

Policy Support Framework for Construction of Sustainable Water Resource Protection in Nigeria

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Abstract:- Development of policy support framework for sustainable water resource protection in Nigeria has become very necessary due to the fact that the water sector has never implemented any water resource protection plan even in the face of re-occurring epidemics of water related diseases in Nigeria accompanied a corresponding high mortality rate. The formulation of this policy support program gained its justification from the results from the primary data showing that water resource protection was only proposed by ministry of water resource but never existed as a policy neither has it been implemented or enforced by the sector. This research also gained its justification from the secondary data gotten from the Ministry of health, which shows high mortality and morbidity rate. Based on these reasons, the pre-plan, development of water resource protection and the post-plan for sustainable water resource protection were developed. In conclusion, this research paper recommended the acceptance and implementation this policy support framework as a valuable tool that will help in developing policy for sustainable water resource protection. Therefore, kick starting of such projects in Nigeria's water sector will contribute a lot in drastically reducing the pollution and degradation of water resources.

Key words: Policy, framework, water resource, sustainable, protection, Nigeria.

I. INTRODUCTION

Global water issues ranging from scarcity low quality and quantity for distribution, and water bodies used as dumping ground for pollution discharge have been issues of global concern considering the disparity in water availability for human use in different parts of the world. TWAS (2002) in its publication on "safe drinking water" specified that up 75 percent of morbidity issues in developing parts of the world are traced to consumption contaminated water from polluted sources. They also stated that out of the present global population of about six billion, over one billion do not have best quality water to satisfy its water needs. Water bodies serve as dumping ground for disposal of waste because about 2.5 billion people in the world a deficient in best sanitation equipment and practices, TWAS (2002). They also specified that these pollution and other water issues give rise to high global infant mortality of up 20,000 per day. Therefore, it becomes serious necessity to tackle these issues through individual regions especially within those parts of the world that are highly vulnerable to water issues like, China, India, Kenya, Ethiopia, Nigeria and Peru covering about 2.8 billion of the human population, that depend on only one percent of

the global fresh water located within the aquifers, lakes and rivers. According to Luis M.F (2015) Change in the global societal environment affects everyone despite the causes of such change though much effects would be felt by the developing world lacking portable water supply and sea level rise. Thus the need arises to develop for this research that will help in solving this water issues.

Nigeria records about 57 million persons from its population without access to best quality drinking water, about 130 million people do not have access to best quality sanitation facilities, explaining why the infant mortality in the country reaches up 45,000 per annum especially in infants within the ages of 1 month to 5 years and the high mortality is caused by diarrhea diseases gotten from polluted and contaminated water sources. Water aid Nigeria (2016). Part of Nigeria recorded about 3000 cases of cholera and 781 deaths from the same disease in 2010, the same year in that, River state recorded 314 cases of cholera with 13 deaths, Cross River recorded 319 cases with 8 deaths, Osun recorded 87 with 2 deaths, Ekiti recorded 381 with 0 death, Adamawa recorded 1,816 with 104 deaths, Bauchi recorded 7,783 with 175 deaths, Borno recorded 5,822 with 264 deaths, Gombe recorded 1,998 with 113 deaths, Gigawa recorded 632 cases and 35 deaths, Kano recorded 513 with 27 deaths, Plateau recorded 526 with 29 deaths, Taraba recorded 502 with 35 deaths, Yobe recorded 2,009 with 129 deaths, Zamfara recorded 1,458 with 58 deaths, Kaduna recorded 301 with 27 deaths, Kastina recorded 2,128 with 162 deaths, Sokoto recorded 51 cases of cholera with 1 death case. Ajoke et al (2012).

