



## Managing Water Resources in Nigeria: Global Thinking Versus Local Realities in the Cross River Basin

by

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### Abstract

*Water resources management has passed through many stages over the millenium. In the process, Integrated Water Resources Management (IWRM) was discovered and embraced as a panacea for the world's water resources problems. Many countries in the developing realm have adopted IWRM with measurable success. Experiences in the developing countries have never come out very clear. This study attempts to have insight into how the general principles of IWRM performs at local situations in Nigeria. The study employed semi-structured interviews, focus group discussions, case studies and stakeholder meetings to examine the implementation of IWRM in the Cross River Basin (CRB), Nigeria. Secondary data sources on the situation at other river basin development authorities in Nigeria were also used to compare issues with the CRB. A number of local realities which challenge the implementation of IWRM were noted to include regional variations in the ecological circumstances and lack of sensitivities to such variations by policy makers, complex institutional problems and the absence of adequate knowledge of IWRM by implementing authorities. It was argued in the paper that IWRM itself cannot bring solution to water resources management unless the principles are effectively adapted to suit local circumstances.*

**Keywords:** IWRM; CRBDA; local circumstances; institutonal problems, human capacity.

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### 1. Introduction

Nigeria's effort at managing her water resources since independence is traceable to the early 1970s when the first two RBDAs were formally established by the federal government in 1973. These were the Chad Basin Development Authority in the northeastern part of the country and the Sokoto-Rima Basin Development Authority in the north western part. These two river basin development authorities later gave rise to the

promulgation of the RBDAs decree of 1976, which was more a response to the need for integrated river basin development. Consequently, nine additional corporate bodies, resulting in eleven river basin development units were established as follows:

- a. The Sokoto – Rima River Basin Development Authority
- b. The Hadejia – Jamaare River Basin Development Authority
- c. The Chad Basin Development Authority
- d. The upper Benue River Basin Development Authority
- e. The lower Benue River Basin Development Authority
- f. The Cross River Basin Development Authority
- g. The Anambra – Imo River Basin Development Authority
- h. The Niger River Basin Development Authority
- i. The Ogun - Oshun River Basin Development Authority; and
- j. The Benin – Owena River Basin Development Authority.
- k. The Niger Delta Basin Development Authority

The 1976 RBDA decree also made provisions for the establishment of the national river basin development coordinating committee with the express purpose of advising the government on the technical and ecological feasibility for evolving integrated water resources management and other related issues. Decree number 87 of 1979, section 4 identified the functions of RBDAs to cover a range of issues related to comprehensive and multi-purpose water resources development and use, flood, erosion and pollution controls, water supplies, and the development of essential water infrastructures (dams, boreholes, irrigation schemes, etc). The RBDAs were also mandated to resettle persons affected by the works and schemes run by the authorities. Based on the objectives and plans for the RBDAs, it was clear the Nigerian government viewed the RBDAs as instruments not only for water resources development but also for agricultural and rural development.

The Cross River Basin Development Authority (CRBDA) happens to be one of the RBDAs that were carved out to perform the above listed functions in its area of jurisdiction. The CRB has a tropical rainy climate with high rainfall (varying between 1250mm and 4000mm per annum depending on location); high temperature (between 22°C and 30°C) and high relative humidity. There is immense regional variation in the hydrological characteristics in the basin. Areas in the southern part of the basin have relatively abundance of water resources, while areas in the northern counterparts are not so well endowed. The basin economy is largely agrarian. Okoji (2001) estimates that well over 80% of the people in the CRB are involved in the production of food and industrial crops, ornamental and medicinal plant, as well as keeping animals. Agricultural practices in the basin are highly season dependent, which is one of the reasons why the CRBDA was established. Its creation was an opportunity for the management of water and related resources in the basin areas.

