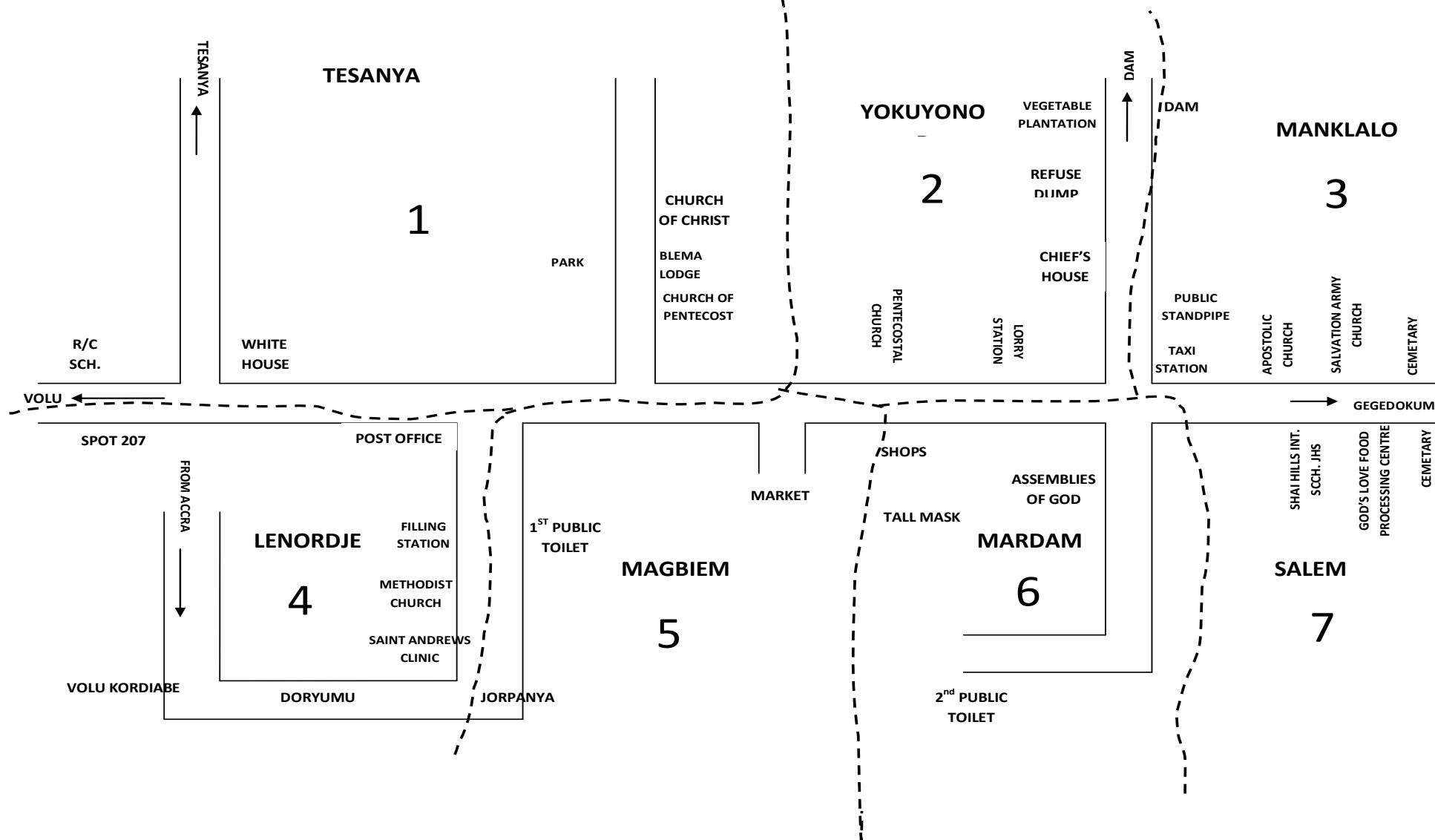
The results have been summarised in Table 2.4 below.

