

# Introduction

In order to achieve the global and local targets set for the millennium Development Goals in water and sanitation, it takes only effective planning based on real field data.

Generally, our local planners have based their targets on national averages that may consist of broad generalizations and assumptions that may not be accurate enough for effective planning at the local level.

The result of this trend has mostly been biases in the allocation of resources where some communities get facilities that are more than necessary, while others are totally denied. Others may also get the facilities that they need but refuse to use them because there are no user satisfaction measures in place.

WaterAid has supported one of its Partner organizations in Ghana, the Afram Plains Development Organization (APDO) to undertake a water and sanitation mapping in the Afram Plains District in Ghana to provide the basis for effective planning in the District.

This document highlights the purpose of and the procedures used for the exercise as a guide for organizations who may be interested in undertaking a similar exercise.



## WaterAid / APDO Water & Sanitation Mapping in the Afram Plains

### Purpose and procedures

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### Background of APDO

APDO is a professional non-governmental organisation (NGO) committed to the development of the Afram Plains. APDO was set up in 1986 by a group of committed individuals who saw the need for a non-sectarian organisation specializing in the rural water supply sector. The activities have since expanded to include sanitation and hygiene promotion, community development, training and institutional strengthening, promotion of basic primary education with emphasis on the girl-child at community, district, national and international level. APDO effectively does this under our networking and capacity building programmes at all three levels.

Since 1986, APDO has developed working partnership with WaterAid, UNICEF, UNDP, Ghana Education Service, World Vision International, Ministry of Health, District Assemblies and currently, the Community Water and Sanitation Agency.

### Geographical location and description

The Afram plains District is located in the Eastern Region of Ghana. The Afram River, the Obosom River and the Volta Lake surround it to make it look like a peninsular. The district shares boarders with six other districts spread over three regions: namely the Ashanti, Brong Ahafo and Volta.

### Area and population

Afram Plains cover an area of about 5,040 sq km. According to the 2000 population and housing census, there are about 134,000 people in the district. There are also about 500 settlements of various sizes, ranging from three to 8,000 inhabitants. For effective administration, the district has been sub divided into four Area Councils.

### Water and sanitation situation

There are about 170 boreholes distributed among about 72 communities. There is also a small town water system in the district capital. Hand-dug wells are not feasible in the district due to unfavourable geological features of the area. According to an APDO report chances of hitting water with a borehole is about 50%. Because of this situation most of the communities have no or inadequate access to safe drinking water. Many communities along the three rivers drink directly from the rivers while the rest resort to other sources like springs, streams and dugouts. As a result most of the people particularly women and children spend a lot of time searching for water. Majority of the households in the district have no access to household latrines and therefore resort to open defecation.

### Provision of social services

The provision of social services is mainly the responsibility of government. The respective departments are therefore in charge of education, health, food, water and shelter. NGOs also play a very remarkable role in the provision of social services in the district. Notable among them is APDO in the

area of water, sanitation and hygiene promotion with financial and technical support mainly from WaterAid, and UNICEF. Other NGOs who have played significant roles in the district are World Vision International and Raleigh International.

### The new planning process

The PNDC Law 207 and the District Assembly Act provide that local people must participate in the formulation of the District Development Plan. This planning process has the following essential features:

1. Planning at the district level starts with the communities' problems, goals and objectives from the Unit Committee level
2. The departments in the District Assembly, sectoral specialists, NGOs, and other functional agencies confer and collaborate with one another to hammer out the ingredients of the district plan
3. The district Development Planning and Budgeting Unit integrates and coordinates the district sectoral plans into long-term, medium term and short-term plans
4. The approved plan is sent to the Regional Coordinating Council for harmonization with plans from other districts. (Source: The school Mapping Report of the Afram Plains District)

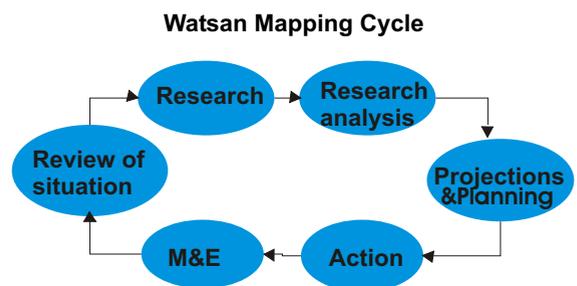
### The watsan mapping concept

#### What is Watsan Mapping?

Watsan Mapping is a participatory process that involves community level data collection and also teaming up with stakeholders to acquire the necessary information pertaining to the provision of water and sanitation facilities in the areas of access and participation, management and efficiency of the systems, quality and quantity of services in the communities. It also provides opportunity for personnel at the local level responsible for the development of an area with respect to water and sanitation, to interpret findings and make recommendations for attaining the objectives of the water and sanitation programme.

