

THE NIGER DELTA: AN ENVIRONMENTAL PERSPECTIVE

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Book Review

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INTRODUCTION

The Niger Delta region is very well known in the world for its economic resources and biodiversity and constitutes one of the best studied areas of Nigeria. However, most of the studies done so far have to do with the exploration and exploitation of the region's rich hydrocarbon resources and more recently on the preservation and conservation of the environment of the area. This newly published book entitled: "*The Niger Delta: An Environmental Perspective*" edited by Enuvie G. Akpokodje with Abi Derefeka as Co-Editor describes the total Niger Delta environment from a broad perspective covering the geological, hydrological, engineering, petroleum resources, and biological domains. The book is an eloquent, sustained description of the historical, cultural, ecological, and geographical attributes of the Niger Delta and its associated environmental issues which have made global headlines in recent years. The authors did a good work of presenting the problem of accelerated loss of land and other valuable resources through erosion

and flooding, and the hopelessness staring the region in the face as a result of the increasing pollution of the environment through oil and gas exploration and exploitation activities.

The 16-chapter book not only highlights the social economic dynamics of the Niger Delta by bringing into the fore the opportunities, developmental strides, and options for improving the welfare of the people of the area, but also exposes the struggles of a region of many missed opportunities in the presence of such Federal Government intervention agencies as the Niger Delta Development Commission (NDDC), and the Ministry of Niger Delta Affairs (MNDA). The book highlights how parts of the region are still faced with serious socio-economic hardships because of incessant oil spillage that has made fishing and farming non-lucrative and the youths restless.

This book provides a comprehensive multidisciplinary, up-to-date data on most key aspects critical to achieving socio-economic development, environmental restoration, and sustainability in the Niger

Delta and in addition also provides a critical analysis of the performance and outcomes of past and current intervention and restoration programmes. The lessons learned and how these can be used to design and implement more effective programmes are fully discussed. The book which has sixteen chapters and was written by twenty-one renowned academics from different disciplines, is sub-divided into three parts: - Part I which gives a general overview; Part II which deals with the major resources, and Part III that discusses the way forward in successfully confronting the sustainable development challenges of the Niger Delta region.

Chapter by Chapter Overview

Chapter 1, *River Deltas in Global Context* (Akpokodje, 11 pp) presents an overview of the socio-economic importance, environmental pollution and other sustainable development issues facing river deltas worldwide. This has been done in order to set the stage and provide building blocks for detailed discussions on the specific challenges facing the Niger Delta. Globally, river deltas are of great economic and ecological importance, making them to be hotspots of intense socio-economic activities. However, the ever-increasing human population, socio-economic activities, and the low-lying coastal locations of deltas, compounded by climate change impacts, have made these areas to become increasingly vulnerable to environmental pollution and degradation.

This chapter discusses the unique drainage pattern of the Niger Delta and provides a good platform for the understanding of the physical processes pertinent to the region's hydrological evolution. Physical variables such as denudation rates, moisture and

energy balances which can be determined from the hydrologic framework are useful in the understanding of the landscape. Some characteristics and development stages of the top ten deltas of the world (Niger Delta ranks 9th position) are presented to highlight strategies used by countries in the developed world to successfully address the problems facing their deltas. This is to enable the infusion of international best practices in the development process of deltas in the developing countries, including the Niger Delta.

Chapter 2, *Defining the Niger Delta* (Akpokodje, 5 pp) presents a brief discussion on the use and definitions of the term "Niger Delta" from various perspectives including geology and geomorphology, ecology, socio-economic development, and political governance. In the largest sense, the Niger Delta includes the nine states of Ondo, Edo, Delta, Bayelsa, Rivers, Imo, Abia, Akwa-Ibom and Cross River which is the definition adopted by the Niger Delta Development Commission (NDDC). At the narrowest use of the term, is the definition according to the Niger Delta Development Board (NDDB) which only included the area occupied by Bayelsa, Delta and Rivers states. From the geological, geographical and ecological perspectives, the Niger Delta refers to the area defined by the Benin and Calabar Hinge Lines with Ndoni/Aboh as the northern most point of the Niger Delta. This book adopts a working definition which includes the three states of Bayelsa, Delta Rivers and the oil producing Local Government Areas (LGAs) of Ondo, Edo, Imo, Abia, Akwa Ibom, and Cross River States which is somewhat similar to the NDDC definition of the Niger Delta.

