FEDERAL REPUBLIC OF NIGERIA

FEDERAL MINISTRY OF WATER RESOURCES

NATIONAL WATER SUPPLY AND SANITATION BASELINE SURVEY

INSTRUCTIONAL MANUAL

Department of Water Supply and Quality Control
Project Implementation Unit
Plot 2789 Aguiyi Ironsi Unit
Maitama Abuja.
Phone: 09-4133203; Fax: 09-413146

August, 2006.

NATIONAL WATER SUPPLY AND SANITATION BASELINE SURVEY

1. INTRODUCTION

The main objective of this assignment is to document the proportion of Nigerians that have access to safe water and sanitation facilities and those who otherwise, do not have, according to the following definitions:

i. Access to Water Supply: The availability of at least 20litres per person per day of improved water supply from a source within 250 metres of user's dwelling.

ii. Access to Sanitation: Sanitation can be defined as the availability of improved disposal facilities of human wastes that can effectively prevent human, animal and insect contact with the human wastes.

iii. Improved Water Supply: The following technologies are included in the assessment as representing improved water supply: a) Household Connections, b) Public standpipes, Borehole, Protected dug Well, Protected Spring, and Rainwater harvesting.

iv. Not- Improved Water Supply: The following technologies are considered "not improved": a) Unprotected well, b) Unprotected spring, Vendor-provided water, c) Bottled water, Tanker truck-provided water, d) streams and ponds.

v. Improved Sanitation: The following technologies are considered "improved", a) Connection to a public sewer, b) Connection to septic system, c) Pour-flush latrine, d) Simple pit latrine* e) Sanplat*, f) Ventilated improved pit latrine.

vi. Not-Improved Sanitation: The following technologies are considered "not improved": a) Service or bucket latrines (where excreta are manually removed), b) Latrines with an open pit, c) defecation in bushes.

---

*FOOTNOTE:

i. *Simple pit latrine (Upgraded Traditional Pit Latrine): - For reasons of cultural acceptability, affordability, especially in rural areas, minor improvements that will reduce flies, odours etc. may be accepted as interim measures. Examples of such improvements include provision of super structures, covering of the pit opening/squat hole with a suitable cover, plastering of the latrine floor with cement and introduction of a vent pipe to improve the hygiene conditions of the latrine.*

ii. *Sanplat latrine: Is relatively cheaper than VIP latrines and easily adaptable to existing traditional pit latrines. For example, super structures like mud walls with thatched roof can house sanplat latrine upon the installation of the sanplat (slab) and vent. Such structures blend very well with other buildings in the community.*

In this project, all water schemes, defined as discrete sources, where water is extracted and/or distributed to consumers will be enumerated and geo-referenced with coordinates. Similarly, availability of sanitation facilities in households and public sanitation facilities will be enumerated and geo-referenced respectively. The surveys are to be carried out in all settlements that should be properly classified as Rural Areas, Small Towns, Urban Towns and State Capitals in accordance with the definitions below:

Classification	Description
Rural Areas	Rural Areas are settlements with a population of less than 5,000 people.
Small Towns	Small Towns are settlements with populations between 5,000 and 20,000 people.
Urban Areas	Urban Areas are towns with a population more than 20,000 people in a settlement.
State Capitals	These are the political capitals of the 36 States of Nigeria.

2. SAMPLING STRATEGY

Households in all the 8,800 Political Wards spread across the 774 LGAs in 36 states and FCT will be surveyed. The Baseline Consultants shall administer survey questionnaires to take stock of sources of drinkable water, the volume/cost of water consumption; the sanitation facility and occurrences of water related diseases in household surveyed.

2.1 SELECTION OF LOCATION AND HOUSEHOLDS

The Baseline Consultants shall sensitize members of the community through the councillors and other recognized leaders about the exercise to forestall any suspicion or misconception about the survey. Baseline supervisors shall document the survey process in each community by stating the names of councillors, community leaders met, list of all communities identified in each political ward and the ones selected for survey, without forgetting to state all the problems encountered in the survey process.

A typical Nigerian settlement, regardless of its population is either a multi community ward or a multi ward community. But in either case, the Baseline Consultants should ensure that the selection of the households take into cognisance the geographical spread and socio-economic variance of the ward. It should be noted that in every ward, the selected houses shall be enumerated through a *transect* walk and the first sampling element, which shall be the first house on the right or left, will determine the subsequent ones to be selected.

2.2 Multi community ward

The Baseline Consultants shall go through the list of all communities or villages in each ward out of which two (2) shall be randomly selected. Starting with the first

community, a minimum of eleven (11) houses shall be systematically selected from the listed households, after determining the sample interval. The sampling interval for the community shall be determined by dividing the total number of houses in it by eleven (11). This process shall be repeated for the second community to arrive at a total of twenty-two (22) houses for the ward.

2.3   Multi ward community

The Baseline Consultants shall go through the list of streets, quarters, discrete areas, housing estates, or haphazardly located homes with no identifiable streets in the ward, where a random sample of 22 houses shall be systematically selected.

However, where there are no streets, the Baseline Consultants shall demarcate the ward into appropriate *blocks* and select two blocks randomly. The houses in each block shall be listed and eleven (11) houses systematically selected.