#### The Watsan Mapping Cycle

Watsan mapping is not just a one-off project; it is a cyclical process. The process begins with a research; the research findings are analysed; projections are made; followed by planning; followed by actions; the actions are monitored; the situation on the ground reviewed at regular intervals through research, and the cycle restarts.



#### Why watsan mapping?

From field experience, APDO identified a number of gaps in the existing water and sanitation data in the district, which were used for planning. The organisation realized for instance, that certain communities had too many water facilities provided by different development organisations, while others had too few or nothing. It was again noticed that certain communities had facilities but were not patronizing them. Yet there were no data on these to provide a credible basis for planning. These are some of the motivating factors for the WATSAN Mapping.

#### Objectives

- To provide a credible basis for effective planning towards achieving the MDG goals,
- To improve access and participation in planning,

- To improve the quality of water and its related services,
- To improve efficiency and effectiveness of management of the facilities,
- To strengthen capacity at the district/community level in order to decentralize the sustainability of the services,

### Activities

Gathering of information pertaining to the hygiene, water and sanitation situation in the Afram Plains,  
 Provision of information for effective planning at the District level,  
 Determining the gaps and the amount of resources needed to fill them in order to meet the MDG of halving the population of people without access to safe drinking water by 2015 and those without access to adequate sanitation by 2020,  
 Using generated data to make effective projections towards achieving the MDGs for water and sanitation,

### The project methodology

#### Phase one

- Briefing of key stakeholders on the concept,
- Formation of the Watsan Mapping team (The core working group),
- Community awareness creation,
- Development of instruments for data collection,
- Training workshops,
- Data collection exercises,
- Data coding and analysis,
- Draft report writing,
- Briefing forum for stakeholders on findings,
- Final report writing.

#### Phase two

- Information dissemination to target audiences,
- Strategic planning process for achieving sector goals,
- Periodically updating the data.

#### Initial discussions

The process began with drafting and discussing the concept paper on WATSAN Mapping, strategies and funding for carrying out WATSAN mapping in Afram Plains. The discussions helped in the preparation for the collection of the necessary information from the stakeholders and building consensus on what to be collected at the district. The process helped to produce a data collection instrument and a training manual on how to administer the instruments.

#### Project Management Teams

District and national level committees, which would manage the activities, were formed. At the national level, an Advisory Committee was set up to support the project with technical and managerial advice. At the district level, the Management Team comprised APDO, Ghana Education Service (GES), Ghana Health Service (GHS), Environmental Health Department (EHD), National Commission for Civic Education (NCCCE), Ministry of Food and Agriculture (MOFA), Federation of African Women in Education (FAWE), the District Water and Sanitation Team (DWST), and the District Assembly (DA) itself represented by the District Planning Officer. This team was representative of most of the decentralized state departments and civil society organisations at the district level, making the project assume a nationalistic nature at the district level.

#### Why other non-sector departments?

The primary idea was to promote realistic and effective planning based on reliable field data in every institution. This was because better planning provides the gateway to accelerated and focused growth in every human endeavour.

Secondly, the idea to involve as many different institutions as possible was to spread the capacity and the interest as a motivation for every institution to start realistic planning.



Thirdly, there is no human institution that has no links with water, hygiene and sanitation. The sector was being promoted as a concern for every institution. By involving all the other sectors, therefore, water and sanitation profile was raised within the district.

#### Training workshops

The next stage was to organise a training workshop for trainers at Afram Plains. The workshop built the capacity of APDO staff and other partners so that they would be able to carry out the project with clear understanding. The outcome of the process also helped to modify some aspects of the data collection instruments and training manual. Training sessions were then organised for Field Assistants by the trainees of the Training of Trainers workshop.

