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AN OVERVIEW OF THE STATE OF WATER SUPPLY AND SANITATION IN SUB-SAHARAN AFRICA: THE NIGERIAN SITUATION

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ABSTRACT

The state of water supply and sanitation in Sub-saharan Africa, with special reference to Nigeria, is reviewed. About 1 in 3 persons in developing countries which consist of about 80% of global population, still has no access to safe water supply. This is responsible for more than 200,000 deaths yearly from water-related diseases in under 5 years age bracket, mostly in Sub-saharan Africa. Despite huge external funding to achieve the United Nations goal of full access to water supply and sanitation for all inhabitants of developing countries during the International Drinking Water Supply and Sanitation Decade (IDWSSD), 1981 - 1990, water supply coverage in urban and rural Africa rose only by 9% and 8% respectively, between 1980 and 1990, indicating a low coverage. After the IDWSSD the low level of coverage persisted, and by 2000, 755 million and 3.3 billion people in developing countries still had no access to safe drinking water and sanitation respectively. Currently bucket system of faeces disposal still exists and nightsoil men are being encountered in some parts of East Africa. In Nigeria, although water supply agencies have been set up by Government over the years, about 71% of rural dwellers still have no access to adequate water supply and sanitation; and only about 52% of urban dwellers have access to safe water supply and adequate sanitation. From the slow pace of coverage, full access to water supply and sanitation may not be achieved in Nigeria by 2020, unless the present institutional factors such as incessant power cut, mismanagement and corrupt practices by government officials are dismantled.

KEYWORDS: Water supply, Sanitation, Institutional factors, Sub-saharan Africa, Nigeria.

INTRODUCTION

Water is one of the most abundant and essential commodities of man. The Greek philosopher, Pindar of the fifth century B.C., described water as the best of all things (Biswas, 1978). According to Mrs. Indira Gandhi, water is essential to life, and civilisation is something of a dialogue between man and water (Gandhi, 1980). Thus, man's need for water may be variable, and may be physiological, domestic, agricultural, industrial, etc. Although these needs are not the same in quantity or quality, in location or in time, they must all be met to allow for mankind's full development. In fact, potable water supply and sanitation have been identified as fundamental to the development of man. Gandhi (1980) states that the distinguishing characteristic of an advanced country is the provision of clean drinking water to its people in urban and rural areas.

Water occupies about 70% of the earth's surface (Okafor, 1985, Eja, 2002). About 97% of this volume of the earth's water is contained in the oceans, 2.1% in polar ice and glaciers, 0.3 – 0.8% in groundwater, 0.009% in inland freshwaters such as lakes, while 0.00009% is contained in rivers (Lynch and Poole, 1979, Eja, 2002). All these constitute the world's water resources. Therefore, the principal objective of water resources development of all nations is to exploit these resources for the overall benefit of mankind. One of the benefits is the provision of potable water (or water fit for human consumption). Such water may be described as "wholesome", implying that it is free from chemical and biopollutants capable of causing ill-health in man. The reason for man's desire to have water of such qualities is from the present global and transcultural acceptance that several deadly infections that affect man are waterborne or water-related (White, Bradley and White, 1972, Bradley, 1977, Eja, 2003). Economically backward societies, most of which are in the tropical or desert zones, have a high incidence of water-borne diseases (Feachem, 1977, Gandhi, 1980).

During the last 200 years in most developed countries and 50 years in developing countries, the need for potable water has become imperative, and governments have spent huge sums of money to achieve this objective. Today, most developed countries have met this objective of providing clean and safe water for human consumption. It is however difficult to say how far developing countries have reached, in spite of increase in foreign aids for water supply projects.

The imperativeness for the provision of water supply by all countries, especially developing countries, has been compounded by high population growth rate, urbanization and the growth of slums and shanty towns. It has been estimated that between 1980 and 2000, over one billion people could have been added to the urban populations of less developed countries, and between one third and three quarters of present city populations live in slums and shanty towns, which are growing at two or three times the overall urban rates that are typically between three and six percent (Etherton, 1980). The number of cities known to be in existence in the world rose from 70 in 1950, to 158 in 1974 (84 cities in industrialized countries and 74 in developing countries) (Etherton, 1980). It was also estimated that by the year 2000, about 276 such cities would exist in the developing countries alone (Habitat, 1976), thus increasing more squatter sites and slums whose residents are usually exposed to water-borne diseases. The poor, especially infants and young children in rural and urban slums suffer most from the inadequate water supply services and from the misery and death resulting from diarrhoeal diseases (Feachem, 1978).

