

## Political Economy, Innovation & Environment Studies/AFRICA

The contributions in this book explore the issue of water from various perspectives using a combination of primary and secondary data to generate new and original insights to advance knowledge related on how clean water and sanitation can be accessible to all the people in Africa. The move from MDGs to SDGs will no doubt make a big difference and there is a need to do research on how clean water and sanitation can be made accessible to all the people in Africa. We believe this book makes a critical contribution to the knowledge and understanding of the challenges faced by African countries regarding clean water and sanitation.

“Access to clean and safe drinking water is a major challenge across African countries. In sub-Saharan Africa, over 300 million people are without access to reliable drinking water sources and this is causing water-borne diseases and time loss collecting water which are affecting people’s ability to contribute to the economic development fully, especially the women. This book makes a valuable contribution to understand this challenge and is a welcome addition to research in this area”.

*--Professor Banji Oyelaran-Oyeyinka, Director, Monitoring & Research Division (MRD), UN-HABITAT*

“A number of countries in Africa still face huge challenges in attempting to achieve the United Nations water-related Millennium Development Goals (MDGs) due to weakness in effectively developing and managing their water resources sustainably. The Sustainable Development Goals (SDGs) makes countries particularly in Africa to continue their focus on access to clean and safe water. This book is an important contribution towards understanding the critical problems faced by African countries and identifying possible policy solutions”.

*--Professor Kwesi Prabh, Director of CASAS, Cape Town, South Africa*

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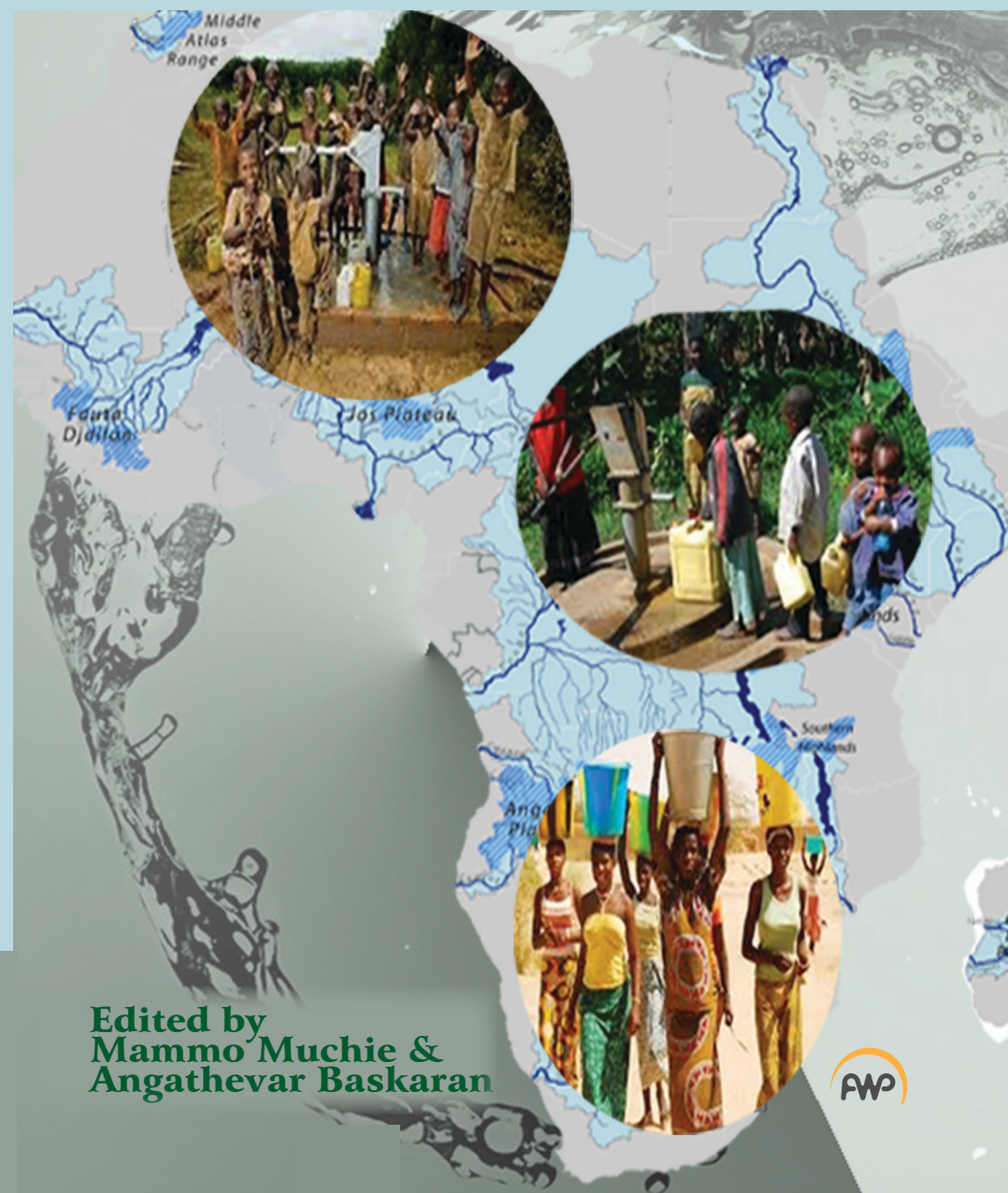
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**MUCHIE & BASKARAN**