Chapter 3, ***Historical evolution and cultural heritage*** (Derefaka & Okorobia, 29 pp), provides an overview of the history, culture, and the socio-demographic characteristics of the people of the Niger Delta area. This section x-rays the classical and modern communities, the major tribes, and their stratified political structure and presents the anatomy of the legendary cultural heritage and the hugely successful leadership styles in the region. The inclusion of this chapter is highly innovative in a book on environmental and development challenges of the Niger Delta because of the conviction of the authors that one sure path to overcoming the current developmental challenges in the region is to re-examine the rich cultural heritage of the people with a view to grafting current and future developmental plans on the positive aspects of the time-honored cultural heritage of the people. The inclusion of this chapter is highly commendable.

Chapter 4 ***Development Challenges and Government Interventions*** (Akpokodje, 17 pp), presents a review of the development and environmental sustainability issues and the several Federal Government intervention agencies established to address them. The need to focus special attention on the development of the difficult terrain of the Niger Delta and its people has always been recognized by successive Nigerian governments including the colonial administration which set up the Willink Commission in 1957 to make recommendation regarding the concerns of marginalization expressed by the ethnic minority groups in the Niger Delta.

Chapter 5, ***Geology and Geomorphology*** (Adesida & Akpokodje, 16 pp), reviews the geomorphology, general geological

framework, and the hydrocarbon prolific Tertiary Niger Delta sedimentary sequences. Geologic knowledge is critical in environmental issues because the Earth and its environment were formed by geological processes that acted in the past and are still active today according to established geologic knowledge, principles, and controls. Therefore, it is impossible to formulate appropriate measures that can effectively address the problems threatening the sustainability and stability of the earth environment without adequate knowledge of the geologic controls. The authors should be commended for keeping the discussion devoid of high-sounding geologic jargons and complexities that may be difficult for non-geoscientists to understand.

Chapter 6, ***Climate, Expected Climate Change and Effects*** (Adegoke & Weli, 11 pp) is a compendium of the Niger Delta climate, expected consequences of climate change, and necessary proactive mitigation measures. This section outlines strategies for promoting and actualizing climate change adaptation and survivability options in Nigeria and the Niger Delta through collaboration between the different tiers of governments, development partners, and stakeholders.

Chapter 7, ***Flooding and Erosion in the Niger Delta*** (Abam, 17 pp) discusses the main twin hydrological hazards in the region attributed to high seasonal rainfall, lowland coastal topography, and location at the ultimate receptacle of waters and sediments from both the Rivers Niger and Benue. The adverse effects of these two hazards are aggravated by human activities. The chapter highlights evidence demonstrating that flood risk management

can be achieved through an integrated water management measures, and by harnessing the relationships among physical systems, institutional framework and socio-economic platforms.

Chapter 8, *Air Pollution in the Niger Delta* (Ede, 4 pp), the shortest chapter in the book, discusses the air quality, sources of air pollution, and the human health effects/risk in the Niger Delta. It observes that air pollution in the region is primarily caused by noxious gases, solids and bio-agents from both natural or anthropogenic/industrial sources. The section also gives insight into the emerging air pollution challenge in the Niger Delta - the persistent soot deposit (black carbon) experienced in Port Harcourt since 2016.

Chapter 9, *Oil Spills Occurrence in the Niger Delta* (Akpokodje & Giadom, 16 pp) discusses oil spills and the issue of environmental pollution and degradation problem in the Niger Delta. As is well known, oil spills in the region have attracted global attention as demonstrated by the report of the UN Environment Programme environmental assessment of Ogoniland in 2011. The authors should be commended for obtaining and critically analysing data on oil spill occurrences from the two government regulatory agencies, the Department of Petroleum Resources (DPR) and the National Oil Spill Detection and Response Agency (NOSDRA).

