



**REPUBLIC OF GHANA**

**COMMUNITY WATER AND SANITATION AGENCY  
GREATER ACCRA REGION**

*District Based Water and Sanitation Component (DBWSC)*

**ENVIRONMENTAL SANITATION ASSESSMENT AND  
AUDIT IN SIX (6) SMALL TOWNS IN FOUR (4)  
DISTRICTS IN THE GREATER ACCRA REGION  
OYIBI-ABOKOBI-DAWA-ASUTSUARE-**



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# 1 INTRODUCTION

## 1.1 GENERAL

The development objective of the District-Based Water and Sanitation Component (DBWSC) is to improve the health status and quality of life in targeted communities and small towns and the components' activities include support to Small Towns Environmental Sanitation.

The Community Water and Sanitation Agency in the Greater Accra Region (CWSA-GAR) utilized funds provided under the DANIDA supported Water and Sanitation Sector Programme Support Phase I (WSSPS I, 1998 - 2003), to assist communities to install improved water supply and sanitation facilities, integrated with hygiene education and promotion in beneficiary communities and institutions in the Ga East, Ga West, Dangme East and Dangme West Districts, and rural parts of the Tema Municipality.

Under phase I, a total of 68,000 people who hitherto relied on rivers, streams, dugouts, ponds and lakes for their water supply needs now have potable water. Similarly, 2,825 household latrines and 144 institutional KVIP latrines were conducted.

Since the inception of Phase II of the District-Based Water and Sanitation Component in January 2004, 4 rural piped water schemes have been completed for communities in Oyibi, Abokobi, New Kweiman and Pantang catchments. The Asutsuare surface water scheme has also been completed. The 3-Districts Water and Sanitation Project for communities in the Dangme East and West Districts in Greater Accra Region and North Tongu District in the Volta was inaugurated in July, 2006. All of these schemes are expected to serve more than 180,000 people.

## 1.2 BACKGROUND

This assignment forms part of the phase two of the Danida-supported Water and Sanitation Sector Support Programme (WSSPSII) – District Based Water and Sanitation (DBWS) Component. The DBWS component is expected, among other outputs, to carry out small scale sustainable environmental sanitation projects in 20 selected small towns under outputs related to improving environmental sanitation.

The proposed strategy includes, among others, supporting small towns to undertake environmental sanitation assessments and audits to 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.

In order to fulfill the above strategy, an eligible consultancy company was sought to conduct an environmental sanitation assessment and audit in the following piped scheme communities:

1. Dangme East District: Sege and Akplabanya
2. Dangme West: Dawa and Asutsuare
3. Tema Municipal Assembly: Oyibi & Ga East District: Abokobi

WasteCare Associates was commissioned by CWSA-GAR to carry out activities specific to:

- Dawa and Asutsuare in Dangme West District
- Oyibi in the Tema Municipal Assembly and Abokobi in the Ga East District Assembly

### 1.3 OBJECTIVES

The overall objective of the assignment is to:

1. Identify and quantify the environmental problems in the selected small towns
2. Develop a range of measures for addressing the identified problems
3. Prepare background data, including costing for sub-projects to be funded by CWSA-GAR as part of the DBWSC and other funding sources through other agencies for those sub-projects outside the mandate of CWSA.

### 1.4 SCOPE OF SERVICES

In order to meet the objectives of the assignment, WasteCare carried out the tasks specified hereunder:

1. Discussed the main environmental problems with the District Assemblies and community including solid waste, waste water, human waste disposal, need for improved hygiene, vector control and environmental degradation due to erosion.
2. Carried out an environmental audit of the extent or impact of the above environmental sanitation problems in the community.
3. Developed solutions to deal with each of the main environmental sanitation problems identified, including cost estimates.
4. Made presentations of findings to forum of community/DA/CWSA.

### 1.5 STAGES OF THE CONSULTANCY ASSIGNMENT

The consultancy services carried out for the entire project are outlined below:

Task 1	Mobilisation and Planning (including initial consultations)
Task 2:	Literature Review
Task 3:	Data collection for Sanitation Analysis and outlining report
Task 4:	Preparation of draft final report
Task 5:	Preparation of TESDPs and Financing Packages
Task 6:	Stakeholders Workshop to revise draft TESDPs and Financing Packages
Task 7:	Preparation of final reports

### 1.6 BROAD FRAMEWORK FOR ENVIRONMENTAL SANITATION ASSESSMENT AND AUDIT

In order to meet the objectives of the assignment based on the expressed strategies of the DBWSC, the activities carried out covered specifically:

- Assessments and audits of environmental sanitation management in *Dawa, Asutuare, Oyibi and Abokobi*;
- Test methodology for integration of results of assessments and audits in the corresponding districts;
- Gather feed-back on experiences from implementation of similar pilot and demonstration projects;
- Modification of planning guidelines if relevant (based on existing processes relevant agencies e.g. EPA and EHSU-MLGRDE and NDPC).
- Define appropriate sub-projects to remedy identified and prioritized environmental sanitation problems
- Identify sources of funding (CWSA and others); and
- Propose criteria for funding of demonstration projects

In considering the objectives, the TOR for the assignment and the overall strategies of the WSSPSII concerning environmental sanitation, the processes and procedures adopted by WasteCare are defined in a broad framework as indicated in the following mutually reinforcing steps:

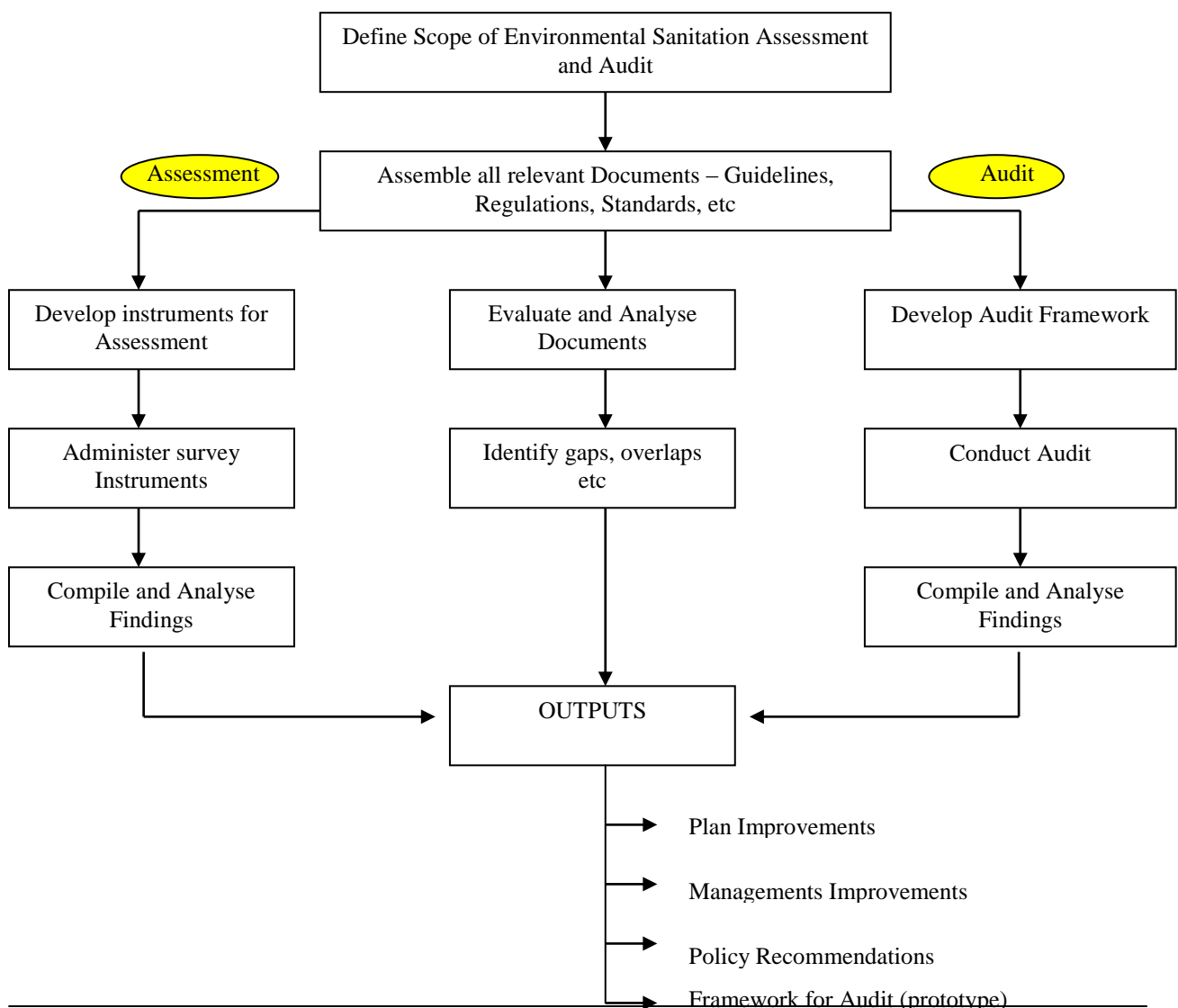
**Environmental Sanitation Assessments:** situational assessment of each township comprising field observations/surveys and community interviews through appropriately structured questionnaires.

**Environmental Sanitation Audits:** conducted along with the situational assessments to find out the extent to which laid down regulations, guidelines and/or procedures are followed and adhered to by DAs.

From initial desk reviews procedures for carrying out Environmental Sanitation Audits are not available, as guidelines are yet to be defined. Based on previous application of assessments and audits, WasteCare has proposed a protocol to be followed for the purposes of similar assignments. In order to proceed, the adapted definition for Environmental Sanitation Audit applied is: *environmental sanitation audit is a systematic, documented, periodic and objective process in assessing activities and services in relation to:*

- *Assessing compliance with relevant statutory and sector requirements*
- *Facilitating management control of environmental sanitation practices*
- *Promoting good environmental management*
- *Raising awareness and enforcing commitment to environmental sanitation policy*
- *Exploring opportunities for improvement.*

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



## 2 METHODOLOGY AND TOOLS

### 2.1 LITERATURE REVIEW

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

- Local Government Act, 1994 (Act 462)
- Environmental Sanitation Policy, 1999
- Environmental Protection Act, 1994 (Act 490)
- Environmental Assessment Regulations, 1999 (LI 1652)
- USID/EHP Guidelines for the Assessment of Sanitation Guidelines
- 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

Information gathered from the review was used to inform the development of the assessment and audit tools and related procedures.