**SOLUTIONS TO ACCESS SAFE AND DRINKING WATER IN AFRICA**

# SOLUTIONS TO ACCESS SAFE AND DRINKING WATER IN AFRICA



**Edited by  
Mammo Muchie &  
Angathevar Baskaran**

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# **Solutions to Access Safe and Drinking Water in Africa**

Editors

*Mammo Muchie and Angathevar Baskaran*



**AFRICA WORLD PRESS**

TRENTON | LONDON | CAPE TOWN | NAIROBI | ADDIS ABABA | ASMARA | IBADAN | NEW DELHI



**AFRICA WORLD PRESS**

541 West Ingham Avenue | Suite B  
Trenton, New Jersey 08638

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Book design: Dawid Kahts

Cover design: Ananthu Baskaran

Library of Congress Cataloging-in-Publication Data:

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## Chapter 2

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# Inequality in Access to Improved Water and Sanitation in Africa

*Oluwakemi S. Babatunde, Angathevar Baskaran & Mammo Muchie*

### 1. Introduction

In Africa, as in many countries of the world, inequality is the norm of basic social existence. Inequality is a universal social phenomenon that denotes the existence of actual or illusory struggle for ‘scarce’ social goods which are unevenly distributed among members of a society. Although water is commonly seen as naturally given and abundant, water, in its clean state, is one of the rarest elements in the world (Omole and Longe, 2008). It is a scarce societal resource in as much as it is not equally available to individuals in society. It is estimated that a meager of three percent of the world’s total water is fresh, 2.5 percent of which is frozen, unavailable and inaccessible by man (World Business Council for Sustainable Development, (WBCSD) 2006). Wherever it is available, it is inequitably accessible by individuals when and where they need it; Water is also managed according to varied established social laws.

Non-availability of water though an apparent natural problem is yet compounded by social, demographic, political and economic factors. These are reflected in growing populations and urbanization; higher standards of living and the relative increase in the demand for water; structural problems and competition for available freshwater between the various sectors in the society such as households, industries, municipals, agriculture and even between nations that share watercourses (Falkenmark et al., 1989). Access to sustainable water supply is tantamount to the aggregate wellbeing of individuals and states. Therefore it is essential to understand the inequalities pervading Africans access to improved water and sanitation.

According to the Global Water Supply and Sanitation Assessment, a reasonable access to water implies that an individual is at ease of using at least twenty liters of water per day from a source within one kilometer of his/her home, while basic sanitation denotes private or shared but not public disposal systems that separate waste from human contact (GWSSAR, 2000). However, individuals and groups in Africa are denied reasonable access to water and basic sanitation. This to some extent replicate the discriminatory and marginalizing structure of the society. This discrimination can be on the bases of ethnicity, language, religion, gender, age, disability, differential water scheme, political injustice among many others. Sometimes, the barrier preventing certain individuals and groups from having access to water and sanitation may be several discriminations, or the manifold impacts of various patterns of discrimination. For instance, an individual or group of a particular ethnic affiliation may lack access to water because of poverty and isolation (as a minor or a minority ethnic group). This can also be direct or indirect effects of discriminatory governmental laws and policies. This chapter was therefore aimed at discussing some of the inequalities prevalent in African societies with respect to access to improved water and sanitation.