### Availability of Bye-Laws

78.7% of respondents indicated that there are environmental bye-laws in the town. These bye-laws are usually enforced by the town council authorities.



## SKETCH OF KORDIABE LAYOUT



**Table 2.4: KORDIABE COMMUNITY PROFILE**

| ENVIRONMENT CATEGORY  | DESCRIPTION   |
|-----------------------|---|
| WATER SHED MANAGEMENT | <ul style="list-style-type: none"> <li>• Pollution of Dam/Lake with run-off water and solid waste.</li> <li>• Inadequate usage/utilization of water shed resource (Dam)</li> <li>• Fishing in Dam</li> </ul>                      |
| WATER SUPPLY          | <ul style="list-style-type: none"> <li>• Lack of safe Drinking water. Pipe borne water flows once a while.</li> <li>• Dam serves as the only reliable source of water.</li> <li>• Possibility of water borne diseases.</li> </ul> |
| WASTE WATER DISPOSAL  | <ul style="list-style-type: none"> <li>• Open/spread waste water disposal on bare ground and catch pits.</li> </ul>   |
| LIQUID WASTE DISPOSAL | <ul style="list-style-type: none"> <li>• Two (2) Public KVIPs which were found to be inadequate.</li> <li>• Inadequate Household toilet facilities.</li> <li>• Indiscriminate defecation.</li> </ul>                              |
| SOLID WASTE DISPOSAL  | <ul style="list-style-type: none"> <li>• Indiscriminate dumping close to water resource (Dam)</li> </ul>  |
| STORM WATER DISPOSAL  | <ul style="list-style-type: none"> <li>• Lack of public drains</li> <li>• Sheet erosion</li> </ul>  |
| PROMINENT FEATURES    | <ul style="list-style-type: none"> <li>• Dam and wetland (Tsupa do Dam). Man made dam.</li> <li>• Clay deposit.</li> <li>• Good layout</li> <li>• Irrigation for small scale vegetable farming</li> </ul>                         |

### **3 RECOMMENDATIONS**

From the environmental sanitation assessment and audit and the town profile, the following interventions are recommended:

- Improvement in drainage scheme
- On-site sanitation improvement programme
- Solid waste management improvement programme
- Improvement of wetland management
- Management support

### **4 CONCLUSION**

Details of the interventions mentioned are discussed in the Town Environmental Sanitation Development Plans (TESDPs) which gradually introduces a means of providing integrated interventions to address issues confronting small and medium-large towns.

**ANNEX B: QUESTIONNAIRE FOR ENVIRONMENTAL SANITATION ASSESSMENT AND AUDIT**

|           |                |            |
|-----------|----------------|------------|
| REGION:   | FIELD OFFICER: | POPULATION |
| TOWN:     |                | AGE:       |
| DISTRICT: | DATE           | SEX:       |

**1 CHARACTERISTICS OF RESPONDENT**

|                               |                     |             |              |
|-------------------------------|---------------------|-------------|--------------|
| a Sex of Respondent           | Male                | Female      |              |
| b Age of Respondent           | Below 18            | Above 18    |              |
| c Level of Education attained | No formal education | Primary/JSS | SSS Tertiary |

**2 HOUSE/HOUSEHOLD CHARACTERISTICS (PLEASE TICK)**

|                                 |       |            |               |             |      |     |
|---------------------------------|-------|------------|---------------|-------------|------|-----|
| a Type of Household             | Rural | Low Income | Middle Income | High Income |      |     |
| b Number of Households in House | 1-2   | 2-4        | 4-6           | 6-8         | 8-10 | >10 |
| c Household size                | 2-4   | 4-6        | 6-8           | 8-10        | >10  |     |

**3 WATER MODULE**

|  |        |                   |           |      |
|--|--------|-------------------|-----------|------|
| a Is there water connection to your house            | Yes    | No                |           |      |
| b Is it reliable?                                    | Yes    | No                |           |      |
| c Where do you fetch drinking water                  | Stream | Borehole          | Standpipe | Well |
| d Where do you fetch water for other purposes        | Stream | Borehole          | Standpipe | Well |
| e Who usually fetches the water?                     | Adult  | Children          |           |      |
| f How far is the source of water                     | Close  | Far               | Very far  |      |
| g Are the yields of water sufficient                 | Yes    | No                |           |      |
| h Is the colour of surface/groundwater good?         | Yes    | slightly coloured | No        |      |
| i Does the ground water taste salty                  | Yes    | slightly          | No        |      |
| j Does the surface/groundwater lather well with soap | Yes    | slightly          | No        |      |

