

# **THE EFFECTIVENESS OF THE LAW AND ENVIRONMENTAL POLICIES TOWARDS PROTECTING UPPER NIGER LAKE WETLANDS IN WEST AFRICA**

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## **ABSTRACT**

**Purpose of the Study:** The study analyzed the effectiveness of the law and environmental policy framework in West Africa for the protection of wetlands, specifically Upper Niger Lake Wetlands in West Africa. Countries in West Africa, like most developing countries, face the challenge of developing and implementing programs for sustainable management and protection of these wetlands.

**Statement of the Problem:** While most West Africa countries adopted environmental policies providing guidelines on the management and land use of wetlands, Upper Niger Lake wetland in West Africa is still subject to unsustainable land use by property developers and industries. The study employed correlational desk study research to evaluate the effectiveness of the environmental policy in relation to the Upper Niger Lake wetland Ecosystem.

**Methodology:** Both primary and secondary methods were used to assess the problem. Journals from Jstor, Google Scholar and UN agencies Development Partners' reports, were reviewed.

**Result:** The study revealed that despite West African countries such as Mali, Niger and Nigeria having environmental policies providing a framework for the conservation of wetlands, the policies are not effective in addressing some major yet specific challenges of wetlands in those countries, specifically the Upper Niger Lake wetland. This is because of some of the policy recommendations are vague and there is an ineffective framework for enforcement of the policy.

**Recommendation:** There is need for policy changes to the environmental policies to protect wetlands adequately and effectively in West Africa, specifically Upper Niger Lake wetlands.

**Keywords-** *Wetlands, National policies, Management, conservation and Adaptation, Climate Change, West Africa, Upper Niger Lake*

## INTRODUCTION

The Niger Delta wetland ecosystem is of high economic importance to the local dwellers and the nation in general. The region is rich in both aquatic and terrestrial biodiversity and serves as a main source of livelihood for rural dwellers as well as stabilizing the ecosystem. Tremendous changes have occurred recently in the Niger Delta wetlands due to anthropogenic activities, thus raising awareness on the need for effective monitoring, protection and conservation of the wetland ecosystem. Wetlands are considered most varied and dynamic ecosystems, and they are critical for human well-being and sustainable development (Bassi *et al.*, 2014). These areas significance as to the communities and one of the first ecosystems to be recognized by a multilateral worldwide environmental agreement on conservation, protection, and sustainable use in 1971. Wetlands ecosystems can be characterized as seasonal or permanent and are extensively distributed to form diverse habitats. The areas generally include swamps, peatlands, marshes, bogs, mangrove, coral reefs, ferns, lakes, rivers and similar areas (Wood, 2013). These areas are uniquely positioned between the terrestrial and aquatic environments, where the inter alia provide food and other materials, store water, improve water quality, sequester carbon and support biodiversity (Maltby *et al.*, 2009).

According to Mwakubo *et al.* (2015), West Africa Wetlands cover approximately 14,000km<sup>2</sup> of the country's land cover. They are among the most important ecosystems playing a vital role in socio-economic development in the country. They directly or indirectly contribute to human livelihoods and well-being through supporting, provisioning, regulatory and cultural services. The West African government has produced the West Africa Wetlands Atlas that maps the country's wetland resources. With this evidence, the government is promoting national programs that are in line with the indicators of the Ramsar Convention's National wetland policies (2010) and World Wildlife Fund (WWF) in minimizing harmful effects to ecosystems. In addition, there is also an ongoing nationwide inventory of wetland resources

Located on the Atlantic coast of Southern Nigeria, the Niger Delta lies within the lower reaches of the Niger river, extending between latitudes 05°19'34"N 06°28'15"E and 5.32611°N 6.47083°E (World Geodetic System, 1984). The average monthly temperature of the region is 27°C, and an annual rainfall ranging from 3000 to 4500 mm. There are two distinct seasons with the wet season occurring from July to September and the dry season from December to February (World Bank, 1995). The Niger Delta is made up of nine states (Figure 1) and home to some 30 million people, approximately 22% of the country's population (2006 census). The Delta is among the 10 largest in the world, with a coastline of about 450 km which ends at Imo River.

