

34

**MANGROVES AND WETLANDS OF
SUB-SAHARAN AFRICA:**
Potential for Sustainable
Livelihoods and Development

Proceedings of the

**38th Annual
Conference**

of the
Forestry Association of Nigeria
held in Port Harcourt,
Rivers State

7th - 11th March, 2016

Edited By
O.Y. Ogunsanwo
A. O. Akinwale



FAN
FORESTRY ASSOCIATION OF NIGERIA

**Proceedings of the 38th Annual Conference
of the Forestry Association of Nigeria
held in Port Harcourt, Rivers State**

7th – 11th March, 2016

© Forestry Association of Nigeria, 2016

All rights reserved.

**No part of the proceedings may be reproduced without the permission of the
author(s) and the editors.**

ISBN: 978-978-31064-9-0

Printed by: Exotic Denzines Ltd  0803 501 3307

CONFLICTS, POLITICS, AND POLICIES OF MULTIPLE AND COMPETITIVE USES OF MANGROVES AND WETLAND RESOURCES

Azeez, I. O.¹ and Amusa, T. O.²

¹Department of Forest Resources Management, University of Ibadan, Nigeria

²Department of Forest Resources Management, University of Ilorin, Nigeria

LEAD PAPER: SUB-THEME 7

Abstract

The livelihoods of coastal populations of sub-Saharan Africa depend heavily on access to mangroves and wetland resources. However, with high populations, rapid urban growth and a high dependency, pressures on mangroves and other wetland resources have continued to soar. Thus, there is concern that the long-term values of intact and functioning mangrove ecosystems are not being recognized in current policy decisions, where short-term gains resulting in loss of the ecosystem are being pursued at the expense of long-term sustainability. The connections between mangroves and livelihoods throughout Africa need to be strengthened at the policy level. The policy for multiple and competitive uses of mangroves and wetland resources need to be well developed on the African continent. This is especially true with regards to the potentials of mangroves and wetland resources for aquaculture and ecotourism. It is important to build awareness and political sensitization on mangroves and wetland issues for general development of the continent and its people. This would require strategic planning, followed by policy formulation and programme development. Sustainable multiple usages of mangroves and wetland resources is possible by taking an integrated approach based on solid biological, socio-economic and cultural information.

Keywords: Mangroves; Multiple and competitive uses; Conflicts, Policy direction

*ismail.azeez@mail.ui.ed.ng

Introduction

The term, *mangrove* refers to an assemblage of tropical trees and shrubs that grows in the intertidal zone (McKee, 1996). They are unique plants that have evolved to survive in the interface between land and ocean in the humid climate of the tropics and subtropics. They variously manifest in different forms such as coastal woodland, tidal forest and mangrove forest. They grow as trees up to 40 metres high or as shrubs below the high-water level of spring tides. They have evolved clever mechanisms to enable them cope with the high concentrations of salt and regular inundation of their root systems by incoming tides.

The mangrove ecosystems exhibit both horizontal and vertical zonation patterns (Mendelssohn and McKee, 2000). In addition to zonation, they are also characterized by attributes such as species richness, canopy height, basal area, tree density, age/size class distribution, and understory development. However, there is frequent absence of understory species, which are usually found in other forest systems. Shrubs, grasses, lianas, and other herbaceous plant species do not usually occur under the closed canopy in the mangrove forests.

The distribution of mangrove is circumglobal with the majority of populations occurring between the latitudes 30° N and S of the equator. Globally, about 70 species of true mangrove have been recorded (Spalding *et al.*, 1997), of which 17 species exist in 26 countries of Sub-Saharan Africa. African mangroves are widespread along the west coast from Senegal to the Congo, and occur locally in East Africa, interlinked with highly productive coastal lagoons, tidal estuaries and deltas. They provide these areas with essential organic nutrients as well as critical breeding grounds and nurseries for larval and juvenile stages of important fisheries species (Shumway, 1999). Global data on mangroves report that 19 per cent of mangrove habitat is currently contained within designated protected areas (Chape *et al.*, 2005).

