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**Challenges and Contradictions in Nigeria's Water Resources
Policy Development: A Critical Review**

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Abstract

The paper is an exploratory review of Federal Government of Nigeria's gazettes, agencies reports, intergovernmental documents on water resources policy as primary data source and publications by academia; with the aim to contribute insightfully in the ongoing effort of the government and stakeholders in designing a comprehensive water resources policy. The paper identified contradictions and overlapping statutory

responsibility that constituted policy implementation impediments' and galvanized discourse toward effective implementable policy. A paradigm shift is advocated by making the River Basin Development Authorities (RBDAs) the center stage of the nation's water resources policy development and implementation. But considering the underdeveloped status of Nigeria, there are three critical sectors whose effective functionalities are synergistic for accomplishing the RBDAs vision. These are Energy, Food and Public Health. It is imperative to temporarily focus the nation's water policy on them for a period of at least ten years through enactment of "Dedicated Water Resources Bill". The Bill should only address (1) institutional framework (2) Energy, Food and Public Health security and (3) Integrated water resources management. Work should continue on the comprehensive Water Resources Bill through the process of consultation that promote inclusion, accountability, transparency, and the needs of the vulnerable.

Key Words: Nigeria, Policy, Water resources, RBDAs, Development,

Introduction

Water in the environment, in global, regional and national economies, and the societies and polities in which these are embedded, is universally regarded as an essential commodity and frequently an appreciated amenity. Such is water's fundamental place in sustaining life and livelihoods that human societies have devoted political energy and substantial economic resources to ensuring secure supplies, albeit without ensuring equitable access or freedom from the risk of shortages for everyone (Allan, 1999). Nigeria is the largest democracy in Africa covering a total area of 923,768 sq.km out of which 13,000 sq.km is water (CIA, 2012). Its climate varies between semi-arid in the north and tropical and humid in the south. Nigeria is located within the West African subcontinent, south of the Sahara, with the Atlantic Ocean bordering the southern coastal region. It is bounded by longitudes 2°50' to 14°20' and from latitudes 4°10' to 13°48'. The average annual rainfall ranges from about 500mm in the north to over 2,000mm in the south. This rainfall distribution pattern is responsible for the arid and semi-arid conditions of the north, the wet south and the coastal aquifer of Nigeria.

The constitution of the Federal Republic of Nigeria (1993) vested the right and control of all water including all water-courses affecting more than one state on the Federal Government. The water policy has been developed and promulgated by the Federal Government through Federal Ministry of Water Resources (FMWR) since 1977. This paper present the product of a desk review (synthesis) of FGN gazettes, Agencies reports, Intergovernmental documents on water resources policy as primary data source and publications by academia; with the aim to contribute insightfully in ongoing effort of the government and stakeholders for implementable policy improvement and development. Other objectives include identifying causes of implementation gap and galvanized discourse toward effective and implementable policy

The rest of the paper is organized as follows: The next section provides empirical overview of the nation's water resources. Section three gives an evolution of the nation water resources policy. Thereafter, it follows with discussion on the policy execution. Section five enumerates the direction of suggested paradigm shift. In this section, the authors explored some developed countries water resources policy development before suggesting a short and long term workable proposal. Finally, the socio-economy synergy of the paradigm shift is discussed.

Status of Nigeria Water Resources

Nigeria is well-drained with reasonable close network of streams and rivers. Nigeria also straddles two of Africa's great river basins, the Niger and the Lake Chad and shares borders with Benin, Niger, Cameroon, and Chad with whom it shares major international rivers. Nigeria is the furthest downstream riparian on the Niger River, which together with its left bank tributary, the River Benue, drains over 60% of the country. The Niger is the third largest river basin (Fig 1) in Africa after the Nile and Congo with basin area of over 2 million sq.km flowing through 9 riparian countries: Mali, Nigeria, Niger, Guinea, Cameroon, Burkina Faso, Benin, Cote d'Ivoire and Chad (Adenle, 1999). About 177 km³/yr of water is discharged into the Atlantic Ocean via the Niger Delta. The Niger receives flows of 36 km³/yr from Niger Republic and 25 km³/yr from Cameroon via the Benue River. The balance flow of 116 km³/yr is produced by the main river channel and tributaries of the Niger within the country (Alayande and Bamgboye, 2003). The nation's surface water resources are estimated at 267,300 MCM p.a (Table 1).