## **2. Geographical Inequality**

Despite the varieties of water resources (springs, rivers, lakes) in Africa, it is deemed the second driest in the globe. Freshwater is

unequally distributed across countries and regions and a large number of Africa's rivers and lake basins are also shared by two or more countries. The continents renewable water resources represent a meager estimate of nine percent (3,931 km<sup>3</sup>) of the world's total freshwater resources. In 2008, the continental annual average water availability per person was 4 008 m<sup>3</sup>, below the global average of 6,498 m<sup>3</sup> per capita. This is due in large part to climatic erraticism which is made worse by series of floods, droughts and the surge in human population (Food and Agriculture Organization (FAO), 2009). Table 1 shows the disparities in the availability of fresh water resources across some regions of the globe.

**Table 1: Geographical Distribution of Internal Renewable Freshwater Resources by World Regions**

Continent/ Region	Volume per Year (km <sup>3</sup> 10 <sup>9</sup> m <sup>3</sup> )	Percentage of World Freshwater Resources	Per Capita (m <sup>3</sup> /year) 2008
World	43 802	100.0	6 498
Africa	3 931	9.0	4 008
Asia	12 393	28.3	3 037
South America	12 380	28.3	32 165
Central America and Caribbean	781	1.8	9 645
North America	6 877	15.7	15 166
Oceania	892	2.0	32 366
Europe	6 548	14.9	8 941

*Source:* Adapted and modified from United Nations Environment Programme (UNEP), 2010.

As shown in Table 1, Asia and South America has most of the fresh water available in the world with 28.3 percent, followed by North America and Europe at 15.7% and 14.9% respectively. Though the percentage of water availability in Africa (9%) is higher than in the Caribbean (2%) and Oceania (1.8%), it is not enough for its giant population

Although water scarcity threatens all of African countries, different nation states and regions face different constraints and oppor-

tunities. Africa's groundwater resources represent only 15 per cent of total renewable water resources; yet, these supply approximately 75 percent of its population with most of its drinking water. Consequently, many have resorted to other surface sources (rivers, lakes, dams, streams, ponds) and in so doing, experience the problems that accompany treating such water (United Nations Environment Programme (UNEP), 2010). Table 2 shows the comparative renewable water resources in Africa's sub-regions.

**Table 2: Geographical Distribution of Renewable Freshwater Resources in Africa**

Africa's Sub Region	Total water Resource (km <sup>3</sup> /year) (2008)	Percentage of Internal water Resources of Africa
Central Africa	2858.08	50.66
Eastern Africa	262.04	4.64
Western, Indian Ocean Islands	345.95	6.13
Northern Africa	168.66	2.99
Southern Africa	691.35	12.25
Western Africa	1 315.28	23.32
Total	5 641.36	100

*Source:* Adapted and modified from United Nations Environment Programme (UNEP), 2010.

African countries with the least access to water resources are in the Northern, Southern and Eastern Africa while Central and Western African countries have the most access to water. Though the latter have adequate surface and ground water resources to meet most of the countries' demands for potable water, these are unequally distributed leading to scarcity in some regions and locations. In the northern towns of Nigeria as in other arid African regions, water resources have become so depleted and/or contaminated that they are unable to meet increasing demands.

### 3. Inequality in Water Distribution

Water is not evenly distributed across the globe as an estimated 20 percent of the world's population lack access to safe drinking water