Several years after the creation of the CRBDA, Akpabio (2006a, 2006b, 2007a and 2007b) and Akpabio et.al (2007) have observed daunting performances of the CRBDA in the implementation of the mandates assigned to it. This paper attempts to identify and examine the factors that pose as difficulties and challenges in the implementation of

IWRM in the area. Secondary sources of information were also made to analyse reported experiences of other RBDAs in the implementation of IWRM in Nigeria considering the uniformity and similarity in their mandates. Primary data came mostly from semi-structured interviews, case studies, stakeholder meetings and observation and were useful in examining in detail issues bordering on the implementation of IWRM in the CRB. Other supplementary information and data came from secondary sources and were mostly extrapolated from the experiences of other regions of Nigeria with the same mandates as the CRBDA. Experiences were compared and lessons extrapolated which formed the basis for a final discussion. Considering the vast diversities in physical, socio-economic and ethnic characteristics in Nigeria, a study that draws data from only one region of the country may not adequately reflect the micro-ecological variations in the entire country. This notwithstanding, this study promises to open up issues and set the pace for future research in this area. As a prelude to discussing the challenges in the implementation of IWRM in Nigeria, the paper deems it necessary to present an overview of the general performance of IWRM in Nigeria.

## **2. Performance of IWRM in Nigeria: A Brief Review**

Across Nigeria’s ecological zones, the management of water resources and the implementation of IWRM differ depending on ecological circumstances. While the scope of activities in the north seems to be total ecological view, the situation in the south, sounds different with single purpose view (Table 1). Akpabio et.al (2007) links such performance differences with a number of factors such as differences in the hydrological and water resource abundance between the two regions. While regions in the north suffer serious water scarcity, the south commands abundance in the availability of the resource. It is logical from this point that user interest and participation, cost recovery, funding commitment and management efficiency is bound to be naturally and spontaneously very strong in the north than the situation in the south as illustrated in Table 1.

**Table 1 Summary of Conditions and Performance of the RBDAs in Nigeria**

Performance Indicators	North	South
Scope of Activities	Total ecological view	Single purpose view
Stakeholder participation and interest	Very High	Very poor
Key Water Users	Farmers, pastoralists, domestic water users & industrial water users	Generally domestic users and very insignificant interested farmers
Water Users Associations (WUAs)	Very strong WUAs	Weak and, in some cases, non-existent
Cost Recovery on investments	Very well structured and enforceable	Highly impracticable and difficult to enforce
Management Scale	Relatively decentralised because of multi-stakeholder interests	Highly centralised because of poor stakeholder interests
Average Annual Total	512mm	3000mm

Rainfall		
Water Demand & Supply	Demand exceeds supply because of low and variable rainfall	Supply exceeds demands because of high and abundant rainfall
Private scetor participation	Partnership is very strong with the private sector	Not common
Political commitment	High local, state and federal government commitments/interests	Political commitment at all levels is weak and not backed by action
Funding Attention	Consistent at various levels of governments	Very irregular
Inter-agency collaboration	Strong and working	Very weak and sometimes non-existent
Staff and Technical Capacity	Fairly good, but most staff need training and exposure	Very poor
Autonomy of Basin Authorities	Relatively good	Poor
Management Efficiency	Strong	Weak

Source: (*Various?*)

The general framework for the control and management of Nigeria's water resources is the Federal Ministry of Water Resources (FMWR). The ministry is an institutional framework supported by the RBDAs and the National Water Resources Institute. The general mission of the federal ministry is to harness underground and surface water resources for irrigation, recreation, navigation, hydropower generation, and water supply for domestic and industrial use. Its specific duties include the formulation of national water resources policies, the implementation of a water resources master plan for the development of dams, irrigation and drainage, water supply, soil erosion and flood control as well as hydrological and hydro geological activities. In addition, the ministry is required to develop and support irrigated agriculture and reduce the nation's dependence on rain fed agriculture, and promote and sustain national water security by minimising unexpected and undesirable shortfalls in domestic food production and agro-based raw materials caused by the vagaries of weather. As part of its responsibilities, the federal ministry is expected to co-ordinate the development and utilization of water resources for irrigation and water supply; develop a centralised water supply and sanitation monitoring and evaluation programme for the country; develop programmes and policy towards surface water storage schemes; and develop guiding principles for dam construction nation-wide. Special attention is to be paid to water resource development in the rural areas in connection with which the federal ministry is directed to formulate and support a national rural water supply programme with a national on-farm storage programme emphasising the involvement of local communities. Twelve RBDAs assist the federal ministry of water resources. The activities of the RBDAs are subject to the authorities of the state governments within their area of jurisdiction. Although the authorities are authorized to make byelaws for the management of irrigation schemes and regulating the

use of water, such byelaws are unenforceable unless confirmed by the National Council of Ministers.