**4 SOLIDWASTE MANAGEMENT MODULE**

|  |               |  |
|--|---------------|--|
| a Do you have Sanitary Dustbin for storage of refuse?                | Yes           | No   |
| if Yes   |               |  |
| b What is the volume of your sanitary bin?                           | 0-50 L        | 20-100 L 100-150 L 150-200 L 200-250 L                         |
| c How many times do you empty your sanitary bin?                     | Once everyday | Twice a week Thrice a week Once a week More than thrice a week |
| d Where do you dispose off your refuse?                              | Refuse dump   | Bury Burn Back yard communal Contain other(specify)            |
| e What are the proportions of waste type generated?                  |               |  |
| Organic  |               | Metal  |
| Paper  |               | Textiles   |
| Plastics   |               | Wood   |
| Glass  |               | Miscellaneous  |
| f What is the distance from your house to the refuse disposal site?  | Close         | Far Very Far   |
| g Is the refuse dump close to a water body?                          | Yes           | No   |
| h How would you grade the waste management system in this community? |               |  |
| waste collection   | waste dumping | distance from the waste dump                                   |
| Bad  |               |  |
| Satisfactory   |               |  |
| Good   |               |  |

**5 LIQUID WASTE MANAGEMENT MODULE**

|  |                 |                                    |
|--|-----------------|------------------------------------|
| a Do you have toilet facility in your house?               | Yes             | No                                 |
| if Yes   |                 |                                    |
| b What the type of toilet facility                         | KVIP            | W/C Pit Latrine Others (Specify)   |
| if No  |                 |                                    |
| c Where do you ease yourself?                              | Public KVIP     | Public W/C Public Pit Latrine Bush |
| d How far is the toilet facility from where you live?      | Close           | Far Very far                       |
| e Are the public toilets close to water bodies             | Yes             | No                                 |
| f How do you dispose of water from bathrooms and kitchens? |                 |                                    |
| Open Spaces Soakaway pDrains                               | Buckets/Contane | Septic tank Others (Specify)       |

**6 STORM WATER CONVEYANCE MODULE**

|   |             |                                  |
|---|-------------|----------------------------------|
| a Do you experience Flooding when it rains?       | Yes         | No                               |
| If Yes  |             |                                  |
| b Do you have drains that convey the storm water? | Yes         | No                               |
| If Yes  |             |                                  |
| c Are the drains cleansed periodically?           | Yes         | No                               |
| If Yes  |             |                                  |
| d Who is responsible?                             | Individuals | Area Authorities Other (Specify) |



## 7 HANDWASHING PRACTICES MODULE

|   |  |  |           |  |       |  |
|---|--|--|-----------|--|-------|--|
| a | Do you wash your hands with water and soap (or other cleaning agent) before preparing food?                            |  |           |  |       |  |
|   | Always   |  | Sometimes |  | Never |  |
| b | Do you wash your hands with water and soap (or other cleaning agent) before eating?                                    |  |           |  |       |  |
|   | Always   |  | Sometimes |  | Never |  |
| c | Do you wash your hands with water and soap (or other cleaning agent) after use of toilet?                              |  |           |  |       |  |
|   | Always   |  | Sometimes |  | Never |  |
| d | Do you wash your hands with water and soap (or other cleaning agent) after helping/cleaning children after defecation? |  |           |  |       |  |
|   | Always   |  | Sometimes |  | Never |  |

