

IMPROVING RURAL WATER SUPPLY AND SANITATION THROUGH COMMUNITY PARTICIPATION AND MANAGEMENT FOR DISEASES PREVENTION IN SOKOTO STATE

¹Bello Umaru Sifawa & ²Abdullahi Muhammad
Department of Geography, Shehu Shagari College of Education Sokoto
Farfaru Area Birni - Kebbi Road; PMB 2129, Sokoto

Abstract

Clean water supply and sanitation is essential for Healthy living of the entire population be it urban or rural. It is also an important sector because it indicates the socio – economic development of any region and it requires serious attention and funding. Although majority of the Nigerians are living in rural areas but majority of the rural dwellers are without access to portable drinking water and sanitation. Despite so many programmes by different regimes rural areas are still unable to access clean drinking water and sanitation that was why they suffer most from water related diseases. To achieve Sustainable and Millennium Development Goals of halving the percentage without access to clean water by 2015, rural areas must have easy access to clean drinking water and basic sanitation in good quality and of sufficient quantity to meet household needs. This should be done through the construction of more boreholes, local community participation and management of water supply facilities.

Keywords: Rural Water Supply, Sanitation, Community management and Disease Prevention.

Background to the Study

Nigeria is the most populous country in Africa and its population continuous to grow rapidly. The projected population for Year 2010 is estimated to be 154,671,153, based on average growth rate of 3.2% annually (NPC, 2011). This population increase has brought about undue pressure on the available infrastructure across the country, increasing the poverty rate while majority of Nigeria's population are living in the rural areas. The total volume of water available in surface and underground resources is sufficient to meet the current water demands the lack of distribution capacity, inadequate water infrastructure coupled with highly variable rainfall pattern in some areas has led to water scarcity, particularly in the northern part of the country.

Nigeria faces huge challenges that adversely affect public health. One major challenge is the ability of both urban and rural areas to access clean water and sanitation. The rural areas are worst in terms of water and adequate sanitation systems, as such efforts to achieve the millennium development goal which aimed at about 75% access to water and sanitation by the year 2015, will fall short. Adequate water supply and sanitation lies at the heart of any development goals urban or rural. The development of water and sanitation sector is a continuing long-term process which requires long term planning focus on achieving improved conditions of life in the urban or rural (Babalola, 1997).

More recently, greater attention has been paid to the broader livelihoods benefits of rural water supply for example there is a direct link between improved water supply and public health, good sanitation practices, the use of water for other domestic purposes such as cooking, cleaning and drinking needs (UNICEF, 1999, and Nwankwoala, 2011). Although water supply and sanitation is a wide spread problem in Nigeria, and the demand for it is growing everyday with increase in population. Sokoto State being dry environment, (Sudano-sahelian zone) where annual water expenditures is more than water budgets, rural areas of the state may be affected most with regards to problems of water supply and management. To address the problems, Nigeria launched a National Rural Water Supply and Sanitation policy in 2004. Efforts in this regard have included completion of the hydrological mapping of the country, expanding rural water supply systems and encouraging private sector development and participation in the provision of water and sanitation. While water and sanitation related diseases continue to affect our rural dwellers, at the same time Sokoto State Government is yet to formulate policy framework with regard to rural water supply and sanitation. Rural communities according to Rural Water Supply and Sanitation Framework refers to rural areas with less than 5,000 populations, these communities usually do not have pipe water, tarred roads or electricity (RWSSF, 2004). Water supply refers to the delivery of 30 litres/per capita per day of safe water within 250m of the rural community and serving about 250-500 persons per water point and safe water means water that meet the National Drinking water Quality for Nigeria (Nwankwoala, 2011). The demand for water in our rural areas has increases due to human and animals pressure therefore, there is need for establishment of more rural water points and expansion of the current facilities, management decision about location of water facilities, levels of services and cost of maintenance should done at the local community level. The role of the state and local governments should be to fund the construction of the facilities establish institutional rules and encourage community level management and decisions making (UNDP/ world Bank, 1995).