The region encompasses an area of 20,000 km<sup>2</sup> and is the largest delta in Africa and the world's third largest (Uluocha and Okeke, 2004; Ajonina *et al.*, 2008; Dupont *et al.*, 2000; Umoh, 2008). Over the decades, water discharges, sediment deposits and other loads across Southern Nigeria and beyond into the Atlantic Ocean has resulted in the formation of a complex and fragile Delta, abundant in biodiversity (Ogbe, 2005; Abam, 2001). About 2,370 km<sup>2</sup> of the Niger Delta area consists of rivers, creeks, estuaries and stagnant swamps. Approximately 50% of the Delta is covered with water accounting for 55% of all freshwater swamps in Nigeria (Ikelegbe, 2006; Umoh, 2008). The Delta mangrove swamp spans about 1900 km<sup>2</sup> as the largest mangrove swamp in Africa and about one third of the Delta consists of wetlands (Spalding *et al.*, 1997). The most commonly used method for delineating Wetlands is an expert-based approach using aerial photographs, topographic maps, and field-based mapping that are typically conducted

as part of site-specific assessment. Most of the studies employed Line transect, a sampling technique by which scientists record data regarding communities in an ecosystem.

Upper Niger Lake Wetlands services include; Store flood waters within wetlands, slows runoff, and reduce flooding damages/expenditures, Preserve natural drainage features, and enhance ground water recharge, Minimalize the need to construct, repair, maintain, or replace structural infrastructure, Reduce soil loss and erosion of stream beds and banks, and hold sediment in wetlands, Intercept pollutants and treat polluted water before reaching lakes, streams, and other water bodies, Provide spawning, nesting, and feeding areas for fish, waterfowl, and wildlife, and enhance biodiversity, Enhance scenic beauty and use of adjacent water bodies for biking, canoeing, boating, outdoor activities, Provide opportunities for outdoor recreation, open space, educational/research sites for local schools, and Improve ecosystem condition for water quality/quantity, wildlife/fisheries habitat, groundwater supplies. These services are important ant to only other communities within the Upper Niger Lake Wetland vicinity but contributor to the West Africa and to the Country.

Environmental Policy of West Africa was established in 2019, with aim to sustainability that is to offer better quality of life for present and future generations through sustainable management and use of the environment and natural resources. The policy outlines guidelines for managing the county's environment and natural resources, as well as ensuring that environmental considerations are incorporated into all county government policies in order to support and achieve sustainable development at all levels. Legal and institutional framework for good governance, Integrate environmental management with economic growth, poverty reduction, and improving livelihoods, Research and capacity development, Promote new environment management tools, Promote collaboration, cooperation, and partnerships in environment management, and Promote domestication, coordination, and maximization of benefit from Strategic Multilateral Environment Agreements are all included in the policy.

