

WATER, SANITATION AND HYGIENE SERVICES IN NIGER STATE, NORTH CENTRAL NIGERIA: PROBLEMS AND PROSPECTS

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ABSTRACT

Water and sanitation services in Niger state, north central Nigeria has met with success in some places and outright failure in some other places mainly as a result of climatic, geological and cultural factors. Climatic factors determine the amount of rainfall available for groundwater recharge in the areas while geological factors determine the availability or otherwise of groundwater for boreholes and wells, cultural factors are the attitude of the people towards the facility, especially sanitary facilities. Common sources of water in most of the communities are hand dug wells, streams and rivers where available. Provision of boreholes has always been welcome by the communities and does not suffer much problem as sanitation facilities. Major challenges facing universal attainment of water and sanitation services can be political, social and cultural factors, this includes poverty and high illiteracy levels among community members.

INTRODUCTION

Nigeria has been grappling with issues of water scarcity across a number of its states forcing infrastructure and long term sustainability questions. The water scarcity issue is considerably daunting, given the fact that Nigeria represents the eight most populous nation in the world with a total population of over 152 million people. Among the 152 million who reside in Nigeria, less than 30 percent have access to adequate drinking water (WHO/UNICEF, 2014). The use of groundwater as the major source of potable water in both urban and rural areas in Nigeria has assumed such a high proportion that attention has turned fully to it (Idris-Nda, 2010).

The main challenges and constraints to adequate supply of safe drinking water include:

- a. Lack of appropriate policy, legal, regulatory and institutional framework.

- b. High population growth which results in an ever increasing demand for water and sanitation services against a diminishing trend in supply thereby creating a large supply gap.
- c. Low investment level in operation and maintenance which accounts for frequent break down of distribution facilities.
- d. The failure of water schemes in the past is attributable to the non-involvement of the intended beneficiaries, either at the point of initiation/conception of the schemes or in their funding, execution and monitoring, among others.
- e. Failure to appreciate that water is a finite resource and an economic and environmental good for which realistic tariff should be charged to recover at least operational and maintenance costs.
- f. Inadequate public awareness about

- water conservation and management for effective sanitation and public health hygiene.
- g. Poor community participation in water supply and sanitation matters, creating the impression that sanitation is government business.
 - h. Ever increasing rate of urbanization resulting in shortages of water supply and sanitation services in urban and semi urban areas (Nigeria, vision 20:2020).

Description of Study Area

Niger state, north central Nigeria lies between longitudes 4° 00 – 7° 15' E and latitudes 8° 15' - 11° 15' N. It is bordered in the

north by Kaduna and Kebbi states and in the south by Kogi state. It shares boundary in the west with Kwara state and Benin Republic and in the east with the Federal Capital Territory and Kaduna state. It is divided into twenty-five local governments areas (Figure 1) with a landmass of about 80,000.00 square kilometer and a population of 3,920,245 (2006 census). The climate is like much of West Africa comprising of a rainy season and a dry season. The seasonal rainfall regime gives rise to longer wet season of about seven months with average rainfall of 250 mm, and a dry season of about five months with little or no rains at all (Idris-Nda, 2010).