### 2.2 FIELD STUDY

The environmental sanitation assessment and audit was carried out by segmenting each of the 4 towns into sampling areas:

- Asutsuare was divided into 4 sampling areas based on concentration of households. The sampling areas were as follows:
  - Sample Area 1 – Agave Area
  - Sample Area 2 – Tsangbe Area
  - Sample Area 3 – Gbese Dorm Area
  - Sample Area 4 – Factory Area
- Dawa was divided into 2 sampling areas based on concentration of households. The sampling areas were as follows:
  - Sample Area 1 – Market and Surroundings (Westwards of Tema-Ada Road)
  - Sample Area 2 – Chief’s Palace and Surroundings (Eastwards of Tema-Ada Road)
- Abokobi was divided into 3 sampling areas based on concentration of households. The sampling areas were as follows:
  - Sample Area 1 – Agric Project Area
  - Sample Area 2 – Estate Area
  - Sample Area 3 – New Town Area
- Oyibi was divided into 2 sampling areas based on concentration of households. The sampling areas were as follows:
  - Sample Area 1 – Salem Area
  - Sample Area 2 – ‘Dzoomi’ Area

(Refer to Maps 1, 2, 3 and 4 for enumeration areas).

## 2.3 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.

## 2.4 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 2007 using the generic formula:  
 $P_{2007} = P_{2000} \times (1 + r)^n$ , where  $r$  = district growth rate and  $n$  = number of intervening years (i.e. 7)
- 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 mobilisation, 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 2.

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

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

### ***Mobilization of Personnel***

In each of the towns survey assistants were identified and trained in administering the questionnaires. Each enumeration team were 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
Asutsuare	4
Dawa	2
Abokobi	3
Oyibi	2



### 3 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.

#### 3.1 DANGME WEST DISTRICT ASSEMBLY

##### Geography

**Location:** The Greater Accra Region of Ghana  
**Coordinates:** Latitude 5°45' South and 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 district shares boundaries with the Yilo Krobo District on the North- West, North-Tongu District on the North-East, Akwapim-North District on the West, Tema Municipality on the South-West and Dangme-East District on the East. The north-eastern and southern portions of the district are washed by the Volta River and Atlantic Ocean respectively. The district has a coastline stretching over 37km.

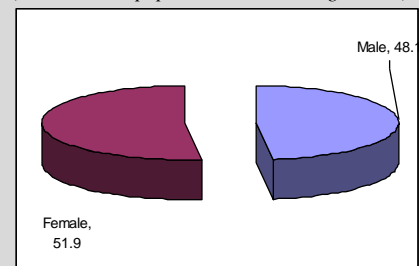
**Climate:** The Southeastern coastal plain of Ghana, which encompasses the Dangme West District, is one of the hottest and driest parts of the country. Temperatures are however subjected to occasional and minimal moderating influences along the coast and altitudinal influences affected by the Akwapim range in the northwest.

Temperatures are appreciably high for most parts of the year with the highest during the main dry season (November - March) and lowest during the short dry season (July - August). They average a few degrees lower on the coast and close to the Akwapim range than they do over most of the plains. The absolute maximum temperature is 40° C.

The most complete absence of cloud cover for most parts of the year gives way to very high rates of evaporation which leaves most parts of the district dry and with parched soils. The combined effects of high temperatures and high insulation levels, on the other hand, are of invaluable asset to the salt-making industry, as they account for the high and rapid rates of salinization and crystallization crucial for the winning of salt. They also provide enormous potentials for solar power development.



**Percentage Distribution of Population by Sex**  
 (Source: 2000 population and housing census)



Rainfall is generally very low with most of the rains, very erratic in nature and coming mostly between September and November. Mean annual rainfall increases from 762.5 milliliters on the coast to 1220 milliliters to the North and Northeast close to the foothills of Akwapim Rang and on the summit.

The unreliability and dependence of farmers on the rainy seasons makes farming a vulnerable occupation. Periodic main crop failures are common phenomena even in the better- watered northern parts. It is obvious therefore that the provision of irrigation facilities would be of great value in the district. This should be accompanied by soil salinity control measures.

**Topography:** The district forms the central portions of the Accra plains. The relief is generally gentle and undulating, a low plain with heights not exceeding 70 metres. The plains are punctuated in isolated areas by a few prominent inselbergs, isolated hills, outliers and knolls scattered erratically over the area.

Prominent relief features include the Yongua inselberg (427 metres) which appears conical in the air with a number of outliers close to the north of the district around Asutsuare and Osuwem areas; the Krabote inselberg also to the North and the Shai Hills (289 metres) found towards the western portions of the district.

Large rock outcrops and boulders are conspicuously placed in the vicinity of the hills in certain places. The rocky hills together with the large boulders provide immense potentials for stone quarrying, which is already a major pre-occupation in the district.

The Akwapim mountain range in the northwestern parts of the district presents a striking relief feature of outstanding natural beauty. It also accounts for a micro- rain shadow effect that influences the climate of Dodowa and the immediate surroundings.

The eastern foothills of the range have fairly deep well-drained and relatively fertile hilly soils. The foothills constitute one of the most largely cropped portions of the district.



Shai Hills Game Reserve in the Dangme West District

Capital: Dodowa

**Demographic Characteristics**

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 143,363 comprising 46,552 males and 96,811 females. The district population constitutes about 3.3% of the Central Region population.

**3.2 ENVIRONMENTAL SANITATION PROFILE OF ASUTSUARE**

**3.2.1 Population and Household Data**

According to the 2000 population and housing census, Asutsuare has a population of 3,254 (1600 males and 1,654 females) with 449 houses. The number of households is 759 and the average household size is 4.3. Based on the 2000 population figure and the district growth rate of 2.8%, the current estimated population of Asutsuare is 3,921 (1928 males and 1993 females).

The total number of households interviewed is 140.

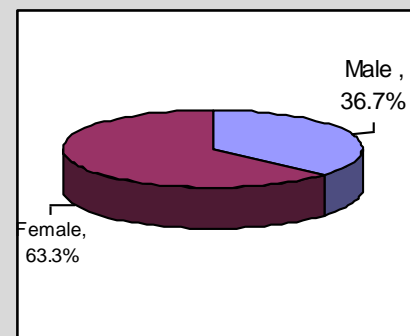
**3.2.2 Characteristics of Respondents**

On characteristics of respondents, the questionnaire addressed the following:

**Sex of Respondents**

36.7% of respondents were males and 63.3% females.

Sex of Respondent



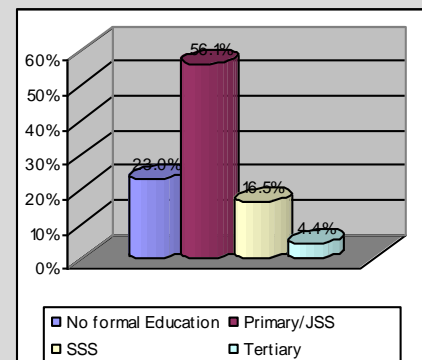
**Age of Respondents**

The exercise ensured that all respondents interviewed were above 18 years.

**Level of Education of Respondents**

4.4% have attained tertiary education level, 16.5% secondary education, 56.1% Primary/JSS, 23.0% have no formal education.

Level of Education of Respondent

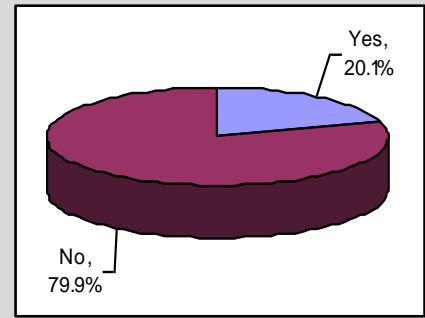


### 3.2.3 Potable Water Coverage

#### Water Connection

In Asutsuare, 20.1% of respondents have water connection to their houses.

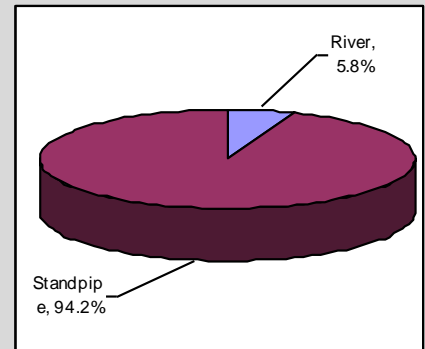
Water Connection to Households



#### Sources of Water for Drinking

Data from the survey shows that sources of water for drinking purposes include either fetching raw water directly from the river (5.8 %) and standpipes provided by the newly constructed Osudoku Surface Water Scheme (94.2%).

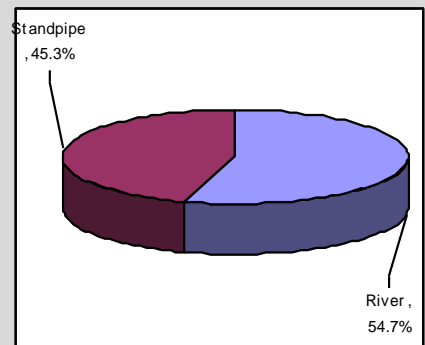
Sources of Water for Drinking



#### Sources of Water for Other Purposes

Responses from the survey show that sources of water for other purposes aside drinking include river (54.7%) and standpipe (45.3%).

Sources of Water for Other Purposes



These figures presented above shows that most of the respondents use the Volta river which is the source of raw water for the newly constructed water scheme as their source of water for routine activities such as bathing and washing. These practices if not addressed will increase the level of pollution of the river and hence threaten the sustainability of the water project since the cost of water treatment will rise. Most of the residents lamented that the cost per bucket of ₵200 for water from the standpipes is too high and hence the practice of resorting to the river which is free.



Plate 1: Residence washing and bathing in the Volta River which is the source of raw water for the newly constructed water scheme, *Asutsuare*.



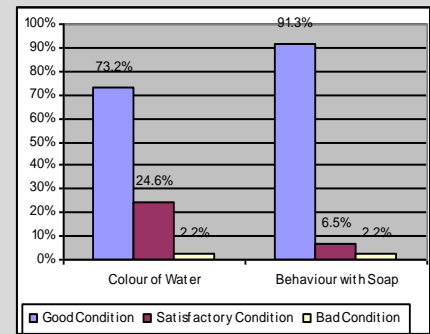
Plate 2: Water Treatment system for the newly constructed Osudoku Area Water Supply Scheme, *Asutsuare*

## Quality of Water

For appearance of water, 73.2% of respondents pointed out the fact that the water was generally clear, 24.6% slightly turbid (coloured) and 2.2% turbid.

With respect to hardness of water, 91.3% of respondents indicated good lathering, 6.5% said water lathers slightly well with soap and 2.2% said water does not lather with soap.

Quality of Water



### 3.2.4 Refuse Management

Refuse generated in Asutsuare includes those from households, rice husk from activities of rice farmers, commercial activities and the lorry station.

#### Household Solid Waste Storage

Data from the household survey shows that 23.7% of respondents have sanitary dustbins for primary storage of household waste. The receptacles used are not standard and varies from sacks, 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.

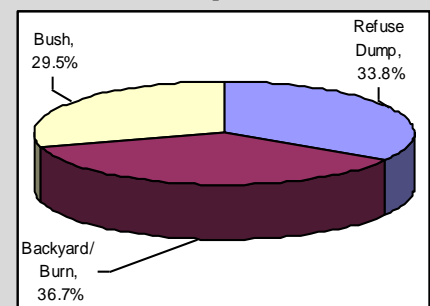
#### Method of Refuse Disposal

Responses from administering questionnaires show that 33.8% use refuse dump sites (uncontrolled dumping), 36.7% throw at backyard and burn and 29.5% throw in bush.