Objectives of Study

This paper therefore, looks at issues affecting water supply and sanitation in rural areas of Sokoto State and implications of inadequate clean water supply in the State. Safe water supply is an important strategy for preventing diseases in our rural communities. Other issue includes community management of water facilities

Implications of Poor Drinking Water and Sanitation

The implications of lack of clean water and access to adequate sanitation are widespread. In many rural parts of northern Nigeria the inadequacy of safe water and sanitation is manifested in the prevalence of water and sanitation related diseases such as diarrhea, which results from poor sanitary/hygiene habits and consumption of water of poor quality is second main cause of infant mortality after malaria and the third main cause of under-five mortality (Adegoke, 2012). Young children die from dehydration and malnutrition, results of suffering from diarrheal illnesses that could be prevented by clean water and good hygiene (Metwally, Ibrahim, Saad, Abu El-Ela, 2006). The prevalence of diarrhea itself is higher in the rural areas of the northern zone than in the south. According to National Rural Water Supply and Sanitation Framework an estimated 150,000 to 200,000 diarrhoea related deaths occur among children below 5 each year (NRWSSF, 2004). Likewise certain diseases prevalent in the rural areas such as

Onchocerciasis (River blindness) and dracunculiasis (Guinea worm) have an association with water, for example, the black fly and Cyclops flea respectively (NPC/UNICEF, 2001). In addition there is always periodic occurrence of cholera among the rural population. Many other diseases related to sanitation remains important public health concerns in our rural areas for example dracunculiasis which morbidity is still a serious problem despite the success recorded in the recent past. Onchocerciasis, cause by the black Fly of the savanna and forest zone is also highly endemic in Nigeria with about 40 million people vulnerable to this disease, out of which 22 million are infected and about 120,000 are estimated to be blind from the disease (NRWSSF, 2004). Schistosomiasis is another parasitic disease transmitted by the snail vector. These snails live in stagnant water found in rural ponds especially during the wet seasons. The continued occurrences of these diseases in our rural areas are due to a number of factors such as inadequate clean water supply, unsanitary living conditions and unhygienic behaviours on the part of the rural dwellers. That was why the drive to reduce poverty and achieve millennium development goals had identified water supply and sanitation as important components for the elimination of absolute poverty in Nigeria. This is because water and sanitation affects virtually all other sectors that require the use of water.

Available Water Resources in Sokoto State

The main sources of water for the rural household in Sokoto state are mainly from shallow wells, Streams, Ponds, lakes, rivers and boreholes, all are from untreated sources. The state has a tropical continental climate with wide variation of rainfall from the south to North influenced by Southwest trade winds.

The climatic parameters of significance include rainfall, temperature and evaporation as well as the spatial and temporal variation of these elements in this region. However, rainfall and evapotranspiration constitute the most important sets of climate variables which directly affect the amount, reliability and management of water resources in the region (Olofin, 1987). Average annual rainfall ranges from 500mm and 800mm, with duration of about four months between mid-May and September. The state has two major rivers, these are Sokoto and Rima Rivers together with their tributaries drained the state. Most of them are intermittent in their flow having water in them only in a couple of months after the rainy season, these rivers and streams serves as important source of drinking for both humans and animals as well as irrigation activities around the Fadamas.

The state is underlain by consolidated and semi-consolidated sedimentary materials with different static water levels, although the exact amount of groundwater storage is not yet known but evidence suggested that this basin is a major aquifer (Nwankwoala, 2011). There are three aquifers in the state, bounded by basement complex in the North and east, the artesian basin occur in depth in the Gundumi formation, the Rima group and Gwandu formation, in all the Sokoto basin contain unconfined ground water bodies (Benna, 1987). Though artesian water exists in abundance and generally is of good chemical quality, the soils of the region are sandy and average yield of boreholes is low due to low permeability and fine grained nature of the rock structure (Benna, 1987).

Attempts at Improving Rural Water Supply and Sanitation in the State

For many decades since independence many governments (both civilian and military) have been making efforts for sustainable rural water supply and sanitation, but up till today the results of these efforts are far from reality. Some of these efforts aimed at addressing rural water supply and sanitation began with onset of the international drinking water supply and sanitation decade declared by the UN in 1981 which established targets for universal coverage. Other efforts and programmes included the following:

- i. National Action Plan for the Survival, Protection and Development of the Nigerian Child.
- ii. Universal Access to Safe Water and Sanitation and Complete Eradication of Guinea worm (Dracunculiasis)
- iii. National Borehole Programme, (1981 to 1986).
- iv. Directorate of Food, Roads and Rural Infrastructure (DFRRI) Rural Water and Sanitation Programme (1986 to 1992)
- v. Petroleum Trust Fund (PTF), Rural Water supply and sanitation Programme (1996 to 1999)
- vi. National Rural Water Supply and Sanitation programme (1999 to 2010).
- vii. IFAD Community Assisted Development Projects Rural Water Supply Scheme (1999 to date).