## 8 HEALTH INFORMATION MODULE

|   |  |         |           |              |
|---|--|---------|-----------|--------------|
| a | Are you aware of any predominant disease(s) in your community? |         | Yes       | No           |
| b | What is/are the diseases?                                      | Malaria | Cholera   | Skin disease |
| c | Do you have Health Facility in your community?                 |         | Yes       | No           |
| d | If "No" where do you treat such disease(s)?                    |         |           |              |
|   | Chemical sellers   |         |           |              |
|   | Traditional healers  |         |           |              |
|   | Faith based healers  |         |           |              |
|   | Other (state)  |         |           |              |
| e | Which vectors are prevalent in household/community             |         | housefly  | mosquito     |
|   |  |         | tsetsefly |              |

## 9 AVAILABILITY OF BYE LAWS MODULE

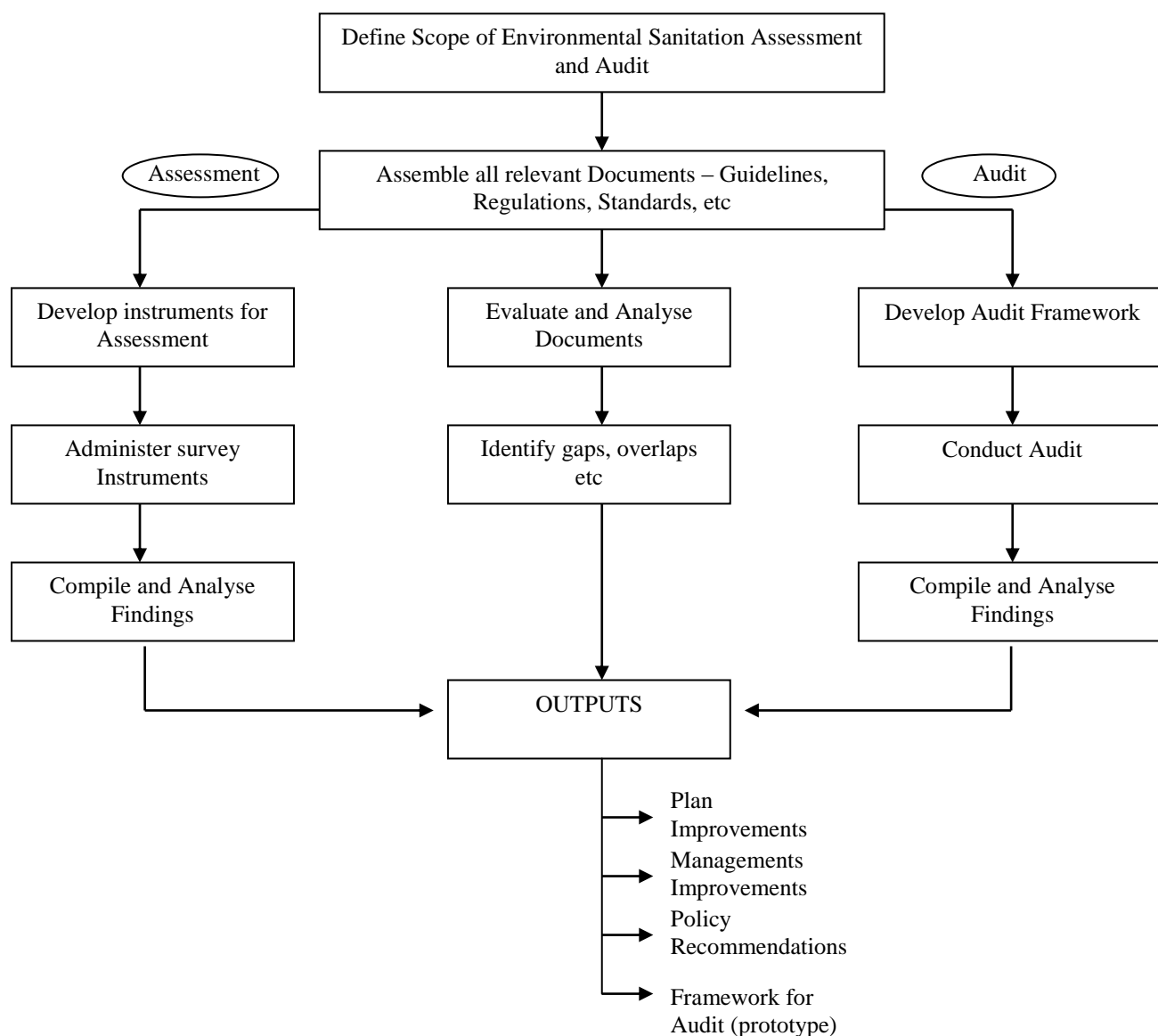
|   |  |  |  |           |
|---|--|--|--|-----------|
| a | Do you have environmental laws for your community?     |  | Yes                                      | No        |
| b | Who is responsible for law enforcement in communities? |  | Area/Town Council                        | Sub Metro |
|   |  |  | Metropolitan/Municipal/District Assembly |           |

