



Water Management In Federal And Federal –Type Countries: Nigerian Perspectives

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***Abstract:** Nigeria is Federation situate on the West Coast of Africa. The country is considered to be abundantly blessed with water resources and is divided into 8 hydrological areas drained mainly by the Rivers Niger and Benue and their numerous minor tributaries as well as inland lakes.*

The three levels of government, Federal, State and Local Government, share responsibility for water resources management. Thus, leading to fragmentation, duplication and lack of inter-sectoral coordination with each segment pursuing its own independent water agenda.

The salient features of water resources management in Nigeria include: weak data base, fragmented responsibility and weak institutional framework among others.

Because of the fragmented and uncoordinated approach to water management issues, the regulatory and monitoring machinery within the water sector in Nigeria is diverse, diffused and weak. Enforceability in such circumstances becomes lax. Present water laws lack proper provisions and mechanisms for inter-sectoral coordination, tariff setting and conflict resolution.

There is therefore an identified need for a new water law in Nigeria and with it, a new regulatory mechanism to ensure sustainable and integrated approach to water resources management.

*(**Key words:** Fragmentation, regulation, inter-sectoral coordination, independent water agenda, conflict resolution, integrated water resources management.)*

1.1 Introduction

1.1 A Water Resources In Nigeria

Nigeria, with a land area of about 924,000 sq.km, is a federation made up of 36 states, 776 local government council areas, and the Federal capital territory (FCT) of Abuja. The country is located in West Africa and lies entirely within the tropics where its climate is semi-arid in the North gradually becoming humid in the South. The annual rainfall varies from 4,000 mm in the South – East to below 250 mm in the extreme North-East and is subject to significant temporal variation. The surface water resources potential of the country is estimated at 267.3 billion cubic metres while the groundwater potential is 51.9 billion metres. (NWRMP 1995).

There is temporal and spatial variation in water availability, the north with low precipitation of only about 500 mm in the northeastern corner, and the south with precipitation of over 4,000 mm in the southeast. The Nigeria Sahelian belt is at the Southern border of the Sahara desert and it is here that the country faces the challenges of high variability in precipitation, which has been manifested in the form of persistent drought in the past three decades with its attendant impact on reduction in the extent of wetlands in the Hadejia–Nguru area and the almost complete loss of the Lake Chad.

Nigeria is considered to be abundantly blessed with water resources. The country is divided into 8 hydrological areas drained mainly by the River Niger and River Benue and their numerous minor tributaries as well as the by the Lake Chad and the Oguta Lake and the rivers that discharge into them. There are several other perennial rivers e.g. the Gongola, Hadejia-Jama'are, Kaduna, Zamfara and Yobe in the north, and the Ogun, Osun, Imo, Cross and Anambara rivers in the south. Total surface runoff is large. Annual runoff at the Lokoja gauging station on river Niger has been recorded as up to 165.80 billion cubic metres. Volume of available groundwater is also considerable in large sedimentary basins (the Chad and the Sokoto basins), which lie along the country's northern international boundaries with the later representing Nigeria's segment of the internationally shared **Iullemeden Aquifer System**. (IAS). To the south, Nigeria also has its share of groundwaters notably the transboundary costal aquifers of the Gulf of Guinea **Tano And Keta Aquifer Systems**.

For the water resources assessment of the country, 163 automated hydrometric stations were established in 8 hydrological areas of the country while 26 existing primary stations were

upgraded to meet WMO standards. Nigeria's National Hydrological programme has the objective of having 486 hydrological stations to constitute the basic primary network.

1.1. B Irrigation And Dams

The total irrigation potential is about 3.14 million ha comprising of:

- 2.04 million ha for formal farmer owned and managed schemes based on conjunctive rise of surface water and shallow fadama aquifers; and
- 1.1 million ha for formal public irrigation project which are under government control

During the oil boom days of the 1970s and early 1980s, Nigeria invested heavily in water resources development, particularly in the construction of multipurpose dams. The dams were meant to control flood, provide water for domestic and industrial uses, control riparian rights releases and for the environment, hydro-power generation, fishing, livestock, inland waterways and irrigated agriculture among others. Nigeria has constructed 200 dams storing up to 31 billion cubic metres. Out of these, 11 billion cubic metres are meant to 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.

A large percentage of the country's estimated 120 million population does not have access to potable water. It is estimated according to Multi-indicator cluster survey of 1999 by the Federal office of statistics, that only 52% of the urban (48% if peri-urban areas are included) and 39% of rural dwellers have access to potable water.

1.2 Constitutional Structure

Water supply is on the concurrent legislative list, which poses a challenge to coordination and definition of roles.

Presently the following Federal laws, namely: Water Resources Act, 1993, Minerals Act, 1990, NIWA Act 1997. RBDA Act, 1990 as well as state water Edicts and customary laws are relevant in the development and management of the nation's water resources.

The three levels of government, Federal, State and Local, share responsibility for water resources management. Thus, leading to fragmentation, duplication and lack of inter-sectoral coordination with each segment pursuing its independent water agenda.

The institutional arrangements in Nigeria's water resources is as follows:

- Federal Government Level – FMAWR (including 12 River Basin Development Authorities (RBDAs) and National Water Resources Institute (NWRI). FMAWR – responsible for formulating and coordinating national water policies, development and management of large water resources infrastructure, dams reservoirs, irrigation and water supply schemes.
- State Government Level – Responsible for potable water supply (through state Water Agencies (SWAs).
- Local Government level – responsible for provision of rural water supplies and sanitation facilities.

Community Level – participates in rural water supplies and sanitation.