Some of these projects were under taken with the assistance of external donor agencies, many of which are still involve in the water supply and rural development projects.

Despite these good policies and bold attempts, the state is still recording less success in area of provision and access to safe water and sanitation disposal in our rural areas. In the country as whole there has been no National Water Supply and Sanitation Policy till year 2004. While in the state up to today there is no policy framework which guides policy objectives, guidelines and targets for the entire rural water supply and sanitation sector. As a result Rural Water Supply and Sanitation in the state has no consistency and is surrounded by many problems such as; poor coordination, poor maintenance culture on the part of the rural communities, poor technical personnel, multiple programmes undertaken by Federal, State and Local Government councils, politics and bureaucratic control by various supervising ministries, there was lack of professional inputs in many of these programmes and projects, none community participation in the selection, location and maintenance of projects, inadequate funding, inappropriate technology, lack of monitoring and evaluation. Generally there is lack of focus and continuity of efforts. All these resulted in state's inability to adequately cover the rural communities with safe water and improved sanitation.

Responsibility for Rural Water Supply and Sanitation

Three tiers of government share responsibility for managing the Nigeria's water resources. The Federal Ministry of Water Resources (FMWR), is responsible for developing policy, monitoring and coordinating water supply development and funding research and development. The FMWR also collaborates with the Ministry of Environment on water sanitation activities, control and quality control of water supply sources. At the state level, the state water agencies (SWAs) are responsible for the establishment, operation, quality control and maintenance of water supply in urban areas. Most of

these agencies are established as corporate bodies that are fully owned by their respective state governments. But run according to civil service rules. Although they are intended to be autonomous and self-accounting, they mostly find it difficult to be operationally and financially autonomous from their state governments. At the local level, the local government councils are responsible for rural water supply in their areas and for establishing local water sanitation and hygiene (WASH) departments. However, only few LGAs in the country have the resources and skills to address local needs and construct small water systems. Virtually all the LGAs in the state have not established WASH departments. Also coordination between the three tiers of government is weak, particularly when it comes to implementation.

In the rural areas of Sokoto State, water is subsidized and provided to the population free of charge. Local governments are responsible for rural water supply sharing the costs with State and federal governments. Most of the rural areas depend upon boreholes or hand-dug wells for water supply (UNICEF/USAID, 2010). With respect to sanitation, the percentage of coverage in the rural areas has fallen by 8 per cent since 1990 (UNICEF, 2010). In addition, it was estimated that more than 31 per cent in the rural areas resort to inadequate methods of sanitation and human waste disposal such as open defecation in bushes, riversides or dumpsites (UNICEF, 2010). According to survey conducted by UNICEF of rural households to prioritize their needs lack of portable water was identified as their greatest problem, while lack of latrine was considered the least of their problems.

Why Rural Communities Should Manage their Water Supply Facilities

Lack of community participation has led to many problems such as poor operations and maintenance of the water projects. This is mainly because of inappropriate technology, in accurate location of water supply facilities and lack of affordability (Nwankoala, 2011). Sometimes facilities are sited where mineral content is detrimental to taste and drinking. However, evidence from other projects indicated that local communities could control and manage their facilities and make them work efficiently (UNICEF, 1999). For example communities can take greater responsibility in the financial outlay for the construction of facilities and recover much of the cost through levies to the households. With regard to the above UNICEF suggested that, a community should provide between 5 and 10% of the capital cost of facilities. It proposes that communities should provide labour for the construction of hand-dug wells, while any supporting agency should provide technical assistance and training for maintenance (UNICEF, 1999 and USAID, 2010).

This could enhance local community participation in planning, implementation and management of project, as it places emphasis on establishing affordable and appropriate technology, particularly hand-dug wells and hand pumps. Other technical considerations involve training some members of the local community in construction and maintenance techniques.