Plate 3: Site for uncontrolled dumping of refuse, Asutsuare.

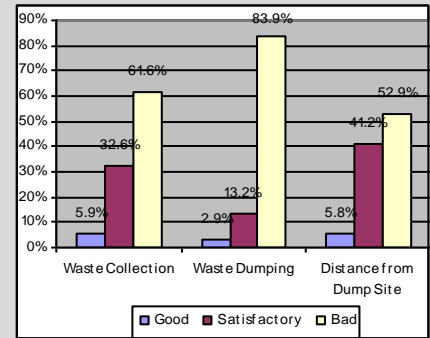
Methods of Refuse Disposal



**Perception of Respondents on Solid Waste Management**

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

**Perception of Respondents on Solid Waste Management**



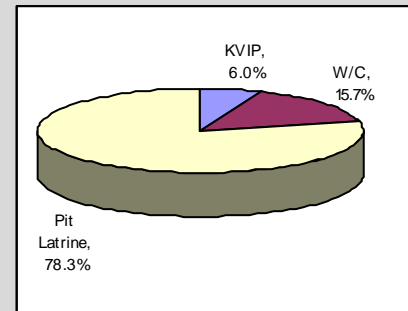
**3.2.5 Excreta Management**

In Asutsuare 31.2% of respondents have a household toilet facility.

**Types of Household Toilet Facilities**

Data from the household survey shows that of the 31.2% household toilet facility coverage, 78.3% use simple pit latrines, 6.0% use VIPs and 15.7% use W/C.

**Type of Household Toilet Facilities**



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

Human excreta disposal trends for households without toilets shows that 88.9% defecate in the bush, 2.4% use that of their neighbours and 8.7% use public toilets.

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

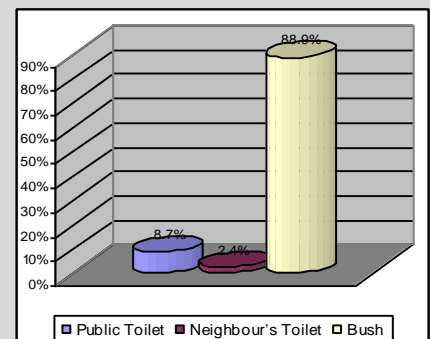


Plate 4: Latrine built with local materials without a superstructure close to the banks of Volta River, Asutsuare



Plate 5: Old dilapidated 20 seater KVIP, Asutsuare.



### 3.2.6 Storm Water and Sullage Conveyance

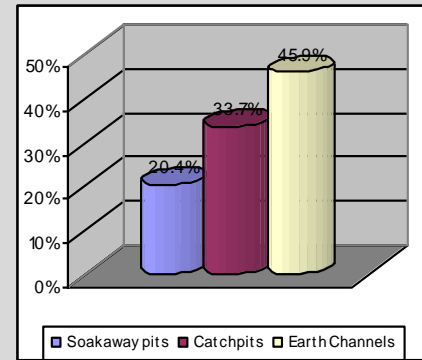
#### Storm Water Conveyance

On the issue of flooding 71.5% 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 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 Asutsuare is poor. 20.4% use soakaway pits, 33.7% through the construction of catchpits and dispose in open spaces and 45.9% through earth channels.

**Disposal of Sullage from Kitchen and Bathrooms**



### 3.2.7 Health and Personal Hygiene

#### Handwashing Practices

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

Hand washing with soap practices	Response	Proportions of Responses (%)
Before food preparation	Always	41.6
	Sometimes	43.1
	Never	15.3
Before meals (eating)	Always	49.6
	Sometimes	44.5
	Never	5.9
After using toilet	Always	61.3
	Sometimes	33.6
	Never	5.1
After attending to defaecation by children	Always	48.8
	Sometimes	40.5
	Never	10.7

#### 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 2.1 below.

#### Availability of Bye-Laws

97.8% of respondents indicated that there are environmental bye-laws in the town. These bye-laws are usually enforced by the area council authorities.

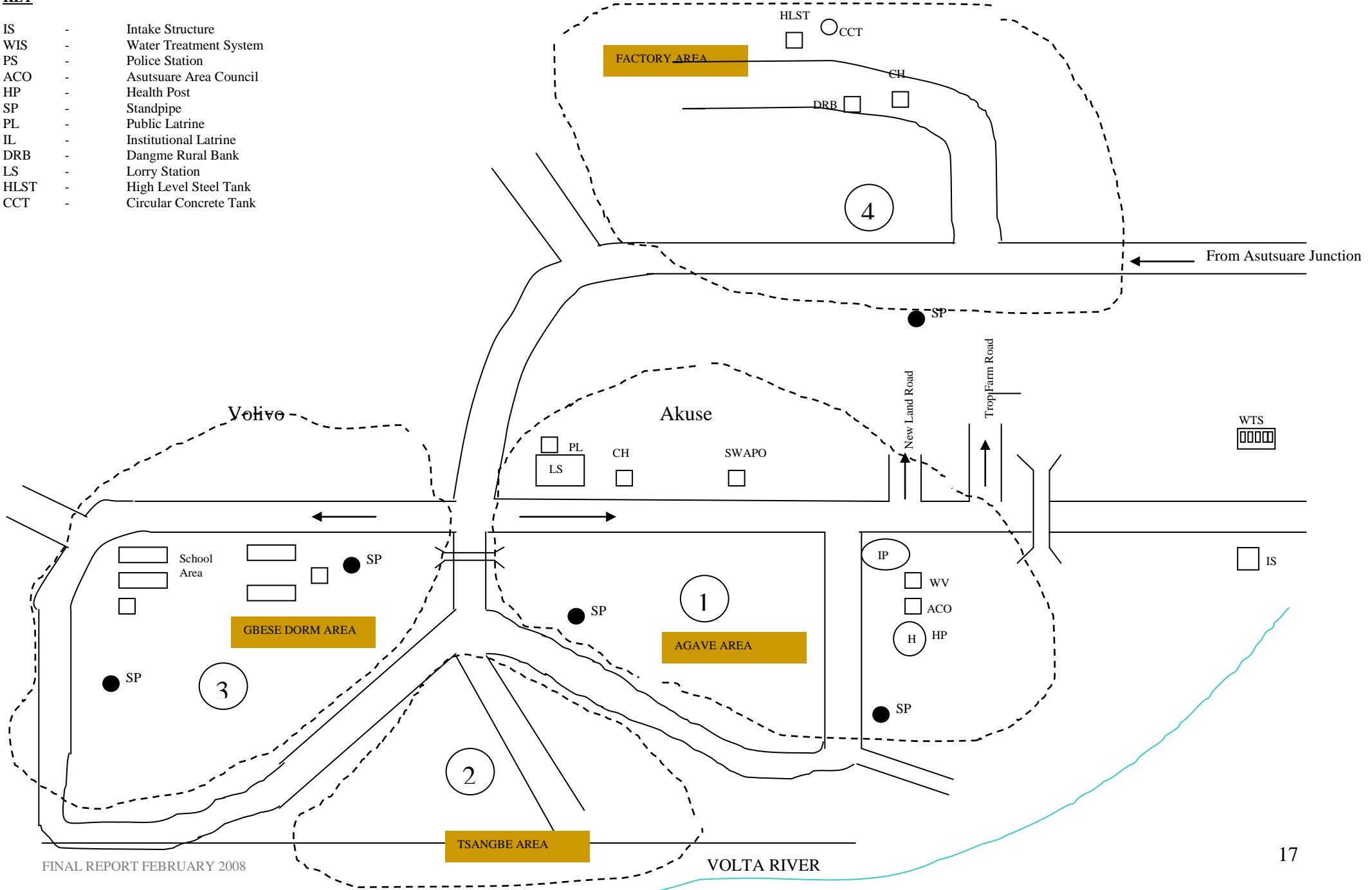




# LAYOUT OF ASUTSUARE

**KEY**

- IS - Intake Structure
- WIS - Water Treatment System
- PS - Police Station
- ACO - Asutsuare Area Council
- HP - Health Post
- SP - Standpipe
- PL - Public Latrine
- IL - Institutional Latrine
- DRB - Dangme Rural Bank
- LS - Lorry Station
- HLST - High Level Steel Tank
- CCT - Circular Concrete Tank



**COMMUNITY PROFILING FORM ASUTSUARE**

ENVIRONMENT CATEGORY	DESCRIPTION
WATER SHED MANAGEMENT	<ul style="list-style-type: none"> <li>• RUN-OFF AND WASTE WATER POLLUTION INTO VOLTA RIVER</li> <li>• Improper land use e.g. Swine keeping, farming with pesticides and other chemicals.</li> <li>• Land degradation. e.g. sand and stone winning in Volta River basin.</li> <li>• Indiscriminate defecation and Dumping of solid waste on Volta River banks.</li> <li>• Improper siting of sanitary facilities e.g. pit latrines at the banks of Volta River.</li> <li>• Abandoned and dilapidated irrigation plant at the banks of Volta river</li> <li>• Navigation, fishing, washing and recreational activities (swimming) in Volta River.</li> </ul>
WATER SUPPLY	<ul style="list-style-type: none"> <li>• Inadequate pipe borne water supply from kpone water works</li> <li>• 10 standpipes provided in Asutsuare Town under the newly constructed Asutsuare water supply project (Danida Support)</li> <li>• Raw water consumption from Volta river</li> </ul>
WASTE WATER DISPOSAL	<ul style="list-style-type: none"> <li>• Improper household waste water management through earth channels which serve as breeding grounds for mosquitoes.</li> </ul>
LIQUID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• One 12 seater W/C public Toilet not commissioned due non-completion of plumbing works to allow flushing.</li> <li>• Two, 12 seater dilapidated public KVIPs.</li> <li>• Few household toilet facilities on dwelling premises.</li> <li>• Wide spread defecation in bush (<i>'free range'</i>)</li> </ul>
SOLID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Crude dumping at the banks of Volta River (30 metres) and bare ground and around public Toilets behind dwelling premises and in bush etc.</li> </ul>
STORM WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Predominant erosion</li> <li>• Low lying topography and stagnation of runoff water.</li> <li>• Perineal flooding.</li> <li>• Inadequate drainage structures to convey storm water</li> <li>• Existing culverts and roadside drains were constructed with poor gradient hence worsening the flooding situation in the town.</li> </ul>
PROMINENT FEATURES	<ul style="list-style-type: none"> <li>• Abandoned Asutsuare sugar factory of which offices have now been turned into Osudoku Secondary Technical School premises</li> <li>• Kpone irrigation project assisting rice farmers</li> <li>• Outlived and abandoned old cemetery in the heart of the town.</li> </ul>