Poor water supply and sanitation is still very pronounced in Africa, especially sub-saharan Africa where access to clean and safe drinking water is still a luxury. Several factors are evidently responsible. For instance, low investment in the water supply sector, lack of trained

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manpower, lack of adequate technological application, lack of political will and corrupt practices by government officials are a major hindrance to water supply and sanitation improvement in sub-saharan Africa in spite of the huge financial involvement of various international organisations.

In this review, the aim is to assess the level of improvement in water supply and sanitation in sub-saharan Africa in the last fifty years, using the Nigerian situation as a case study.

Water Supply Situation in Developing Countries

The provision of safe water supply in developing countries with a population of about 4.2 billion (80% of global population) is still a major problem, especially as approximately 1 in 3 persons still lack this basic need (WHO, 1996). It has been reported that about two thirds of diseases affecting the populace, mostly children under 5 years of age, are related to inadequate water supply both in quantity and quality (FGN, 2000). These diseases include onchocerciasis, dracunculosis, cholera, typhoid fever and shigellosis which alone accounts for over 200,000 deaths yearly in the under 5 years age bracket, with an average of about five diarrhoeal episodes per child per year (FGN.UNICEF, 1997). Those most afflicted are the poor, living in the rural areas, rapidly expanding urban slums and squatter settlements (Etherton, 1980, FGN, 2000). Women, girls and children are most vulnerable. They bear the brunt of the labour, suffer the harassment associated with inadequate water services and the misery from deaths of loved ones as a result of diarrhoeal diseases. The main problems of these third world countries are uncontrolled population growth, poverty and economic mismanagement. This is the situation in most African countries, especially Sub-saharan African countries. The World Health Organization (WHO) standards of 15 – 50 litres of water or more per person per day (WHO, 1996) are not met. The water supply coverage was 65% for urban centres and 35% for rural areas in 1990, while it was 64% for urban and 37% for rural areas in 1994 (WHO, 1996).

Global Initiatives set-backs on the Provision of Water supply and sanitation

From its creation as a United Nations agency in 1948, the World Health Organisation (WHO) accorded priority to water supply and sanitation as fundamental for the improvement of health.

Also, after an intense lobbying by a group led by Barbara Ward, the United Nations conferences drew attention to the low levels of water supply and sanitation in developing countries. This finally led to the adoption of the target of "Clean Water For All By 1990" at the Habitat Conference in Vancouver, Canada, in June, 1976 (Habitat, 1976). Later in 1977, the United Nations conference in Mar del Plata, Argentina, called for an international drinking water supply and sanitation decade to redress the situation. Consequently, on the 10th of November, 1980, the General Assembly of the United Nations declared the period 1981 – 1990 as the International Drinking Water Supply and Sanitation Decade (IDWSSD), during which full access to water supply and sanitation for all inhabitants in developing countries would be achieved by 1990. Since then, countries, international and professional organisations in addition to non-governmental organisations (NGOs), have collaborated to sponsor conferences aimed at improving water supply and sanitation globally, mostly in rural areas, urban slums and squatter settlements.

Although this primary goal was not fully achieved by the target year of 1990, the awareness was created and community mobilization and participation were institutionalized, besides the development and application of appropriate technology.

Unfortunately, the decade coincided with the global economic depreciation and demographic growth which adversely affected the achievement of universal access to water and sanitation facilities. Thus, inadequate funding and high population growth contributed significantly in curtailing the rate of coverage, although there were regional disparities regarding the effects of the economic situation and responses (Table 1). Despite huge external funding, urban water supply coverage (Table 2) increased by a mere 5% from 77% in 1980 to 82% in 1990 (FGN/UNICEF, 1997). The gains were rather extremely modest for urban sanitation, as coverage increased by only 3%. For rural Africa, the relative success achieved in water supply coverage compared favourably with that for sanitation as the former rose by 9%, as against the latter's 8% (FGN/UNICEF, 1997).