The government also created the National Water Resources Institute to promote and develop training programmes and courses in water resources and to advise the government on water resources needs and priorities. Under section 2 of the National Water Resources Institute Act (C.A.P 2841), the Institute is authorized to: a) perform engineering research functions 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; b) perform such ancillary services on planning of water resources management and river basin development and produce necessary codes of practice in waterresources engineering related to and suitable for Nigerian conditions; c) promote the establishment of a uniform national data collection system relating to surface and sub-surface water resources; d) provide for the training of engineers and technicians on short courses and formulate programmes of work in the field of water resources; establish and maintain a waterresources library, documentation and conference centre; e) publish or sponsor publication of water resources journals; and f) promote co-operation in water resources development management with similar bodies in other countries and with international bodies connected with water resources management and operations". The situation, as it is at the moment, is such that the National Water Resources Institute operates without linkages with the RBDAs.

In his critique of IWRM, the Biswas (2004, cited in Akpabio et.al, 2007) questioned the practicability of IWRM in meeting the water needs of societies with diverse socio-cultural, physical, economic, technological and legal arrangements. Similarly, Akpabio (2007a) and Akpabio et.al (2007) have argued that IWRM should not be mechanistically applied for water resources management considering the huge differences in local circumstances and contexts of operation. Arguments such as these have set the pace for further research on the continued relevance of IWRM as a panacea for water resources management. This paper, therefore attempts to build on these arguments by examining the challenges in the implementation of IWRM in Nigeria using some brief insights of some local management activities.

### **3. Challenges in Nigeria's Water Resources Management**

Having reviewed the general practice and performance of Nigeria's RBDAs, it is clear that the original mandates imposed on the authorities have not produced the desired results in some basin authorities, while in others, there seems to be a complete failure. Several factors are responsible for such irregularities. Therefore, this paper uses the case of the CRB to discuss these issues as challenges that need some policy rethinking. Such challenges are classified under ecological and institutional factors.

#### **3.1 Ecological Challenges**

IWRM has been promoted globally as ideal concept for water resources management. However, this is not enough to assume perfection in every circumstance as regional ecologies of countries and regions vary in most circumstance. Coming back to

Nigeria, it sounds reasonable to argue that our policy makers had assumed a uniform ecological circumstances for all the eleven ecological units that have come to be named river basin development units. As a result of such a blanket assumptions, a uniform mandate was however imposed on the RBDAs without thoughtful considerations to any form of variations that characterise these units. For instance, there is constant water problems and scarcity in the north that its management is always of serious interest to every stakeholders. In other words, the scarcity value of water is much appreciated in the north, giving rise to strong water user groups (WUAs) and investment opportunities. The existence of RBDAs in the north is thus facilitated and sustained by the interest of the stakeholders in the region. Same condition cannot be said to be prevailing in the southern regions of Nigeria. This explains why RBDAs in the south find it difficult to successfully implement its programmes and projects. Since water is not much of a problem in the south, user interest is not strong and it is thus very difficult to recover cost of investments on any water related projects by RBDAs. Based on these contrasting ecological circumstances of Nigeria's regions, it is reasonable to argue that IWRM seems most desirable in the northern region than the southern region. The current situation in Nigeria makes it compelling to argue that when the idea of IWRM was mooted, it is possible that variations in the hydro geological characteristics and water resources of the country were not adequately considered. This resulted in designing a uniform mandate and function to the RBDAs. Unfortunately, local contexts and circumstances differ and these shape the operation, policies and performance of each of the RBDAs. At the moment, there seems to be no flexibility in implementation plans of the various authorities considering their differing circumstances and situations. Are and Fatokun (1984) have noted some scenarios in Nigeria's river basins when they observed that some 'projects', which took years of painful feasibility studies, aerial photography and detailed engineering efforts to design cannot be implemented due to poor funding and absence of user interest. While river basins in the north have high prospect of cost recovery on investment, the same cannot be said of similar institutions in the south as low prospects of cost recovery on investment cannot sustain the practice of IWRM. Specifically taking the Cross River Basin as a case, Akpabio (2007a) reported high cases of under utilization of all irrigation project infrastructures and also noted that virtually all water resources projects of the basin authority are subsidized at over 99%, a situation that generates serious funding problems for the authority. People do not see the need to pay for water or for use of any water related projects as there are always natural alternatives. In this case, the performance or other wise of a water project depends on interests, needs and the value for water resources among the people.