Nigeria being one of the most vulnerable in global water issues needs serious re-structuring in the area of water resources, especially for the sake of provision of best quality and quantity of water for its citizens to avoid regular cases of high mortality and morbidity from epidemics of water related diseases. Therefore, the need arises for development of policy support framework known as "sustainable water resource protection zone" that would help in protection of groundwater from pollution and subsequent contamination that regularly brings about the epidemics of water related diseases. This policy support framework has become necessary due to the vacuum in the major legal regulatory framework for water resources in Nigeria, "the water decree 101 of 1993" National water policy of Federal Republic of Nigeria, NWPFRM (2004). It also stated that this principal legislation governing

the use and pollution of water resources in Nigeria is not up to the acceptable standard for upcoming challenges of water resources management, likewise the recent requirements for water policy. The ministry therefore called for revisiting of the legislation in order to restructure it, to meet escalating water management issues in the country. They suggested some central issues for a new water legislation like, creation and issuance permits to access water resources, establishment of water protection zones, payment of fees for water abstraction and fine for pollution of water bodies National water resource master plan (1995). Till date, the new legislation has not been made and all the water issues arising from this legislative vacuum has made Nigeria very vulnerable to numerous water related diseases especially during rainy season when flooding takes place within the flood prone regions. The delay in creation of this new legislation has prompted the development of this policy support framework that would help the government in restructuring the already existing deficient water resources regulation.

II. METHODS

The data for this research are both primary and secondary sources. The primary data are results from questionnaire distributed to stakeholders from Federal Ministry of water resources, (FMWR). Thirty questionnaires were distributed to thirty staff of the ministry with four questions with options on (agree, strongly agree, disagree and strongly disagree). The secondary data were collected from Abia State ministry of health while the results were analyzed using excel.

III. RESULTS AND DISCUSSIONS

The results from the Questionnaires will be displayed on Fig 1 below, representing responses to the following statements (A) there are existing water resources protection policy in the ministry. (B) There are proposals for establishment of new water resources protection policy. (C) There is an implementation process on water new resource protection policy. (D) There is an ongoing enforcement of water resource protection policy. The alphabets (A-D) represents questions A-D as indicated in brackets for statements regarding water resource policy for federal ministry of water resources (FMWR).



Fig 1: Results from questionnaire distributed to the federal ministry of water resources.

The first statement (A) specifies that there is an existing water resource protection policy, received the following responses; six persons agreed, one person strongly agreed twelve persons disagreed and eleven persons strongly disagreed which means that 23 persons agreed that there is no such policy of water resource protection in the ministry of water resources.

The second statement (B) which states that there is a proposal for establishing policy on water resource protection, received the following responses; Nine persons said they agreed, eighteen persons said they strongly agree, one person disagreed and two persons strongly disagreed. This means that 27 persons agreed that there is a proposal for establishment water resource protection policy in the ministry of water resources.

The third statement (C) which specifies that there is an implementation process on water new resource protection

policy received the following responses; three persons agreed, two persons strongly agreed, five persons disagreed and twenty persons strongly disagreed, which means that 25 persons disagreed on the existence of any policy implementation on water resource protection.

The fourth statement (D) which specifies that there is an ongoing enforcement of water resource protection policy received the following responses; two persons agreed, one person strongly agreed, ten persons disagreed and seventeen persons strongly disagreed which means that 27 persons disagree with the statement.

In conclusion, since 27 persons agreed with statement (B) that it is a fact that there is proposal in the ministry for establishment of water resource protection zone, 23 persons disagreed with statement (A) 27 persons disagreed with statement C and 27 persons disagreed with statement (D), it

the means that there is need for establishment of policy support framework for sustainable waster resource protection in Nigeria.

3.1: Morbidity from water related diseases in Abia State, Nigeria

The data that were used for analysis shown on the graph below were acquired from Abia state Ministry of Health in the year 2014.