#### Data collection

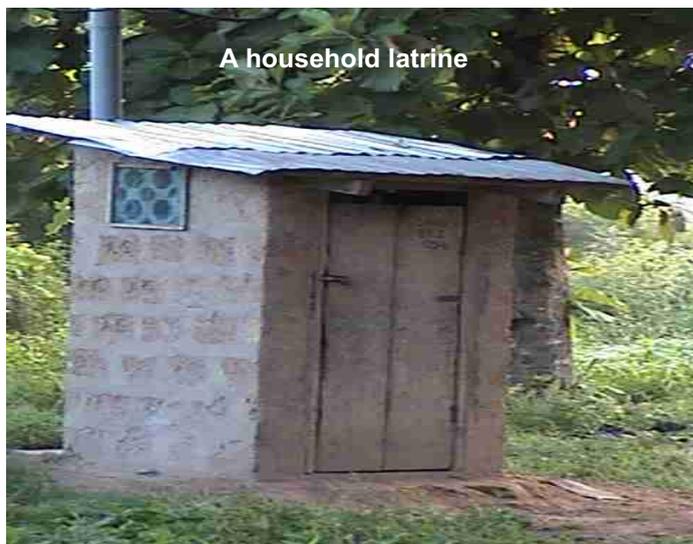
The field assistants were responsible for the collection of the data and the trainers provided supervision. Generally, every community in the district was entered during the data collection exercise.

Data collection was based on both quantitative and qualitative approaches. A set of data collection instruments was developed for the field assistants. There were 240 field assistants drawn from all the four Area Councils of the district.

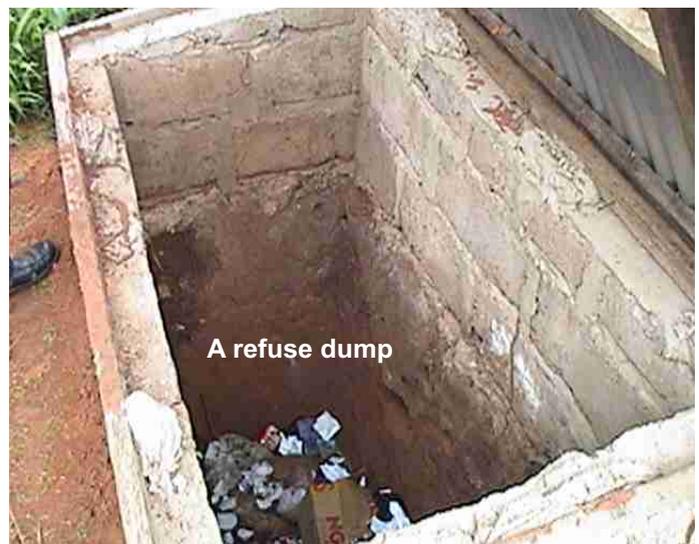
#### Data analysis

#### Indicators for assessment

1. Average household size: Total population of the community divided by the number of households.
2. Water source ratio: This indicator measured the proportional representation of the various water sources in their contributions to the total household water needs. There are basically three things to look out for in analysing the water source ratios: **1)** determine the proportion of households that use which water source available in the community. Eg what is the % of households who use Rain Harvest as a source of water? **2)** Determine what proportion each water source constitutes in terms of the contribution to total household water requirements/needs per day. Eg what is the % of BH as a source of water for the household? Note that the higher the water source ratios for sources like BH and HDW fitted with pump, the closer we are to drawing the conclusion that the project is meeting the objective of "... providing safe water..."(but not necessarily sufficient as other indicators will show).
3. The DCR: Daily Consumption Rate of water. This



A household latrine



A refuse dump

Indicator measures in litre quantities, the volume of water consumed per day per household regardless of which source the water comes from. It is easier for purposes of analysis to let respondents estimate the DCR in units of measure familiar to them, such as 34-sized buckets. The data analyst then conducts a simple survey to find out how many litres there are in the unit selected. Preferably the conversion into litre quantities should be done at the point where the water is taken to the house.