Meanwhile, after 10 years of intensified global effort, the water and sanitation coverage in 1990 in developing countries was 82% (urban water), 63% (rural water), 72% (urban sanitation), and 49% (rural sanitation). At the end of the water and sanitation decade in 1990, it was estimated (WHO, 1991) that about 1,230 million people in developing countries still had no access to adequate and safe water supply, while 1,740 million still had no access to appropriate sanitation (31% without water and 43% without sanitation). Of course, the consequences of this situation in terms of human health and suffering, as well as social and economic costs are staggering. However, WHO (1991) Reports that, after the end of the water and sanitation decade, additional 1,347 million and 748 million persons were respectively served with water and sanitation facilities.

Table 1: Water coverage by region (1980 – 1990) for developing countries

Countries (1980)	Urban	Rural
	Water (%)	Water (%)
Global	77	30
Africa	83	33
Latin America/Caribbean	82	47
Asia/Pacific	73	28
Western Asia (Middle East)	95	51
Countries 1990		
Global	82	63
Africa	83	33
Latin America/Caribean	87	62
Asia/Pacific	77	67
Western Asia (Middle East)	100	56

Source: Kalbermatten (1991)

After the IDWSSD

After the IDWSSD the low level of coverage remained unchanged, and by the year, 2000 some 755 million people still had no access to safe drinking water supply (WHO/UNICEF Joint Monitoring Committee, 1996). Of these unserved people, 51% were in urban areas, mostly in Latin America and the Caribbean, Asia and the Pacific and Western Asian regions. About 86% of the unserved rural population was in Africa where 59% of the total unserved were living (WHO/UNICEF Joint Monitoring Committee, 1996). It was also observed that about 3.3 billion people had no access to appropriate sanitation by 2000, with 74% in the rural areas. Improvement was however evident for Western Asia in 2000.

Table 2: Water supply and sanitation decade (1981 – 1990) Global performance coverage

Water /Sanitation of settlement categories	Population (million)	Percentage (coverage)	Number served (million)	Number unserved (million)
Urban water	933.47	77	720.77	212.70
Rural water	23002.99	30	690.25	1612.74
Urban sanitation	933.47	69	641.39	292.08
Rural sanitation	2302.99	37	890.64	1442.35
1990				
Urban water	1332.22	82	1088.52	243.70
Rural water	2658.51	63	1669.79	988.72
Urban sanitation	1332.23	72	955.22	377.00
Rural sanitation	2658.51	49	1294.72	1363.79
AFRICAN REGION – 1980				
Urban water	119.77	83	99.41	20.36
Rural water	332.83	33	104.83	223.00
Urban sanitation	119.77	65	77.85	41.92
Rural sanitation	332.83	18	59.91	272.92
1990				
Urban water	202.54	87	176.21	26.33
Rural water	409.64	42	172.06	273.59
Urban sanitation	202.54	78	160.01	42.53
Rural sanitation	409.64	26	106.51	303.13

About five years to the end of IDWSSD, the Third Global Forum of the water and sanitation collaborative council (30th October to 3rd November, 1995) instituted a WHO/UNICEF Joint Monitoring Programme (JMP) which took note of the lessons learned, to develop a strategy to accelerate progress, since both the developing countries and the External Support Agencies (ESA) had reached a broad concensus to continue the existing thrust of the IDSSD beyond 1990 to coincide with the Global Health for all by the year 2000.

It appears, therefore, that the current rate of increase in water supply coverage in Latin America and the Caribbean would yield full coverage by the year 2020. However, Africa would need to treble its current rate, while Asia and the Pacific would require two-fold increase to reach full coverage by 2020.

Africa has a pathetic situation because up till now, as reported by the British Broadcasting Corporation (BBC) on the 23rd of October, 2004, nightsoil men are still being encountered in some parts of East Africa. In Africa, the current pace of providing water to rural dwellers will need a two-fold increase for 58 million people per year, (United Nations, 1997); and with a longer term objective of providing full service coverage by 2020, the region would need to provide safe water to an additional 19 million people per year.

Water Supply and Sanitation in Nigeria: Historical Perspective

The provision of water supply in Nigeria started during the first half of the last century under the management of the Native Authority Administration. A few towns such as Lagos, Calabar, Kano, Ibadan, Abeokuta, Ijebu Ode and Enugu were provided with pipe-borne water. The schemes were maintained with revenue from water rate collection with no operational subvention from Government. The regional governments that were created in the 1950s took over the maintenance of the scheme up till 1966 when Water Corporations/Boards were set up to operate and manage water supply undertakings in the then Western region.