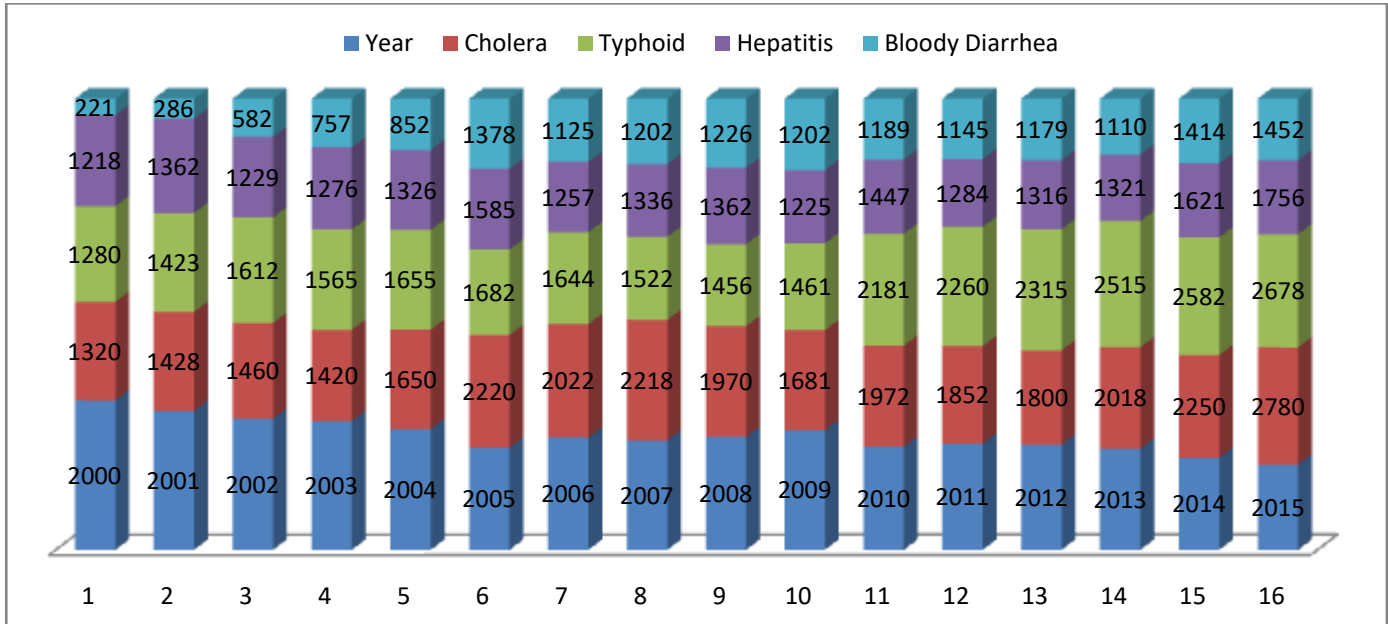


Figure 1-2: Occurrence of water related diseases in Nigeria from year (2000 to2015)

The graphical representation of occurrence of Cholera, Typhoid fever, Hepatitis and Bloody diarrhea shows there were increase in diseases occurrence with increase in the number of years. This brings up the concern about developing a policy support frame for water resource protection in other to reduce the high-level pollution and contamination of these water sources in Nigeria.

3.2: Mortality Rate from water related diseases occurrence in Abia State, Nigeria

The data that were used for analysis below was extracted from Abia State ministry of health in the year (2014) showing the death rate caused by occurrences of water related diseases in Nigeria. The data was secured for Cholera, Typhoid, and Hepatitis with the exception of Bloody diarrhea, which the ministry confirmed that they had no data on its mortality rate.