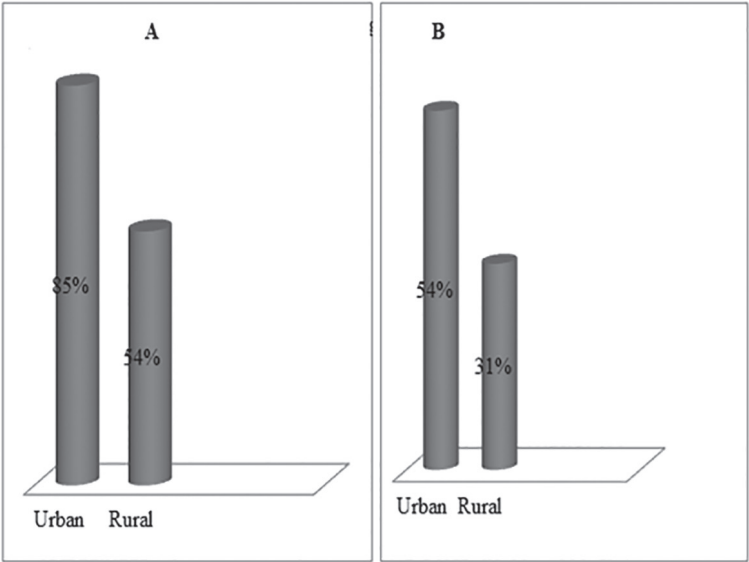
(Simonovic, 2000), and 50 percent of the world's population lack access to sanitation (Cosgrove and Rijsberman, 2000). In all regions of Africa (except central Africa), water availability per person is below global averages. In 2006, it was estimated that 341 million people in Africa lacked access to improved drinking water sources (WHO/UNICEF, 2008). In 2010, 60 percent of African population lacked access to improved sanitation facilities, while 34 percent had no access to improved drinking water sources. In sub-Saharan Africa, 69 percent of the population has no proper sanitation facilities, while 40 percent has no reliable improved water source (WHO/UNICEF, 2012).

Only users of 'improved' drinking water sources are considered having 'access to drinking water'. Improved drinking water sources are defined as those by nature of their construction or through active intervention are protected from outside contamination, particularly from contamination with fecal matter (WHO/UNICEF, 2008), while the unimproved water sources are opened and unprotected from contaminations. Examples of improved water sources include; Piped water located inside the user's the dwelling, plot or yard, public taps or standpipes, boreholes or tube wells, protected dug wells, protected springs, and rainwater (WHO/UNICEF, 2011). Also, individuals who use 'improved' sanitation facilities only are considered to have 'access to sanitation'. Improved sanitation facility denotes one that hygienically separates human excreta from human contact. They include: Flush or Pour-flush that empties into a) Piped sewer system, b) Septic tank, c) Pit latrine; Ventilated Improved Pit latrine (VIP); Pit latrine with slab and Composting toilet.

Africa water and sanitation problems are severe due to increasing population, massive urbanization with improper planning, industrial development, and improved standard of living as said earlier. Perverse inequalities in access to water and sanitation exist between the urban and rural populations. Usually, the drinking water situation and sanitations are worse in rural areas than in urban ones. This however accentuates the global awareness that rural populations persistently have lower levels of access than urban populations. The average urban drinking water coverage in Africa is 85 per cent while only 51 percent of people in rural areas have access to improved

drinking water though it has a higher per cent of its population in rural areas (WHO/UNICEF, 2008 cited in UNEP, 2010). As at 2010, 85 per cent of population in urban areas had access to improved water sources with 54 per cent in the rural areas. Access to improved sanitation also showed this disparity as record showed that 54 per cent of urban settlers used improved sanitation while 31 per cent of rural dwellers did not (WHO/UNICEF, 2012). The percentage distribution of urban and rural population with improved sources of drinking water and sanitation is shown in Figure 1.

**Figure 1: Progress on Drinking Water and Sanitation (A: population with access to improved drinking, B: population with access to improved sanitation)**



*Source:* Adapted and modified from WHO/UNICEF, 2012.

These rural areas are often the geographically removed, remote and marginalized regions, habitually ignored in planning. This perpetuates the horror of poverty and underdevelopment in most rural regions of Africa. Also, slum dwellers frequently lack access to ad-

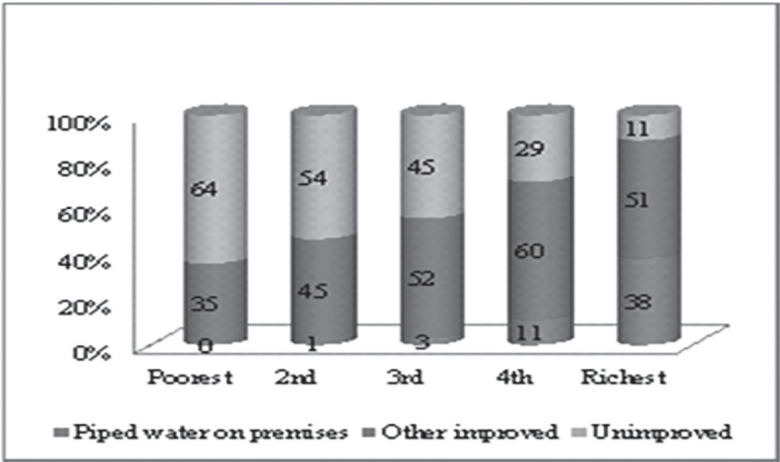
equate water and sanitation due to their deliberate exclusion from formal water services in most countries' laws and policies.