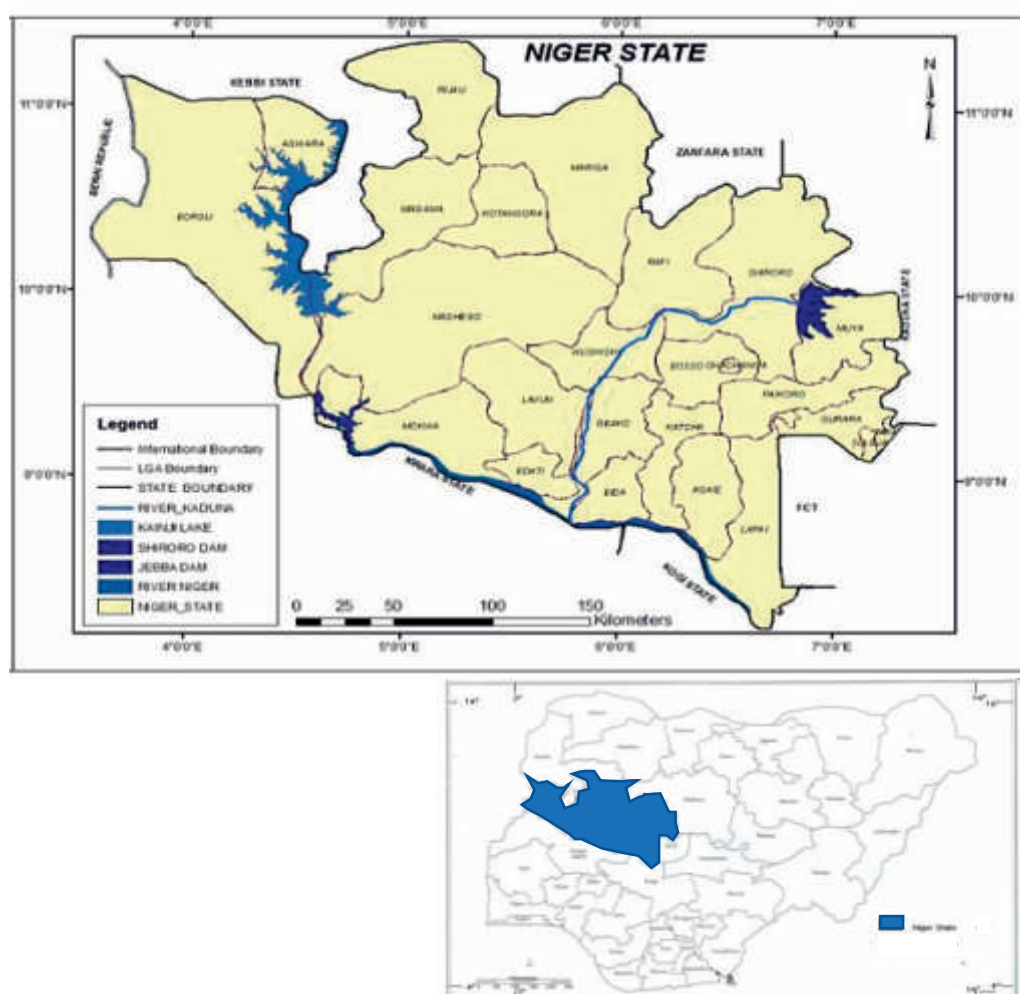


Figure 1. Map of Niger state showing the twenty-five (25) Local Government Areas

GEOLOGY AND HYDROGEOLOGY

About one half of the land mass of Niger State is underlain by the Basement Complex rocks while the other half is occupied by the Cretaceous sedimentary rocks of the Bida Basin and part of the Sokoto (Iullemeden Basin), (Shekwolo, 1991, Idris-Nda, 2010). The boundary between these runs in a northwest – southeast direction, with the Basement rocks to the north and the sedimentary Formations to the south (Figure 2). The Basement Complex rocks occur in the northern part of the area and basically made up of the Migmatite-Gneiss complex, the Schist Belts and the Older Granites. To the south of the state is the sedimentary rock which is made up of sandstones and alluvial deposits, especially along the Niger valley, some parts of the state like Lapai and Kontagora which are major towns is located in the transition zone of the two rock types, the Pre Cambrian Basement Complex and the Cretaceous sedimentary formation.

The geological framework has, to a large extent, defined the distribution of groundwater in the state. There is a large groundwater potential in Niger state, which by far exceeds the surface water resources

judging from the size of the area underlain by the Bida Basin and the corresponding drainage system. Mands (1992) reported on three pumping tests situated within the sedimentary series of the Bida Basin, which were performed at Shashi Dama, Gaba and Etsugaie (near Bida). Transmissivity values are in the range of 5.5–29.3 m²/d. The resulting hydraulic conductivities were reported as 6×10^{-2} to 3×10^{-5} m/s (0.5–2.6 m/d). Based on the thickness data of Ojo & Ajakaiye (1989) of 500 m the entire groundwater resource (sedimentary cover about 60 km × 80 km = 4,800 km²) is estimated to be in the range of 290–430 km³. However in the areas underlain by the Basement Complex, over most of these areas occur thin, discontinuous mantle of weathered rocks or joint and fracture systems in the unweathered basement provide secondary reservoir. The decomposed mantle is sometimes too thin to harbour large quantities of water and is usually clayey to be highly permeable. Groundwater thus mostly occur within the fracturing system in the fresh rock, common drill depths in the state range from 30 to 200m. Yields between 1–2 l/s are considered good, and yields are more commonly below 1 l/s.