The Lake Chad situated between lat 120⁰ 20' - 140⁰ 30'N and 130⁰ 00' - 150⁰ 00'N in the borderland south of Sahara Desert is placed off center and westwards within the Chad basin that occupies an area of approximately 2.4 x 10⁶ km² encompassing four countries; Nigeria, Niger, Chad and Cameroon.



Fig 1: The Niger River Catchment Basin in West Africa

About 8% (or $0.2 \times 10^6 \text{ km}^2$) of the basin area and less than 3% of the lake's surface fall within Nigeria. The lake (landlocked) with no surface outlet, had an aerial dimension of $26 \times 10^3 \text{ sq.km}$ in 1962 it was reduced to $10 \times 10^3 \text{ sq.km}$ in 1983 (FMWRRD, 1995) due to extended drought, over abstraction from the lake, poor catchment management, particularly in the Chari-Logone catchment (Adenle, 1999) and the fluctuation in climate with its adverse effect on the Chari River which accounts for more than 90% of the surface inflow into the lake. The lake is about 282m mean above sea level though it is not the lowest part of the hydrological basin (Oyebade and Balogun, 1992).

Table 1: Nigeria Surface Water Resources

River System	Catchment's Area (km ²)	Potential Surface Water (MCM)
River Niger	1,143,400	158,000
South West Region	100,500	35,400
South East Region	73,200	65,700
Lake Chad	188,000	8,200
Total	1,505,100	267,300

Source: FMWRRD (1995)

The groundwater resource consists of both artesian and non-artesian aquifers in the sedimentary basins and coastal areas as well as groundwater in the basement complex. The basement complex covers about half the surface area of Nigeria with a total area of approximately 442.9×10^3 sq.km (48% land mass). However, the sedimentary areas contain enormous groundwater resources. This geologic formation spread over seven large basins with a total area of 480.9×10^3 sq.km (52% land mass). The geological distributions can be divided according to the geology, basin and aquifer occurrence and nature (Table 2). The Nigeria's abundant groundwater resource and of high quality is estimated at 52,000MCM (Table 3).

Table 2: Hydrogeological Areas of Nigeria

Region	Area (km ²)
Sokoto Basin Area (Sokoto Sedimentary Area)	63,700
Chad Basin Area (Chad Sedimentary Area)	120,400
Niger Basin Area (Upper Niger Sedimentary Area)	38,300
Benue Basin Area (Benue Sedimentary Area)	116,300
South Western Area (Ogun / Osun Sedimentary Area)	
South Central Area (Lower Niger Sedimentary Area)	110,300
South Eastern Area (Cross River Sedimentary Area)	29,700
Basement Complex Area (Crystalline Rock Area)	445,100
Total	923,800

Source: FMWRRD (1995)

Table 3: Nigeria Groundwater Resources

	Area (Km ²)	Groundwater Reserves (x 10 ⁶ m ³)
Basement Complex	442,900	17,230
Sedimentary Formation	480,900	34,700
Total	923,800	51,930

Source: FMWRRD (2013)

Emergence of Water Resources Policy Development

The Nigeria pre-colonial era witnessed water policies aimed at the development of water for domestic and agricultural usage. The establishment of the Nigerian Geological Survey (NGS) in 1917 was to search for groundwater in semi-arid areas of former Northern Nigeria. The systematic investigations conducted in towns and villages for hand dug wells commenced in 1928. However, from 1950s the political configuration of the country was such that water policy evolved on regional rather than national basis (Adeyemi, 1987). Such policies through Water Acts mainly concern water and electricity supplies and for navigation within each of the regions. The 1972–74 droughts in the Sahelian region including Nigeria were instrumental in considering water policy development on national level. It became obvious that policy for water resources development for effective coordination must evolve and formal legislation at national level became paramount. Thus, in the mid-1970s the Federal Ministry of Water Resources and the River Basin Development Authorities (RBDAs) were established. In 1981, the National Committee on Water Resources was established to guide the two bodies. Its mandate was to ensure rational and systematic management of the nation's water resources.