## **4. Wealth Inequality and Access to Water and Sanitation**

Access to improved water and sanitation in Africa and especially sub-Saharan Africa is highly correlated with wealth and the effects of this are often different due to variations in peoples' experiences of poverty. Poverty is widespread in Africa: daily, nearly half of the entire population of Africa lives on less than one dollar per person (African Development Bank (AfDB), 2009). Dimensions of poverty include among others; income and consumption, health, sustainable livelihood, security and vulnerability, inclusion and empowerment (Hirji et al., 2002).

Whereas poverty is a causative factor in the pervasive lack of access to improved water sources and sanitation; wealth is often tied to the overconsumption of water resources. A poor family of eight living in a squatter camp in the Cape Town area of South Africa was said to use about 120 liters of water per day while, a couple living in a rich neighbourhood with a big garden to water, could use 2000 liters per day (Pallett, 1997). Socioeconomic status of a group is obtained by dividing the population into five equal parts/quintiles (from the poorest to the richest) using the wealth index/asset index which is made up of different assets, comprising among other things; type of dwelling, roofing materials, flooring type, hectares of land, means of transportation, number of animals, television, refrigerator and radio. It has been estimated that the richest quintile of the population in sub-Saharan Africa is more than twice likely as the poorest quintile to use an improved drinking water source. The comforts and benefits of piped water on premises are also solely enjoyed by the wealthiest. This is further demonstrated in Figure 2

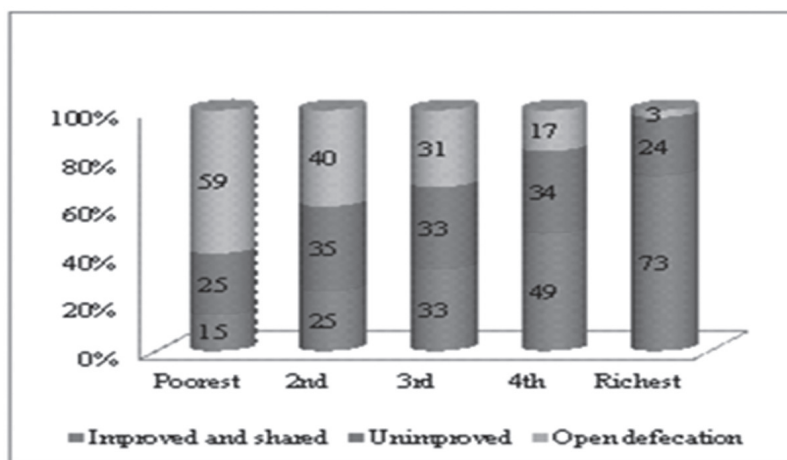
**Figure 2: Drinking water coverage by wealth quintiles in sub-Saharan Africa**



*Source:* Adapted and modified from MICS and DHS surveys from 35 countries in sub-Saharan Africa, 2004-2009, in WHO/UNICEF, 2012.

Additionally, the richest quintile is estimated to be five times more likely to use an improved sanitation facility than the poorest quintile while the latter is around sixteen times as likely to practice open defecation as the richest quintile. Nonetheless, three percent of the richest quintile practices open defecation (WHO/UNICEF, 2010). This is further illustrated in Figure 3.

It's been estimated also that persons in rural areas in sub-Saharan Africa spend more than thirty minutes on single water collection trip than those in urban areas while the urban poor spend greater time collecting water than their richer neighbours who are three times more likely to have a piped supply in place. Also, people in poor densely populated areas (usually the poor) expend long periods of time queuing at public taps, boreholes and wells to fetch water.

**Figure 3: Sanitation by wealth quintiles in sub-Saharan Africa**

*Source:* Adapted and modified from MICS and DHS surveys from 35 countries in sub-Saharan Africa, 2004-2009, in WHO/UNICEF, 2012.