1.1 The Legend

For many years the lack of an overall water policy in the form of strategies, functional national water master plans, proper mechanisms for intersectional coordination, tariff setting and conflict resolution has meant that the responsibility for water management for each segment of water use remained diverse and diffused. Different agencies at all tiers of government (Federal, State and Local Government) pursue different water agenda, which makes water development policy decision such as abstraction, pollution control, and watershed management highly fragmented. These fragmentations are at the core of water resources management. Diverse agencies using water for different purposes need to have their activities properly planned, coordinated, and managed with a view to conserving this scarce but all important resources for future generations. To achieve this, a proper blend of institutional, policy, economic, financial and regulatory framework which recognize the need for intersectoral approach to water resources management becomes an urgent necessity of the time.

1.2 Salient Features of Water Resources Management in Nigeria

1.2 A. Weak Data Base

Water management cannot be done with poor data management. In the past ten years, no single pan Nigerian hydrological yearbook has been published. Without water assessment there cannot be decision support system (DSS) models necessary for understanding the impact of abstraction and groundwater aquifers.

There is currently no effective water resources data management system for the nation. Therefore, Nigeria not only needs to set up nationwide networks for these data collection but also an institute to use the data and make models. Although the Water Resources Management Strategy recommended the establishment of Water Modeling Center, the Federal Government has gone further to create National Hydrological Agency to anchor these.

1.2.B Fragmented Responsibility

Fragmented sectoral practice have also led to disjointed development and have critically led to a situation where there is presently nothing in place to significantly ensure the quality of water. There are no clear responsibilities, no mandated water quality standards, no effective water monitoring, no enforcement, no sanctions for polluters, no remediation and thus no overall

picture of the extent of the problem. These issues are in the process of being tackled, albeit it must be observed, in a fragmented fashion. Federal ministries involved in the different aspects includes the Federal Ministry of Agriculture and Water Resources, Federal Ministry of Environment and Housing, Federal Ministry of Health and various State Agencies, yet just who has the overall responsibility for the quality of surface and groundwater in Nigeria remains unclear.

1.2.C Weak Institutional Framework

4.1 The River Basin Development Authorities (RBDAs)

The River Basin Development Authorities (RBDAs) came into existence following the promulgation of Decree 25 of 1976. They were conceived as vehicles for attaining a pan Nigerian Programme of water resources development. The current law on RBDAs is the RBDA Act, cap 396 Laws of the Federation of Nigeria, 1990. This statute spells out diverse functions and objectives for these Authorities from which it may be inferred that their existence nationwide propels their acceptance as an appropriate unit for water management.

Section 4(1) (a)-(d) of the RBDA Act vest the Authorities with the legal powers to undertake comprehensive development of both surface and underground water, to construct and maintain dams irrigation and drainage system, to supply water to all users, and to construct and maintain infrastructural services including roads and bridges across project sites.

- (a) The provisions of section 4(1) (a)-(d) delineating the functions of RBDAs is a major problem because of the inherent flaws in it. By this enactment, RBDAs became at once both suppliers and consumers of water, as well as development managers and regulators of water and water resources. In effect, this law simultaneously constitutes RBDAs into regulator and user. This situation has engendered conflict of interests.

- (b) The operational domains of all the nation's River Basin Development Authorities (RBDAs) are delineated by political boundaries and not hydrological boundaries. By virtue of this background the staffing of these Authorities seems to reflect the political composition of the states constituting the sphere of each Basin Authority. Given this scenario and based on their development mandates, the RBDAs have independently and without coordination been exploiting basin water for the development of irrigation agriculture.

The glaring lack of coordination between the various RBDAs, the single minded pursuit of irrigation agriculture mandate which imposes no concomitant legal obligation for pollution control or watershed management has resulted in an unsustainable approach to water use through lack of an integrated approach to water resources management.

- (c) At the institutional level the RBDA law manifest additional flaw. Section 4(1)(c) empowers RBDAs to supply water from the Authority's completed storage schemes to all users for a fee to be determined by the Authority concerned. The law does not however equip the Authority with any powers of enforcement nor does it stipulate any penalty for defaulters. This flaw allied with political considerations has remained largely responsible for the inability of the RBDAs to recover any charges especially in Kano and Borno states, for raw water abstraction by state water agencies in the two states.

River Basin Authorities are, ideally, public administrative bodies, endowed with civil personality and financial independence. Their objective is to promote activities related to the basin, which are of public interest.

To achieve this goal, the Authority can only levy charges on the water users, public or private with the aim of helping to finance projects necessary to improve the resources or undertake environmental protection.

This is, therefore, the application of the “polluter pays” and “user pay” principle of water resources management and thus a financial incentive to eliminate pollution and wastage, and to economize on water.

The present position with Nigerian RBDAs is that they have no financial independence and are severely cash strapped, they are federal parastatals dependent on their parent ministry (FMAWR). Budget proposals even where they have received ministerial approval are not funded with the result that performance is below optimum and valuable and costly equipments are left to rot away or remain idle. The SCIP at New Marte is one visible manifestation of this state of affairs.

The present organization of the nation’s RBDAs will need to be revisited with the aims of restructuring them and re-ordering priorities. A new approach to RBDA orientation and mandate will require statutory and institutional changes.

National Water Resources Institute (NWRI)

The NWRI enabling law is the NWRI Act, Cap 284 LFN 1990. Section 2, thereof, spells out the functions of the institute in both general and specific terms. It is empowered to perform engineering research function related to such major water resources projects as may be required for flood control, river regulation, reclamation, drainage, irrigation, domestic and industrial water supply, sewage and sewage treatment. The institute is further charged with the performance of other functions related to planning of water resources management and river basin development.

Quite significantly, the institute has a specific legal mandate to promote the establishment of a uniform national data collection system relating to surface and subsurface water resources. It is yet to fulfill this mandate owing to a variety of factors including paucity of funds, shortage of skilled manpower, and inadequate equipments among others.