### ENVIRONMENTAL SCAN ASUTSUARE COMMUNITY

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Area Council Status</li> <li>• Internally generated funds from rice millers.</li> <li>• Vibrant assembly Member.</li> </ul>	<ul style="list-style-type: none"> <li>• Mass Unemployment due to close-down of Asutsuare sugar factory</li> <li>• Lack of community cohesion.</li> <li>• Poor road network dangerous and weak bridge</li> <li>• Poor lorry park</li> <li>• Low commercial activities (e.g. No market stalls).</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of public facilities and institutions such as police station, health centre, post office, lorry station, rural bank.</li> <li>• Kpong irrigation project</li> <li>• Fish ponds and fishing in Volta river</li> <li>• Connected to the national electricity grid</li> <li>• Osuwem tourist attraction                             <ul style="list-style-type: none"> <li>(1) traditional/Perpetual water sources which flows all year round</li> <li>(2) Mysterious stone passage (walkway)</li> </ul> </li> <li>• Availability of arable land for farming</li> </ul>	<ul style="list-style-type: none"> <li>• High incidence of post harvest losses</li> <li>• High cost of fertilizers and other farming inputs</li> <li>• No government or D/A support for farmers and the youth</li> <li>• Extinction of endangered species and other species of aquatic life, e.g. Oyster due to the construction of the Akuse Dam</li> </ul>



### 3.3 ENVIRONMENTAL SANITATION PROFILE OF DAWA

#### 3.3.1 Population and household data

According to the 2000 population and housing census, Dawa has a population of 1012 (454 males and 558 females) with 180 houses. The number of households is 199 and the average household size is 5.1. Based on the 2000 population figure and the district growth rate of 2.8%, the current estimated population of Dawa is 1,219 (547 males and 672 females).

The total number of households interviewed is 40.

#### 3.3.2 Characteristics of Respondent

On characteristics of respondents, the questionnaire addressed the following:

##### Sex of Respondents

55.0% of respondents were males and 45.0% females.

##### Age of Respondents

The exercise ensured that all respondents interviewed were above 18 years.

##### Level of Education of Respondents

2.5% have attained tertiary education level, 15.0% secondary education, 50.0% Primary/JSS, 32.5% have no formal education.

#### 3.3.3 Potable Water Coverage

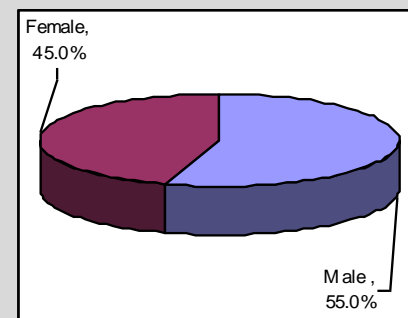
##### Water Connection

In Dawa all households interviewed have no water connection to their house.

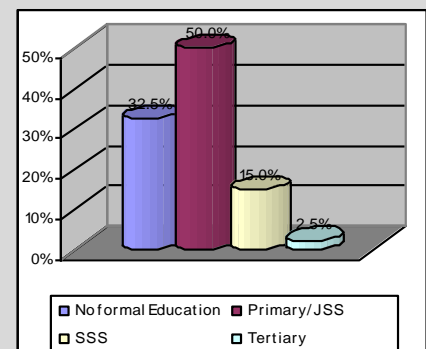
##### Sources of Water for Drinking

Data from the survey shows that sources of water for drinking purposes show that 97.3% use water from the “Worpe Dam” and 2.7% use sachet water.

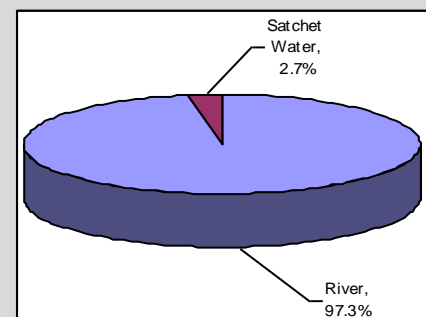
Sex of Respondent



Level of Education of Respondent



Sources of Water for Drinking



**Sources of Water for Other Purposes**

Responses from the survey show that sources of all respondent use water from the “Worpe Dam” for other purposes.

**Quality of Water**

For appearance of water, 7.5% slightly turbid (coloured) and 92.5% turbid.

With respect to hardness of water, 92.5% of respondents indicated good lathering and 2.5% said water lathers slightly well with soap.



Plate 6: *Worpa dam*-Main source of water for the people with vegetation growth, *Dawa*

**3.3.4 Refuse Management**

Refuse generated in Dawa includes those from households, market and other commercial activities.

**Household Solid Waste Storage**

Data from the household survey show that respondents from Dawa do not have any sanitized way of keeping refuse generated from their homes.

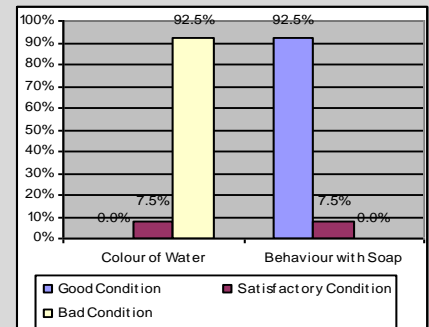
**Method of Refuse Disposal**

Responses from administering questionnaires show that 87.7% throw at backyard and burn and 12.3% throw in bush.

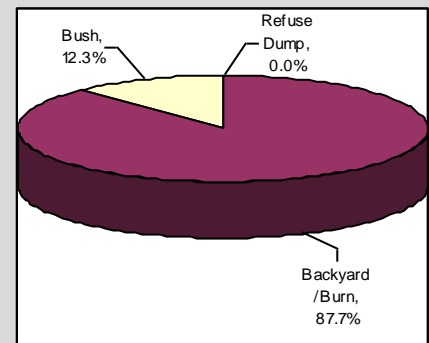


Plate 7: A sand pit for the construction of houses used as a dumping site for refuse.

Quality of Water



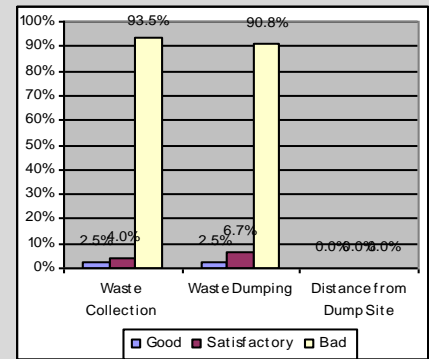
Methods of Refuse Disposal



### Perception of Respondents on Solid Waste Management

The residents of Dawa view refuse management as very poor due to absence of formal refuse collection and indiscriminate dumping. This is supported by prevalence of indiscriminate littering in the community.

Perception of Respondents on Solid Waste Management



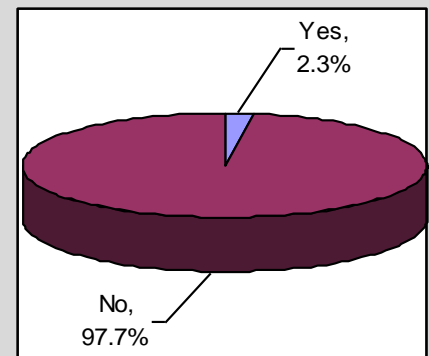
### 3.3.5 Excreta Management

In Asutsuare 2.3% of respondents have a household toilet facility.

#### Types of Household Toilet Facilities

All the household toilets available were simple pit latrines.

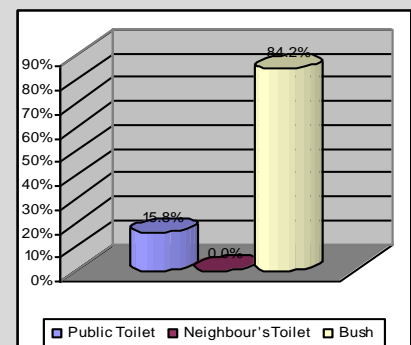
Types of Household Toilet Facilities



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

Human excreta disposal trends for households without toilets shows that 84.2% defecate in the bush and 15.8% use public toilets.

Methods of Excreta Handling by Households without Toilet Facilities



The two public toilets in Dawa are in a dilapidated state



Plate 8: Old dilapidated 6 seater KVIP

### 3.3.6 Storm Water and Sullage Conveyance

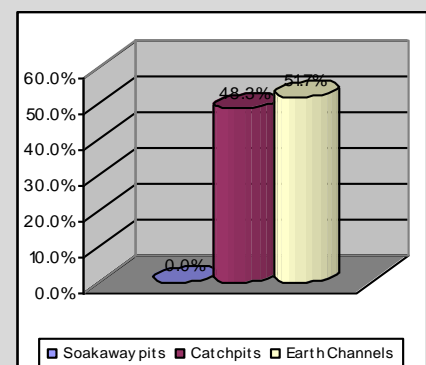
#### Storm Water Conveyance

On the issue of flooding, Dawa is located on a relatively high land; therefore there is no flooding when it rains. Instead there is sheet erosion which has created shallow gulleys in the town.

#### Disposal of Sullage from Kitchen and Bathroom

Disposal of sullage from kitchens and bathrooms in Dawa is poor. 48.3% through the construction of catchpits and dispose in open spaces and 51.7% through shallow earth channels.

Disposal of Sullage from Kitchen and Bathrooms



### 3.3.7 Health and Personal Hygiene

#### Handwashing Practices

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

Hand washing with soap practices	Response	Proportions of Responses (%)
Before food preparation	Always	14.0
	Sometimes	73.6
	Never	12.4
Before meals (eating)	Always	9.9
	Sometimes	78.3
	Never	11.8
After using toilet	Always	68.4
	Sometimes	29.8
	Never	1.8
After attending to defaecation by children	Always	57.5
	Sometimes	40.0
	Never	2.5

#### 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

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







### COMMUNITY PROFILING FORM DAWA

ENVIRONMENT CATEGORY	DESCRIPTION
WATER SHED MANAGEMENT	<ul style="list-style-type: none"> <li>• Run-off of storm water into WORPA NATURAL DAM</li> <li>• Vegetative growth in dam water</li> <li>• Improper land use e.g. farming along the banks of the dam with pesticides and other chemicals.</li> </ul>
WATER SUPPLY	<ul style="list-style-type: none"> <li>• Consumption of raw water from WORPA DAM</li> <li>• Lack of pipe borne water</li> <li>• Three (3) stand pipes constructed under the 3 district water supply system yet to be inaugurated.</li> </ul>
WASTE WATER DISPOSAL	<ul style="list-style-type: none"> <li>• Waste water (sullage) from bathrooms is mostly disposed of either through earth channels or the digging of catchpits for temporary storage. Small containers are used to fetch sullage from the catchpits and thrown on the ground.</li> </ul>
LIQUID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Two (2) six (6) seater dilapidated public KVIP toilets in use with bushy surroundings</li> <li>• Indiscriminate defecation at open spaces</li> <li>• Lack of household toilet facilities on dwelling premises.</li> </ul>
SOLID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Crude dumping in excavations left behind after construction of thatched houses (10 such sites identified)</li> <li>• Dumping at sanitary areas e.g. Public toilets</li> </ul>
STORM WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Predominant erosion in some parts of community</li> <li>• Low lying topography</li> </ul>
PROMINENT FEATURES	<ul style="list-style-type: none"> <li>• ORT (NGO) KG Project.</li> <li>• Abandoned community poultry project</li> <li>• Collapsed community gari processing plant</li> <li>• 20 were man-made forest.</li> </ul>