4. GPCW: Gross Per Capita Consumption of Water. This is a broad indicator that accounts for the per capita consumption of water taking into account the average household size per community and the DCR. Thus the formula is  $DCR/\text{Average H.H size}$ . This method is a crude one because of over assumptions. Some large household sizes may have very low DCRs and this when contained in the same data cannot represent a true reflection of per capita consumption of water. A more refined method is therefore needed. From the initial pre testing it was noted that generally GPCW gives values lower as compared to other indicators.
5. APCW: Actual Per capita Consumption of Water. This indicator measures the specific per capita consumption per individual households. It is derived by dividing the DCR by the size of the particular household in question.
6. SPCW: Specific Per capita Consumption of Water. This is also called the AUSIP i.e. Actual User Satisfaction Indicator for Per capita consumption. The SPCW or AUSIP is the average of all the APCW as per the sample size in a survey. This indicator is more refined than the GPCW because it accounts for the specific Per Capita of every sampled household in the study/survey. Generally the SPCW/AUSIP is higher in value than the GPCW.
7. The DSWR: Daily Shortfall of Water Requirements. This indicator simply looks at shortfall of requirements of households water needs per day. It is the average of the difference between DCR of the individual Households and how many litres of water the household would have used if there were no limiting factors.
8. Water storage practices: The data also covered the storage practices of households by looking at how many litres of water collected per day do not end up being used by the time the whole household retire to bed. Lower reserves could give indications as to the adequacies of water in the household. In most cases the reserve is zero. People also maintain reserves in anticipation that they may receive visitors for instance in the night and they may have to use some water.
9. MTAW: Mean Time for Accessing Water. This indicator measures the average time spent by the Household to access all the water collected per day.

Measures the average distance travelled to access water (in metres)

11. AUSIT: Actual User Satisfaction Indicator for Time Measures the average time spent to access water on a round trip to the water point.
12. USER SATISFACTION INDICATORS: This range of indicators were developed to assess to what extent people feel satisfied about the water facility being able to meet their daily maximum needs.
  - a) USID: User Satisfaction Indicator for Distance. This indicator measures the expectation of the community regarding what should be the ideal distance one should travel in order to access safe water. It is therefore an ideal indicator that will enable the project management to be able to assess to what extent they have been able to satisfy the beneficiaries as far as distance is concerned.
  - b) USIT: User Satisfaction Indicator for Time. This indicator measures the expectation of the respondent regarding what should be the ideal time to be spent in order to access safe water on a round trip. It is therefore an ideal indicator that will enable the project management to be able to appraise and know to what extent they have been able to satisfy the beneficiaries as far as distance is concerned.
  - c) USIP: User Satisfaction Indicator for Per capita. This indicator measures the expectation of the respondent regarding what should be the ideal per capita consumption of water taken into account the daily historical experiences of the respondents. It is also an ideal indicator that will enable the project management to be able to assess whether the project has met beneficiaries' needs regarding the quantity of water each individual is able to actually access
  - d) UPCW : This the WHO standard of 25 litres per capita per day
  - e) UPCW gap: This indicator measure the difference between the SPCW of a community and the UPCW. This is expressed as:  $SPCW - UPCW$ . Any value = 0 shows that the project has been able to meet the standard WHO per capita quantity per day. On the contrary any value  $0 <$  means that even though water facility has been provided in the community beneficiaries are not able to meet the standard per capita quantity due to some factors, be they technical or non-technical

## Lessons and Recommendations

### Key lesson

#### Watsan mapping and the MDG challenge

It presents the foundation for effective planning for MDGs at the



Fetching water at school hours

local level. Attempts to base MDG planning processes on broad generalizations as evidenced in the findings of the watsan mapping exercise is likely to yield inaccurate results. But if every district would possess real data and the true picture of the situation in all the communities as this exercise has produced, it would be then that real projections could be made and real actions taken to confront the MDG challenge.

#### Other lessons

- The mapping exercise facilitates monitoring and evaluation of plans,
- The exercise presents facts for advocacy work,
- It helps to measure user satisfaction levels,
- It helps to measure per capita consumption of water,
- It helps to measure distance and time spent to access water,
- It helps to tackle unfavourable gender relations that affect household water, sanitation and hygiene service delivery,
- It helps to measure hygiene behaviour change,
- It ensures participation of the vulnerable and marginalized groups in the communities planning.

#### Constraints

- The mapping exercise is time consuming and expensive and need more resource persons to undertake it,
- Limited funding was also a major cause of the delay in the process,
- It is a complex exercise and participants needed intensive training to be able to execute the plan.