Some of the key features of the community ownership and management as outlined by UNICEF include;

- i. Having legal ownership and control of the projects.
- ii. Selecting the level of services it requires, can afford, and can sustain locally.

- iii. Selecting the location/site for water facilities.
- iv. Contributing at least between 5 and 10% in cash to the cost of the facilities.
- v. Setting up local management committee that is accountable for managing the project.
- vi. Taking complete control of the operation, and maintenance of the water facilities
- vii. Selecting its own members to receive training in repairs and maintenance techniques.
- viii. Taking responsibility for routing maintenance and repairs of the water facilities.

But with regard to the above the financial obligation on the local commonly can create, obstacles for meeting these very objectives of providing rural areas with safe water in good quality and quantity.

The Benefits of Improved Rural Water Supply and Sanitation

The benefits of improving water supply can directly affect socio economic life of the beneficiaries. This is because water can be used for a number of productive uses by the households, both in cash and non-cash benefits. Some of these productive uses include livestock watering, small scale vegetable garden, rural industries such as brick-making, dyeing etc. Improved water supply may also indirectly affect rural poverty reduction efforts, for example an improved access to water supply may enable women to use time savings for other productive activities at home creating income from other enterprises. It can help to sustain income and production in the event of periodic drought (Callow et al, 1979, 2002 and DFID, 2001). The main goal of improved rural water supply and sanitation is to provide clean drinking water on continuous basis, throughout the year during wet or dry seasons. This is very essential if the health of the rural population is to be improved on a sustainable basis. This can directly benefit the people health wise. Water Aid, (2011, 2004 and UNICEF, 2010), highlighted some of the direct benefits of improved rural water supply and sanitation as:

- i. Time and energy saving for the family particularly for women and children. This can spare girls to attend school or engage in other income earning activities.
- ii. Can significantly reduce the number of water and sanitation related infections among rural dwellers especially children.
- iii. Reduced cost of water supply for the family and the community. Other indirect benefits includes:
 - a. Improved chances of resilience to shock such as drought as well as food security.
 - b. Development of communities' management skills with regards to communal projects.
 - c. Community empowerment through control and management of facilities.
 - d. Improvement in income among water vendors as it brings about cost and time savings when delivering water to consumers.

In addition, the decline in the incidence of water borne diseases and water related diseases in the rural areas is expected to reflect lower spending on drugs and hospital bills. The provision of water in rural areas among others will encourage better household hygiene, it also allows rural women and children enough time to undertake other activities instead of long treks fetching water, and children can attend school punctually on continuous basis.

Conclusions

Lack of adequate clean water supply and defective environmental sanitation pose serious problems to Nigeria. This is because it can directly damage the health of the people (UNCHS, 1998). Its health implication is manifested in the prevalence of water borne diseases, which have held our rural areas hostage for years.

This paper emphasizes the necessity to integrate rural communities in the establishment and management of rural water supply and sanitation in Sokoto state, in order to find new approaches to the problems of rural water supply. It also advocated the need for Sokoto state government to review and quickly adopt a state rural water supply and sanitation strategy. Because this is a matter that demands urgent attention given the health implications of this sector. Water supply to the rural communities should be subsidized and access made easier.

Rural communities should be involved from the start, in decision about which water facility they want what they can afford and where the facility should be constructed. Such investment can inculcate into the minds of the people the culture of participation and maintenance skills. However, to strengthen the approaches outlined by UNICEF, it will necessary to consider the socioeconomic context of the local area. This will ensure the active participation of the community in the decision making and implementation of the project. Therefore, if the health and living condition of the rural people is to be given priority by the state, then adequate safe water supply and sanitation should be given the attention it required.

Recommendations to Improving Rural Water Supply in Sokoto State

From the problems identified above this paper recommends that,

1. Rural communities should be involved from the start, in decision about which water facility they want what they can afford and where the facility should be located.
2. Local Government Councils should establish more hand pumps using low level technology which rural communities can sustainably maintained.
3. Application of solar energy in pumping water instead of gasoline powered generators in the rural areas.
4. Local Government Councils should establish and train rural communities in modern rain harvesting techniques to ease problem of watering domestic animals in the dry season.

The State Government in collaboration with Local Government Councils community leaders should undertake grassroots enlightenment campaign on the importance of community ownership and maintenance culture of rural projects and public facilities.