**ENVIRONMENTAL SCAN DAWA COMMUNITY**

STRENGTH	WEAKNESSES	OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• 1,339 population</li> <li>• Area Council Status and structures</li> <li>• Good communal spirit which has led to the formation of 2 youth clubs and a keep fit club.</li> <li>• Vibrant Assembly man</li> </ul>	<ul style="list-style-type: none"> <li>• Mass Unemployment</li> <li>• Low commercial activities e.g. No market stalls</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of land for infrastructure development</li> <li>• Availability of land for agricultural activities</li> <li>• Busy highway</li> <li>• Good reception with regards to mobile communication</li> <li>• Linked to the national electricity grid</li> <li>• Availability of police post</li> <li>• Man made forest for tourist attraction</li> </ul>	<ul style="list-style-type: none"> <li>• Poor road network in community</li> <li>• Accident prone spot due to over speeding on highway</li> <li>• Post harvest losses of agricultural produce e.g. pepper, tomatoes, cassava, etc</li> <li>• Lack of health facility for treatment of diseases, e.g. malaria and accident cases.</li> </ul>

### 3.4 GA EAST DISTRICT ASSEMBLY

#### Geography

Location: The Greater Accra Region of Ghana

This district forms one of the 28 newly created districts from the original 110 MDAs of the country. The creation of this new district arose as a result of the large size of some of the then 110 MDAs which was not one way or the other allowing the government to fully implement its policies of local governance to the benefit of the entire citizenary.

Capital: Abokobi



### 3.5 ENVIRONMENTAL SANITATION PROFILE OF ABOKOBI

#### 3.5.1 Population and Household Data

According to the 2000 population and housing census, Abokobi has a population of 1,095 (537 males and 558 females) with 166 houses. The number of households is 329 and the average household size is 3.3. Based on the 2000 population figure and a regional growth rate of 4.4%, the current estimated population of Abokobi is 1,480 (726 males and 754 females).

The total number of houses interviewed is 90.

#### 3.5.2 Characteristics of Respondent

On characteristics of respondents, the questionnaire addressed the following

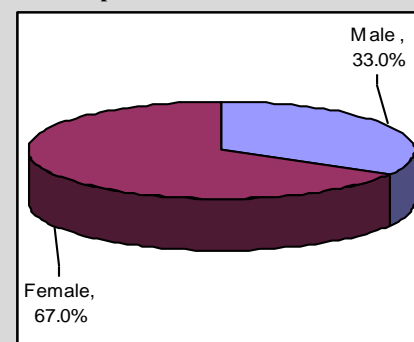
##### Sex of respondents

33.0% of respondents were males and 67.0% females.

##### Age of respondents

The exercise ensured that all respondents interviewed were above 18 years.

Sex of Respondent

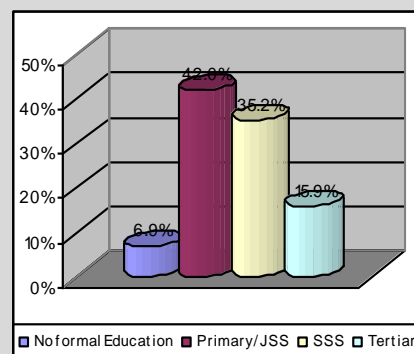




**Level of education of respondents**

15.9% have attained tertiary education level, 35.2% secondary education, 42.0% Primary/JSS, 6.9% have no formal education.

**Level of Education of Respondent**

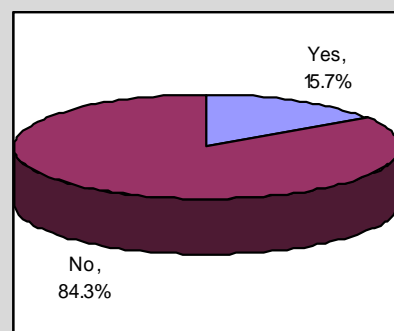


**3.5.3 Potable Water Coverage**

**Water Connection**

In Abokobi, 15.7% of respondents have water connection to their houses.

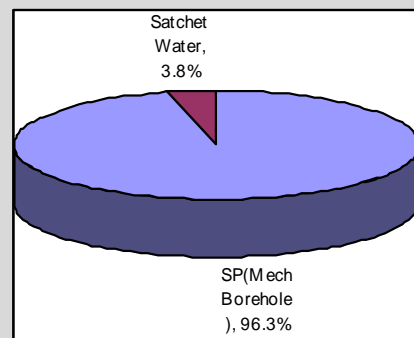
**Water Connection**



**Sources of Water for Drinking**

Data from survey shows that sources of water for drinking purposes are; 96.3% from mechanized borehole system and 3.8% from sachet water.

**Sources of Water for Drinking**



**Sources of Water for Other Purposes**

All respondents patronize water from the mechanized borehole system for other purposes.

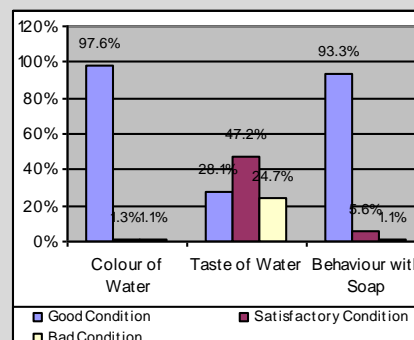
**Quality of Water**

For salinity, 28.1% of respondents indicated neutral taste of their water, 47.2% slightly salty and 24.7% salty.

With respect to hardness of water, 93.3% of respondents indicated good lathering, 5.6% said water lathers slightly well with soap and 1.1% said water does not lather with soap.

For appearance of water, 97.6% of respondents pointed out the fact that the water was generally clear, 1.3% slightly turbid (coloured) and 1.1% turbid.

**Quality of Water**





### 3.5.4 Refuse Management

#### Availability/Access to Refuse Dump Sites

Data from household survey shows that 64.4% have access to uncontrolled dump sites for disposing of their refuse.

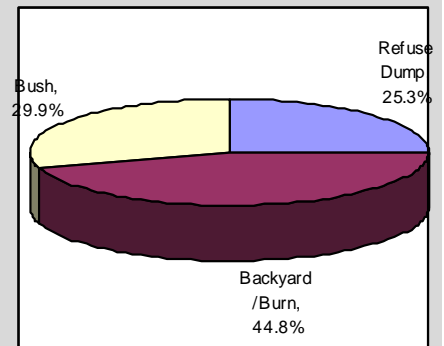
#### Method of Refuse Disposal

Responses from administering questionnaires show that 44.8% throw refuse at backyard and burn, 29.9% throw in bush and 25.3% use refuse dump sites (uncontrolled dumping). There were no responses on the use of communal containers.



Plate 9: Uncontrolled refuse dump *Abokobi*.

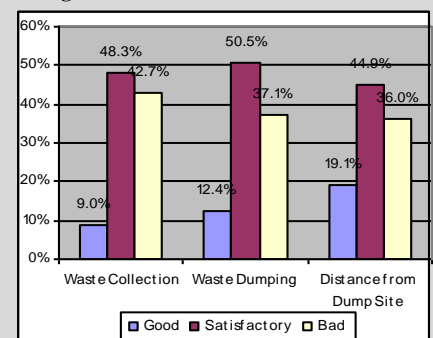
Methods of Refuse Disposal



#### Perception of Respondents on Solid Waste Management

The residents in Abokobi view refuse management as very poor due to the absence of formal refuse collection, indiscriminate dumping and long distances of dump sites to houses.

Perception of Respondents on Solid Waste Management



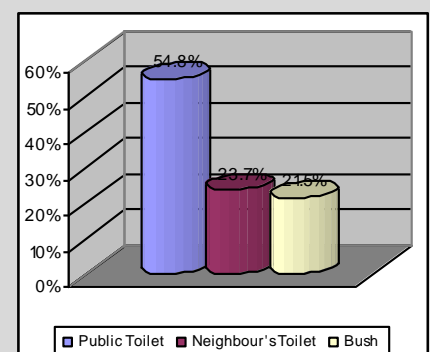
### 3.5.5 Excreta Management Coverage

In Abokobi 61.1% of respondents have a household toilet facility.

#### Types of Household Toilet Facilities

Data from the household survey shows 33% use simple pit latrines, 67% use VIPs.

Methods of Excreta Handling by Households without Toilet Facilities





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

Human excreta disposal trends for households without toilets shows that 21.5% defecate in the bush, 23.7% use that of their neighbours and 54.8% use public toilets.

### **3.5.6 Storm Water and Sullage Conveyance**

#### **Storm Water Conveyance**

On the issue of flooding, 38.9% of respondents indicated occurrence flooding whenever there is a heavy down pour. This is supported by the lack of storm drains in the town.

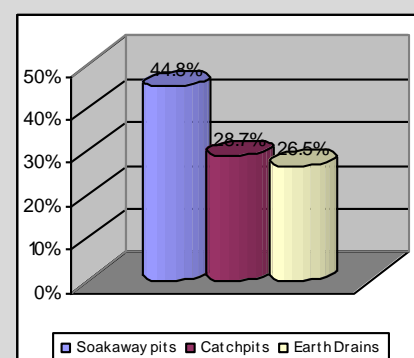
#### **Disposal of Sullage from Kitchen and Bathroom**

Disposal of sullage from kitchens and bathrooms in Abokobi show that 44.8% use soakaway pits, 28.7% through the construction of catchpits and 28.5% dispose through shallow earth channels.



Plate 10: Public latrine.