3.   DATA COLLECTION

The Baseline Consultants shall use five forms to capture all the relevant data on water supply and sanitation and the water related diseases. While the administrators are using the questionnaires to extract data from the respondents, the GIS field officer will be geo-referencing the locations of water and sanitation facilities by reading the coordinates of such locations with hand held GPS instrument *of any brand or make with 3 – 5 meters precision.*

The data collection forms are:
1. Form 01 (Water Supply Facility Survey): To capture the location, attributes, and operational status of water supply facilities.
2. Form 02 (Water Supply Agency Operational Survey): To collect data on the profile of water agencies in the state, in terms of production assets, capacity utilization, manpower; and financial sustainability.
3. Form 03 (Sanitation Facility Survey): To capture the location, types and conditions of sanitation facilities.
4. Form 04 (Water Related Diseases Survey): To collect data on reported cases of water related diseases from health institutions.
5. Form 05 (Household Survey): To capture data on the proportion of households that have access to safe drinking water and sanitation facilities and prevalence of water related diseases in each community.

Foot note: Transect walk is defined as a walk conducted through a designated research site during which all the elements of research are identified, noted and counted.

4.   SOFTWARE

The recommended GIS software for this project is ArcView or ArcGIS and the digital maps must be in **ArcView readable and JPEG format**. Project files will be created for states, layouts and view for LGA. The symbols and colour codes to be used to represent promoters of water supply and sanitation facilities .e.g. well, boreholes and water plants on the map shall be as follows:

PROMOTER	COLOUR CODE
Federal Government	Green
State Government	Blue
LGA	Yellow
Community	Pink
Donors/Development partners	Red

It should be noted that the maps should be in two distinct categories – water supply and sanitation facilities map and water related diseases map. **The digital maps must be of scale 1:100,000 or 1cm to 1km and larger**.

The database software recommended is **MS Access 2000**. The MIS Consultants have developed an application software, which has an MS Access database and data entry forms (interfaces) that are very similar to the five questionnaires, which will be used by the Baseline Consultants to capture all the data on the administered questionnaires.

The Baseline Consultants shall submit field data and maps (field returns) on CDs in MS Access and ArcView respectively. These data shall then be processed, analyzed and upsized to **Oracle** format to produce the National Water Supply and Sanitation Database by the MIS Consultant.

5.   DETERMINATION OF ACCESS TO SAFE WATER SUPPLY AND SANITATION AND PREVALANCE OF WATER RELATED DISEASES

Upon completion of field work, the Baseline Consultant will determine (i) the theoretical % of people with access to services, (ii) service coverage and (iii) actual % of people with access to safe water supply and sanitation using the following approaches:

a. For safe water supply:

(i)   Theoretical % Water Supply against Demand

First Step: The consultant will sum up the current operational capacities of all water supply facilities in the LGA, (collected with form 01) to determine total water available in cubic meter per day. This will be taken as the total safe water available in that LGA.

If the scheme is serving two or more LGAs, the quantity to be allocated to each LGA will be based on the rating of pumps serving specific service zones or prorated on the basis of number of service outlets.

Second Step: The consultant will then calculate the total water demand in the LGA by multiplying the population of the LGA with per capital water requirement based on the type of settlement using any of the figures below:

i. Per Capital Water Demand for Rural Areas = 20liters/capital/day
ii. Per Capital Water Demand for Small Towns = 30liters/capital/day
iii. Per Capital Water Demand for Urban Areas = 60liters/capital/day

The theoretical % of people with access to safe water will then be calculated as follows:

$$\text{Percentage Access to Safe Water} = \frac{\text{Total Safe Water available in m3/day}}{\text{Total Water Demand in m3/day}}$$

(ii)   % of Water Supply Coverage

First Step: The consultant will identify and sum up all service points in each LGA, such as house connections, public standpipes, boreholes, etc, (collected with form 01). This will be taken as the service points available in that LGA.

Second Step: The consultant will then calculate the % service coverage as follows:

Percentage Service Coverage = (Σ(HC)*[Avg no of People per HC] +Σ(PT) * [Avg no of People per PT] + Σ(hpbh)* [Avg no of People per hpbh]) /Total population of the LGA

Where HC means house connections, PT means public taps; and hpbh means hand pump boreholes

(iii)   Actual % People with Access to Service

First Step: The data collected with form -05 will be collated and consolidated, with a view to determining the actual % of people with access to safe drinking water, using the formula below:

Percentage Access to Safe Water in the LGA

$$= \frac{\Sigma \text{ No of Households with Access}}{\Sigma \text{ No of Households Surveyed}}$$

b. For Sanitation:

(i)   Actual % People with Access to Service

The data collected with form -05 will be collated and consolidated, with a view to determining the actual % of people with access to safe sanitation services using the formula below:

Percentage Access to Safe Sanitation in the LGA

= $\dfrac{\sum \text{No of Households with Access}}{\sum \text{No of Households Surveyed}}$

Water Related Diseases:

The sum of all incidents of specified water related diseases reported from all health institutions in the LGA will be compared with the figures derived and extrapolated from the household survey. The larger of the two figures will be recorded as the data for the LGA.