1.2.D Response To Natural Phenomena

Flood, including dam breaks, tends to be struggled off as “acts of God” with little done to intervene to prevent their occurring or to mitigate their impact. Upstream dams that could be

managed to absorb flood flows have more often been the cause of the floods; nobody has been responsible for river training, the building of flood embankment and dykes and the prohibition of building residential houses in flood plains. Even the advantage of being downstream of virtually all its major transboundary waters, in that flood move down a river at a steady rate, has been lost to make flood forecasting.

Similarly, while drought cannot always be effectively forecast but it can be anticipated. Drought management requires good demand management and effective control of water resources. Other issues raised include shortage of qualified and experienced manpower, insufficient definition of land tenure and water rights and clear appreciation of the interface between land and water rights, and substantial investment gaps with insufficient attention paid to the mobilization of resources of private sector and civil society.

It was in the light of the foregoing that the National Water Policy document (NWP) recommended among others that the nation's water resources management be anchored on nationwide integrated water resources management (IWRM) and the establishment of a system of water resource management in Nigeria based upon catchments (Hydrological River Basins) with institutions at the catchments level capable of carefully balancing the water uses and protect through a regulatory system of catchments based management and regulated allocation of water resources anchored on appropriate legal framework.

1.3 Legal Framework

1.3.A Customary Law

In all native communities in Nigeria, there are customary laws relating to water rights. Rules and regulations are known to, and observed by all and sundry. These laws are handed down orally from generation to generation. The pristine antiquity of these laws and their observance to this day is of remarkable significance especially against the background of these customary laws being legislative in effect.

Under customary laws the common notion is that water courses or water bodies in any community, like the classification under Roman Law, is *res omnium communes* or a resource common to all, subject to community control and not capable of being privately owned. The only apparent distinction was made in respect of private underground well water, which due to its limited use in terms of common value, was not considered to be in need of community

regulation. Indeed in certain communities watercourses are associated with particular deities as owners.

The public ownership of water being largely incontestable is jealously guarded notwithstanding that the lake, stream or pond lies wholly within an individual's land.

Community rules regarding water uses and preservation are enforced by elders or traditional rulers as the case may be.

1.3.B Statutory Enactments

Table 1 A List of Statutes on Water Resources in Nigeria

S/N	Name of Statute	Key Provisions
1.	The Waterworks Act of 1915	Colonial Nigeria (shortly after Amalgamation in 1914) passed the law specifically to keep water from being polluted. It prohibits the pollution of water in Nigeria by noxious or harmful matters.
2.	The Minerals Act of 1917 (as amended), now Cap. 226	This law vests the Head of State of Nigeria with power to make regulations for the prevention of pollution of any watercourse.
3.	The Public Health Act of 1917	It prohibits the fouling of water and vitiation of the atmosphere.
4.	The Oil in Navigable Waters Act, 1968	It prohibits water pollution by oil spillage.
5.	The Petroleum Act, 1969	It covers prevention of pollution by inland waters, rivers, lakes and watercourses
6.	The River Basin Development Authority (RBDA) Decree 25 of 1976 (repealed by No. 87 of 1979 and also latter by the RBDA Act, Decree 35 of 1987, i.e. Cap 396).	In its present form Cap. 396 spells out diverse functions and objectives for these Authorities to ensure a Pan-Nigerian programme for water resources development.

7.	The Environmental Impact Assessment (EIA) Decree, No. 86 of 1992	This law seeks to protect the physical and aquatic environment.
8.	Water Resources Decree, No. 101 of 1993	It vests the right to use and control all surface waters and groundwater and of all water in any watercourse affecting more than one state in the Federal Government, with provisions that any person may take water without charge for his domestic or livestock watering purposes (in any watercourse to which the public has free access)
9.	The 1999 Constitution of the Federal Republic of Nigeria	The Constitution puts in the Exclusive Legislative List (ELL) shipping and navigation on the River Niger and its affluents and on any such other inland waterway as may be designated by the National Assembly to be an international waterway or to be an interstate waterway. The ELL also includes water from such sources as may be declared by the National Assembly to be sources affecting more than one state.

Table 2 A List of Other Regulations Bearing on Water Resources in Nigeria

S/N	Name of Regulation	Key Provisions
1.	National Policy on Environment 1989	Protection of the environment
2.	National Guidelines and Standards for Environmental Pollution Control in Nigeria 1991	Pollution control in watercourses as part of the environment
3.	National Effluent Limitation Regulation 1991	Control of discharge of industrial waste and sewage into watercourses
4.	Pollution Abatement in Industries and Facilities Generating Wastes Regulation 1991	Control of industrial pollution
5.	Waste Management Regulation 1991	Waste management

Historically, beginning from colonial Nigeria, the Water Works Acts, 1915 is the only pan Nigerian law passed specially to keep water from being polluted. It prohibits the pollution of water works in Nigeria by noxious or harmful matter. The Minerals Act, 1917 (as amended) vests the president of Nigeria with power to make regulations for the prevention of pollution of any natural water supply or watercourse. The Public health Act, 1917 prohibits the fouling of water and the vitiation of the atmosphere. It embodied provisions against introduction of injurious substances into the various sources of water supply for human and animal consumption. All these laws were made by the colonial authorities before the attainment of sovereignty.

1.3.C Federal Laws

From the federal standpoint there are three pieces of post colonial legislation that form the core of water laws and the basis of water law administration throughout Nigeria. The relevant laws are: River basin Development Authority Act, 1976, Water Resources Act, 1993, and the Environmental Impact Assessment Act, 1992. These laws form the normative core whilst relevant rules and provisions can be found in a variety of sources including constitutional law, land law, and mining law.

The Water Resources Act, 1993 vests ownership of all water courses affecting more than one state of the federation, as well as all underground water throughout the

federation in the federal government of Nigeria. By virtue of this law, the waters of all Nigeria's transboundary rivers and lakes belong to the federal government.