### **RESEARCH QUESTIONS**

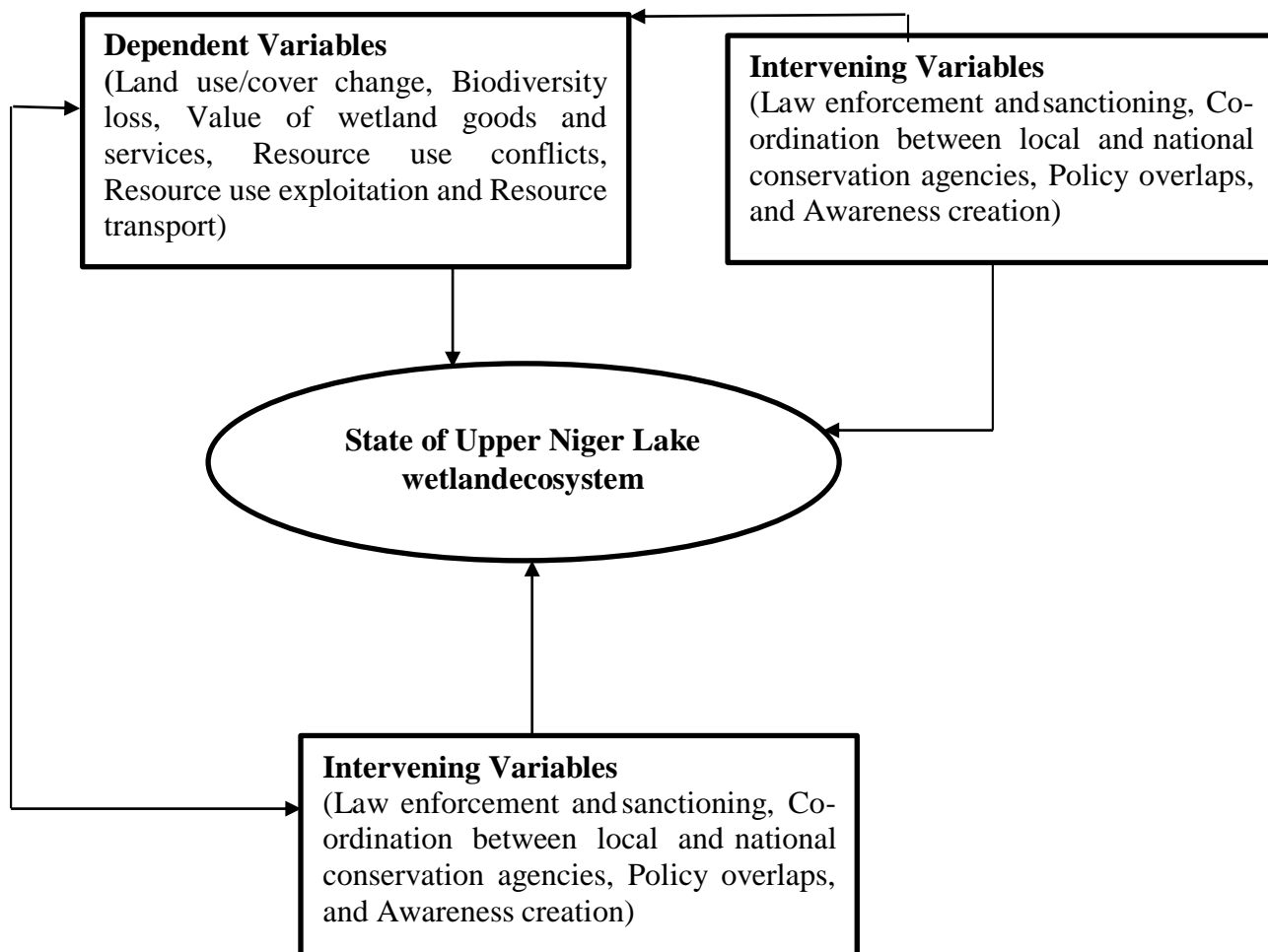
- i. What legal framework guides the conservation of Upper Niger Lake Wetland Ecosystem?
- ii. Have the West African countries' adoption of an environmental policies positively affected wetlands in West Africa?
- iii. What are threats to Upper Niger Lake Ecosystem Services?
- iv. What policy improvements if adopted will improve the conservation of Upper Niger Lake wetland?

### **THEORETICAL AND CONCEPTUAL FRAMEWORK**

Local planning initiatives are linked to wetlands protection, conservation, preservation, restoration, and management. Floodplain management, parks and recreation planning, land-use planning, transportation planning, stormwater management, water supply, point source pollution control, nonpoint source pollution control, watershed management, riparian protection, habitat conservation, and fisheries management are all examples of local efforts that can directly contribute to wetland conservation. In this study several scholars has adopted the two theories namely the social-ecological systems (Ostrom, 2009) and the driving force state response framework (United Nations (UN), 1996). Wetland resources which humans depend on for their livelihoods are embedded in complex social ecological systems (Ostrom, 2009). The complexity of wetland ecosystem service conservation in ecological (resource systems and resource units) and

social aspects (i.e., various users and governance systems) necessitated the application of these two theories to comprehend their interactions with humankind.