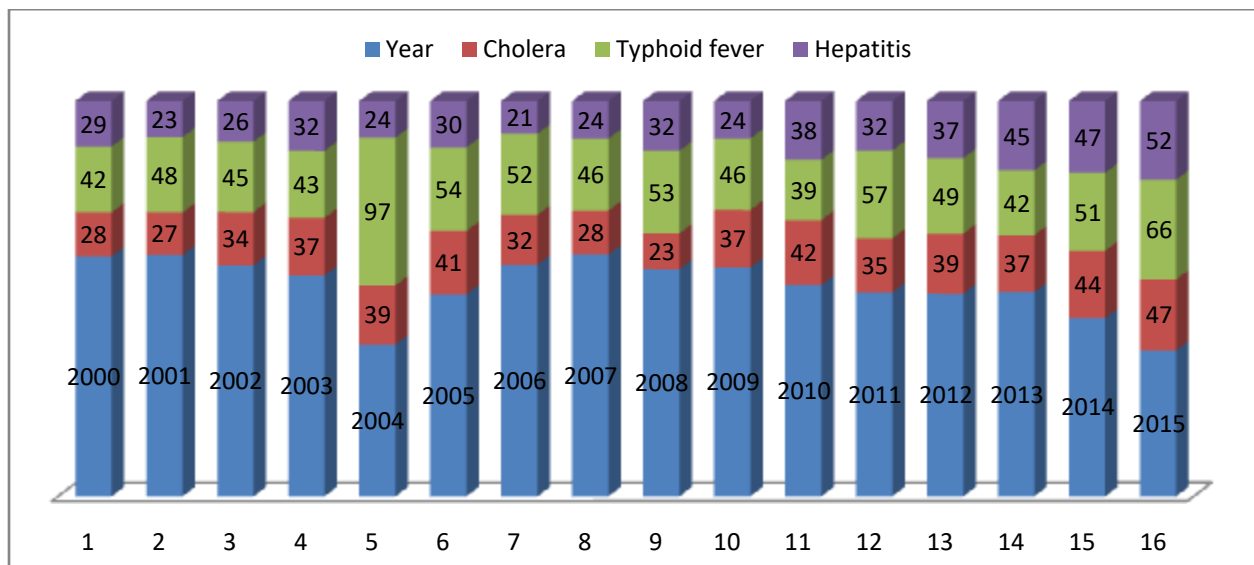


Figure1-3: Mortality rate on water related diseases occurrence in Nigeria from year (2000-2015)

The mortality rate shown above specifies how urgent, attention is actually needed in the water sector to formulate policy that would protect water resources in Nigeria. Thus the need to develop this policy support framework to fill the vacuum.

3.3: National water resource policies in Nigeria

According to Gbadegesin et al (2009) Nigeria experienced a serious drought during the year, 1960 which resulted in its response geared towards development of strategic plan for management and organization of water resource development after 10 years, giving birth to establishment of Federal ministry of water resources and River basin development Authority. They further stated that the country decided to do more to consolidate the programs that were lined up for the new establishment by forming a national committee and water boards at the regional level that will oversee the all issues regarding water resources in 1981 especially in areas of conservation and planning.

Federal environmental protection agency; FEPA (1989) in Gbadegesin (2009) specified that the Nigeria’s national policy on environment (NPE) came into existence in 1989 to extend its works to all sectors and ministries that oversee all environmental issues. The goals of NPE are as follows; (a) Delivering best quality environmental standard for good health of Nigerians, (b) sustainable Conservation of all natural resources that can serve the future generation, (c) Restoration , maintenance and enhancement of Ecosystem, (d) accommodation of international corporation and treaties to enhance transboundary natural resource management and discourage transboundary environmental pollution

The national water and sanitation policy (2000) in cooperated the rural communities in management of rural water and sanitation facilities which made the government to decentralize the powers of the state government on water and sanitation issues by creating more local government areas that will oversee the process. The body that was formed in the year 2000 has the responsibility of formulation comprehensive integrated water policy to used for the management of Nigeria’s water resources.

According to Akpabio (2012), there are so many policies, regulations and act on water resources and environment from the pre-colonial era till date and they include: The water works act, 1915 prohibiting water pollution from harmful pollutants,

mineral act 1917, Authorizes the head of state to make laws for prevention of water bodies, public health act 1917, prohibiting pollution of water and atmosphere, the oil in navigable waters act 1968, prohibiting water pollution and oil spillage, the petroleum act (1969), prohibiting pollution of land, rivers, lakes and other watercourses, land use act of 1978, government ownership of land and water resources, river basin development authority decree/ act of 1976, 1987 and 2004, ensuring and integrating comprehensive water resource development, environment impact assessment decree /act of 1992 and 2004, ensuring protection of physical and aquatic environment, water resource decree/act of 1993 and 2004, stating that all water resources is under the control of federal government, national policy on environment act of 1989 made for the protection of environment, 1999 constitution, gives every citizen right to assess water, national guideline and standard for environmental pollution and control act 1991, created to protect waterways from pollution, national affluent limitation regulation of 1991, meant for control and disposal of industrial waste into water bodies. Pollution Abatement in Industries and Facilities Generating wastes Regulation 1991, meant for industrial pollution control, Nigerian Industrial Standards for potable Water and Natural Mineral Water, 1992, for public health protection, National Environmental Standards and Regulations Enforcement Agency Act, 2007, meant for environmental protection, coordination and enforcement functions and Nigerian Standard for Drinking Water Quality, 2007, which was made for public health protection too.