Notwithstanding such federal ownership, by virtue of section 2, of the Act, any person may take water without charge for his domestic purpose or for watering his livestock. He may use water for the purpose of fishing or for navigation to the extent that such use is not inconsistent with another law for the time being in force. Significantly the section provides that any person who has a statutory or customary right of occupancy to any land may take and use water from the underground water source or if abutting on the bank of any water course, from that water course without charge for domestic purposes, for watering livestock and for personal irrigation schemes. This provision acquires added significance and is of relevance to the uncoordinated manner in which boreholes are sunk and water abstracted without guidelines or standards.

Water rights are not, and must not be limited to the right to take water without charge for domestic purpose or for watering livestock from any water course to which the public has unhindered access. They include the broader right of free passage (right of way) over navigable waterways, fisheries right, and a host of other rights concomitant with the construction operation and maintenance of dams, dykes, polders, wells, boreholes, irrigation and drainage systems, as well as other works necessary for the achievement of the beneficial use of water over all lands in relation to which investment in that direction is made.

Viewed thus, the administration of water rights in Nigeria is not restricted to only one particular tier of government, rather we have a situation where the federal and state governments through various agencies and ministries influence the administration of water rights. Such agencies include state water boards, RBDAs, Environmental Ministries, Fisheries Board and the National Inland Waterways Authority.

The FMAWR is the relevant organ of the federal Government charged with the overall responsibility for management of the nation's water resources by way of promoting the optimum planning, development and use of Nigeria's water resources ensuring the

coordination of all activities likely to influence the quality, quantity, distribution, use and management of water resources. Additionally the ministry has responsibility for ensuring the application of appropriate standards and techniques for the investigation, use, control, protection, management and administration of water resources.

In the discharge of its administration of water rights the ministry liaises with relevant water resources agencies and practitioners. These may include SWAs, RBDAs, the NWRI and in recent times, the private sector being called upon to participate in the water sector. Consultation may relate to matters bearing on facilitating technical assistance and rehabilitation for water supplies.

There was not much (if any) of inter sectoral coordination on water related matters between the FMAWR and other interests. However, evidence exist to suggest that the FMAWR is now working hard at consulting other line ministries and relevant organizations as it seeks to develop a broad term national water policy for Nigeria. Suffice it to mention in board terms that under the Environment Impact Assessment Decree 1992, there are specific provisions relating to water. Under the schedule to the Decree, items 3,18 and 19 may be listed as having relevant bearing on water. Against the background of section 7, of the decree the FMAWR and the appropriate environment authorities can liaise to consider the effect on water basins of any planned activity likely to impact on water, be it surface or underground.

In terms of operating rules and authorities, it must be stated that efforts are still on-going in the FMAWR to fashion out appropriate modalities for implementing the provisions of the Water Resources Decree, and to achieve vital coordination with the line ministries like the Federal Ministries of Environment, Agriculture and even Health, with the aim of minimizing or resolving conflicts.

1.3.D State Laws

At the state level, state Water Edicts and byelaws form the legal basis and authority for water use and management as far as they relate to intrastate watercourses and water bodies. The present set up in Nigeria is such that virtually every state of the federation

has a State Water Agency with its enabling laws. These agencies deal with individual aspects of water use to serve individual sectors of the economy.

Put differently the absence of an effective and functional Water Resources Management Strategy has left the various states and the Federal Government pursuing their respective water agenda. Even at the level of the states, water laws exhibit similar characteristics as those at the federal level. Virtually all states laws on water are rule-oriented. The State Water Agencies (SWAs) have unclear and conflicting roles i.e. they are both suppliers and regulators (they combine service delivery and regulatory functions). Additionally, state laws make no provision for cross-sectoral coordination among the various water interests such as agriculture, power generation, environmental preservation and water supply. Finally, state water laws as presently enacted fail to recognize the need for stakeholder participation in policy, planning and management decision.

1.3. C. Local Government Level

At the local government level, it may be observed that customary law on water use can be as important and binding as any written enactment in regulating water resources related activities especially at the level of rural community. A universally accepted principle is that all persons belonging to the community have a right to use water passing through the community. The water right so possessed by all is, however subject to reasonable use. Reasonable right entail ensuring that the quality of water is preserved.

1.4 Water Law Administration

1.4.1 Legal Issues

Against the background of the need to attain an equitable and sustainable use and management of basin waters, two different species of legal issues are raised. The first concerns the role of water law in responding to the issue generally. The second concerns the substantive content of the law that applies to the problem in particular (Wouters 2000).

In the context of the Nigerian federation what are the legal issues linked to attaining effective and efficient water resources management? Four salient points identified by Wouters stand out for consideration:

- Legal entitlement – (Extent of available resource and who is entitled to its use)
- Framework for allocation – (in the face of dwindling water and growing demand who is entitled to what quantity and when?)
- Institutional arrangements, including water governance issues – (Who is responsible for water law implementation)
- Compliance monitoring and verification, conflict resolution – (Enforcement of rights and obligations)

1.4.1.A Legal Entitlement

In considering legal entitlement two main issues must be addressed and resolved. First, what is the scope of the available water resources i.e. the physical quantitative and qualitative definition of both surface and underground water available for utilization within the basin. This refers to the need for a proper water audit as well as the allied question of which institution should carry out national water audit, and the extent of its legal powers in any scheme of regulation of water use after the scientific assessment and quantification of the nation's water resources. Second, what is the scope of the basin-wide demand for water, i.e. who are the stakeholders and what is their water related needs? A practical approach to each of these problems must begin with recognition that the right to utilize basin waters in one party is tied to similar legitimate rights of other users. Rights and obligations thus must be identified.