The United Nations Commission for Sustainable Development (UNCSD), 1995) applied the DSR framework to research local biodiversity state and conservation schemes, and the local communities and biodiversity conservation institutions relationships (Kuldna et al., 2009). The framework was used by the US Environmental Protection Agency (EPA) to examine the cultural, social, and economic dimensions of environmental and human health (Yee et al., 2012). In the study, the DSR framework is used to examine the pressures placed on Upper Niger Lake Wetland as a result of human activities, as well as how these pressures alter the state of wetland resources and the mitigating strategies that occur. The framework's strengths are its popularity, adaptability, and reliability, which allow it to be used to assist decision-making for implementing methods in planning policies in response to wetland resource loss in order to preserve their long-term viability (Spano et al., 2017).



**Figure 1: Conceptual Framework**

**METHODOLOGY**

The methodology applied correlational desk study research to discover the effective of the environmental policy, program and procedures on Upper Niger Lake wetland Ecosystem. This includes study area, sampling procedure and data from different secondary and primary sources. The study used the Sample size were obtained, involved valuation process in identification of wetland goods and services yielded by Upper Niger Lake Wetlands, administering both structured and unstructured to capture the quantitative and qualitative findings. While a variety of alternative methodologies are now being developed to estimate Wetlands extent at greater spatial scales, no systematic, complete, or coordinated measurement of Wetlands extents has been done to yet. Similarly, compared to many sophisticated countries like Canada, where field-based and other remotely sensed technologies are routinely employed, there has been virtually little assessment of Wetlands status in West Africa (Sass et al., 2012).

## **FINDINGS**

### *Policy framework guiding the Upper Niger Lake Wetland Ecosystem*

The environmental legislation framework in West Africa is marked by a series of legislations on environment protection which are scattered across different laws or Acts of Parliament. This is associated with various aspects of the environmental policy and legislative framework cutting across different institutions and different mandates in the respective sectorial agencies. This aspect in diverse laws has led to legal and policy conflicts earmarked with uncoordinated implementation of sectorial and management plans in natural resources management and environmental protection which has greatly affected sustainable management of riparian lands.

### *Changes that have resulted from the adoption of environmental policies*

Despite the adoption of Environmental policies, the situation in Upper Niger Lake wetland Studies indicates that the drivers of Upper Niger Lake Wetlands degradation and have been population growth and increasing economic development. These can be identified as the infrastructure development, land conversion, water withdrawal, pollution, overharvesting and overexploitation, and the introduction of invasive alien species. Clearing and drainage, often for agricultural expansion, and increased withdrawal of fresh water are the main reasons for the loss and degradation of inland wetlands such as swamps, marshes, rivers, and associated floodplain water bodies. Changes in flow regime, transport of sediments and chemical pollutants, modification of inland wetlands, and disturbance of migration routes have endangered many species and resulted in the loss of others. Agricultural systems and practices have exerted a wide range of mostly adverse impacts on inland and coastal wetlands globally.

The future of Upper Niger Lake Wetland seems to be at cross-roads between community livelihood support and biodiversity conservation. The threat includes pollution from both diffuse and point sources, Climate Change and variability, poverty manifesting itself as low income, knowledge and food insecurity portend serious and deleterious effects on the ecosystem integrity as well as the socioeconomic wellbeing of Upper Niger Lake Wetland-dependent communities. The degradation of this wetland has been aggravated by lack of a practical wetland policy and a gazetted inventory/map of West Africa's wetlands, resulting in social chaos characterized by encroachments into the wetland, overexploitation of wetland goods and uncontrolled human behaviour towards the wetland. This study takes into consideration two scenarios for the Upper Niger Lake Wetland, taking knowledge of the current pressures, threats and opportunities including the development and implementation of an integrated wetland management plan. These documents are strongly anchored on the views and values of sustainable development. The future pathway towards sustainable management and utilization of Upper Niger Lake Wetland resources is through participatory approaches, gender and culturally sensitive interventions and policy frameworks.