Today, all the 36 states and the Federal Capital Territory, Abuja, have Water Boards/Corporations managing their public water supply undertakings. With time, the efforts of the Water Boards were supplemented by Local Governments, Federal Government through the Federal Ministry of Water Resources and River Basin Development Authorities (RBDAs), United Nations children Education Fund (UNICEF), United Nations Development Programme (UNDP), bilateral, multilateral and other external support agencies. Of course, Nigeria was a signatory to the United Nations International Drinking Water Supply and Sanitation Decade whose objective was to supply water to all citizens of the country besides other developing countries between 1981 and 1990.

In spite of all these factors the water supply coverage appears to be decreasing and deteriorating. For instance, about 71% of rural dwellers do not have access to safe water supply or adequate sanitation at present. The urban and semi-urban populations (about 52% only) have access to safe water supply and adequate sanitation. Nine states have less than 25% water coverage, while seven states have less than 25% sanitation coverage. (FGN/UNICEF, 2001). Of course, in Nigeria the average delivery of water supply to the urban population is only 30 litres per capita per day (lpcd) and that of rural areas is 10 lpcd (FGN, 2000). The setting up of rural water supply and sanitation agencies (RUWASAN) across the country was aimed at providing water supply and adequate sanitation to the rural communities, but not much has been achieved.

The scenario in the Cross River State of Nigeria during the IDSSD presents the real water supply situation in Nigeria. For instance, the urban and rural population provided with pipe-borne water in Cross River is presented in Table 3.

Table 3: Urban and rural population provided with piped water supply in Cross River State during the IDWSSD.

Local Government Area (LGA)	Urban population with piped water	Rural population with piped water	Urban-rural population with piped water	Total population
Akamkpa	0	0	0	186,000
Calabar	191,000	0	191,000	191,000
Ikom	25,000	1,000	26,000	195,000
Obubra/Ugep	71,000	6,000	77,000	410,000
Obudu	15,000	6,000	21,000	127,000
Odukpani	0	0	0	217,000
Ogoja	23,000	28,000	51,000	304,000
Total	325,000	41,000	366,000	1,630,000

Source: Ekop (1987).

From Table 3, it could be inferred from simple arithmetic that, the percentage of urban population served with piped water was equal to:

$$\frac{325000}{1,630,000} \times \frac{100}{1} = 20\%,$$

while that of rural population was $\frac{41000}{1,630,000} \times \frac{100}{1} = 2.5\%$.

That means that during the IDWSSD about 80% and 97.5% of urban and rural populations in the Cross River State of Nigeria respectively, had no access to pipe-borne water. Ten years after, about 52% of urban dwellers and 71% of rural dwellers in Nigeria still did not have access to pipe-borne water (FGN/UNICEF, 2001). The situation remains the same in Cross River State and many other rural communities in Nigeria, and may have slightly changed with more rural and urban communities now having boreholes, although with inadequate sanitation.

Unfortunately, within the IDWSSD the number of Live Births and Deaths in Cross River State (Table 4) presented a gloomy picture. Infant and child mortality was one of the highest in the world.

Table 4: **Number of Live Births and Deaths by Local Government Areas in Cross River State as at 1987**

S/No	Names of L.G.A.	Live Births	Infant Deaths	Child Deaths	National Deaths 1 – 5years	Perinatal Death	Infant and Child mortality rate 1(00)
1	0Akamkpa	432	3	-	-	7	2.3
2	Calabar	460	-	-	-	3	6.5
3	Ikom	2,023	29	32	9	51	59.8
4	Obubra	692	49	33	36	14	190.7
5	Obudu	1,357	56	85	4	55	107.7
6	Odukpani	179	11	19	24	1	307.2
7	Ogoja	1,867	73	119	51	62	163.3

Source: Statistics and Research Department, Ministry of Health, Calabar (1987)
– = Data not available at the time of request

Within the IDWSSD, only about 25 million litres of water were being produced daily from all the seven existing water supply schemes in Cross River State, giving an average demand per capita of 29.9 litres per day which was grossly inadequate for urban schemes; thus, only 20% of the urban population was served with potable water (Cross River State Water Board, 1991). A per capita demand of 90, 114 and 135 litres per day were assumed for Calabar for 1980, 1990 and 2000, respectively (Cross River State water Board, 1991).