1.4.1. B Framework For Allocation

The ever-increasing demand for water throughout the country and the decline in quantity available for use especially in the arid parts of Northern Nigeria impels the identification of a range of options for the optimal and beneficial use of basin waters whether surface or underground. The competing demand for drinking water, irrigation, ecosystem management, biodiversity and grazing raises the question of whether priority of uses can be established, and if so what criteria should be employed for achieving this end. The position on the ground is that there are many users of water and each of these have very significant impact on the others. The optimum use of basin water resources can only be attained when all the potential uses are considered simultaneously. This approach will involve trade-offs between different potential uses and demands nationwide.

1.4.1.C Institutional Arrangements

The failure of the “Bagauda Declaration” of 1977 with respect to the implementation of the agreed water sharing formula reinforces the need for institutional mechanisms that ensure that the established “rules of apportionment and management” are applied. The composition, mandate and scope of responsibility of any institution must be clearly established. Thus, in these circumstances, there may be need to review the current RBDA law and the institutional set-ups in order to reposition RBDAs for the challenges of water regulation and ecosystem management.

Institutional development proceeds from, and is a reflection of the law and of current government policy. Water should be seen as a national asset. Catchment boundaries are natural formations and seldom coincide with administration and political boundaries. Water courses do not recognize state boundaries. This is one of the main reasons why water management within the country should be a federal function. Institutionally, there can be no responsibility without authority, from which it follows that any institution charged with responsibility for regulation and compliance must have the authority to fulfill its mandate. The range of options vary and requires careful consideration.

Policy Considerations

Basin wide inter-sectoral coordination and management of water sector activities anchored on legal principles presupposes proper institutional arrangement that guarantee the rational allocation of available water resources to the highest beneficial users.

Nigeria, at the moment, is trying to put in place a comprehensive national water management regime in the form of strategies, functional national water master plans, systems for inter-sectoral coordination, tariff setting and conflict resolution. To the extent that such was not hitherto the case, the nation has thus allowed different agencies at all tiers of government (Federal, State and Local Government) to pursue different water agenda. This position is reflected in the Komadougou-Yobe basin where household water users, irrigation farmers, fishermen, pastoralists and wetland conservationists are all engaged in pursuing their different water interests.

Given the prevalence of farming in the basin the national policy on agriculture was identified (HNWCP 1997) as having considerable bearing on the management of the water resources of the basin. This policy gave rise to the construction of dams and large-scale irrigation schemes as a means of reducing dependence on rain-fed agriculture. This policy also gave rise to the ADPs that has popularized smallholder irrigation in the basin with its attendant demand for more irrigation water.

It is therefore the belief that any legal intervention through institutional arrangements which seeks to facilitate the sustainable use and management of the nation's waters should take into consideration the implication of the above and similar policies.

Socio-Economic Considerations

Widespread economic hardship has compelled people to eke out a living by employing any means at their disposal, therefore the establishment of ecosystem management in the nation's hydrological basins and linking it to the development of sustainable livelihoods will have to be adjusted to local circumstances and needs. For instance, the practice of

private “ownership” of fishing rights over stretches of some of the nation’s rivers and sundry water bodies in some communities will require recognition and cognizance of it in any reform of access to water for fishing purposes. To do otherwise may engender avoidable conflict within that socio-cultural framework.

Households are a fundamental unit for the sustainable management of water resources. A decent proportion of the poorest households depend directly on natural resources for their livelihoods, through fishing, farming, hunting, herding or produce collecting. It is thus essential to build alliances between individual households and local groups to address natural resource issues at larger (i.e. basin and/or catchment) scales.

Empowerment and participation of communities and local groups is thus a sine qua non for sustainable water management and conservation. Only the recognition and incorporation of people’s well-informed decision-making and livelihood strategies in catchment-wide decision-making is likely to lead to sustainable water resources management.

Compliance Verification

The next step in the process is the allied question of the administration of water law and how the law is to be enforced. Often, it is the role of institutional organs to ensure compliance with any legal regime established. The question thus raised is what substantive and procedural measures are best suited to monitor compliance with enunciated rights and obligations. Wouters (2000) considers that in most cases, measurable indicators are needed to assess the level of implementation of legal regimes. The design and operationalization of such a system calls for a coherent contribution from all water resources specialists – lawyers, scientists, managers and policy makers.

Section 4, of the RBDA Act, Cap 396 Law of the Federation of Nigeria while listing the functions of RBDAs conferred on them in the process, powers to regulate and manage water resources as well as that of water supply. In this manner, RBDAs combine the regulatory and user functions of water supply. This situation makes RBDAs thus both

managers and developers. There is need to tinker the present arrangement so that a regulatory agency does not turn around to become a water user. The HJRBDA for example, operates the dams to meet its own water requirements in the Kano River Irrigation Project (KRIP) and Hadejia Valley Irrigation Project (HVIP). This kind of dual character engenders conflict of interest detrimental to the proper professional management of basin water resources.

2.0 Assessment of Existing Laws

From the presentations in earlier sections, as well as Tables 1 and 2, the following observations may be made:

- There is an uncoordinated approach to water law administration in Nigeria. A visible manifestation of this is provided by the provisions of the Water Resources Decree 101 of 1993, and the Minerals Act, Cap 226 LFN. Under S.5 of the 1993 Decree, the “Secretary” (Read Minister) charged with responsibility for matters relating to water resources, has power to issue water license, power to order removal of hydraulic work, power to impose license fee, pollution control, and power to impose other fees, rates and charges. By virtue of part IV (sections 46 – 63) the same powers are also conferred on the minister responsible for Mines. Both ministers wield co-extensive powers under federal legislation and nowhere is anything said about conflict resolution in event of a dispute or disagreement arising from the exercise of powers duly granted under the laws.