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



### **3.5.7 Health and Personal Hygiene Coverage**

#### **Handwashing Practices**

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

<b>Hand washing with soap practices</b>	<b>Response</b>	<b>Proportions of Responses (%) Abokobi</b>
<b>Before food preparation</b>	Always	44.4
	Sometimes	47.8
	Never	7.8
<b>Before meals (eating)</b>	Always	52.5
	Sometimes	44.4
	Never	3.3
<b>After using toilet</b>	Always	96.7
	Sometimes	3.3
	Never	0
<b>After attending to defaecation by children</b>	Always	72.8
	Sometimes	25.9
	Never	1.2

### **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.

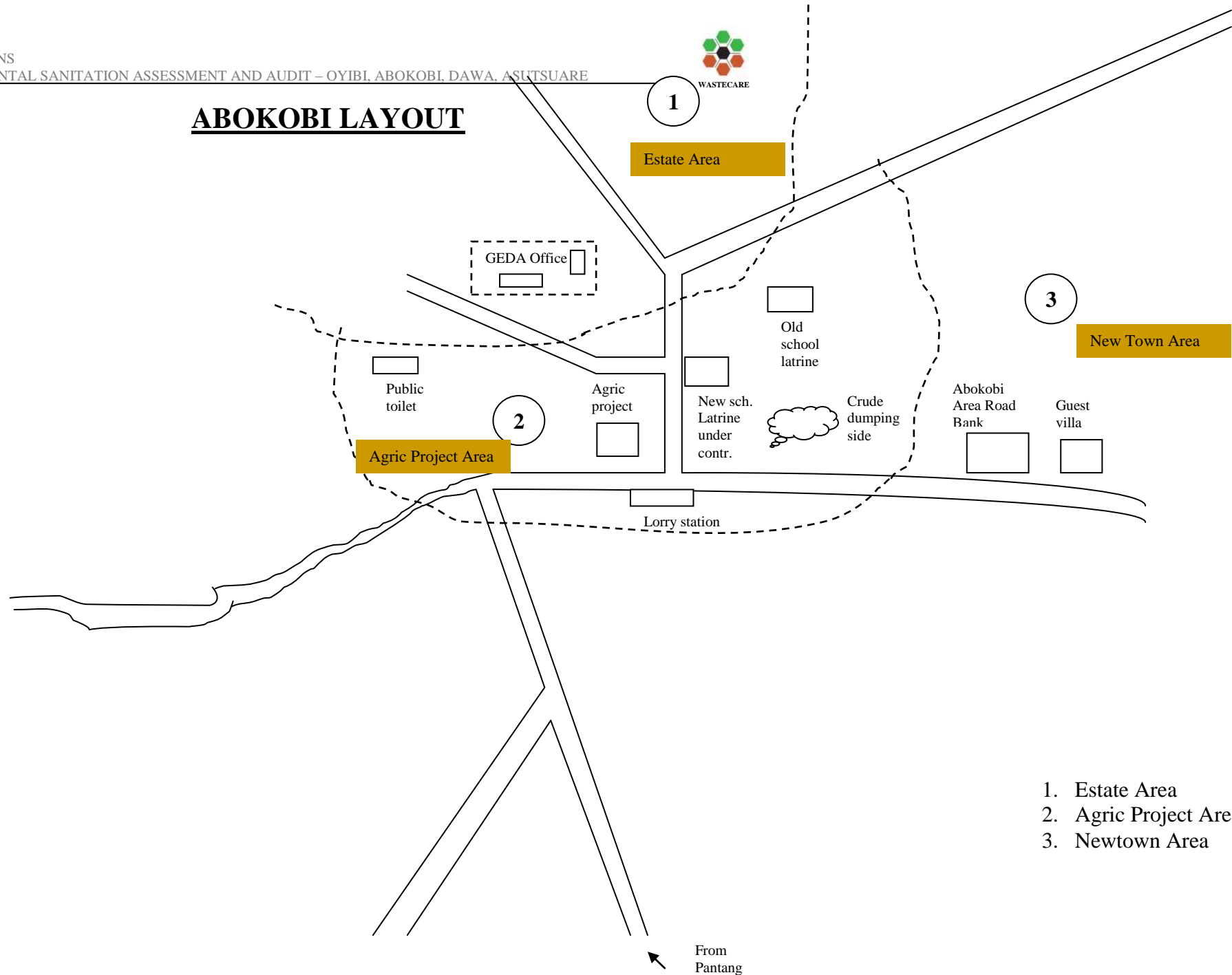
### **Availability of Bye-Laws**

89.8% of respondents indicated that there are environmental bye-laws in the town. These bye-laws are usually enforced by the town council authorities.





# ABOKOBI LAYOUT



1. Estate Area
2. Agric Project Area
3. Newtown Area



### COMMUNITY PROFILING FORM ABOKOBI

ENVIRONMENT CATEGORY	DESCRIPTION
WATER SHED MANAGEMENT	No water shed identified within and around the environs of community
WATER SUPPLY	<ul style="list-style-type: none"> <li>• Adequate water supply from sesemi Danida pumping station</li> <li>• Water is tapped from eight (8) stand pipes</li> <li>• Few premises and the estates are connected to water scheme</li> <li>• Pipe borne is supplemented by rain harvesting.</li> </ul>
WASTE WATER DISPOSAL	<ul style="list-style-type: none"> <li>• Few soakaway pits have been sited on septic tank installations</li> <li>• Improper household waste water disposal through earth cannels breeding mosquitoes and other insects of public health importance</li> </ul>
LIQUID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• One old 8 seater Aqua Privy system for Presby School (institutional toilet). New 8 seater WC under construction at presby school and the H/centre</li> <li>• One public KVIP for the entire community household WC at estates</li> <li>• Few KVIP and pit latrine at on dwelling premises</li> <li>• Indiscriminate defaecation in the bush.</li> </ul>
SOLID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Two communal refuse containers are in use but irregularly lifted</li> <li>• Indiscriminate dumping due removal of communal refuse container by D/A</li> <li>• Crude dumping behind premises (ie. Burning and burial in trenches/ pits</li> <li>• Inadequate No. of communal refuse containers in use.</li> </ul>
STORM WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Shallow and few stretches of concrete drains along public streets</li> <li>• Inconvenient outfall of drains causing flooding after rains at town centre</li> <li>• Predominant erosion lowlying topography and stagnation of runoff water</li> <li>• Lack of drainage system along trunk roads</li> </ul>
PROMINENT FEATURES	<ul style="list-style-type: none"> <li>• Presby women's training centres and sacred presby. Church foundation site</li> <li>• Abokobi agric project. Walled cemetery</li> <li>• Green horticulture and serene atmospheric situation</li> <li>• Favourable/conducive weather conditions</li> </ul>
FOOD SECURITY AND SAFETY	<ul style="list-style-type: none"> <li>• Peasant farming inadequate to feed residents</li> <li>• Food items purchased from madina, market and transported to community</li> <li>• Sub-standard food sales outlets and unsafe street vending of foods</li> <li>• Lack of market and lorry park</li> </ul>



**ENVIRONMENTAL SCAN ABOKOBI COMMUNITY**

STRENGTH	WEAKNESSES	OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• District Assembly status</li> <li>• District Assembly internally generated Fund IGF</li> <li>• Land for large scale farming</li> <li>• Land for infrastructural development</li> <li>• Dominance of Presbyterian Church ie. Custodians of lands</li> </ul>	<ul style="list-style-type: none"> <li>• Mass Unemployment</li> <li>• Snail pace social-economic development</li> <li>• Lack of commercial activities eg No market and lorry park</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural project</li> <li>• District Assembly common fund</li> <li>• Few jobs at district assembly office complex</li> <li>• Function rural bank</li> <li>• Post office</li> <li>• Functioning and viable clinic</li> <li>• Presby schools ie boarding facility, Presby Women’s Centre</li> <li>• Connected to Nation Grid</li> <li>• Good reception of telecommunication network</li> <li>• Conducive weather conditions all year round</li> </ul>	<ul style="list-style-type: none"> <li>• Bottlenecks in land acquisition for social-economic and infrastructural development; large scale farming etc</li> <li>• Poor drainage system</li> <li>• Inadequate sanitary facilities eg toilet, communal refuse containers in homes and community</li> <li>• Crude tipping of sold waste at outskirts of community</li> <li>• Non-availability of market and lorry park</li> <li>• Low-lying topography in parts of community leads to ponding of run-off water.</li> </ul>

### 3.6 TEMA MUNICIPAL ASSEMBLY

#### Geography

Location: The Greater Accra Region of Ghana  
 Area: 565km<sup>2</sup>

Boundaries: The municipality shares common boundaries with the Accra Metropolis on the west, the Ga District Assembly on the North West and the Dangme West District on the northern and eastern borders. It is bordered to the south by the Gulf of Guinea

Climate: Tema is characterised by a dry equatorial climate. It is the driest part of southern Ghana with an annual rainfall of about 790mm. Generally, temperatures are high all year round.

Capital: Tema

### 3.7 ENVIRONMENTAL SANITATION PROFILE OF OYIBI

#### 3.7.1 Population and Household Data

According to the 2000 population and housing census, Oyibi has a population of 1,160 (632 males and 528 females) with 216 houses. The number of households is 277 and the average household size is 4.2. Based on the 2000 population figure and the district growth rate of 2.7%, the current estimated population of Abokobi is 1,398 (762 males and 636 females).

The total number of houses interviewed is 60.

#### 3.7.2 Characteristics of Respondent

On characteristics of respondents, the questionnaire addressed the following

##### Sex of respondents

80.0% of respondents were males and 20.0% females.

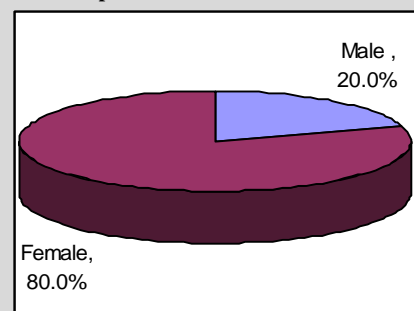
##### Age of respondents

The exercise ensured that all respondents interviewed were above 18 years.

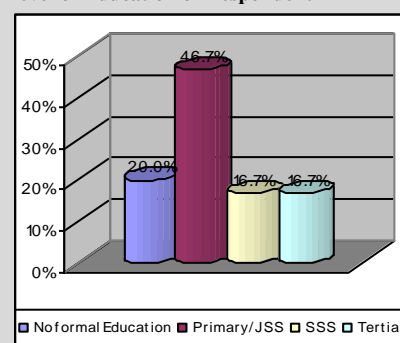
##### Level of education of respondents

16.7% have attained tertiary education level, 16.7% secondary education, 46.7% Primary/JSS, 20.0% have no formal education.

Sex of Respondent



Level of Education of Respondent



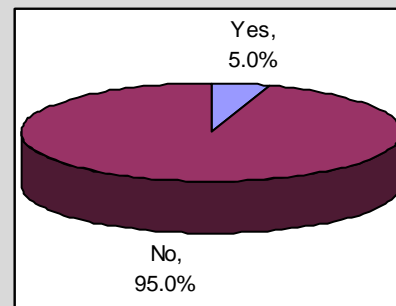


### 3.7.3 Potable Water Coverage

#### Water Connection

In Abokobi, 5.0% of respondents have water connection to their houses.

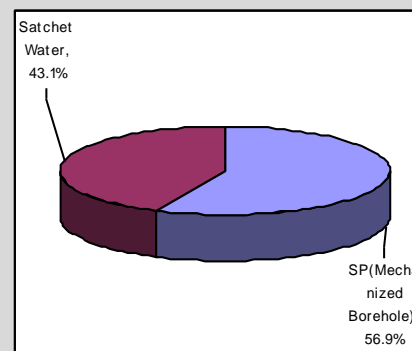
Water Connection



#### Sources of Water for Drinking

Data from survey shows that sources of water for drinking purposes are; 56.9% from mechanized borehole system and 43.1% from sachet water.

