

RESOURCE UTILIZATION PRACTICES AND SUSTAINABLE DEVELOPMENT AT THE LAKE CHAD BASIN

BY

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ABSTRACT

The paper examines the resource utilization practices of the Lake Chad in view of the need for sustainable development of the natural resources of the area, which are being recklessly exploited. The issue of obnoxious fishing practices, inappropriate agricultural practices, indiscriminate grazing, reckless fuel – wood harvesting, water pollution etc were discussed. There are clear indications that the current resources utilization practices are pushing the natural resources of the area beyond the limit of their regenerative capacity. This is traceable to institutional weakness and inadequate management strategies at the Lake Chad Basin. Suggestions were made towards witnessing a change of attitude to resource use, exploitation and management strategies.

INTRODUCTION

Habitat destruction resulting in loss of biodiversity is a common problem worldwide, particularly in developing countries where a higher percentage of the population are dependent on the exploitation of the free gifts of nature for survival.

Nigeria, a developing nation and the most densely populated in Africa with an estimated population of 130 million people, has over 70% of its population living below the poverty line, i.e. 1 U.S Dollars per day with Agriculture as the mainstay of the economy. Agriculture accounts for 35% GDP of Nigeria and half of labour force, thus agricultural resources such as forestry and fisheries are extensively exploited (NNPC, 2003).

At the Lake Chad Basin, a rural sub-set of the country in Borno State, the situation is even more true as over 80% of the inhabitants are heavily dependent on the exploitation of natural resources of the area for livelihood. The implication is that erosion of important flora and fauna species is taking place at an alarming rate.

Various research results have shown that the exploitation of the natural resources of the area is taking place at the rate that is going beyond the limit of the regenerative capacity of the ecosystem. Raji and Omoyeni (2000) observed that the benefit being derived from the Lake Chad fisheries will soon dwindle if appropriate management practices are not put in place. Similarly, Aminu-Kano (2002) noted that the rich natural resources of the Lake Chad Basin i.e. the fishery, Agriculture, Livestock and biodiversity resources are increasingly being exploited.

The threat poised by this reckless exploitation of natural resources is no longer a subject of controversy, it is a reality of practical importance, especially considering the problem of inadequate and grossly insufficient management measures at ensuring the restoration of the degraded environment. This no doubt rubbishes the principles of sustainable development.

Ajao (1995) observed that the concept of sustainability is perhaps today the most vibrant environmental concept acknowledged globally as the way forward for most human activities as it offers the recipe to solving or reducing the anthropogenic environmental problems facing humanity.

While some papers have discussed the problems in terms of the state of affairs at the Lake Chad Basin. (Neiland et al, 1997, Agbeleje & Ipinjulo 2000, Raji and Omoyeni, 2000,

Aminu-kano 2002), discussion as to determining the current and potential resource utilization practices being undertaken by local communities within the area, evaluating these in terms of their sustainability has not enjoyed wide coverage. This understanding no doubt will provide a platform for sustainable management plan as prescribed by the international convention on wetlands (RAMSAR convention) of 1972, Agenda 21 of UNCED (1992) and the recent World summit on sustainable Development (WSSD) 2002 etc.

The paper therefore attempts to discuss the resource utilization practices being undertaken by the local communities of the Lake Chad basin against the background of sustainable development at the area.

THE SCENARIOS AT THE LAKE CHAD BASIN

Aminu-Kano (2002) observed that the Lake Chad and its shores are wetlands surrounded by dry arid lands and thus form a very unique and fragile ecosystem that is very rich in natural resource. It is among the major wetlands in the Sahel zone. The Lake plays a significant role in the economy of the Lake Chad basin, performing a number of important functions such as water supply to polders, recharge of groundwater in surrounding aquifers and the control of salinity and maintenance of water quality. Additional to these functions, the Lake supports biodiversity of global significance as well as major economic activities that includes a major fishery, major livestock industry, water based transport industry, collection of non-wood forest products, and receding moisture and irrigated agriculture.

However, these vital services provided by the Lake to the inhabitants of the basin and beyond are under increasing pressure due to a combination of natural and human factors. Persistent and prolonged droughts have combined with heavy population pressure and poor land use practices to adversely affect the environment of the Lake shore (LCBC, 1992)

The Lake surface area has fluctuated very widely. At its height, it had been reported to be up to 30,000km² in the early sixties and dropped to an extent of 2,500km² in the late 70s (Beadle, 1981). Alfa (2003) reported a swing in the surface area of the Lake between 22,902 km² in 1963 to about 304km² in 2000, noting that Lake Chad is a good example of a major inland water body which has undergone dramatic changes in the last few decades, and surface area declined to 1/10 th of its size in the 1960s.