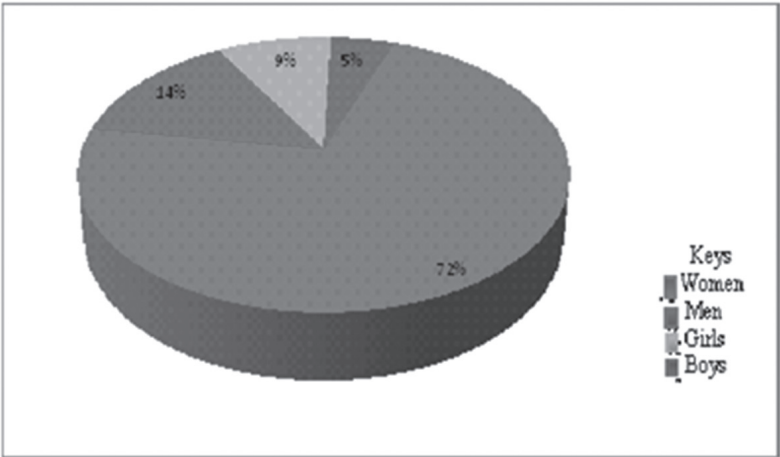
## 5. Gender Inequality and Access to Water

Africa is ridden with discrimination based on sex/gender and age; evidence shows that women and girls in all strata of society face mammoth barriers and risks in accessing water. By tradition, women and young children, especially girls, are instrumental in providing water for their families, particularly in rural Africa which limits their time for other productive activities, including education, work and rest. They approximately perform between 65 and 72 per cent of water collection duties (WHO/UNICEF, 2008). They are thus more adversely affected when there is limited access to water resources spending as much as 40 percent of their daily nutritional intake travelling to collect water (Chenje, 2000). They often fetch and carry water in containers from long distances, spending large amounts of time and energy. A graphic illustration of water collection responsibilities is shown in Figure 4.

By tradition in many rural societies also, women and girls are often required to stay away from using shared sanitation facilities except during dark hours while some are not even allowed to use

these facilities at all. This forces some women and girls to travel long distance out of the peering eyes of the men to fulfill their sanitation needs. This endangers their personal safety, reduces their dignity and hampers their health. Teenage girls also need easy access to safe water, toilets and washrooms. This is to enable them maintain privacy and manage menstruation which will invariably boost their self-worth. However, these are often lacking in most rural schools. Little wonder then why girls skip schools during menstruation and drop out eventually as a result of poor performance. Women and girls are indoctrinated into believing they should see themselves less than their male counterparts in a bid to show their submissiveness and caring nature, thus most of them willingly deny themselves the use of safe water and sanitation in order to satisfy the males who are believed superior.

**Figure 4: Water Collection Responsibilities by Gender in Africa**



*Source:* Adapted and modified from WHO/UNICEF 2008: Progress on Drinking Water and Sanitation Special focus on Sanitation. Joint Monitoring Programme, (JMP).

## **6. Water Policies, Institutional and Legal Frameworks in Africa**

‘The world water crisis is a crisis of governance...there is enough water to provide water security for all, but only if we change the way we manage and develop it’ (HRH the Prince of Orange 2002). All African countries in collaboration with international agencies are currently increasing their political and financial commitments and efforts toward ensuring that Africans have more access to safe water and sanitation. However, these efforts are usually inadequate especially in sub-Saharan Africa as the different policy measures and institutional arrangements seldom sustain viable management of water resources.

Most African countries do not see access to safe water and sanitation as a fundamental right of individuals, as a result it is not explicitly written in their constitutions. Though water policy is the basis for legislation, strategic planning and operational management of water resources, it is saddening that some African countries do not have national water policies, while many that have are recently adopted. In most countries where these policies exist, they are often inadequate, leading to poor water management.

Significant steps toward effective management of water resources started with the creation of the National Water Resources Institute (NWRI), the River Basin Development Authorities (RBDA) in 1976 and the Federal Ministry of Water Resources (FMWR) in 1977. While FMWR was responsible for formulating policy and advising, the NWRI was set up primarily for research, to promote the establishment of a uniform national data collection system relating to surface and subsurface water resources and manpower training. These, it is yet to fulfill due to reasons including; lack of funds, shortage of skilled manpower, and inadequate equipment among others. The RBDAs were responsible for the provision of water to communities for agricultural, domestic, and industrial use in their basin areas (FMWR, 2007). The RBDAs are backed up by the RBDA act of 1986 and a subsidiary of the FMWR (Kuruk, 2005).