## 10 GENERAL OBSERVATIONS TO BE MADE BY INTERVIEWERS IN HOUSEHOLDS

|   |   |         |                |  |
|---|---|---------|----------------|--|
| a | Availability of water and soap/other cleaning agents for hand washing |         | Yes            | No                                     |
| b | Is it conveniently placed in vicinity of private toilet?              |         | Yes            | No                                     |
| c | Hygienic standard of private latrines                                 |         |                |  |
|   | Clean   | Tidy    | Faeces on slab | Flies                                  |
|   |   |         | Smell          | Used cleaning material littered around |
| d | Storage of Water  |         |                |  |
|   | - Covered   | - Clean | Uncovered pots | - Cleaning/filter facility             |
| e | Hygienic standard of kitchen/cooking place                            |         | Clean          | Flies                                  |
|   |   |         | Animals around |  |
| f | Accumulation of water within 20 meters radius (by observation)        |         | Yes            | No                                     |
| g | Evidence of open standing foul smelling water                         |         | Yes            | No                                     |
| h | Water accumulated in discarded containers                             |         | Yes            | No                                     |

## ANNEX 2: FRAMEWORK FOR CONDUCTING ENVIRONMENTAL SANITATION ASSESSMENT AND AUDIT

**FLOW CHART FOR ENVIRONMENTAL  
SANITATION ASSESSMENT AND AUDIT**



### ANNEX 3: LIST OF PERSONS MET FOR CONSULTATIONS, FGDS AND KPIS

| No.   | Name                      | Position/Designation    |
|---|---------------------------|-------------------------|
| <b>Ga South District Assembly</b>   |                           |                         |
| 1.  | Hon. Daniel Danfro        | Assemblymember, Obom    |
| 2.  | Mr. Dartey                | EHO, Obom               |
| <b>Dangme East District Assembly</b>  |                           |                         |
| 3.  | Hon. Frederick Labia      | Assemblyman, Akplabanya |
| 4.  | Mr. Isaac Wakah           | EHO, Akplabanya         |
| 5.  | Mr. Chris Doku            | EHO, Kisseh             |
| <b>Akplabanya – Community Dialogue, Traditional Rulers, and Opinion Leaders</b> |                           |                         |
| 6.  | Afetogbo Albert           | Opinion leader          |
| 7.  | Gorleku Theophilus        | Opinion leader          |
| 8.  | Samuel K Afetogbo         | Opinion leader          |
| 9.  | Nene Moses Kitcher Labia  | Traditional Chief       |
| 10.   | Kamara Labia              | Opinion leader          |
| 11.   | Andrew Kitcher Labia      | Opinion leader          |
| 12.   | Momlate Donu Labia        | Opinion leader          |
| 13.   | Gheni Gorleku             | Opinion leader          |
| 14.   | Philip Ngune Kpeku        | Opinion leader          |
| 15.   | Samuel Kitcher            | Opinion leader          |
| 16.   | Gbagbe Labia              | Opinion leader          |
| <b>Dangme West District Assembly</b>  |                           |                         |
| 17.   | Hon. Stephen Nene Oyortey | Assemblyman, Kordiabe   |
| 18.   | Mr. Boko Zanu             | EHO, Kordiabe           |
| 19.   | Mr. Ben Zuta              | Traditional Secretary   |