The NWPFRN (2016) stated that new policy would be formulated on national water resource strategy for water resource assessment and planning that will help in protection, use, conservation, management, and development of water resources. This gives another justification to this research to develop the said policy support framework for water resources protection in Nigeria.

3.4: Policy support framework for water resources protection (WRP) in Nigeria

Figure 1-4 below show the concept that would be used in the development of water resources protection in Nigeria. This will involve the development of pre-plan as step one, development of water resource protection model as step two and development of post plan for water resource protection as step three.

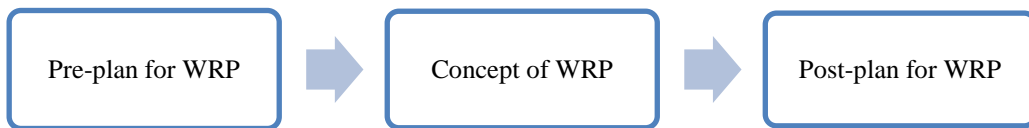


Figure 1-4: policy support framework for water resource protection (WRP)

3.5: Pre-plan for water resource protection in Nigeria

Figure 1-5 below shows the different steps involved in the pre-plan for water resource protection (WRP).

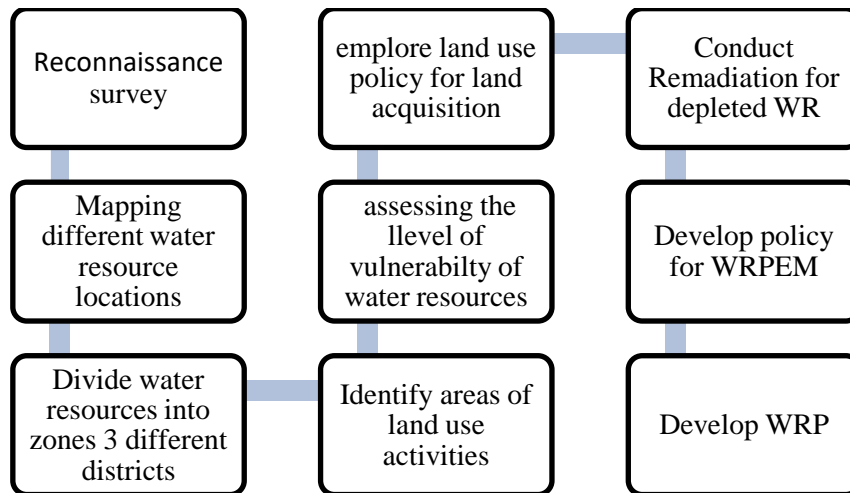


Figure 1-5 Pre-plan for sustainable water resource protection in Nigeria.

The first step in Pre-plan is site investigation of water resources to enable easy GIS mapping of all water resource systems, for delineation of water resources (WR) into different zones, in line with the hydro-geology of the area so as to identify the areas that are prone to risk from land use activities. This will enable the risk assessment of the area before land use act will be used for land acquisition of all water resources environment that will be protected. Subsequently, remediation of depleted water resources will be introduced. After that, there will be a policy statement for water resource protection, exploitation and management (WRPEM). This will lead to introduction of policy for water resource protection, (WRP) that will control the pollution and degradation of water resources in Nigeria and at the end (WRP) will be established.

3.6: Water resource protection in Nigeria

This research has adopted the concept of groundwater protection zone established by Germany in 1957. This German water act used in the zoning of system as mode of operation.

Zone I is classified as immediate protection zone, located should be 10 meters from water well, less than 20 meters in upstream direction of a stream and 30 meters for karst aquifer.

Zone II is classified as inner protection zone which should be 50 day travel time or less than 100 meters from well or spring which protects groundwater from pathogens that are microbiological and other disastrous contaminations.

Zone III A is classified as outer protection zone and zone IIIB covers the entire groundwater catchment area and protects groundwater from long distance contaminations like

contaminations from radioactivity. ACSAD-BRG Technical Cooperation project (2003).

Figure 1-6 below will show the different divisions for water resource protection in Nigeria.