### **3.2 Institutional Factors**

By institutional factors, the main interest here revolves around rules and responsible authorities, management modes and rights, funding and political commitments, among other issues. Institutional factors present serious problems to the goals of IWRM practice in many ways. Using the Cross River Basin as a case, Akpabio

(2006a) observed that there are five different federal ministries which are either directly or indirectly involved in water resources exploitation and management. These include the Federal ministries of Water Resources (FMWR); agriculture and natural resources (FMANR); environment (FME); power and steel (FMPS); and rural development (FMRD), with administrative duplication in each of the states within the CRB. The CRBDA has the statutory responsibility of managing the water resources in the basin on behalf of the FMWR (Decree 101 of 1993). Akwa Ibom and CrossRiver states (the two states making up the CRB) share in management responsibilities within their respective jurisdictional domain, using their respective state edicts. Rights and management responsibilities are further fragmented to the 48 local government areas (which operate with byelaws) within the two states, in addition to private individuals, multinational organisations, NGOs, federal government agencies (e.g., NDDC, PTF, among others) and political representatives constituency project development. These layers of administrative bodies are constantly engaged in unhealthy rivalry between and among themselves, with no iota of coordination attempt. The result is duplication of water resources schemes at every street and community, with the end result being abandonment and vandalism. At the first water resources stakeholder workshop organised by the CRBDA on 3<sup>rd</sup> March, 2005, issues of project duplication was raised at every discussion, but with no clear idea on how to resolve it. A case was cited whereby a certain community had six water schemes bearing different funding agencies while some others do not. Imposition of water schemes was noted to be more political than needs, which explains why most of the CRBDA water schemes are vandalised and abandoned, especially where they are not needed. It is often argued (Akpabio et. al, 2007 and Akpabio, 2006a) that decisions on location of water schemes and irrigation projects in the CRB is not often guided by transparent processes, rather the outcome of political manipulation and endless manouvring. There are endless cases of inter-agency competition and the need to corruptly influence projects for personal and selfish gains through “contract inflation”, “sub-contracting of already contracted job” as well as sub-standard job execution.

There is also the confusion relating to the country’s land use decree of 1978. In principle the land use decree vests land ownership on the government, with the aim of promoting unhindered access to land for development purpose. In practice, the government only has interest when there is need for development. The important issue about the land use decree as it relates to the implementation of IWRM borders on the inability of the decree to straighten the ambiguity surrounding the ownership and exploitation of groundwater resources. Problems often arise when attempting to plan the overall water resources of an area. Since land is not separated from water, there is often the problem of having to contend with the powerful interest of communities and individuals as in when the CRBDA plans irrigation schemes. Such is currently the case in most CRBDA irrigation projects. There is always high level of hostilities in project communities as well as general absence of cooperation especially in the area of cost recovery. At Abak, in particular, native owners of the project lands are hostile to giving farmland access to alien farmers. They are not willing to pay for any service of the

CRBDA as well. These generate conflicts and restiveness, obstructing every amount of progress the CRBDA could make in the area. Currently, same scenario is replaying at every other project areas of the basin authority with the natives agitating for compensation and free involvement in every activities.

The problem in the CRBDA is much worsened by the general poor funding of the authority. This reflects the lack of government commitment to integrated water resources management. For instance, some projects that were identified for development since early 1970s (such as Nkari earth dam) could not take-off beyond design and site clearing. Man power development and staff capacity is very weak and cannot in any way help sustain the goals of integrated water resources management for which the CRBDA was set up to implement. Funding problem may be a little minimized in river basin authorities in the north where user and stakeholder interest is relatively stronger, but the same cannot be the case in the south where stakeholders and user groups are so disinterested.