Similarly, by virtue of S.9(i) of the NIWA Decree No. 13 of 1997, the National Inland Waterways Authority has power to grant permit and licenses for water intake. This power extends over all Federal Navigable Waterways mentioned in the second schedule of the Decree. These watercourses are virtually the same watercourses over which the Minister of Water Resources has power to grant water intake licenses under the Water Resources Decree 101 of 1993. Furthermore, 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, barrages and groynes. Similar power is vested in the RBDA's under S.4

of the RBDA Act Cap. 396 LFN 1990. Besides, under S.13 (b) of Decree 101 of 1993, 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. “Public authority” as interpreted under S.20 includes “any commission, authority or statutory corporation established by the Government of the Federation”. This represents another instance of conflicting statutory powers and demonstrates further the incidence of lack of inter-sectoral coordination and lack of conflict resolution mechanisms in Nigeria’s water sector.

- Water supply and regulatory functions are often combined in a single institution. This is especially true of all RBDAs, as well as all state SWAs.
- Under present laws, different agencies at all tiers of government pursue different water agenda. This approach has led to fragmentation of water resources development policy issues, including abstraction, pollution control and watershed management.
- The regulatory and monitoring machinery within the water sector in Nigeria is diverse, diffused and weak. Enforceability in such circumstances becomes lax.
- Virtually all laws on water resources (both federal and state) are rule-oriented and fail to recognize the place and role of the private sector and communities as important stakeholders.
- Present laws lack proper provisions and mechanisms of inter-sectoral coordination, tariff setting and conflict resolution.
- At a point, state laws will have to synchronize with federal law on water because watercourses do not recognize state boundaries. Thus, any system of regulation developed by a state cannot stand in isolation.

All Nigerian laws considered are to be found in the official volumes of the laws of the Federation of Nigeria, as well as those of the states, including official government gazettes. The authenticity of sources of data is thus satisfactory.

Finally, the constitution of the Federal Republic of Nigeria representing the highest law of the land puts in the Exclusive Legislature List (ELL) shipping and navigation on the River Niger and its affluent and on any such other inland waterway

considered to be an interstate waterway. The ELL also includes water from such sources as may be declared by the National Assembly to be sources affecting more than one state.

The constitution however, has water supply on the concurrent legislative list, thus making water supply management a function of government at all levels, Federal, State and Local Government.

3.0 Major Issues and Challenges

3.1 Need for New Approach to Enacting Water Laws

Attaining sustainable development in Nigeria's water sector is tied inextricably to the enactment, establishment and enforcement of standards, regulations, legislation and control criteria on water abstraction, pollution control, watershed management and environmental management. The task of proper implementation of water resources protection and enhancement laws in Nigeria must commence with the acknowledgement and appreciation of the linkage between diurnal human activities and other dynamics of the natural ecosystem. Thus, water laws and regulations should become an effective tool for the management of water supply and sanitation. The obligation of halting water quality degradation and reversing pollution trends hinges on the promulgation of action-centred methodologies backed by appropriate legislation that are rightly enforced. Throughout Nigeria (Federal, State and Local Government levels), water laws and regulations derive mainly from our colonial legacy. As revealed by Table 1 above, the inherited legal system did make appreciable provision for the protection of water and marine resources; and the regulation of activities that could damage the health of the human environment in the country.

The challenge now posed is how to evolve new guidelines that will accommodate the growth and expansion of post independence cities, towns and human population hitherto used to considering water supply as a social service solely within the purview of governmental responsibility.

Water experts drawn from various water-related professions cannot claim competence in formulating laws and legislation to protect and enhance water supply and management through an action enforcing policy. In like manner, lawyers and legal experts cannot appreciate and understand the scientific and professional terminology in

vogue for the protection and the enhancement of the quality of water, and environmental sanitation. Accordingly, therefore, it is considered issue that water laws, environmental legislation, and related regulations should be management-oriented, and not rule-oriented. Whereas, rule-oriented legislation emphasizes prohibitions, and penalties as consequence for infringement and sanction against violations of the law, management-oriented water supply and environmental legislation must be founded on practical incentives for the rational use and protection of water resources, and for the promotion of sound water and environmentally friendly policy that will foster sustainable development.

These are goals which our present system of water laws and regulatory institutions, as well as our environmental jurisprudence may not permit because they are all based on the rule-oriented approach which ignored the interest of stakeholders, private investors and communities. Clearly, the need of the present and the future lay thus, in the establishment of new frontiers in water management. The new methodology envisaged as the basis for arriving at an alternative legal framework for water supply and watershed management may be presented as akin to the empirical approach of science and technology. Under both, a problem is identified, the appropriate data is collected and analyzed for the development of hypothesis, following which scientific principle or theory is advanced as a forerunner to the development or selection of technology applicable to the solution of the identified problems. In formulating the legal and regulatory framework for water supply and management, the problem definition phase should ask relevant, practical questions for data collection, and recommend a mode for data synthesis. The hypothesis stage becomes manifest by the development of policy options in respect of the possibility of what steps could be taken to resolve the problem.

Against this background, a decision should be taken on the policy options to be selected for the making of an effective legislation which accommodates consultation between the decision-maker, planners, government officials, stakeholders, investors and managers for the selection of the best policy. In this manner, a conceptual policy model crystallizes with recommendations, options, and strategies on the nature and contents of the law.

3.2 Absence of a Policy Framework

Inter-sectoral coordination and management of water sector activities presupposes the rational allocation of available water resources to the highest beneficial users, where benefit is ranked in terms of meeting a set of objectives that may be economic, social or environmental, with courts competent to pronounce that certain uses are socially more valuable than others in event of any conflict. However, at the moment Nigeria lacks a comprehensive national water policy in the form of strategies, functional national water master plans, systems for inter-sectoral coordination, tariff setting and conflict resolution, the nation has allowed different agencies at all tiers of government (Federal, State and Local Government) to pursue different water agenda.