In 1979, the River Basins Development Authority Decree was promulgated. It repealed the 1976 River Basins Development Decree with its 1977 Amendment, created eleven River Basins Development Authorities with their functions and provided for the establishment of committees (RBDAs, 1979). This decree was also repealed in the River Basins Development Authorities Act of 1986 and re-established eleven river basins, set out functions and empowered them to establish, operate and regulate advisory committees (RBDAs, 1986). The 1990 RBDAs Act maintained the 1986 Act but increased the river basins to twelve. The mandates given to the RBDAs in 1976 was enormous (i.e. planning and developing water resources, irrigation work and the collection of hydrological, hydro-geological and meteorological data) but was narrowed down to large scale single purpose irrigation projects. There emerged Decree No. 101 cited as Water Resources decree effective on August 23, 1993 (FGN, 1993) and updated as Water Resources Act (WRA) 2004. The Act vest rights and control of

all water including all water-course affecting more than one state on the federal government through the Federal Ministry of Water Resources.

Sequel to the Water Resources Act 2004, National Water Resources master plan was completed in 1995. The objective was to ensure optimum use of the nation's water resources. It provided for developmental scenario through well formulated strategies in the short and long term by the year 2000 and 2020 respectively. Presently, WRA 2004, Minerals Act of 1990, National Inland Waterways Authority (NIWA) Decree 13 of 1997; RBDA Act of 1990 and State Water Edicts are relevant in the development and management of nation's water resources (National Water Policy, 2004). The 1999 constitution of the Federal Republic of Nigeria empowers both the states and the local governments to make laws relating to water. In essence, the states and the local governments have the constitutional power to legislate on all waters within their jurisdiction not covered by the Exclusive Legislative List (ELL) for development and management. There are other policy guidelines with water component.

Challenges in the Policy Development

This section critically chronicles policy guidelines of the Federal Government with emphasis on coordination and implementation. The Constitution of the Federal Republic of Nigeria provides that water from such sources as may be declared by the National Assembly affecting more than one state are under the Exclusive Legislative List. The constitution empowers the states to legislate with regard to water supplies, irrigation, canals, drainage, embankments, water storage and waterpower subject to the provisions of the Exclusive legislative list. The specific challenges for effective coordination found in this study are:

1. Water Resources Act (WRA) 2004 and the Minerals Act Decree 1993

The WRA 2004 and the Minerals Act, Cap 226 LFN under S.5 of 1993 Decree charged the Minister with the responsibility for matters relating to water resources with power to issue water license, order removal of hydraulic work, impose license fee, pollution control, and impose other fees, rates and charges. The same powers are also conferred on the minister responsible for Mines. There is no provision for conflict resolution in case of such dispute or disagreement arising from the exercise of powers granted both Ministers. However there has never been a conflict that warrants seeking cooperation or Federal High Court interpretation of Acts. This is an indication that the policy provisions have not been implemented.

2. WRA 2004, RBDAs Act 1990 and the NIWA Decree No 13 of 1997

In the NIWA Decree No 13 of 1997, the Authority has power to grant permit and licenses for water intake. This power extends over all federal navigable waterways. They are same watercourses which the Minister of Water Resources has power to grant intake licenses. It is observed that under S.9 (o) of the NIWA Decree, the Authority

has power to provide hydraulic structures for rivers and dams, bed and bank stabilization. Similar power is also vested in the RBDAs under S.4 of the RBDA Act Cap. 396 LFN 1990. Besides, under S.13(b) of WRA 2004, the Minister of Water Resources is empowered to impose a fee on any person or public authority seeking to construct, operate, maintain, repair or alter any hydraulic works in or adjacent to any water source. These are conflicting statutory authorities that needed to be addressed.

3. The NWSSP 2000 and National Water Policy (NWP), 2004

The National Water Supply and Sanitation Policy (NWSSP) 2000 make the supply of adequate water and sanitation a right of all Nigerians and gives costs sharing formula for the three tiers of government, the private sector and the beneficiary on investment and operation and maintenance (O&M) costs. However, NWSSP 2000 recommends free water for the poor (FRN, 2000) but it fails to elaborate on how these commitments are to be mainstreamed into its implementation (Odigie & Fajemirokun, 2005). The NWSSP 2000 and NWP 2004 were based on Dublin principles that seek economic value on water resources. Both policies did not give clarification on tariffs and subsidies. The NWP 2004 policy call for balance between affordable tariffs for the poor and high recovery cost. Implementation of NWSSP 2000 policy became difficult with this contradiction.