Sources of Water for Drinking



#### Sources of Water for Other Purposes

All respondents patronize water from the mechanized borehole system for other purposes.

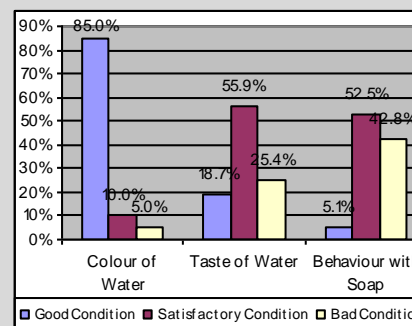
#### Quality of Water

For salinity, 18.7% of respondents indicated neutral taste of their water, 55.9% slightly salty and 25.4% salty.

With respect to hardness of water, 5.1% of respondents indicated good lathering, 52.5% said water lathers slightly well with soap and 42.8% said water does not lather with soap.

For appearance of water, 85.0% of respondents pointed out the fact that the water was generally clear, 10.0% slightly turbid (coloured) and 5.0% turbid.

Quality of Water



### 3.7.4 Refuse Management

#### Availability/Access to Refuse Dump Sites

Data from household survey shows that 60.0% have access to uncontrolled dump sites for disposing of their refuse.

#### Method of Refuse Disposal

Responses from administering questionnaires show that 38.5% throw refuse at backyard and burn, 25.0% throw in bush and 36.5% use refuse dump sites (uncontrolled dumping). There were no responses on the use of communal containers.

Methods of Refuse Disposal

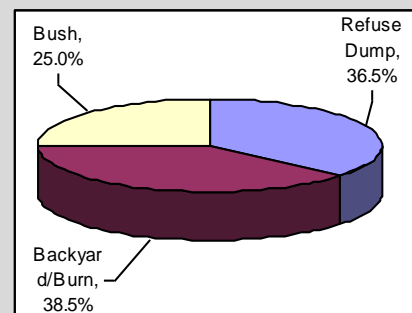


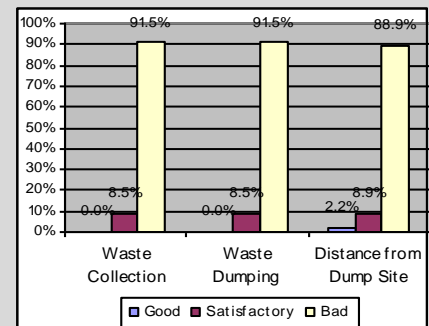


Plate 11: Uncontrolled refuse dump.

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

The residents in Oyibi view refuse management as very poor due to the absence of formal refuse collection, indiscriminate dumping and long distances of dump sites to houses.

**Perception of Respondents on Solid Waste Management**



### **3.7.5 Excreta Management Coverage**

In Oyibi 33.3% of respondents have a household toilet facility.

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

Human excreta disposal trends for households without toilets shows that 21.5% defecate in the bush, 23.7% use that of their neighbours and 54.8% use public toilets.

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

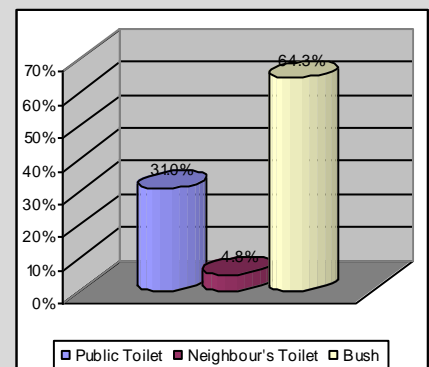


Plate 12: Old dilapidated 12 seater KVIP.



Plate 13: Faecal matter floor of privy rooms.

### **3.7.6 Storm Water and Sullage Conveyance**

#### **Storm Water Conveyance**

On the issue of flooding, 75.0% of respondents indicated occurrence flooding whenever there is a heavy down pour. This is supported by the lack of storm drains in the town. The few culverts constructed have also been heavily desilted. There is also severe erosion in the town.



Plate 14: Heavily silted box culvert.

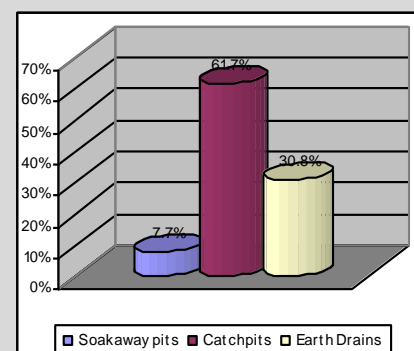


Plate 15: Exposed water supply pipelines due to severe erosion..

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

Disposal of sullage from kitchens and bathrooms in Oyibi show that 7.7% use soakaway pits, 61.7% through the construction of catchpits and 30.8% dispose through shallow earth channels.

**Disposal of Sullage from Kitchen and Bathroom**



### **3.7.7 Health and Personal Hygiene Coverage**

#### **Handwashing Practices**

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

Hand washing with soap practices	Response	Proportions of Responses (%) Oyibi
Before food preparation	Always	35.6
	Sometimes	28.8
	Never	35.6
Before meals (eating)	Always	33.3
	Sometimes	35.0
	Never	31.7
After using toilet	Always	49.2
	Sometimes	45.8
	Never	5.0
After attending to defaecation by children	Always	50.0
	Sometimes	46.6
	Never	3.4

#### **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

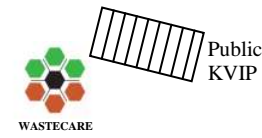
- Keep all water containers covered
- Obtain water for drinking/cooking from the least contaminated source available
- Manage and maintain safe, sanitary garbage disposal

The results have been summarised in Table 2.3 below.

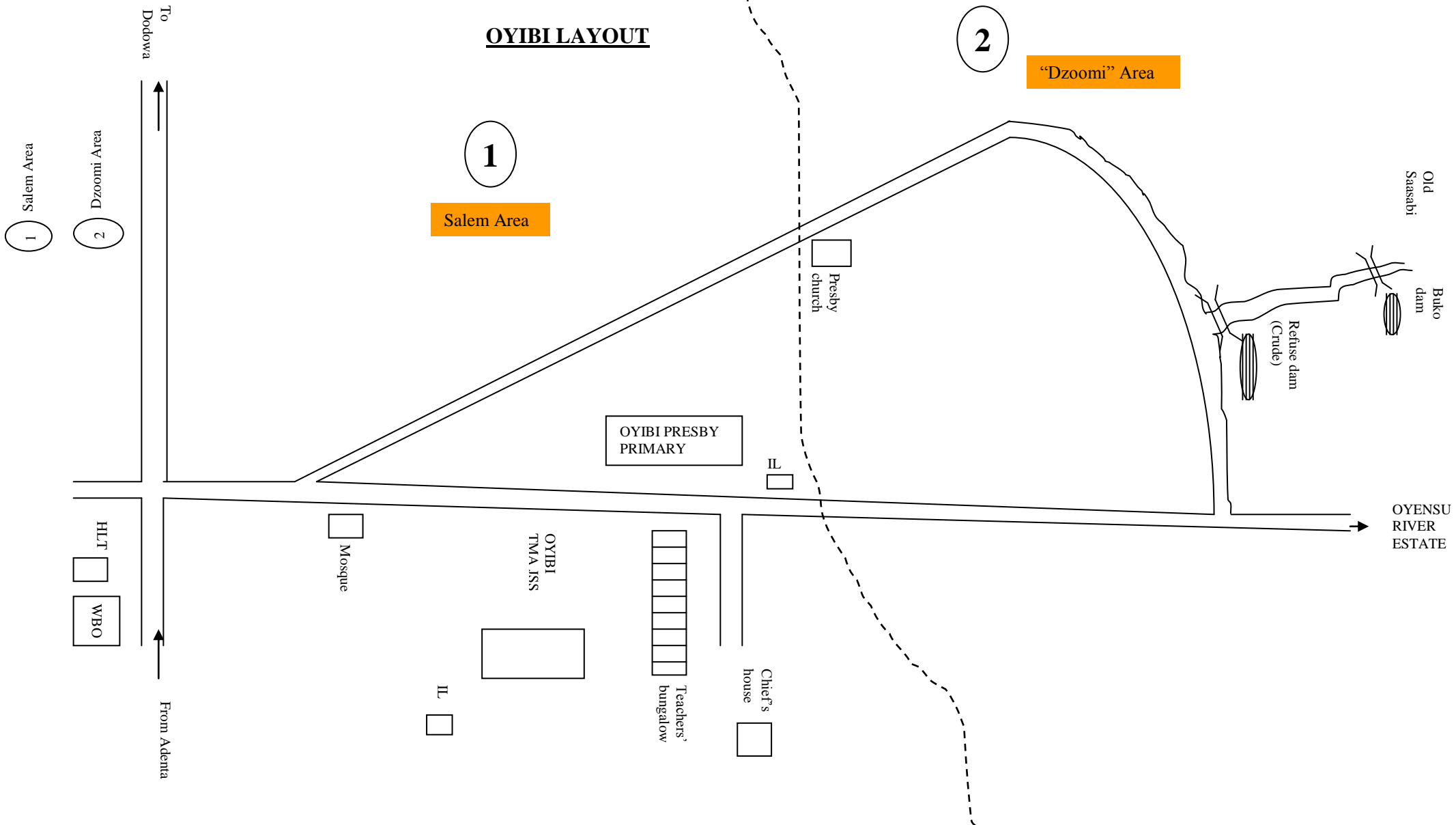
### **Availability of Bye-Laws**

81.4% of respondents indicated that there are environmental bye-laws in the town. These bye-laws are usually enforced by the town council authorities.