Chapter 10, *Crude Oil Theft, Illegal Artisanal Oil Refining and Environmental Impacts* (Amah, 7 pp) provides insight into the traditional, socio-economic, cultural and social security reasons underpinning the relatively recent major challenge of organized syndicates in the illegal artisanal refining of crude oil. The authors present

some effective ways of combating the problem.

Chapter 11, *Human Health Impact of Petroleum Industry and Waste Management Practices in the Niger Delta* (Ordinioha & Akpofure, 13 pp) deals with the direct and indirect human health effects of the petroleum industry and management of municipal and industry wastes in the region. The section outlines corporate and individual responsibilities in tackling the health impacts of poor waste management practices.

Chapter 12, *Petroleum Resources of the Niger Delta* (Akpokodje & Frank-Briggs, 14 pp) focuses on the petroleum resources of the Niger Delta, which presently is the single most important source of foreign exchange for the Nigerian economy. The main sub-headings covered in this chapter include, a review of the historical perspective of oil and gas exploration and production, the petroleum industry companies, production of crude oil and gas, regulatory and governance policies, marginal fields, and the proposed Petroleum Industry Governance Bill (PIGB).

Chapter 13, *Agricultural and Engineering Properties of Soils of the Niger Delta* (Kamalu, Akpokodje, Tse & Ekeocha, 23pp) presents a detailed discussion on the soils of the Niger Delta from the agricultural and engineering perspectives. Soil properties are very important in the selection of materials in foundation engineering and soil remediation. The main sub-headings under the agricultural perspective include, soil types, agricultural potentials, physical and chemical properties and managing the soils for improve agricultural productivity. The primary soil management issues include soil

acidity, multiple nutrient requirements, nutrient imbalance, and soil erosion.

Chapter 14, ***Water Resources and Pollution*** (Akpoborie & Akpokodje, 35pp), the longest chapter in the book, presents a detailed discussion with up-to-date data on the hydrology and surface water resources, hydrogeology, and groundwater water resources, and quality of water resources in the Niger Delta. This is one of the most important chapters in the book with many illustrations and quantitative data presented here. Water is at the core of sustainable development, and is critical for socio-economic development, healthy ecosystems, and for human survival itself. Goal 6 of the 2030 Agenda for Sustainable Development launched in 2015 by the UN is dedicated to water and sanitation.

Chapter 15, ***Biological Resources*** (Agbagwa, Zabbey, Sikoki & Francis, 34pp), presents in-depth discussions on the freshwater forest, mangrove forest, fishery, and aquaculture resources of the Niger Delta. Several species of plants and animals in this forest have already made the IUCN list of threatened and endangered species. The chapter outlines measures to preserve the forests and conserve the endangered aquaculture resources of the area.

Chapter 16, ***Way Forward and Strategies for Addressing challenges of the Niger Delta*** (Akpokodje, 22pp), addresses the way forward by highlighting the holistic and

pragmatic approaches that should result in better performance of intervention agencies/programmes with emphasis on integrated approach anchored on participatory, (community ‘buy-in’) collaboration, multi-disciplinary and cross-sectoral strategic planning, and effective implementation and monitoring. The major headings covered in this chapter include; Updated Holistic and Integrated Niger Delta Strategic Masterplan; more effective approaches to addressing major challenges of the Niger Delta; Environmental remediation and restoration of oil spill impacted sites; Case studies of major restoration programmes; lessons learned that can be applied to the current clean-up of Ogoniland; Niger Delta Beyond oil - transition from oil-based economy, and the author’s final thoughts.

Despite the vast literature on the Niger Delta, the only comprehensive text on the region from the environmental perspective is the “Niger Delta Environmental Survey Report” published in 1997. There is no doubt that a lot of changes have occurred in the Niger Delta since that publication was presented since 1997. This current multi-disciplinary book on the “*The Niger Delta: An Environmental Perspective*” is therefore a welcome publication as we struggle to better understand and successfully address the environmental and socio-economic developmental challenges of the region.