This approach has ensured that water resources development policy decisions such as abstraction, pollution, control, watershed management, and environmental preservation have remained highly fragmented without coordination of one segment's actions with those of others. Issues connected with regulation is fragmented among RBDAs, SWAs, NIWA, FEPA, the Ministry for Water Resources, and the Ministry for Mines, as well as Local Governments. This kind of fragmentation and sectoral approach is at the core of water resources management. The use of water by various agencies and stakeholders for their respective purposes requires planning, coordination and management through proper legal and regulatory instruments among other things. The present lacuna brings to the fore the challenge for a legal and regulatory framework that recognizes the need for an inter-sectoral approach given that particular sectoral objectives are sometimes at cross purposes with those of other sectors.

3.3 Regulation

The concept of regulation as it is known in those nations of the developed democracies with functional Integrated Water Resources Management (IWRM) is relatively new to Nigeria. However, present findings engender the belief that it has become one of the needs of the hour. The necessity for proper regulation increases as more public utilities are privatized. As earlier pointed out the regulatory and monitoring machinery within the water sector in Nigeria is diverse, diffused and weak. Enforceability in these circumstances becomes lax.

The absence of an effective and full-fledged national WRMS in Nigeria has left the various states and the Federal Government pursuing their respective water agenda. States lack both the expertise and facility to mount an effective regulation system independent of the Federal Government. Since watercourses do not recognize state boundaries, any system of regulation developed by a state cannot stand in isolation. At a point, state laws will have to synchronize with federal law on water hence any state government wishing to put in place an appropriate regulatory mechanism must do so in cooperation with the Federal Government within the ambit of a national WRMS.

The challenge of regulation may be viewed from a tri-dimensional perspective:

- At the Federal planning level for the conservation, preservation and sharing of limited water resources; as well as facilitating settlement of disputes
- At the consumer level for tariff setting, water quality control and nature and extent of service as well as the protection of consumers from monopoly abuses
- At the state and local levels to control the private sector investors as well as protect them from arbitrary political action.

3.4 Private Sector/ Community Participation

One of the salient features of all modern day water resources management strategy is that they recognize the role and place of private sector investors and communities in water resources management within a regulatory and legal framework which acknowledges public-private partnership. With an increasing level of privatization of public utilities in Nigeria, it is considered that the private sector should be encouraged by law to take active part in water supply and management. The same kind of encouragement should be extended to communities as a means of achieving the beneficial integration of rural and semi-urban communities through a recognition of traditional customary law and practices.

The challenge of participation is the challenge of a process in which stakeholders (including women as managers of domestic water) influence the formulation of water policy investment profiles, management decisions and alternative designs affecting their

communities. In this way, participatory water resources management will have the people as its focus and uphold the reality of their own priorities.

3.5 Pollution

Over time, water quality in many of Nigeria's watercourses (including creeks and lagoons) has deteriorated. Water quality deterioration in Nigeria is caused by the generation and disposal of residue by both producers and consumers. Consumable goods are produced and residuals, the byproducts that are not used in the process are often disposed of in water. Man's activities often generate wastes such as agricultural leachates, industrial (petroleum) discharges, sewage, disposable bottles and cans, carbon monoxide, newspapers, old motor vehicle bodies, and trash. All of these may end up in, and pollute water. Many of these wastes can and should be put to other valuable uses. When residuals are disposed of in the nation's watercourses, they cause a degradation of water quality and thereby may render the water unsuitable for other purposes. Water quality of rivers and streams in Nigeria's urban and semi-urban centres are degraded in this manner.

The challenge in arresting pollution under present and future milieus consist in monitoring and assessing the nation's freshwater resources as a priority, provide enforceable legislation, setting water quality standards, and preparing programme for systematically and effectively achieving abatement of point and non-point sources of pollution.

3.6 Environmental Degradation

Tropical rainfall and the attendant erosion it engenders is the main source of soil degradation in Nigeria. Agricultural practices entailing deforestation, bush burning and tree felling for firewood and building purposes accentuate the process.

All kinds of projects alter the environment. The challenge of environmental problems emanating from the use of water have both qualitative and quantitative facets and both in-stream and off-stream aspects.

Legal response in form of solutions to these problems have roots deeply anchored in water law. Under Nigerian laws as they presently stand, various aspects of watershed management problems such as soil degradation deforestation, gully erosion, flooding, wildlife and fisheries are not dealt with from an integrated approach. Aspects of

watershed management problems fall under purview of the Federal Ministry of Agriculture and Natural Resources. Others fall under the new Ministry of the Environment, while the RBDAs are charged with similar responsibilities. Indeed, before the promulgation of the Water Resources Decree of 1993 (which is still non-functional), there was no single national outfit charged with responsibility for an integrated river management on use and conservation of water resources and river systems.

The present legal challenge considered in context is thus, the extent to which statutory and customary laws in Nigeria can be used to create “private rights” that enhance public enjoyment of waters, the extent to which public controls can preclude or restrict water uses to protect water values, and the extent to which private and communal use of water resources may be prohibited entirely in favour of environmental values that forbid watershed degradation, wetlands degradation, and the destruction of aquatic, estuarine and marine habitats, while simultaneously promoting sound water and environmentally friendly policy that will foster sustainable development.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Preamble

It is considered appropriate and necessary to draw conclusions and make recommendations on the findings in this study.

The key issues on which recommendations are called for include traditional rights and customary laws; weaknesses or inadequacies in the existing statutes and regulations; incentives for protection of watersheds and enforceable regulatory objectives.

The conclusions and the recommendations that draw from consideration of the issues are inextricably linked and combined. Consequently, the conclusions and the recommendations are presented together and related issues are tied together mainly in terms of modification to be made to existing legislation in addition to the need to accommodate fairness.

4.2 Recommendations

(a) Setting Up A National Water Commission

The objective of the present legal and regulatory framework study is to review existing statutes and customary laws related to water and those affecting water resources management, in order to achieve stated water management objectives in Nigeria, to recommend measures for strengthening or modifying existing laws, and/or proposing, new laws, and measures (institutions and practices) for enforcement.