**OYIBI LAYOUT**





### COMMUNITY PROFILING FORM OYIBI

ENVIRONMENT CATEGORY	DESCRIPTION
WATER SHED MANAGEMENT	<ul style="list-style-type: none"> <li>• Storm water runoff into Buko Dam. Swine contamination</li> <li>• Improper human activities ie bathing and fishing during festivals (shrine)</li> <li>• Lack of protection with vegetative cover</li> </ul>
WATER SUPPLY	<ul style="list-style-type: none"> <li>• Existing six (6) stand pipes supply water from old sasabi and kpone seduase pumping stations powered by diesel engine under the oyibi area water scheme board</li> <li>• Water is connected to houses at the estates only and some individual homes.</li> <li>• Raw water consumption from Boko Dam</li> </ul>
WASTE WATER DISPOSAL	<ul style="list-style-type: none"> <li>• Earth channels breeding mosquitoes</li> <li>• Construction and use of catch pits behind bathrooms</li> </ul>
LIQUID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• One old 12 seater public KVIP with offensive odour nuisance</li> <li>• Very few household KVIP toilet facilities hence indiscriminate defeacation</li> <li>• WC facilities installed at the estates.</li> </ul>
SOLID WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Crude dumping side and indiscriminate dumping behind premises attracting swine, rodents and insects of public health importance.</li> </ul>
STORM WASTE DISPOSAL	<ul style="list-style-type: none"> <li>• Predominant erosion</li> <li>• Lack of public drains</li> <li>• Defective and poorly constructed culverts and stagnation of runoff water</li> <li>• Exposure of PVC pipes conducting/transporting water though the mains by runoff water</li> </ul>
PROMINENT FEATURES	<ul style="list-style-type: none"> <li>• Oyibi area water scheme</li> <li>• Accra grammar school</li> <li>• Cementer in the middle of community</li> </ul>
FOOD SECURITY AND SAFETY	<ul style="list-style-type: none"> <li>• Peasant farming inadequate to feed residents</li> <li>• Processing of farm produce pepper on bareground</li> <li>• Food items purchased from madina, dodowa somanya, Accra markets etc</li> <li>• Market days proposed but market yet to be onstructed</li> </ul>



**ENVIRONMENTAL SCAN OYIBI COMMUNITY**

STRENGTH	WEAKNESSES	OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• High population density (10,000 inhabitants.</li> <li>• Vibrant chief and Assembly member</li> <li>• Availability of land for infrastructural development and farming.</li> <li>• Human resource development at the estates and valley view university</li> </ul>	<ul style="list-style-type: none"> <li>• Mass Unemployment</li> <li>• Lack of commercial activities. E.g. no market stalls; lorry park etc</li> </ul>	<ul style="list-style-type: none"> <li>• Location of valley view University</li> <li>• Oyibi area water scheme</li> <li>• Police station</li> <li>• Health centre</li> <li>• Springing up of estate development e.g. Ayensu estates KAS estates Paradiso estates</li> <li>• Connected to National grid.</li> </ul>	<ul style="list-style-type: none"> <li>• Poor road network</li> <li>• Lack of storm drains</li> <li>• Lack of sanitary facilities ie only one public KVIP toilet facility; no communal refuse containers</li> <li>• Lack of electricity at the only health centre eg vaccines may loose its potency etc.</li> <li>• Location of health centre (2km from community)</li> <li>• Lack of access road to health centre to cater for emergencies</li> <li>• High overhead expenditure in operation and maintenance (oem) of Oyibi area water scheme pump house</li> </ul>

## **4 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

## **5 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 1: STRUCTURED HOUSEHOLD QUESTIONNAIRE FOR DATA GATHERING

#### ENVIRONMENTAL SANITATION ASSESSMENT AND AUDIT

NAME OF DISTRICT:	TOWN/ AREA COUNCIL:	
COMMUNITY	POPULATION:	
NAME OF ENUMERATOR:	DATE	

<b>NAME OF RESPONDENT:</b>
----------------------------

AGE:	EDUCATION	BASIC	SECONDARY	TERTIARY
SEX:				

#### 1 SOLIDWASTE MANAGEMENT

1a Do you have access to a refuse dump?

1b Do you have Sanitary Dustbin for storage of refuse?	Yes	No
--	-----	----

1c Who disposes off the refuse?	Adults	children
---------------------------------	--------	----------

1d where do you dispose of your refuse?	refuse dump	bury	burn	back yard	Communal Container	other(specify)
1e What do you do with food residue,peels of yam,plaintain,corn,cocoyam	refuse dump	for domestic animals	thrown at the back yard	hole for composting	other	

1f What is the distance from here to the refuse dump?	close	far	very far
---	-------	-----	----------

1g Is the refuse dump close to a water body?	Yes	No
--	-----	----

if Yes

1h What happens when it rains?
--------------------------------

1i How would you grade the waste management system in this community?

	waste collection	waste dumping	distance from the waste dump	other
Bad				
Satisfactory				
Good				

#### 2 LIQUID WASTE

2a Do you have toilet facility in your house?	Yes	No
---	-----	----

2b what is the type of toilet facility	KVIP	W/C	Pit Latrine	Pan Latrines	Bush	Other
--	------	-----	-------------	--------------	------	-------

2c where do you ease yourself?	Public KVIP	Public W/C	Public Pit Latrine	Public Pan Latrines	Bush	other
--------------------------------	-------------	------------	--------------------	---------------------	------	-------

2d How far is the toilet facility from where you live?

2e What is done when the facility is full?	Dig a new pit	Go to the bush	dislodges	other
--	---------------	----------------	-----------	-------

2f Are the public toilets close to water bodies?	Yes	No
--	-----	----

#### 3 WATER SUPPLY MODULE

3a Do you have water connection to your house?	Yes	No
--	-----	----

3b Is it Reliable?	Yes	No
--------------------	-----	----

3c Where do you fetch drinking water?	stream	borehole	stand pipe	well
---------------------------------------	--------	----------	------------	------

3d Where do you fetch water for other purposes?	well	stream	borehole	stand pipe
---	------	--------	----------	------------

3e Who usually fetches water for household use?	Adult	children
---	-------	----------

3f How far away is the main source of water supply?	
---	--

3g How far away is the alternative source of water supply?	
--	--

3h Are the yield of the ground/surface water sufficient?	Yes	No
--	-----	----

3i What happens to these sources during the dry seasons?	reduce in volume	
	volume sufficient	
	dry up	

3j Is the colour of the surface/groundwater water good?	Yes	No	slightly
---	-----	----	----------

3k Does the surface/ground water taste salty?	Yes	No	slightly
---	-----	----	----------

3k Does the surface/ground lather well with soap?	Yes	No	slightly
---	-----	----	----------

#### 4 STORM WATER CONVEYANCE SYSTEM

4a Do you experience Flooding when it rains?	Yes	No
--	-----	----

4b How long does it take for the water to drain away?	1/2hr	1hr	1.5hr	2hrs
---	-------	-----	-------	------

4c Do you have drains that convey the storm water?	Yes	No
--	-----	----

4d Are they covered or opened?	
--------------------------------	--

4e Are the drains cleansed periodically?	Yes	No
--	-----	----

4f Who is responsible?	
------------------------	--

4g What in your opinion causes the flooding?	choked gutters	lack of drains	building in waterways
--	----------------	----------------	-----------------------

4h what are some of the impacts of flooding?	
--	--

**5 INDUSTRIAL, MARKET, SCHOOL WASTE MANAGEMENT**

5a	What type of waste do you generate.	organic		
		inorganic		
		toxic		
5b	What type of hazardous waste generated (specify)			
5c	How do you dispose off your industrial waste	add to communal waste		
		incenerate		
		bury		
		recycle		
5d	Do you treat your waste water before disposing it off?	Yes	No	
	if Yes			
5e	what type of treatment? please specify			
	if No			
5f	Where does your waste water go?	streams	soakaway	drains bucket

**6 MEDICAL WASTE**

6a	What type of waste do you generate. (Tick as many as applicable)	plastics		kitchen waste	
		metals		glass	
		papers		toxic waste	
		polythene		human parts	
6b	How do you dispose of these waste?	incenerate			
		bury			
		recycle			
		add to communal waste			
6c	where do you dispose off your wastewater	stream			
		soakaway			
		drains			
		other			
6d	Do you treat your waste water ?	Yes	No		
	if Yes				
6e	what type of waste treatment? Please state				

**7 HANDWASHING PRACTICES**

7a	Do you wash your hands with water and soap (or other cleaning agent) before preparing food?	Always	Sometimes	Never	
7b	Do you wash your hands with water and soap (or other cleaning agent) before eating?	Always	Sometimes	Never	
7c	Do you wash your hands with water and soap (or other cleaning agent) after use of toilet?	Always	Sometimes	Never	
7d	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**

8a	Are you aware of any predominant disease(s) in your community?	Yes	No
	If Yes, kindly state it (them):		
8b	What period does/do it/them occur(s):		
8c	Do you have Health Facility in your community?	Yes	No
8d	If "No" where do you treat such disease(s)?	Chemical sellers	Traditional healers
		Faith based healers	Other (state)
8e	Vectors considered prevalent in household/community	housefly	mosquito
		tsetse fly	

Plan  
Improvements  
Managements  
Improvements  
Policy  
Recommendations

**9 Animal waste disposal**

9a	what is the main occupation in this community?	farming	fishing	lifestock rearing	trading
	if Lifestock rearing				
9b	What system is adopted in rearing these animal?	intensive	semi-intensive	extensive	
	if intensive				
9c	How is the animal waste dispose	used as manure	bury	other (state)	
	if Extensive				
9d	Are there a lot of stray animals in the community?	Yes	No		
9e	What is the impact of stray animals on the community?				

**10 Availability of bye laws**

10a	Do you have Environmental laws in your community?	Yes	No
	if Yes		
10b	Who is responsible for law enforcement in this community	Town council	Metro Assem
		Sub Metro	municipal
		district assem.	
	if No		
10c	What is the community doing to keep its environs clean		

## ANNEX 2: LIST OF PERSONS MET FOR CONSULTATIONS, FGDS AND KPIS

No.	Name	Position/Designation
<b>Dangme West District Assembly</b>		
1.	Ransford Acheampong	DEHO
2.	Mr. Ali	Coordinator, DWST
3.	Emmanuel Adom	EHO, DWST
<b>Asutsuare</b>		
1.	Hon. Sampson Tettey-Ekpa	Assemblyman
2.	Paulina Kukah	EHA, Asutsuare
3.	Isaac Quansah	
4.	M.A Vadis Teimuno	
5.	Ruth Ashiagle	EHA, Akuse
<b>Dawa</b>		
1.	Hon. S.L Ayeh	Assemblyman
2.	Isaiah Kade	EHA, Dawa
3.	E.T Kwetey	Hygiene Educator
4.	Precious J. Nartey	WATSAN Chairman
5.	Beatrice Adelah	Health Educator, WATSAN
<b>Ga East District Assembly</b>		
1.	Hon. Kofi Allotey	DCE
3.	Mr. Biney	Budget Officer
4.	Mr. Mba	
5.	Owusu Poku	EHO, DWST
6.	Mary Mahama	CDO, DWST
7.	Edem	DPO
<b>Abokobi</b>		
1.	Hon. Antonio	Assemblyman
2.	Eric Abbey	Senior Presbyter
3.	Rev. Quartey Boi-Fio	Head Pastor, Abokobi Presby
4.	Lambert	EHA
5.	Randy	EHA
<b>Tema Municipal Assembly Sub District Office, Adenta</b>		
1.	Moses Adjah Arbenser	EHO
2.	Paul Lagbidi	SEHA
3.	Issahaku Maria	EHA
4.	Adjani Cecilia	SEHA
5.	Rakia Norgah	SEHA
<b>Oyibi</b>		
1.	Hon. Hopeson Adorye	Assemblyman
2.	Nii Okanshang Boye VI	Chief of Oyibi
3.	Timothy Alabi Kojo	Council Member
4.	Seth Bortey Bortieh	Council Member
5.	Daniel Okofio	Council Member
6.	Angelina Adogla-Bessa	TC, Water Board