The community around the wetland enjoys benefits from ecosystem services. To some extent this people believe that their land is submerged in water and part of the wetland hence occasionally clear and grow their crops during severe drought. This is explainable, according to MEA, 2005, Upper Niger Lake Wetlands historically was restricted to the narrow strip along the shores of Lake Victoria and along the river channels. However, with the heavy rains experienced in 1962-1963, the wetland expanded landward resulting in loss of croplands, settlements and even lives. Today the community is engaged in activities including fishing in the wet season, livestock herding and seasonal wetland cultivation in the dry season. This study agrees that Upper Niger Lake wetland

is central for hydrological and ecological functions attached to the connectivity of the river and lake.

#### *Threats faced by Upper Niger Lake wetland*

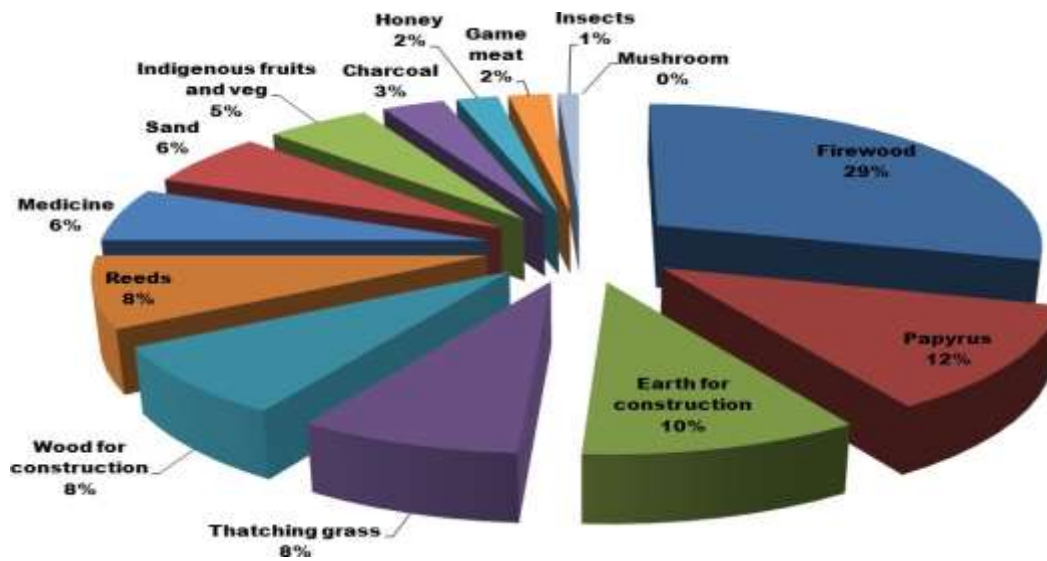
The private benefits of wetland conversion are often exaggerated by subsidies such as those that encourage the drainage of wetlands for agriculture or the large-scale replacement of coastal wetlands by intensive aquaculture or infrastructure, including for urban, industrial, and tourism development. It is evident that the benefits of conversion exceed those of maintaining the wetland, such as in prime agricultural areas or on the borders of growing urban areas. As more and more wetlands are lost there is need for intentional conservation of the remaining wetlands.

The evaluation of the other studies reveals that the feedback from the community on the current threats of Upper Niger Lake Wetland included; Encroachments and conversion for agricultural use, settlements and commercial developments, Quarrying and mining, particularly sand harvesting, Pollution from point and non-point sources such as car wash, industrial and domestic effluents, Sedimentation and siltation from unsustainable land use practices that cause erosion from upland areas, and Adverse effects of climate change. These threats have negatively affected the ecosystems causing extensive degradation, reduction in water quality and quantity as well as loss of goods and services. Majority in the community expresses that Wetland Management programs and policies are not effective identifying overlapping mandates, low levels of awareness and technical knowledge, conflicting or ambiguous legislations, Economic constraints, lack of incentive, Inadequate funding and Capacity, Corruption, lack of Political support, Misplaced government priorities, Lack of local stakeholder involvement, Lack of database and adequate inventory for Planning, Land tenure and Legal issues, Insufficient Compliance and Enforcement, and Climate change issues.