In highlighting major issues and challenges above, it was pointed out that there is an absence of policy framework for water resources management in Nigeria, and which has led to the pursuit of different water agenda, fragmentation and lack of inter-sectoral coordination or well as lack of mechanism of conflict resolution. In clear terms there is an institutional gap identifiable alongside the legal one.

It is hereby recommended that there be set up a National Water Commission to fill this gap, and its mandate shall include the development of a policy framework for water resources management.

Additionally, the commission will take charge of regulation matters. As a regulatory body, it should be granted an independent status that will allow the regulatory and monitoring mechanisms to operate without pressure or influence from government or

lobbyists so as to pave way for a better enforcement process that will instill investor confidence in both private and public sectors.

Furthermore, its independence will guarantee the continuity of water policy during changes in government.

As a regulatory body, the Commission will undertake:

- Granting water licenses against technical criteria
- Regulation and adjustment of prices (tariff setting)
- Monitoring service and quality standards (enforcement of standards)
- Monitoring competition (checking monopoly abuses)
- Facilitating settlement of disputes (conflict resolution).
- Impose penalties for non-compliance
- Provide advice on other matters.

For the Commission to function effectively towards the realization of its mandate, its organization should be so structured at federal, state and local levels to allow for the participation of all stakeholders.

The Commission will be the overall body to give central direction to water resources management in Nigeria. Accordingly, it should promote efficient inter-sectoral coordination and planning of the development of water resources, facilitate the protection of the productive life of present federal investments in infrastructure built for population centres; provide clear and adequate legal and regulatory framework for investors (public and private), in Nigeria's water sector with a view to planning and appraising their investments. The Commission should be further responsible for safeguarding the nation's population against the failure of hydraulic structures, flooding, silt loads, river bed and reservoir sedimentation as well as facilitate participation of all water users, including women (as managers of domestic water), farmers and herdsmen, in water resources management at the watershed and grass-roots level.

(b) Fair Regulatory Framework

The analysis reveals that both political and social factors are primarily responsible for the limitation hampering the enforcement of water and sanitation laws in particular, and environmental laws in general. The availability of water and the regularity of supply are products of state apparatus that is biased in favour of the interests of identifiable segment of society. The policies responsible for this state of affairs hardly contain social equity at their root, and are reflective of the distribution of power in society.

In order that we may establish a fair and acceptable regulatory framework, it will be necessary for the new dispensation to be transformed in a manner that shift focus away from the topmost strata as presently constituted to the people. In terms of the political considerations it will be necessary to allow the regulatory and monitoring mechanisms to operate without pressure or influence from government or lobbyist so as to pave the way for a better enforcement process that will instill confidence in both private and public sector stakeholders.

Secondly, the linkage between political/bureaucratic power, corruption and economic power should be broken. It is possible to achieve this through the separation of responsibility for the building of water infrastructure from responsibility for production and distribution. The separation will also enhance the termination of inter-institutional conflicts and politics which has resulted in certain government agencies and upper strata citizens paying little or nothing for water consumption.

Thirdly, a regulatory framework based on participatory management will be fair to all. Participatory water resources management will have the people as its focus, and uphold the reality of their own priorities. The populace when properly educated on the need for proper water use and management, and when made subjects of policies and laws within the framework of a people oriented water resource management will willingly cooperate with regulatory authorities to the satisfaction of both private and public sector operators.

Fourthly, the process of enforcement itself must be fair and just. It must not be seen to tilt in favour of the high and mighty in society. The balance of approach in regulatory practices will improve the process of sustainable enforcement which will in turn elicit social responsiveness and acceptance to both private and public operators. This will in the final analysis, help preserve present resources, without extenuating sustainable development goals for the use of future generations.

Specifically on sanitary regulation, the Federal Environment protection Agency Decree, 1988, is comprehensive. With regard to water, there are in it provisions prohibiting the indiscriminate disposal of waste in the Lagoons and waters in Nigeria. Poor sanitation and waste water treatment. Inadequate solid waste disposal and stormwater drainage constitute some of the problems affecting water quality and the same time posing health and welfare threats throughout the country. The Environmental Act does not seek to distinguish between private and public sector activities. It is therefore submitted that scrupulous application of the provisions of that law, will go a long way in maintaining high water quality standards in Nigeria.

Conclusion

The general welfare of the Nigerian nation requires that the water resources of the country be put to beneficial use to the optimum level of which they are capable; that wastage or unreasonable use or unreasonable method of use of water be prevented. The conservation of water and the preservation of quality of such water should be exercised with the objective of attaining the reasonable and beneficial use thereof in the larger interest of the people, and that funds – Public and Private – for promotion and expansion of the beneficial use of water resources should be invested to the end that serves the best interest and welfare of the people. Water is among the basic resources of Nigeria, and subject to appropriation in accordance with the provision of law; the control and development, as well as the use of water for all beneficial purpose should remain vested in a “National Water Commission”; which in the discharge of its functions should take such measures as shall effectuate full utilization, conservation, and protection of Nigeria’s water resources.

The take-off of the newly established National Environmental and Sanitation Regulatory Agency (NESREA), charged with responsibility for water quality standards, pollution control , arrest of environmental and wetland degradation among other functions, may be cited as representing a welcome development in the allied areas of water resources and environmental management.

Nevertheless, let it be said that the best water resources law and environmental management strategy must be backed by effective regulation, enforcement and implementation in the field. This conclusion is reached in great earnestness, because many welfare legislation and schemes in Nigeria have remained cloistered virtues or slumberous in effect. The larger interests of beneficial use of water and economic prosperity demand that a clean, viable and sustainable national water resources management and administration be preserved through legislative and institutional methodologies, at once dynamic, and reformatory, but always motivated and moderated by the felt necessities of the times. This done, the present will bequeath to the future a rich water legacy capable of enduring unto many generations ahead.

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