4. RBDAs and the integrated development of each basin

The RBDAs Act 1986 was an update of that of 1976 and spelt out the following refined functions:

- i. To construct, operate and maintain reservoir dams, dykes, polders, wells, boreholes, irrigation and drainage systems and other works necessary for the achievement of the RBDAs functions and to hand over all lands to be cultivated under irrigation schemes to the farmers.
- ii. To supply water from RBDAs completed storage schemes to all users for a fee to be determined by RBDA concerned, with the approval of the then Minister of Water Resources and Rural Development
- iii. To construct, operate and maintain infrastructural services such as roads and bridges linking projects sites, provided that such services are included forming an integral part of the approved projects.
- iv. To develop and keep up to date comprehensive water resources master plan, identifying all water resources requirements in the RBDAs area of operation through adequate collection and collation of water resources, water use, socio-economic and environmental data of the river basin.

However, RBDAs have never undertaken any role with regard to water resource management or articulate to do so. They are implementing and irrigation development

agencies (Water Resources Strategy, 2006). Some RBDAs got the commercialization policy of the Government wrong by engaging in distractive businesses such as production of bottle water, real estate and hospitality. The RBDAs are in no position to initiate any form of horizontal co-ordination among them and as multiple RBDAs operate in the same catchment basin which inhibits catchment management (Okoye and Achakpa, 2007).

5. Onus of responsibility

The RBDAs, state water agencies, various ministries and inter-governmental agencies are statutorily charged with provision of water from reservoirs, wells and boreholes in urban and rural areas. This created overlapping responsibility which doesn't improve service delivery. The collection and banking of hydrological data base is the responsibility of the National Water Resource Institute (NWRI), FMWR Planning Research and Statistics Department and the RBDAs. But the onus of responsibility among these three separate bodies is not categorical. The collection of water extraction fees is vested in NIWA and FMWR which is an indicative responsibility without actual accountability (Atkins International, 2006).

6. Global policy directive and national reality

Nigeria water policies were always framed in response to global policy directives and pressures such as MDGs and Dublin Principles among others. Nigeria in 2011 voted a resolution in favor of making water and sanitation a human right and never passes legislation to enshrine this right (Vanguard, 2012). The successive governments always attempt to satisfy international policy framework advocate and framed policies that do not reflect the developmental realities in the country. Most policy practices and implementations often narrow down to technical solution at the expense of appropriate and locally-led intervention important factors such as citizen-led initiatives as well as changing the behaviors of the citizens (Akpabio, 2012).

7. Regulations

Water supply provisions and regulatory functions are combined mandates for the RBDAs and State Water Agencies (SWAs). The 2004 National Water Policy acknowledge the challenge in balancing the water uses and water protection through a regulatory system of river basin based management and regulated allocation of water resources considering various activities in the area of water resources development of dam construction, urban water supply, irrigation and power generation. It also calls for recognition of limits in self-regulation making it paramount for government monitoring and enforcement. The 2004 National Water Policy lacks the modus operandi to realize these objectives. The institutional arrangement revealed a contradictory regulatory role as gamekeeper and poacher vested on agencies which weakens enforcement

mechanism. This is to a greater extent elucidate reason for non-satisfactory objectives achievement.

Water Resources Management: In a Nutshell

The Atkins International (2006) concluded that there is no effective water resources management been practiced in Nigeria and there exist a confusion between development and management with a supply driven, top down approach that can be seen to have failed. Most of the regulations appear to be too vague on the issues they cover. There are no unifying provisions for coordinating quality, quantity, distribution and rehabilitation of water supply. The regulations provide multiple powers for fixing tariffs and other matters for water use without guiding provisions for determining such tariffs for domestic and economic usage. While offences are prescribed under the provisions of the various regulations, enforcement provisions are sketchy and reporting requirements are non-existent. There are provisions in the various regulations that grant power to fix tariffs for the use of water under their activity to which such law relates but there are no obligations to account to the Federal Ministry of Water Resources or the River Basin Development Authorities as the case may be or to provide data regarding such usage (Okoye and Achakpa, 2007). Regulation with enforcement is the bane of the implementation challenges bedeviling nation water resource management strategies.