#### *Policy improvements to improve the conservation of Upper Niger Lake wetland*

The strategies put forward by respondents for improving Upper Niger Lake Wetland conservation included; Improve coordination of governments and programs, Increase public awareness and education, Encourage conservation on private lands through incentives, Increase the capacity of government and other agencies, Provide clear guidelines and update existing legislations, regulations and policies, Increase government accountability, Promote sustainable conservation best practices and local stakeholder involvement, Identify, demarcate, delineate, map and document riparian lands, Improve land tenure, land use administration and clarify land use rights, Improve compliance and enforcement of existing laws and regulations.

The individuals who benefit most from the conservation of wetlands are often local residents, including many who are likely to have been disenfranchised from decision-making processes. Decisions concerning the fate of wetlands, however, are often made through processes that are unsympathetic to local needs or that lack transparency and accountability. Decision-makers at many levels are unaware of the connection between wetland condition and the provision of wetland services and the consequent benefits for people. In very few instances are decisions informed by estimates of the total economic value of both the marketed and nonmarket services provided by wetlands. Many services delivered by wetlands such as flood mitigation, climate regulation, groundwater recharge, and prevention of erosion are not marketed and accrue to society at large at local and global scales. Locals do not have incentives to maintain the services for the benefit of wider society.



**Figure 2: Forest and non-forest consumptive goods in Upper Niger Lake Wetlands**

## DISCUSSION

Upper Niger Lake wetlands according to the study provides a variety of benefits namely crops, water, fodder, and fish, to the livelihoods of nearby and far-flung populations. There is a complete reliance on the wetland natural resources for livelihoods, indication of extreme poverty and deprivation (Béné, 2003). Therefore, the loss of Upper Niger Lake Wetlands has an impact on the well-being of the Community. The demand for ecosystem services is high due to expected growth in population and economies. Land use change is expected to continue and a major driver of changes in the provision of ecosystem services up to 2050. A proper environmental policy and emphasis on integral of the local knowledge, culture and technology may slow down the degradation. The policies should outline the possibility of having the transfers of subsidy to payment for non-marketed ecosystem services.

The environment conservation and management procedure take into consideration agricultural expansion remains a large threat to Upper Niger Lake wetlands, hence the technologies should lead to increment in the production of food per unit area sustainably. Given the inertia in the climate system, actions to facilitate the adaptation of biodiversity and ecosystems to climate change will be necessary to mitigate negative impacts. These may include the development of ecological corridors or networks. There will be need for increased transparency and accountability of government and private-sector performance in decisions that affect wetlands, including greater involvement of concerned stakeholders in decision-making. Laws, policies, institutions, and markets that have been shaped through public participation in decision-making are more likely to be effective and perceived as just. Stakeholder involvement also aids the decision-making process by allowing for a better knowledge of consequences and vulnerability, the distribution of costs and benefits associated with trade-offs, and the identification of a broader variety of response options accessible in a given situation.



A critical review of the available Acts and policies should be conducted to help highlight the challenges of the mandated institutions towards achieving sustainable development in the area. There is need to promote an integrated approach in planning the maintenance, restoration and improvement of the Wetland. This should take into consideration the context of the entire landscape, ecological, social and economic importance of the area. Stakeholders should ensure there is consistency in policies and regulations on conservation and management of the area. The study revealed that there is need to strengthen operational and financial regulatory support in capacity building of the stakeholders especially the community groups associated with the conservation of the area. Most important there is need for periodic assessment of the policies implementation. Assessments will give guidance towards proper enforcement and compliance promotion of legislation on Wetland conservation and management At all levels, the leadership should promote policies public awareness, inclusive participation, stewardship of the wetland functions, values and enhancement of social responsibility.