The decline in fish yield from the Lake corroborates this claim the current estimate of annual fish production from the Lake ranges between 96,414MT in 1996 to 82,398MT (FDF 2000). Estimate for the early seventies was given as 220,000 Mt (sagua, 1995).

Notwithstanding that the catch per unit effort is reducing, fishing efforts keep on increasing, considering the increase in fishing intensity by the increasing fishermen population. Because the benefit derived from the fishery has dwindled, there are now changes in livelihood strategies, making fishermen to combine fishing with farming, livestock production and sometimes-game hunting. In addition to this, fuel wood harvesting is fast becoming an economic activity within the area.

The Lake and its surrounding watershed is a unique and valuable ecosystem for both people and nature (Alfa, 2003), it is no doubt a good resources base supporting wide ranging socio-economic activities but its resources that is suppose to be sustainably utilized is now under pressure forcing it beyond the limit of its regenerative capacity.

RESOURCE UTILIZATION PRACTICES AT THE LAKE CHAD BASIN

The harnessing, development and proper use of water resources have often served as yardstick for evaluating sustainable development in riparian communities. The aquatic ecosystem is bound to respond to the exploitation strategies and practices. If the practices are deleterious, the impacts are bound to be negative.

At the Lake Chad Basin, most exploitation strategies and land use practices are antithetical to the principle of sustainable development. Common among these are:

- (a) Obnoxious fishing practices e.g. dumba fishing
- (b) Inappropriate agricultural practices
- (c) Indiscriminate grazing of grassland vegetation
- (d) Reckless fuel-wood harvesting
- (e) Creation of burrow pits associated with bad mining practices & brick making
- (f) Water pollution.

- (a) Obnoxious fishing practices: A widespread unorthodox method of fishing in the Lake Chad is the use of fish fences popularly known as "dumba". This is made from rows of traps e.g. Maliam trap constructed with nylon net of fine mesh size of about 1 inch (25mm) and arranged in rows of several kilometers (up to 10km) per row across the water to form barrier to fish passages. It is non-selective and non-discriminatory to species and sizes. Agbelege et.al (2002) observed that dumba fishing as compared to other fishing methods rapidly and indiscriminately deplete the stock as juvenile and undersized fishes constitute the catches of dumba. It is indeed an unorthodox and destructive fishing method to the extent that it has been prohibited by section 19 (1) of the Borno State control of fishing edict of 1996. Nevertheless, the fishermen of Lake Chad have remained tenacious in the use of dumba which they regard as the best fishing method on the account of its age long history and efficiency.
- (b) Inappropriate Agricultural Practice: There are various types of crop production systems on the lake Chad shores. Millet, cowpea, sorghum and maize are the main crops ground in addition to different vegetables within and outside the Lakebed. Meanwhile, the most common cropping system on the shore is Lake bottom cropping or receding moisture cultivation in response to the contraction of the Lake. However, these areas ordinarily are very fertile but the practice is the application of fertilizers to the nutrient composition of the soil. The implication is that excess nutrient not utilized by the crops drains into the Lake promoting the proliferation of aquatic macrophytes that thrive and develop best in high nutrient environment. Eutrophication and fish habitat destruction is inevitably the end result. These have deleterious effect on the fish population.
- (c) Indiscriminate grazing of grassland & Vegetal cover: Most part of the Chad Basin in Nigeria are well suited to livestock production, as a result different species of livestock are well adapted to area. Species of importance include: cattle sheep goats, camel, horses, and donkeys. Livestock production though beneficial to the postoral the intensive grazing of grassland is capable of further destroying the vegetal cover, which serves as habitant utilization system within the area. Cases of farmland destruction by grazing herds of cattle are a common place within the area
- (d) Reckless fuel – wood harvesting: The dominant vegetation is sudan – guinea savannah but has the appearance of the Sahel because of human activities. The vegetation is savannah woodland that comprises trees, shrubs and annual swamp grasses. Fuel wood has become scarce particularly during the dry season, when there is additional demand from from outside the wetland. Jimoh (1989) showed that majority of the villages in the wetland depend on wood as their primary source of domestic fuel. This has given rise to over-exploitation as a result of which many tree species have completely disappeared from the area.

The sparse desert fuel-wood scarcity encourages the harvesting and utilization of submerging plants in the Lakes flood plain for fish smoking and other domestic utilization

What is evident at the Lakeshore is that population pressure and the continuous exploitation of marginal lands especially deforestation have continued to aggravate the process of drought and desertification in the area.

- (e) Creation of burrow pits associated with bad mining practices & brick making. Mining methods applied by artisanal potash miners are uncontrolled shallow trenching and pitting system. After the excavation of potash, these trenches and pits are left uncovered within open grassland areas widely used for cattle grazing and small-scale farming.