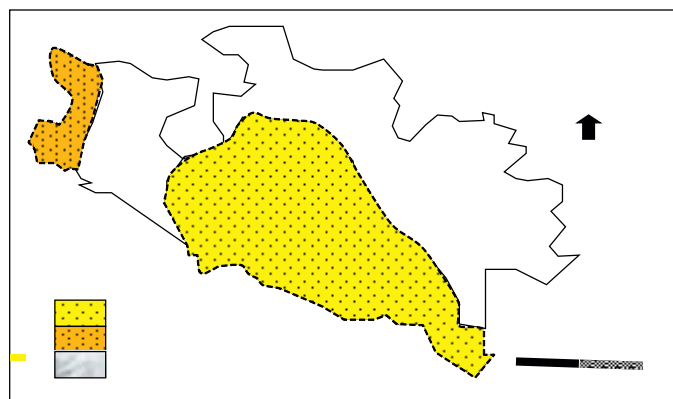


Figure 2: Geological map of Niger State (Idris-Nda, 2013).

Aim and Objectives

This work aimed at accessing the success or failure of implementing water, sanitation and hygiene programs in Niger State, North central Nigeria. The main objectives were to determine the present level of water and sanitation projects in the area, determine the level of maintenance and acceptability of the program and the challenges facing the attainment of universal water, sanitation and hygiene in north central Nigeria.

MATERIALS AND METHODS

The methodology adopted for the study involved the following;

- i. Review of all available records on water and sanitation programs in the area, especially those conducted by UNICEF, which all the authors actively participated in since 1992, and other donor agencies notably Japan International Cooperation Agency (JICA), Middle-Belt EEC/FGN program as well as other intervention projects by Federal, State and Local Governments.
- ii. Identifying communities where all facilities (borehole and sanitary) exist and communities with only one facility.
- iii. 350 Questionnaires structured to cover aspects of demand, usage and maintenance of the facilities were also employed.
- iv. Assisting households in selected communities with moulds, iron rods and bags of cement to demonstrate how cheap and affordable it could

be to put up a toilet facility at household level.

RESULTS

Rural communities covered by water and sanitation facilities covers about 70 percent of the state's population (2,744,171). Communities with both facilities is put at 40 percent while the remaining have only one facility (mostly boreholes).

Communities with Ventilated Improved Pit (VIP) latrines is approximately put at 30 percent. The proportion of communities with boreholes is considerably higher (over 80%), this could be attributed to the large-scale drilling of boreholes embarked upon by UNICEF and other donor agencies since 1987 to combat the scourge of Guinea Worm that ravaged the area. Community Lead Total Sanitation (CLTS) was introduced in 2012 in the state to bring sanitation to household levels.

Deductions made from response to questionnaires administered to respondents in selected communities in the area, policy makers and other stakeholders are summarized in Table 1 and Figure 3.

Prospects and Problems

Groundwater exploitation in Niger State is mainly through hand-dug wells and boreholes. The wells are commonly lined or unlined serving both individual households and community water points. Boreholes have become the most common used source of water in the state. An average of over three thousand (3000) boreholes have been drilled in the state. Common ailments in the area are malaria,

typhoid and diarrhoea.

The following factors were identified as the major challenges facing the attainment of universal water supply and sanitation services in the north central part of Nigeria.

Political

The political dispensation of the area is favorable for groundwater development and sanitation services, the state government procured drilling rigs (06) and through the state Water and Sanitation (WATSAN) Agency was able to create enabling environment for an effective program, however relevant laws and policies are yet to be fully put in place to effectively execute the program. Best results were achieved when the programs are jointly owned by the state, local government and communities with each contributing a certain percentage or effort towards success.

Cultural

Cultural problems that have been identified in the area includes; the concept of open defecation being more hygienic to defecating in confined places, poverty and high illiteracy level among the communities. Some communities have cultural values that prohibits the mixing of male and female faeces. This has led to a slow acceptability of the concept of sanitary facilities in these communities.

Social

Most communities are inhibited from and show reluctance to defecating in structures they consider beautiful and far more expensive than their houses. This factor has led to complete abandoning of sanitary

facilities that has been provided by government or donor agencies.