Multiple and Competitive Uses of Mangroves and Wetland Resources

The mangrove ecosystems provide habitat to a variety of flora and fauna such as fish, crabs, oysters, and other invertebrates as well as wildlife species including birds and reptiles. They also produce large amounts of detritus that contribute to productivity in offshore waters. Mangroves contribute to soil formation and help stabilize coastlines. They act as filters for upland runoff. In addition to these ecologically important roles, mangrove forests possess attributes that are specifically important to humans. These include protection for coastal communities against storms such as hurricanes. It has been suggested that the large loss of life (300,000 to 500,000 lives) in Bangladesh during the 1970 typhoon was partly due to the fact that many of the mangrove swamps protecting those populated coastal regions had been removed and replaced by rice paddies (McKee, 1996).

Mangrove forests serve as nurseries and refuge for many marine organisms that are of commercial or sport value. Areas where widespread destruction of mangrove has occurred usually experience a decline in fisheries. Many threatened or endangered species also reside in mangrove forests. Mangrove forests are also important in terms of aesthetics and tourism. Many people visit these areas for sports fishing, boating, bird watching, snorkelling, and other recreational pursuits.

Throughout Sub-Saharan Africa, the livelihoods of coastal populations depend heavily on access to the mangrove and other wetland resources. The mangroves fulfil important

functions in terms of providing wood and non-wood forest products, coastal protection, conservation of biological diversity, provision of habitat, spawning grounds and nutrients for a variety of fish and shellfish, in addition to salt production. Mangrove forests provide the nutritional inputs to adjacent shallow channel and bay systems that constitute the primary habitat, spawning and breeding grounds for many aquatic species of commercial importance (NOAA/NOS, 2002).

There have been several calls for the connections between mangroves and livelihoods throughout Africa to be strengthened at the policy level. With high coastal populations, rapid urban growth and a high dependency of coastal populations on fish for protein, fuel, timber and rice production, pressures on mangroves are high. Thus, there is concern that the long-term values of intact and functioning ecosystems are not being recognized in current policy decisions, where short-term gain resulting in loss of the ecosystem is being pursued at the expense of long-term sustainability. As far back as 1994, the World Bank estimated that not less than 70 percent of mangroves in Africa will be deforested if no action is taken (World Bank, 1994).

Threats and Drivers of Change in Mangroves and Wetland Resources

The continuous damming of rivers, diversion of their waters and the extensive development of intertidal zone for agriculture or aquaculture has resulted in the destruction of large expanse of mangrove forests. In many parts of sub-Saharan Africa, large tracts of mangrove forests have been converted to rice fields, fish and shrimp ponds, industrial, urban and tourism development and other non-forest uses. Mangrove and wetland areas are further exploited for fuelwood and charcoal. In overpopulated and acute fuelwood-deficient areas, even small branches and saplings are reportedly removed primarily for domestic fuel (FAO, 1994).

The local production of salt in mangrove areas by villagers through boiling of brackish water in clay bowls over fire made from *Avicennia*, is one technique that requires several tonnes of wood (seven tonnes of wood for one tonne of salt (Bandarayake, 1997). This places a heavy demand on the mangroves. On a larger scale, salt is also harvested from evaporation ponds or shallow brine-filled pits, usually built in cleared mangrove areas (UNEP-WCMC, 2003). The mangroves in West Africa also face many of the conservation and development challenges emblematic of the continent as a whole.

In the coastal cities, the trade of wood coming from the mangroves has been a flourishing activity. With the modernization of the cutting materials by the introduction of slicers and large dugouts propelled by engines (UNEP, 2007), harvesting has become more efficient, thereby exacerbating the situation. Complex and unclear land-tenure systems make the management of mangroves and wetland resources difficult to implement in many parts of Africa. In addition, the strategies to increase food security in many countries involve the

expansion of rice production in mangrove areas, which causes a significant loss of mangroves across the continent.

Politics and Conflicts in the Use of Mangroves and Wetland Resources

Sub-Saharan Africa has been fraught with civil and political unrest over the past decades. The levels of poverty in the region are also among the highest in the world. In times of conflict, priorities for both government and the people tend to focus on the short term. This has driven deforestation and destruction of mangroves in some countries such as Liberia and Sierra Leone (WRI, 2003). Besides, the mangrove forests also provide refuge for displaced or fleeing communities. After the end of any conflict, governments usually need to jumpstart the economy and rebuild key sectors. Again, one of the quickest ways to do this is to exploit natural resources, and in this region, mangroves form the key forestry resources in the heavily populated coastal zones.