Fundamental Paradigm Shift

A paradigm shift in making the RBDAs the centers of the nation's water resources policy development is imperative. First is to streamline all institutions and legal frameworks in nation's IWRM but at RBDAs level that coincide with natural hydrological areas and sub basins. There is enough commonality of hydrological, geomorphologic and ecological characteristics for them to serve as widely applicable, non-ephemeral, operational landscape units for planning and management and for maintaining environmental quality and pursuit of sustainable development (Barrow, 1998). It is at the river basins that multiple uses can take place such as planning, monitoring, reconciling competitive use and coordinating the activities of independent agencies and other interest groups.

The nation's RBDAs, their associated groundwater basins (Table 4) and the river basins and hydrological areas in Nigeria (Fig. 2) do not coincide. This is a huge challenge for integrated management. The traditional (institutional) separation of surface water from groundwater has created fundamental communication barriers that extend from technical expertise to policy developers, operational managers and water users. These barriers impede the understanding of the processes and consequences of groundwater-surface water interactions (Owen et al., 2010) which completely rule out any conjunctive water usage.

Water Policy Development: Some Case Studies

It is imperative to explore the philosophical contexts of some developed countries water policy evolutions. The USA President Carter's "Water Policy Initiatives" of 1978 were aimed at improving water resources planning and management, to permit construction of sound water projects, to emphasis water conservation, to enhance federal-state cooperation, and to increase the focus on environmental quality. The Reagan administration's approach in 1981 embodied the philosophy of transferring responsibility for some of the water programmes to states, increasing level of nonfederal cost sharing for water projects and programs and encouraging full cost recovery (Viessman, 1990).

The South African government made a concerted effort to implement governance structure that will provide secure and sustainable water supply services. The nation's water policy framework was completely reformed between 1994 and 1997, leading to a new water policy and the Water Services Act of 1997 and the National Water Act of 1998. A completely new institutional framework was created based on the devolution of responsibility to the lowest possible level and organized around hydrological units through a series of catchment management agencies (Mackay, 2001; United Nations WWAP 2001).

Table 4: River Basins Development authorities and Associated Groundwater Basins

River Basin Development Authority	Groundwater Basins
1. Sokoto Rima River Basin Authority	Sokoto Basin (Tertiary) Sokoto Basin (Cretaceous)
2. Hadejia-Jamare River Basin	Chad Basin (Unconfined) Part of Basement Complex Part of Keri Keri Basin
3. Lake Chad Basin	Chad Basin (Unconfined) Chad Basin (Confined)
4. Upper Benue River Basin	Part of Keri Keri Basin Part of Benue Basin
5. Cross River Basin	Coastal Sedimentary Cross River Basin
6. Anambra Imo River basin	Part of River Course Alluvium Anambra Basin
7. Niger River Basin	Part of River Course Alluvium Nupe Sandstone Part of Basement

8.	Ogun Oshun River Basin	Coastal Sedimentary
9.	Benue River Basin	Coastal Sedimentary
10.	Niger Delta	Coastal Alluvium Mangrove Coastal Sedimentary