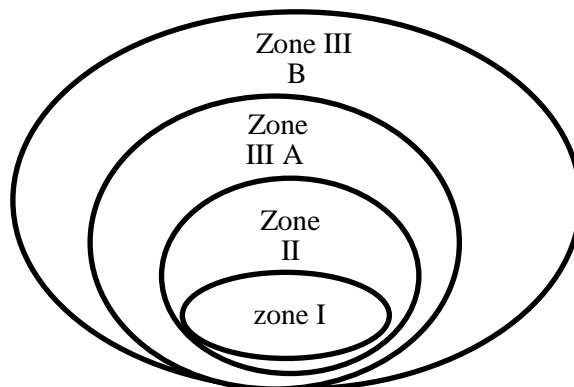


Figure 1-6: Concept of water protection zone

This research has introduced the inclusion of German concept of water protection zone as a part of its policy support framework for developing water resource protection for Nigeria.

3.7: Post-Plan for sustainable water resource protection in Nigeria

Development of post-plan for sustainable water resources protection has become inevitably paramount in the sustainability of contaminant free water resources that will drastically reduce the regular epidemics of water related diseases in Nigeria. This post-plan will basically focus on strategies that will integrate all the actors in the water sector into best management practices that will ensure proper coordination of the system so as to enhance efficiency in

control of standard water resource quality and avoidance of degradation that is globally accepted for human society.

The post-plan will also include the establishment of orientation program, geared towards educating the masses on proper land use measures that are favorable to water resource protection. It will also establish workshops that will focus on

training of staff, none staff and interested organizations, on maintenance and management of water resource protection and its related facilities through public private partnership.

Figure 1-7 below shows the Post-plan for water resource protection zone (WRPZ) in Nigeria.

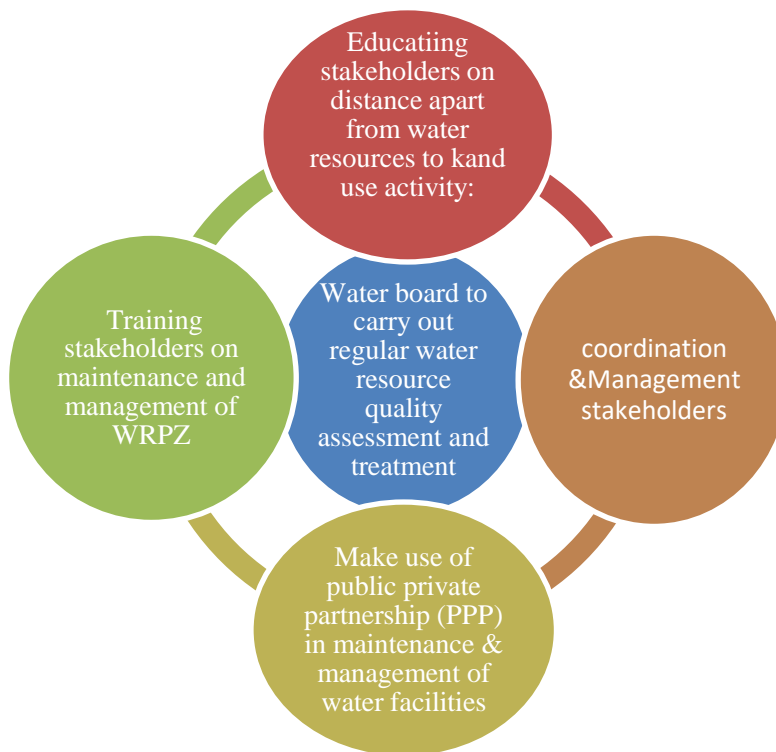


Figure 1-7: Post-plan for water resource protection in Nigeria

IV. CONCLUSION

The acceptance of this policy support framework will follow an implementation process that will involve a project of constructing block walls that will be used as demarcation from the acceptable distances stipulated in this research paper to the different locations of water resources in Nigeria that of utmost national, regional and local importance. It is also recommended the stakeholders in the water and environment sectors should consider the use of this policy support framework as a valuable tool for establishing policy of water resource protection zone, a project which has not been carried out in any part of Nigeria for the first time.

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