RECOMMENDATIONS

The following recommendations on improving water supply and sanitation services in north central Nigeria and indeed other developing countries with similar problems are made;

- a. Funding must be done by the community, this will involve the provision of structures, materials etc. with support from government, Non-Governmental organizations (NGOs) and other donor agencies. This is however always difficult as a result of poverty but it produces better results and is more sustainable.
- b. Stages of implementation will involve the following;
 - i. Identifying communities
 - ii. Community mobilization by sensitization and triggering the community, village based committees can be established to kick start the program.
 - iii. Identify water sources, advise on basic water treatment on existing supplies and if possible provide other sources like borehole or hand dug well to the community. This can be achieved through government, donor agencies, politicians and philanthropists.
 - iv. Provide individual low cost sanitation facilities for the communities, this can later be upgraded to VIP latrines which is ventilated and does not require water, and later when fully

accepted can be upgraded to the “pour flush” method with provision of water. Government agencies, like WATSAN, should provide the platform through which donor agencies, NGOs and other

philanthropists can give support to communities that have already been identified and scaled in order of priority.

Table 1 Response to questionnaires administered to the communities

Population	Water Source			Sanitation facility		Community Description		Common Ailment (%)		
	Borehole	Well	Stream	Household	Communal	Clustered	Isolated	Typhoid	Malaria	Diarrhea
3,000	30	50	20	60	30	40	60	30	40	30
6,000	60	40	-	80	20	80	20	40	40	20
10,000	70	30	-	90	10	90	10	40	40	20

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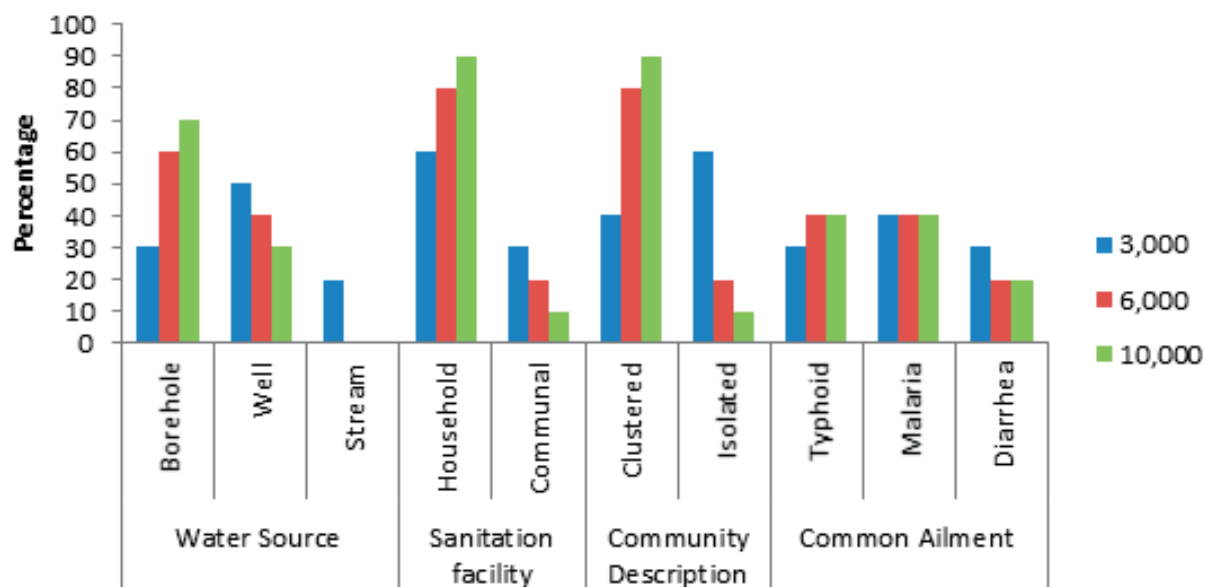


Figure 3. Water source, sanitation facility and common ailments in north central Nigeria



Plate 1. Women fetching water from a community hand pump borehole at Kataeregi



Plate 2. Fetching water from a community concrete lined well at Gbangbara area, Bida



Plate 3. Preparing sanitary platforms for toilets at Garatu area



Plate 4. Basic latrine using simple materials at the community level (Gidan Kwano)