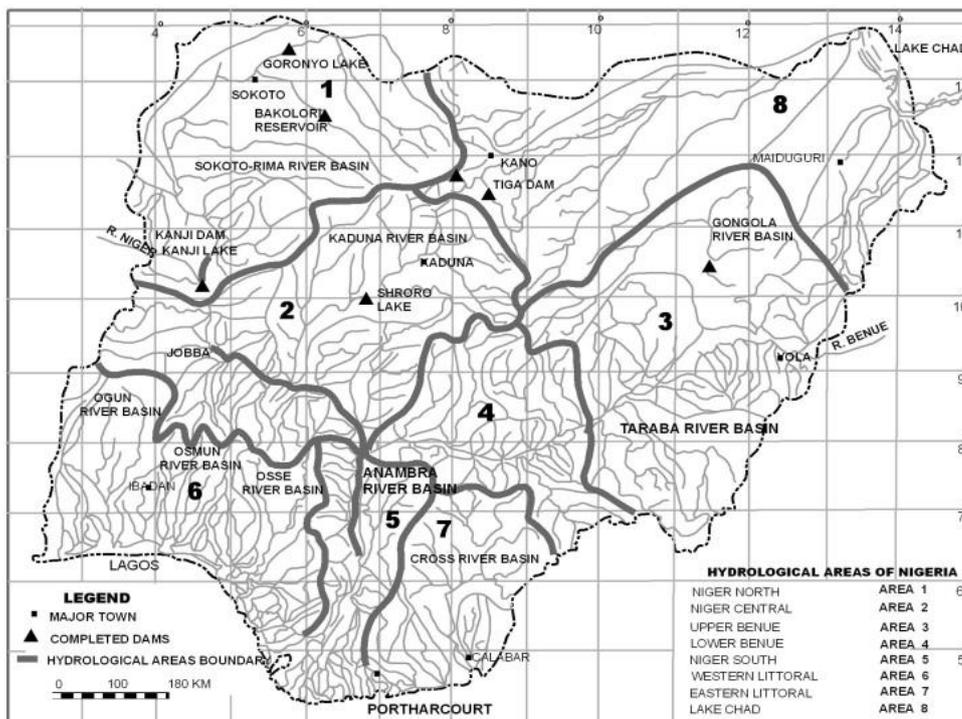


Fig. 2: Map of Nigeria Showing the River Basins and Hydrological Areas

The Thatcher government sought to transform UK water supply from a public service focused on equity to a business organization focused on efficiency in a bid to ensure sustainability of service delivery. That was from the end of 1979 until full-scale privatization in 1989. During the process, the government retained responsibility for water supply. The conservative administration set five objectives the 1989 privatization of the water industry is to accomplish. These are according to Hukka and Katko, (2003): (1) promoting competition and enterprise; (2) reducing the size of the public sector; (3) involving staff of companies; (4) spreading share ownership and (5) freeing the enterprises from state controls. The aim was to solve the chronic under-funding of the water sector which was a great barrier to the needed upgrading of systems and the

need to comply with tighter quality regulations driven by EC directives (Castro et al., 2003, Hukka and Katko, 2003).

The state of Israel introduced a new water master plan policy in 1988 necessitated by the growing water crisis of reliability exacerbated by the drought of 1980s. Before and most of pre-1990s, policy making did not consider sustainability in water management (Dery and Salomon, 1997; Kay and Mitchell, 1998). The reliability crisis suffered by Israel water system was the consequent of ideological rationality which underlies water management instead of economic rationality (Galnoor, 1978; Kay, 2000). The emphasis in water management of the new plan changed from increasing supply to improving reliability and quality of supply; prices to users that reflected costs and economic allocations (Kay and Mitchell, 1998). Economic rationality suggested by Galnoor (1978), Allan (1995) and Fishelson (1994) were incorporated in the plan through various mechanisms. The plan however recognized a maximum sustainable annual yield with agricultural allocation that would vary according to the ability of the system to meet industrial and municipal allocations.

Water Policy Development: A Proposal

It should be noted that more than two decades after Adeyemi (1987) observed a missing philosophical and ideological component in the Nigeria water resources policy development, the situation has not potently improved. The authors propose three fundamental strategies on critical sectors (Energy, Food and Public Health Security) with regulatory component autonomous for implementation in ten years' short term through enactment of "Dedicated Water Resources Bill". The Bill should only address the following: (1) institutional framework (2) Energy, Food and Public Health securities and (3) Integrated water resources management. Work should continue on comprehensive Water Resources Bill for long term purposes including the nation vision 20:2020.

- **Institutional Arrangement**

A major cause of lack of a coherent legal framework for water resources development and management is the absence of constitutional and collective-choice rules (Okoye and Achakpa, 2007). Such rules should contain central guiding principles on who has the authority to make and establish regulations on water resources management, by what procedures and stakeholders. The central guiding principles should be vested in FMWR for implementation through RBDAs. Institutional and legal frameworks are already in-place with Water Act 2004 and RBDAs relevant for this purpose.

- **Energy, Food and Public Health security**

They are fundamental in the very existence of man without which no other developments are possible. Hence, this justifies the authors' recommendation of

temporarily focusing the nation water resources policy for security adequacy and sustainability. The imperativeness for policy focusing are briefly enumerated below:

i. Water Supply and Sanitation

This is central to human physiological requirement and health. About thirty diseases can be identified which are linked to water availability and quality. The transmission mechanism and preventive strategies are enumerated in UNICEF (1999). Good quality water therefore has been the most potent means of improving health and enhancing life expectancy. Access to adequate safe water is cornerstone in public health (Walker et al., 2002) and it is the most effective means of implementing healthcare policies and poverty alleviation throughout the world (Catley-Carlson, 1988).