#### Recommendations

- Planning for water and sanitation should not be based only on number of facilities but on user satisfaction, access time, facility distribution etc,
- Mapping provides the reality on the field for effective planning. Therefore the practice whereby planning is

based on national averages and guesswork must be discouraged,

- Mapping is expensive and needs government and donor support,
- Every district should conduct a mapping exercise to make planning more effective,
- Mapping is not only good for water and sanitation but for every sphere of human endeavour where planning is necessary,
- Authorities in the water and sanitation sector should support the scaling up of watsan mapping process.

#### Conclusion

Proper planning with real facts in the country is long over due. The practice whereby planning is based on heresy and some scanty data has been proven to be very unreliable and expensive. This situation has also led to distortions in the implementation of projects/programmes.

Meeting the MDG challenge on water and sanitation will not be possible without the availability of real facts on the ground, proper planning and action. Donors, especially the Briton Woods Institutions mostly insist on the evidence on the ground before processing loan applications, grants etc. To boost our chances of donor support we need to present real cases of deprivation depicting the gaps to fill and how much effort time and material, as well as personnel needed.

In every sense we need to know our problems and what will be needed to solve those problems before we can plan effectively. To gloss over certain basic necessities for planning, and to refuse to implement our plans will mean forever remaining in our deprivation.

It was with this in mind that APDO initiated the watsan mapping exercise in order to set the tone for all planners, especially those in the water and sanitation sector, to emulate so that we can move away from our present deplorable situation. It is in this vein that we should all put our hands on deck to learn, discover and enhance our planning process in the Country.

## Appendix A

### Review of some pretest results from the mapping exercise

#### Coverage levels in the selected Area Councils

By CWSA standard definition, coverage means the percentage of 300 people having access to a borehole facility. This is defined as the number of boreholes multiplied by 300 and divided by the total population expressed as a percentage.

$$\frac{\text{Number of boreholes} \times 300}{\text{Total population}} \times 100$$

Hypothetically, this ratio of 300:1 is ideal to meet the objective of providing 'adequate' water to a population.

**Table 1: Distribution of borehole facilities in the Afram Plains District**

Area Council	No of communities with BH	No of communities without BH	No of BHs	% of communities covered	Total population of area	Population of communities with BH	% coverage of people (1:300)
Amankwaa	15	47	17	24%	20,685	8,850	26%
Donkorkrom	23	21	51	52%	22,038	17,760	69%
Ekye-Amanfrom	10	32	20	24%	12,761	3,242	47%
Forifori	24	59	82	29%	44,249	5,595	56%

The figures above would readily tell you the area averages in terms of borehole accessibility. For instance it tells you that Amankwaa Area council has 17 boreholes located in 15 communities. This is a fact, but the 26% overall coverage level in the area is very deceptive. The reason is that it was derived from EVENLY sharing the number of facilities (17 BHs) among the overall population (8,850) of the area. The data above does not tell us where those facilities are located. Obviously, from the table 47 communities have no BHs at all. To them, coverage is zero. There might as well be other communities who have more than 100% coverage because the populations there are less than 300 but then they have a BH or two!

Therefore, basing one's plans using such generalizations will definitely provide off-track results since real situations on the field are not known. The table below will prove this point.

**Table 2: Levels of Under/Over coverage**

Area Council	No of BHs	% of communities covered	Total population of area	Population of communities with BH	% of under/over coverage
Amankwaa	17	24%	20,685	8,850	-142%
Donkork.	51	52%	22,038	17,760	-13%
Ekye-Am	20	24%	12,761	3,242	+85%
Forifori	82	29%	44,249	5,595	+340%

Table 2 depicts the real picture of borehole distribution in the district. For instance it shows that contrary to the 26% coverage for Amankwaa Area Council presented by Table 1, even the population served (8,850) is really under covered by -142%. This is because based on the standard ratio of 300:1 the, actual ratio is rather 520:1. Therefore planning based on the assumption that the area is 26% covered would not be accurate. Furthermore, Table 2 tells us how much communities served in the Forifori Area are over covered. All the 82 boreholes are located in 24 communities, serving a population of 5,595. Based on the 300:1 standard ratio, the actual ratio is 68:1, an over coverage by 340%. This reveals that facilities are over concentrated in very few communities while the vast majority lacks access.

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