In the midst of politics and conflicts, military and militia activities also reduce opportunities for research and conservation of mangroves and wetland resources. This is the case in such countries as Angola, Cameroon, Nigeria and Senegal. Apart from this, exporting oil from coastal areas is an economically important activity in Nigeria, Gabon and Cameroon, but has associated ecological and political risks. It has often led to spills, which pose a significant threat to the health of mangrove ecosystems. In Nigeria, during the past 30 years, seismic lines have been placed in the Niger Delta mangrove forests (Elijah, 2001) making this ecosystem and others like it vulnerable to impacts by petroleum and its products (Ekweozor, 1989). Other issues include the gas flaring, canalization, siltation, sand mining and construction of embankments.

For Nigeria, there has always been growing tension between the communities of the Niger Delta and the oil companies because of lack of equity of benefits received. This is exacerbated by the extreme levels of food insecurity and poverty in these communities (Ohimain, 2004). When oil spills occur, local water sources can be contaminated, which can result in sickness and death among residents of nearby areas. Fisheries resources are reduced when habitat is degraded from oil coating the breathing roots of mangroves (MAP, 2000).

In the Poverty Reduction Strategy Paper published in 2004 by the Nigerian National Planning Commission, mangroves was listed under "Conservation of unique habitats", detailing the importance of the ecosystem for livelihoods and a strategy to combat threats to it by monitoring industries, conducting impacting assessments and strengthening law enforcement, (Nigerian National Planning Commission, 2004), there seems to be more motion without movement in this direction. Generally, there is much interest in identifying new sources of oil in the continental shelf of western Africa. Activities relating to prospecting also involve risk associated with the exploration studies, residual

waters, accidental spill and impacts of installations. It is also crucial to note that many countries in the region are not yet signatory to relevant international agreements for the protection of their marine and coastal environments, such as the International Convention for the Prevention of Pollution from Ships (MARPOL) or the United Nations Convention on Law of the Sea (UNCLOS), representing an area of particular potential concern with respect to the marine ecosystem services.

Policies for Multiple and Competitive Uses of Mangroves and Wetland Resources

Policies for multiple and competitive uses of mangroves and wetland resources are not well developed on the African continent. This is especially true with regards to the potentials of mangroves and wetland resources for aquaculture and ecotourism. The lack of overall national and regional policies has continued to weaken the prospect for sustainable management and development of the mangroves and wetland resources across the continent. It is important to build awareness and political sensitization on mangroves and wetland issues for general development of the continent and its people. This would require strategic planning, followed by policy formulation and programme development. The thrust of this would be to take an integrated approach towards the development of this fragile ecosystem.

Many coastal species need special protection, and only a well articulated planning, policy formulation and programme development would help preserve their breeding and feeding areas through protected reserves and the use of regulations. Habitats of special importance to species and the functioning of the coastal ecosystems would also be protected. Pollution from point sources and from land runoff as well as accidental spills of pollutants which foul coastal waters (human health problems and ecological disruption) would also need to be addressed through coordinated policies and programmes. It is also important for policies and programmes designed for mangroves and wetland resources to provide advisory services to development entities to help them reduce impacts from development initiatives which would be damaging to the coast. Advice would need to be provided to various planning entities-physical planners, economic planners, and development planners. Of particular importance is infrastructural development. Highways should be properly routed; water supply and power lines should be aligned to avoid highly sensitive places. It is important to also identify certain areas of the coast that have a special potential for recreation, housing, nature protection, economic development, and so forth. Restoration programmes should be articulated for many otherwise productive coastal habitats that have been damaged but are restorable. Again, public awareness would play an important role in appreciating coastal values and needs for their conservation.

Conclusion

As alluded to in the preceding section, more often than not different branches of government are responsible for different aspects of mangroves and wetland resources. One branch of government may be responsible for fisheries, another for tourism, yet another for transportation. Planning and environmental issues are often the concerns of still other departments. While all of these branches of governments are ultimately concerned with economic and social development, they can impede development of other sectors and create conflicts of usage from fragmentation and lack of communication. Therefore, when there is effective communication, often apparent conflicts can be easily resolved and with careful planning, the resource base can sustain multiple usages. By taking an integrated approach, development potential of all sectors can be maximized, conflict minimized, and the resource protected. Successful policy would have to be based on solid biological, socio-economic and cultural information.