References

- Adegoke O. A. (2012). "A study of the Rural Water Supply and Sanitation Programme Aimed at Achieving Millennium Development Goals in Eradicating Water Borne Diseases in Nigeria". *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 3(3); 272-276.
- Babalola J. O. (1997). "Rural Water Supply: Issues, Problems and Prospects. *Water Resources J. Nig. Assoc. Hydrogeologists (NAH)*, 8(1): 19-25.
- Benna, Associates, (1985). "Sokoto Master Plan, 1985-2003, Produce for Sokoto Urban Development Authority". Benna Associates Zaria.
- Callow R. C, MacDonald A. M, Nicol A, Robins N. S. & Kekede S. (2002). "The struggle for water: Drought, water security and rural livelihoods". BGS Commissioned Report CR/02/226N.
- Callow R. C., Robins N. S, MacDonald A. M, MacDonald D. M. J, Gibbs B. R, Orpen W. R. G, Mtembezeka P., Andrews A. J. & Appiah S. O (1997). "Groundwater management in drought-prone areas of Africa". *Int. J. Water Resour. Dev.*, 13:241-261.
- Department for International Development (DFID) (2001). "Sustainable Livelihoods Guidance Sheets". Department for International Development, London. Available at <http://www.livelihoods.org>.
- Ezeigbo H. I. (2003). "Towards sustainable portable water supply to Nigerians in the New Millennium". In: A. A Elueze (ed.) *Contributions of Geosciences and Mining to National Development (NMGs)*, pp. 19-21.
- Federal Ministry of Health, (2002) "Statistical Data on Notifiable Diseases in Nigeria". National Bureau of Statistics: *Social Statistics in Nigeria (2007)*.
- MICS (1999). "Multiple Indicator Cluster Survey, WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation".
- National Rural Water Supply and Sanitation Strategic Framework (2004), prepared by the Department of Water supply and quality Control, Federal Ministry of Water resources (with Stakeholders input).
- NPC/UNICEF (2001) "Situation Assessment and Analysis Children and Women Rights in Nigeria a Wakeup call".
- Nwankwoala H. O, Mmom P. C (2008). "Groundwater utilization versus millennium development goals: Implications for sustainable development". *J. Nig. EnviroSoc. (JNES)*, 4(3): 34-42.
- Nwankwoala H. O (2009). Sustainable groundwater development and management in Nigeria: Mission achievable or mission impossible? *Water Resource. J.*, 19: 63-68.
- Okeke O. C, Uzoh O.F (2009). "Towards achieving sustainable water resources management in Nigeria". *Global J. Geol. Sci.*, 7(1): 85-92.
- Olofin E. A. (1985), "General Climatic Constraints to Water Resource Development in the Sudano-Sahelian Zone of Nigeria".
- Oxford Advanced Learners's Dictionary, Sixth Edition (Pg. 798: 1347).
- UNCHS (Habitat/UNEP (1998). "Sustainable cities programme (SCP)". The SCP process Activities. A Snapshot of what they are and how they are Implemented, Nairobi, Kenya.

- UNDP-World Bank (1995). Water and Sanitation Programme. Annual Report, July 1994 -June 1995. Publication of International Bank for Reconstruction and Development/World Bank, 1818 Street NW, . Washington D.C 20433, USA.
- UNICEF (1999). Towards better programming: A water handbook. Water, Environment and Sanitation Technical Guidelines Series No 2, United Nations Children's Fund, New York. Available at .<http://www.unicef.org/wes>.
- Water Aid (2001). Looking back: The long term impacts of water and sanitation projects. A condensed version of the WaterAid research report, ' Looking back: Participatory impact assessment of older projects'. WaterAid, London, June 2001. Available at .<http://www.wateraid.org>.
- Water Aid (2004). Water and Sanitation - The education drain. Education Media Report 3, written by Gideon Burrows, Jules Acton and Tamsin Maunder. Available at <http://www.wateraid.org>.
- World Bank, (1991). Water supply and sanitation in Africa: Laying the foundation for the 1990s. Proceedings, All-Africa Rural Water Supply and Sanitation Workshop and Water Supply and Sanitation Conference, Vols. 1 & 2, World Bank, Washington DC.