The 1989 National Policy on Environment related water resources management to catchment basins as the basic unit of analysis in water management. These basins were managed by RBDAs which

are parastatals under the Federal Ministry of Agriculture and Water Resources (FMAWR). The FMAWR is with the general responsibility of managing the country's water resources by promoting the optimum planning, development and use of Nigeria's water resources and by ensuring the coordination of all activities that are expected to influence the quality, quantity, distribution, use and management of water resources. In addition, the ministry is tasked for ensuring the application of appropriate standards and techniques for the investigation, utilization, control, protection, management and administration of water resources. The Federal Environmental Protection Agency, (FEPA) was established in 1988, and became the Federal Ministry of Environment in 1999 (Adelegan, 2004).

The management of water resources at this time was largely rife with problems some of which are prevalent today. They are: shortage of water; needless duplication and overlap in organizations, structures and functions of the relevant water bodies; ill-defined and uncoordinated roles of the Federal, State and Local Government agencies responsible for water resources development; failure to recognize the inter-relationship between surface and ground waters, between water resources and land use and lack of effective water and environmental protection laws, and the means to enforce the already existing laws (FGN, 1988).

One of the most effective water regulations in Nigeria today is the Water Resources Decree of 1993 (FGN, 1993). Though it acknowledged customary laws relating to water rights, it nevertheless stated that water is owned by the nation, managed and controlled by the Federal Ministry of Water Resources (FMWR, 2003). Section 1(i) of the Water resources decree vests in the Federal Government the right to the use and control of all surface and groundwater and all water in any water-course that involve more than a state, for the purpose of promoting the planning, development and use of the country's water resources; coordinating the distribution, use and management of water resources; and ensuring the application of appropriate standards for the investigation, use, control, protection of water resources.

Section 2 of the Water Resources Decree, states that any person may:

- i. take water without charge for his domestic purpose or for watering his livestock from any water course to which the public has free access; or
- ii. may use water for the purpose of fishing or for navigation to the extent that such use is not inconsistent with any other law for the time being in force; or
- iii. who, has a statutory or customary right of occupancy to any land, may take and use water from the underground water source or if adjoining on the bank of any water course, from that watercourse, without charge for domestic purposes, for watering livestock and for personal irrigation schemes (FGN, 1993).

As defined in the Water Resources decree, the term “domestic use” implies the use of water for drinking, cooking, washing, bathing, cooling, gardening, or for any other domestic purpose in any residential premises utilized for non-profit motives, “non-domestic use” denotes the use of water from any waterworks for profit or gain.; while the term “public use” refers to any domestic or agricultural use from any waterworks provided through any fountain, standpipe, valve, tap or appliance used. The decree, failed to recognize the fact that the irrational exploitation of underground water resources with no recourse to expert evaluation could lead to other adverse environmental occurrences, like subsidence and landslides, among other things, if overexploited (Oteri and Atolagbe, 2003).

Section 9 (1) of the decree also stipulated that the diversion, storage, pumping or use on a commercial scale of any water or the construction, maintenance, operation, repair of any bore-hole or any hydraulic works shall be carried out only in accordance with a license issued pursuant to the regulations made under the decree. It went further in subsection (2) in stating that a “person in breach of the provisions of subsection (1) of this section commits an offence under this Decree”. Obviously now in Nigeria, particularly in peri-urban and rural areas, people indiscriminately dig wells without any or much sanction and without informed directives.

The decree put all power over water resources within an area

covered by the certificate of occupancy (with the exception of interstate water courses) on any individual who can secure it either through the government or customary means. Authority on landed matters and land ownership in Nigeria is fraught with problems. These problems arise from the overriding authority of the Federal authority backed up by the Land Use Act of 1978 and the less influential traditional/historical authority of the ownership of land by individuals, backed up by customary laws. The Act vests “all land comprised in the territory of each State (except land vested in the Federal Government or its agencies) solely in the Governor of the State, who would hold such land in trust for the people” Land Use Act (1978). The Local Government can also grant customary rights of occupancy on land not situated in urban areas, to any person or organization for the use of land in the Local Government Area (Kuruk, 2005). Though customary (traditional) rights to land ownership are instituted in customary laws and backed up by Federal laws, they are subjected to them.