References

- Bandarayake, W. 1997. Mangroves and Their Products. Available at <http://www.fao.org/docrep/W7700E/w7700e04.htm>.
- Chape, S., Harrison, J., Spalding, M. and Lysenko, I. 2005. Measuring the Extent and Effectiveness of Protected Areas as an Indicator for Meeting Global Biodiversity Targets. *Philosophical Transactions of the Royal Society B: Biological Sciences* 360 (1454): 443-455.
- Ekweozor, I.K.E. 1989. A Review of the Effects of Oil Pollution in a West African Environment. *Discovery and Innovation: Nairobi* 1(3): 27-37. Available at http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/11/10/000094946_00082605382642/Rendered/INDEX/multi_page.txt
- Elijah, A. 2001. Strategies for the Sustainable Management of Mangrove Resources in the Niger Delta. Discussion paper available at [ww.worldwildlife.org/ecoregions/at140](http://www.worldwildlife.org/ecoregions/at140)
- Food and Agriculture Organisation (FAO). 1994. Mangrove Forest Management Guidelines. FAO Forestry Paper 117. FAO Rome.
- Mangrove Action Project (MAP). 2000. Mangrove Action Project. Quarterly News 7 (1).
- McKee, K.L. 1996. Mangrove Ecosystems: Definitions, Distribution, Zonation, Forest Structure, Trophic Structure, and Ecological Significance. In *Mangrove ecology workshop manual* (eds.) Feller, I.C. and Sitnik, M). Smithsonian Institution, Washington, DC. 145p. Available at <http://mangroveactionproject.org/wp-content/uploads/2013/09/Manual-2.pdf>.
- Mendelssohn, I. A., and McKee, K. L. 2000. Saltmarshes and Mangroves. In *North American Terrestrial Vegetation* (M. Barbour and W. D. Billings (eds.)). Cambridge University Press, Cambridge, pp. 501-536.

- Nigerian National Planning Commission. 2004. Meeting Everyone's Needs: National Economic Empowerment and Development Strategy. Available at [http://siteresources.worldbank.org/INTPRS1/Resources/Nigeria_PRSP\(Dec2005\).pdf](http://siteresources.worldbank.org/INTPRS1/Resources/Nigeria_PRSP(Dec2005).pdf).
- National Oceanic and Atmospheric Administration National Ocean Services-NOAA/NOS. 2002. Filling Critical Gaps and Promoting Multi-Site Approaches to New Nominations of Tropical Coastal, Marine and Small Island Ecosystems: West Africa. World Heritage Biodiversity Workshop 25 Feb-1 Mar 2002; Regional Papers: West Africa. Available at http://international.nos.noaa.gov/heritage/pdfs/wes_africa.pdf
- Ohimain, E. I. 2004. Environmental Impacts of Dredging in the Niger Delta; Options for Sediment Relocation that will Mitigate Acidification and Enhance Natural Mangrove Restoration. *Terra et Aqua*, 97: 9-19. Available at http://www.iadcdredging.com/downloads/terra/terra-etaqua_nr97_06.pdf
- Shumway, C.A. 1999. Forgotten Waters: Freshwater and Marine Ecosystems in Africa. Strategies for Biodiversity Conservation and Sustainable Development. Available at http://pdf.usaid.gov/pdf_docs/pnacf449.pdf.
- Spalding, M.D., Blasco, F. and Field, C.D. (eds.) 1997. *World Mangrove Atlas*. The International Society for Mangrove Ecosystems, Okinawa, Japan.
- United Nations Environment Programme (UNEP). 2007. Mangroves of Western and Central Africa. UNEP - Regional Seas Programme/UNEPWCMC. Available at http://www.unepwcmc.org/resources/publications/UNEP_WCMC_bio_series/26.htm
- United Nations Environment Programme-World Conservation Monitoring Centre-UNEP-WCMC. 2003. Mangroves of East Africa. UNEP-WCMC Biodiversity Series No. 13. Available at http://www.unepwcmc.org/resources/publications/ss1/WCMCMangrovesv11_1.pdf
- World Bank, 1994. Africa: A Framework for Integrated Coastal Zone Management. Available at <http://documents.worldbank.org/curated/en/1995/01/6696131/africa-framework-integrated-coastal-zone-management>.
- World Resources Institute (WRI). 2003. Armed Conflict, Refugees, and the Environment. World Resources 2002-2004 (Box 2.1. pp. 25-27). Available at http://earthtrends.wri.org/pdf_library/features/gov_fea_conflict.pdf.