ii. Food Security

Malnutrition and hunger are foremost situations at peace time that potentially scorn human dignity in which appreciable number of Nigeria's citizens found themselves. Nigeria faces huge food security challenges. About 70 percent of the populations are suffering from hunger, poverty and live on less than N 100 (US\$ 0.70) per day. The country faces a looming food security crisis with a growing population that is increasingly dependent on imported foods. However, there is "no such thing as apolitical food problem" according to Nobel Prize-winner economist Amartya Sen. Focus on food security ensures that the basic needs of the poorest are not neglected in policy formulation (Omotesho et al., 2006).

iii. Energy

Energy underpins many aspects of the economy and social activities. It is prerequisite to other virtual infrastructures which support quality life such as healthcare, communication, education, insurance, recreation etc. The poor state of electricity supply imposes huge costs on the business sector. A large percentage of firms and respondents ranked power and voltage fluctuations as major infrastructure problem in Nigeria (Adenikinju, 2005). The nation is grasping with the benign consequences of deterioration in energy infrastructure. The manifestations are the deepening poverty, reduce production, increase unemployment, and reduction in life expectancy, eroding patriotism, corruption and public discontent (Okeola and Salami, 2012).

Socio-Economy Synergy in the Paradigm Shift

There exists enormous potential in stimulating economic activities in energy, food and public health sectors thus creating jobs particularly in industrial, water and agricultural sectors with multiplying effects in the informal sectors. Among the vision 20:2020 objectives in agricultural policy are to attain food security, increase production and productivity, and generate employment and income. The prospect lies in the fact that Nigeria is an agrarian economy that contributes 40% of the gross domestic product

(GDP) with 60 to 70% of the population productively engaged in farming (Nwajiuba 2010) which has not been utilized to maximum capacity.

Over 90% of agricultural produce harvested annually is obtained from rain-fed, yet there are over 200 media to large dams storing up to 31 billion cubic meters of water. Out of this, 11 billion cubic meters are supposed to potentially command up to 340,000 hectares of irrigated land. So far, about 100,000 hectares of land have been equipped with the infrastructure whilst currently only about 60,000 hectares can actually be irrigated; thus, the remaining 40,000 of the equipped field need some major rehabilitation. The balance of 240,000 hectares of land that can be commanded by the water stored so far need to have the full complement of irrigation facilities in order for the country to derive the benefits fully (National Water Policy, 2004).

When probing in the domestic water supply, Nigerian citizenry had adopted various coping mechanisms in response to acute water shortages. Huge expenditures are incurred everyday on activities such as dug wells, table water, generator, fuel, etc. It was not surprising that several studies (for e.g., Sule & Okeola, 2010; Madhoo, 2007; World Bank, 2003) reported that the Nigerian citizens are willing to pay for improved service delivery. Since the role of the government is to ensure that services are provided and not necessary be the provider of services, it is imperative to involve private sector in infrastructure development and service delivery to exploit the willingness to pay exhibited by the citizenry with consideration to the issues of externality and non-excludability of water supply. The suggestions by Rivera, (1996), Ibrahim and Musa-Haddary, (2010), and others are required in private sector participation arrangement.

The government's role as a provider and regulator has compounded the problem of operational efficiency in those sectors. Therefore, outsourcing of operations through service contract in a PPP arrangement will be a stepping stone in the direction of service improvement. It is possible to introduce competition with enormous gain in efficiency by separating infrastructure investment from service operations. Regulatory oversight is imperative in established institutional arrangement for roles and responsibilities to be meaningful and effective.

Conclusion

The exploratory review of Nigeria's Water Resources Policy Development revealed incoherencies that have compounded facilitation of substantial socio-economic development in a sustainable manner. There is no effective water resource management as a result these incoherencies. But considering the underdeveloped status of Nigeria, there are three critical sectors in which effective functionality is synergistic for accomplishing the vision of creating the RBDAs. These are Energy, Food and Public Health. It is imperative to temporarily refocus the nation's water policy for a period of ten years through enactment of "Dedicated Water Resources Bill". The Bill must address the following: (1) institutional framework (2) Energy, Food and Public Health

security (3) Integrated water resources management. Work should continue on the comprehensive Water Resources Bill through the process of consultations that promote inclusion, accountability, transparency, and the needs of the vulnerable.

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