Apart from specific cases illustrated with the Cross River Basin, it is clear from several studies that the general institutional arrangements in Nigeria has not lent the desired environment and the needed support for the implementation of IWRM. This is seen in Salau's (1990) report on Gongola's basin and Udofia's (1988) reports on the Cross River Basin as well as other studies making references to the general political and economic change and instability (Mitchell, 1990); poor funding (Okarfor, 1985 & Are and Fatokun, 1984); man power problem and general project under utilization (Akpabio, 2006a); corruption and many other institutional problems (Adams, 1985 & Mitchell, 1990). There is also the problem of insufficient understanding of the principles, workings, potentials and meaning of IWRM by the various implementation bodies. Staff perception of their duty in most river basin authorities in Nigeria seems to be "mainly that of wait and implement or monitor" federal projects at their ecological domain. The needed technical, managerial and administrative capacity are not there. In most cases, the junior level staff (cleaners and drivers) form over 80% of staff nominal roll, as in the CRBDA (Akpabio, 2006a). Such attitudes and administrative structure defeat the essence and goal of river basin autonomy and ecological responsibility that the idea of IWRM places on the staff.

The above institutional factors are complicated by the invasion of ethnic politics in what is largely meant as purely technical and ecological matters. In a typically multi-ethnic society such as Nigeria, the decisions on water resource project allocation and management are taken on the basis of ethnic politics to favour a certain group or region than in the overall interest of the ecological system. Given that the north has enormous water scarcity problem is not enough to neglect the southern interest which has abundant supplies. Such seems to be the politics in Nigeria's river basin management. Holistic and coordinated development of the country's water resources have given way to ethnic-based politics especially in deciding which river basin is to be funded and which is not to be funded. With this trend of "patronage politics", it becomes very difficult to realize the goal of achieving a coordinated development of the country's water resources. At a point Nigeria was thinking of inter basin water transfer from the Gongo basin to serve the



interest of the water scarced regions, when same resource is lying wasted, highly undeveloped and recklessly exploited in the south.

#### **4. Conclusion**

Integrated water resources management is an umbrella for sustainable management of water and related resources. The paradigm has been successfully applied in many countries in solving their water resources problems. In Nigeria local circumstances have posed disappointing setback to the ideals for which the concept stands for. There seems to be insufficient understanding of the dynamics of IWRM. If the idea has the likelihood of producing efficient results in the northern geographical regions, it is then absurd to think the same idea will hold in the south. This lack of understanding might probably have informed government to set up a uniform functions for all the RBDAs in Nigeria. As can be seen in the discussion at various levels of this paper, there are peculiarities of local situation that may, at best, create a convenient environment or at worst a setback for the implementation of IWRM. For instance the peculiar characteristics of the northern environment could generate the needed impetus for user and stakeholder interests which could sustain the implementation of the idea. Same condition may not be applicable to the circumstances in the southern regions, which have clearly contrasting hydrological setting, whereby there is abundant rainfall and water resources availability. Given these geographical diversities, the role of policy makers would be to design a general framework of operation while the RBDAs are granted autonomy to work at their plans for the development and management of the water resources in their respective regions. Still using the CRBDA as a case, the study has observed that the basin authority is, in principle, incharge of its ecological domain but without supportive enforcement powers. It merely exists as a “toothless bull dog”. Its powers exist and in conflict with other authorities, rules and legislations, most of which are embedded in states, local government, other federal organs and, in some cases, individuals. In the present circumstances, the CRBDA has no power of regulating and enforcing water resources exploitation in the basin. This seems the same trend and characteristics that are common to other RBDAs in Nigeria. There are, however, some differences especially in the northern areas, where water scarcity poses serious challenge to management authorities. In such case, cooperative management is spontaneous as agencies and individuals have seen the need to present a common and united effort in tackling their water problems. If RBDAs are to produce the desired results in the south, there is urgent need for institutional reform. For the CRBDA, such reform should be in the direction of granting full management autonomy and control over the water resources in the basin. This will give it the necessary supporting power and authority to centrally coordinate the policies and practices of the many other organizations with responsibilities for land and water and regulating the development, allocation, use and disposal of water using permits, licences, monitoring and enforcement within its domain.

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