#### *Advocacy Plan for Upper Niger Lake Wetland Conservation*

There has been Advocacy taking place through alternative livelihood activities to wetland exploitation by Non-Governmental Organizations. These institutions within Upper Niger Lake Wetland regions is non for offering agro-forestry training assistance and providing certified tree seedling to the local communities. We can agree that Upper Niger Lake wetland has had some level of co-management of its resources with incentives from NGOs. The West Africa Wetland environmental policy should outline the existing information on the current state of Upper Niger Lake Wetlands ecosystem with the supporting actions on filling knowledge needed. This can be a right time to create new Wetlands conservation and management policy for West Africa.

Stewardship of the environment refers to a precautionary approach to environmental challenges, promoting greater environmental responsibility and development and diffusion of environmentally friendly technologies. It means taking responsibility for our choices from individual level, family level, clan level, community level, county level to Country level. The responsibility for environmental quality should be shared by all those whose actions affect the environment. Sustainable development requires that at competitive prices, business and industry can supply goods and services that meet societal and individual needs, contribute to improved quality of life and ensure management and efficient use of renewable and non-renewable resources.

#### *Benefit of Wetlands Services to Human Well-being*

Other wetland services with strong linkages to human wellbeing include Water purification and detoxification of wastes. Wetlands, and in particular marshes, play a major role in treating and detoxifying a variety of waste products. Some wetlands have been found to reduce the concentration of nitrate by more than 80%, Climate regulation. One of the most important roles of wetlands may be in the regulation of global climate change through sequestering and releasing a major proportion of fixed carbon in the biosphere. For example, although covering only an estimated 3–4% of the world's land area, peatlands are estimated to hold 540 gigatons of carbon, representing about 1.5% of the total estimated global carbon storage and about 25–30% of that contained in terrestrial vegetation and soils, Mitigation of climate change. Sea level rise and increases in storm surges associated with climate change will result in the erosion of shores and habitat, increased salinity of estuaries and freshwater aquifers, altered tidal ranges in rivers and bays, changes in sediment and nutrient transport, and increased coastal flooding and, in turn, could increase the vulnerability of some coastal populations. Wetlands, such as mangroves and

floodplains, can play a critical role in the physical buffering of climate change impacts, and Cultural services. Wetlands provide significant aesthetic, educational, cultural, and spiritual benefits, as well as a vast array of opportunities for recreation and tourism. Recreational fishing can generate considerable income.

#### *Upper Niger Lake Wetland Ecosystems and Sustainable Development*

The natural mechanism is that the process of Wetland holding flood water and releasing it slowly to groundwater. Some of the scholars findings expressed that wetland discharges water during dry season to maintain river flows, this need further studies to establish the truth. Studies have shown that papyrus wetland is able to retain nutrients in plants and soil reducing nitrogen that cause eutrophication of the lake water. As for Upper Niger Lake (Papyrus Wetland) characterized by seasonal connectivity there is need to establish if it still has the capacity to retain as more sediments to get to Lake Victoria. The litter from plants also supports soil formation that enhances soil fertility of the wetland. The Papyrus Wetland is notable for protecting a variety of indigenous bird species that are globally endangered or unusual. They are also important habitats for fish, reptiles, amphibians, and macro invertebrates. Wetlands may not be effective at retaining trace elements such as heavy metals, as studies have revealed that some of these elements can be found in Lake Victoria's sediment, water column, and fish tissues. Other research on carbon retention have shown that papyrus wetlands can be effective at retaining carbon.

#### **CONCLUSION**

Upper Niger Lake Wetlands is a natural support to the community, where the households disperse risk since the areas offers resources that allow them to diversify their activity portfolios. The findings of this survey indicate that in many jurisdictions, riparian lands in West Africa are threatened by not only land development, but also by other stressors such as climate change. While the majority of stakeholders believe that riparian lands management need to be improved, most feel that there are significant barriers to realizing an adequate level of riparian lands conservation or protection. It is important to identify those areas where significant gaps in knowledge, process or practice exist and begin to constructively move forward to address these crucial issues. Finding ways to remove institutional barriers that currently limit the success of existing management approaches and finding better approaches that enhance the effectiveness of those that already exist should be a focus of management efforts moving forward.

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