Mud brick making is also a similar practice that leave behind trenches and pits that are left uncovered. Kevin (2004) noted that the making of brick is environmentally damaging. These two practices leave behind open trenches and pit which end up reducing the land to waste land, neither suitable for agriculture nor pasture. This poses the threat of advancing the process of gully erosion in the area, the implication is far reaching on habitat destruction and dislocation in the ecosystem functioning.

- (f) Water pollution: Although the area is not yet faced with the problem of oil spillage and industrial effluent water contamination, the aquatic environment is experiencing some form of oil pollution. The water of the Lake is used for major water transport system between the Island and to neighbouring countries, this makes it to be exposed to the danger of oil pollution resulting from oil spills during the transportation of petroleum productions across the water by illegal petrol dealers. The effect of oil contamination on the aquatic life ranges from acute to chronic effect, resulting in fish mortalities in the Lake.

MEETING THE CHALLENGES OF SUSTAINABLE DEVELOPMENT AT THE LAKE CHAD BASIN

It was recently noted by the executive chairman of the Nigerian Conservation foundation (NCF), Mobolaji Johnson that the enormity of the various ecological problems in the country and their impacts on the economic growth and livelihood systems demand cross-sectoral responsive environmental policies and actions. On the Lake Chad Basin, Aminu-kano (2002) after examining the political, policy, social and economic contexts, noted that only a well coordinated and integrated water resources management approach will ensure sustainable natural resources management in the region. The paper concludes that the current strategy for managing the rich natural resources of the Lake Chad is seriously defective.

Nigeria is characterized by plethora of socio-economic and political problems. These inadvertently manifests in the way and manner its natural resources are being exploited. Among the factors identified to be inhibiting the process of solving environmental problem are

- (i) Institutional weakness
- (ii) Insufficient information
- (iii) Insufficient communication
- (iv) Limited human resources
- (v) Deterioration of socio-economic environment
- (vi) Poverty
- (vii) Limited financial resources.

The above listed factors no doubt pose great task and challenges to ensuring sustainable development.

Nevertheless, the seemingly daunting challenge can be surmounted. To meet the challenge therefore the foregoing suggestions are considered necessary.

1) **Development of a master plan for the environment:** There is the imperative need to create a master plan for managing the environment as it has been widely acknowledge that the enormity

of the various ecological problems in the country and the impact on the national economic growth and livelihood system demand cross –sectoral responsive environmental policies and actions. The governmental legal machinery for environmental-law and enforcement must be fine -tuned to be in agreement with the consciously designed management plan for the environment in line with current realities.

The master plan must further strengthen natural resources conservation, because proper management and utilization of the varied forms of life (biodiversity) is a potent tool necessary for sustainable development. This will ensure:

- (a) Fisheries & wildlife conservation
- (b) Soil conservation
- (c) Water management
- (d) Forest management & reforestation
- (e) Responsible exploration & exploitation of mineral resources.

2) **Workable collaboration between the government and the citizenry:** Because the government and the citizens are both stakeholders of natural endowment the success or otherwise of policies and programmes depends on both. Therefore, government must create the condition, which will engender pragmatic collaboration between all stakeholders to the benefit of the environment.

3) **Improvement of the socio-economic environment:** The government must strive to improve the deteriorating socio – economic state of the area, or create the conducive environment for community development Raji and Omoyeni (2000) observed that deterioration of the socio-economic environment of the local communities of the Lake Chad basin is sobering, there must be conscious effort to honestly empower the people and reduce the alarming rate of poverty in the area. There is no doubt that there exists a linear relationship between poverty and natural resource exploitation within a community.

4) **Awareness drive:** The level of awareness on the challenges of sustainable development is no doubt low in Nigeria. The of environmental degradation and its attendant danger on human existence is not a common knowledge. To improve on this ignorance level, accelerating the growth of environmental education remains imperative.

The people of the lake Chad basin can be informed through all the relevant media of information dissemination.

Therefore, government at all levels in collaboration with NGOs relevant bodies and the local communities can propagate environmental education effectively. The result will no doubt be positive for the rational utilization of the valuable resources of the area.

CONCLUSION

To ensure the sustainability of the natural resources of the Lake Chad basin, the current reckless resource utilization practices at the area have to give way to sound practices on resource exploitation and utilization. To achieve this, all the stakeholders of the Lake Chad Basin have to come to term with the current reality. The government must provide the platform through the formulation of the National Action Plan for Biodiversity management. The local communities will no doubt respond positively to policies, plan or programme that is people centered and environment driven.

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