Water demand in cross River State has equally increased. For instance, since July, 2003 till now, the total water requirement has been 172,800m^3/day (Cross Rive r State Water Board, 2003). Yet only less than 50% of the population have access to potable water.

Nigeria's Water supply policy objective

The focus of Nigeria's water supply and sanitation policy has been the provision of adequate potable water and sanitation to all Nigerians in an affordable and sustainable way through participatory investment by the three tiers of government, the private sector and the beneficiaries (Federal Ministry of Water Resources, 2000). The initial strategy was to improve the inadequate level of services from 32 litres per capita per day (lpcd), 20 lpcd and 6 lpcd, to 120 lpcd, 90 lpcd and 60 lpcd to urban, semi-urban and rural areas, respectively, in order to achieve a target of service coverage from 40% to 60% by 2003, followed by extension of coverage to 80% by 2007, and then to 100% of the population by 2011 sustainably.

Factors responsible for inadequate water supply in Nigeria

1. Frequent power failure is one of the worst problems facing Water Boards and private water companies in the country, and this has been exacerbated by increase in National Electric Power Authority (NEPA) tariff across the Federal Republic of Nigeria ranging from 600% to more than 1,100% during the last decade and now, depending on the water consumption by the water agencies concerned. High cost of maintenance and installation, inadequate manpower, poor planning and implementation of projects, ethnicity and corrupt practices by officials are responsible for inadequate water supply
2. There have been bizarre and multiple water-related policies and regulations which are never implemented, or are discarded within a short time. For instance, agencies like the River Basin Development Authority (RBDA), the defunct Directorate of Food, Roads and Rural Infrastructures (DFRRI), the Agricultural Development Projects (ADPs), Water Boards, UNICEF – Assisted Rural water and Sanitation agencies, etc., have been created at one time (even at the same time) or the other, for the same purpose.
3. There has been near absence of sanitation in the country. Poor sanitation and improper waste disposal is a major problem, and this accounts for the health

hazards earlier mentioned in this review. Because of poor sanitation education in Nigeria, the standard of sanitation is still very inadequate.

Solution

The enormity of the problems of water supply and sanitation outlined above calls for a well articulated approach to water supply and sanitation in Nigeria that will lead to a systematic development over a defined period of time. The approach should be in line with a defined acceptable National policy that will set up a planning process, management structure, legal framework and financing strategy that meets the socio-economic requirements of the country. Therefore, appropriate policy and legislation in line with the Federal Government policy on water supply and sanitation could be evolved.

The target of the national water supply policy is known to be the provision of potable water in sufficient quantity and quality, which is the nucleus of Nigeria's water supply policy. The policy which evolved early 1990s, aimed at:

(i) improvement of services to cover 50% of the population between 1995 and 2000.
(ii) extension and supply of water to 80% of the population by the year 2005.
(iii) provision of potable water to all by the year 2015.

However, by the present socio-economic structure in Nigeria, the target has not been 50% achieved. It is only political will, accountability and transparency on the part of political leaders that can impact on the services positively.

Some of the following measures could be adopted to improve the situation:

(i) the already developed models for sustainable water and sanitation programmes should be translated into workable approaches by the government and all other stakeholders;
(ii) adequate funds should be provided for the maintenance of existing water works and for the procurement of spare parts;
(iii) the training of professionals and sub-professionals should be stepped up;
(iv) adequate cost recovery mechanism should be put in place so that both the rich and the poor who are mostly affected are carried along;
(v) efficient implementation strategies for water supply and sanitation policies should be devised, and defaulting personnel made to face the full weight of the law;
(vi) relevant legal sanctions should be invoked against borehole operators to forestall the operation of substandard facilities;
(vii) waterworks rehabilitation should be considered yearly in the national budget;
(viii) intensification of measures to control the population growth rate and squatter sites and slums in urban centres, and
(ix) strengthening and broadening the co-ordination and co-operation between national government and external support agencies through payment of counterpart funds promptly.

CONCLUSION

The water supply and sanitation in sub-saharan Africa are still inadequate. There is a gloomy prospect under wars, political instability and socio-economic chaos which now characterize Africa, especially Africa South of the Sahara. Unless these maladies besides official corruption are tackled, the target of water supply services to 100% of the Nigerian population can never be achieved by the year 2011 and even 2025.

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