The Water Resource Decree is also not gritty enough in ensuring that water is kept safe and that violators are severely dealt with. The punitive measures contained in Section 18 of the decree are too palliative and they won't serve as any deterrent to would be offenders. Subsection (1) and (2) states “any person who contravenes or fails to comply with any provisions of this Decree, or any regulation, made thereunder commits an offence and is liable upon conviction to a fine not exceeding 2,000 naira or to a term of imprisonment not exceeding six months or to both such fine and imprisonment, and, in the case of a continuing offence to an additional fine not exceeding 100 naira for every day or part of a day that the offence continues”; “where an offence under this Decree has been committed by a body corporate or firm or other association of individuals, a person who at the time of the commission of the offence was any officer thereof or was purporting to act in such capacity is severally guilty of that offence and liable to be prosecuted against and punished for the offence in like manner as if he had himself committed the offence, unless he proves that the act or omission constituting the offence took place without his knowledge, consent or connivance” (FGN, 1993). The costs of treating water do not commensurate the penalties stat-

ed above, little wonder then that industries, groups and individuals gallantly flaunt water regulations. This also shows that most of the laws on water pollution, standards and regulations are façade with not genuine intent in preserving and sustaining the environment.

As in many African countries, statutory water laws in Nigeria conflict with the customary laws just as it is the case with land ownership. The exclusive legislative powers and the concurrent responsibilities for water resources of the three tiers of government, Federal, State and Local also breeds divisions and contribute to the lack of inter-sectoral organization with all sectors pursuing independent water agendas, engendering problems to coordination and description of roles. The Federal, State and Local government are saddled with the responsibilities of formulating and coordinating national water policies, development and management of large water resources infrastructure, dams reservoirs, irrigation and water supply schemes; providing potable water supply (through State Water Agencies (SWAs) and providing rural water supplies and sanitation facilities respectively to individuals and groups in Nigeria.

The National Water Supply and Sanitation Policy of 2000 focuses on the provision of sufficient potable water and adequate sanitation to all Nigerians in an affordable and sustainable way through participatory investment by the three tiers of government, the private sector and the beneficiary; adequate supply of good quality, affordable water and sanitation services as a basic human need; privatization of water supply and wastewater services (where feasible) with adequate protection for the poor. Strategies highlighted to achieve these include among others: metering of all water supply schemes; recovery of economic rates with welfare service for the poor; protection of traditional water supply sources and promotion of traditional water quality practices; rural communities shall take full ownership of water supply facilities provided by the Government; private sector participation in the water supply industry; and water shall be managed at the lowest appropriate level (See NWSSP, 2000: item 17, 19, and 20).

This policy defined water as an economic good. The various government subsidies on water have often been justified on the ground of thoughtfulness of affordability by the poor. However,

these have often proved ineffective in helping the poor, while the upper and middle classes benefit more from subsidized services as most of the poor have no access to improved water and sanitation facilities as the less poor.

## 7. Conclusion

Notwithstanding the concerted efforts of governments and international agencies in many African countries, improved water supply and sanitation coverage is still a mirage. Most national legal and institutional frameworks remain undeveloped. This is mainly due to too many incongruent policies and agencies that bear no responsibilities for sustainable improved water and sanitation delivery. Other reasons include: rate of socioeconomic development that far outweighs the level of water supply and sanitation, corruption, pitiable service delivery orientation, poor data collection and monitoring, epileptic power supply, poor maintenance and management culture which accounts for the regular breakdown of water and sanitation facilities.

There is need for African governments and all agencies to re-commit themselves to the development of groundwater and surface resources. The tenacity with which laws and policies are formulated should be introduced into the management and monitoring of their implementations at all levels to ensure discipline and accountability financially and otherwise. Besides, water and sanitation services should be reliable and prices should aim at improving water resources management, sanitation and efficiency in the use of water and sanitation facilities. People should also be educated on the essence of safe water and sanitation and incentives provided to encourage voluntary water and environmental protection.

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