

Desert Encroachment Preceding Insecurity: A Silent Crisis in Nigeria's Sahel Region

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Received: October 17, 2025; Manuscript No: JCCC-25-1704; Editor Assigned: October 21, 2025; PreQc No: JCCC-25-1704(PQ); Reviewed: November 07, 2025; Revised: December 31, 2025; Manuscript No: JCCC-25-1704(R); Published: January 19, 2026

Citation: Joshua YD (2026). Desert Encroachment Preceding Insecurity: A Silent Crisis in Nigeria's Sahel Region. *J. Clim. Change Pollut.* Vol.2 Iss.1, January (2026), pp:24-25.

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ABSTRACT

Desertification and climate change have long displaced communities in Nigeria's Sahel-Sudan belt, even before armed conflict and insecurity escalated. This paper documents historical land degradation, displacement of villages, and ecological decline in northern Nigeria, estimates annual rates and land loss, and examines socio-economic consequences. It further proposes viable mitigation strategies including Farmer-Managed Natural Regeneration (FMNR), sustainable land management, restoration of wetland hydrology, and policy enforcement. Immediate action is essential to prevent further displacement, loss of livelihoods, and erosion of socio-environmental resilience [1].

Keywords: Desertification; Climate Change; Environmental Degradation; Forced Migration; Internal Displacement; Sahel Region; Nigeria

INTRODUCTION

Since the droughts of the 1970s-80s, Nigeria's northern Sahel-Sudan belt has exhibited gradual yet dramatic ecological decline. Villages in states such as Yobe, Borno, and Jigawa experienced creeping desertification long before the onset of modern insurgencies [2]. The disappearance of vegetation, water sources, and infrastructure forced many communities to migrate, often without public notice.

Data presented in this study are derived from secondary sources, including reports from the Nigerian Federal Ministry of Environment, United Nations Convention to Combat Desertification (UNCCD), and peer-reviewed literature. Estimates on desert encroachment and land degradation are primarily based on satellite observations and historical environmental assessments conducted across the Sahel region of Nigeria [3].

Geographic and Ecological Context

Northern Nigeria, particularly the Chad Basin and its periphery, features sand ridges aligned NE-SW. Under certain wind regimes, these ridges become reactivated, allowing mobile dunes to encroach on arable land, in some areas expanding by ~0.6 km southwards per year.

These estimates are consistent with findings reported in national environmental assessments and UNCCD-supported

regional studies [4]. Critical ecosystems like the Hadejia-Nguru wetlands and Lake Chad have seen dramatic reduction in size and seasonal flood extent due to damming, reduced precipitation, and sedimentation.

Frontline States & Affected Territory

Nigeria formally identifies eleven frontline states vulnerable to desertification: Adamawa, Bauchi, Borno, Gombe, Jigawa, Kano, Katsina, Kebbi, Sokoto, Yobe, and Zamfara. These states account for approximately 35-40% of Nigeria's land area [5]. Land degradation impacts ~43% of Nigeria's landmass, threatening the livelihoods of over 40 million people.

Magnitude of Land Loss & Desert Advance

Land degradation, including desert encroachment and deforestation, causes ~350,000 hectares of land loss annually in Nigeria. Forest cover loss is similarly significant: satellite data indicate ~463,360 hectares of forestland lost over ten years. Local reports cite numerous abandoned villages; e.g. ~149 villages in Yobe were abandoned due to advancing dunes.

Socio-Economic and Security Implications

Displacement & Insecurity: Loss of water, fertile land and grazing space forces migration; conflicts over land and resources intensify.

Agriculture & Food Security: Lower soil productivity, erratic rainfall and droughts reduce yields.

Livelihoods & Poverty: Communities dependent on rain-fed farming, fishing, and livestock are particularly vulnerable.

Infrastructure Loss: Roads and water wells are buried or made unusable by advancing sand.

Health & Well-being: Dust, loss of water access, and displacement contribute to increased disease, food shortages, and social disruption.

Drivers & Accelerants

Deforestation for fuelwood and crop expansion reduces natural barriers and moisture retention. Overgrazing and unsustainable tillage degrade soil structure. Upstream dams and poor water resource management reduce wetland recharge and dry season water availability [6]. Weak or inconsistent policy implementation, neglected maintenance of shelter belts and reserves accelerate degradation.

Mitigation Strategies & Practical Solutions

Strategy Example / Evidence Potential Implementation in Nigeria, given the scope of this, the mitigation strategies presented are indicative rather than exhaustive, highlighting priority interventions relevant to policy and community-level action. FMNR & Native Vegetation Regeneration In Niger and Burkina Faso, millions of hectares have been restored using FMNR. Scale FMNR training and support in frontline and buffer states. Rehabilitation of Shelterbelts & Wetlands Restoration of wetlands like Hadejia-Nguru, reclaiming flood pulses, dredging, vegetation removal [7]. Enforce policy on dam inflows, invest in wetland restoration. Climate-Smart Agriculture & Soil Conservation Techniques like zai pits, half-moons, agroforestry, and sustainable ranching. Promote these via extension services and incentives. Clean Energy & Woodlot Programs Sustainable woodlots reduce fuelwood demand; efficient cooking stoves lower deforestation pressure. Encourage

woodlot establishment near settlements; subsidies for clean stoves. Policy & Institutional Strengthening Nigeria's National Action Programme (NAP) on desertification; GGW-SAP initiatives. Increase funding, monitoring, and transparent reporting; integrate climate, land, and development policy. Early-Warning Systems & Remote Monitoring Use of satellite imagery & GIS to monitor land cover changes; detect dune advance. Build capacity in national and state agencies for remote sensing and rapid response.

CONCLUSION

Desert encroachment is not a future threat it is a present crisis that has quietly displaced thousands before insecurity became headline news. With annual land loss, decline in forest cover, and ecological tipping-points already crossed, Nigeria stands at a critical junction. The solutions many proven and low-cost lie within reach if there is political will, financial investment, and community engagement. Urgent action is no longer optional but necessary to safeguard lives, lands, and future generations.

REFERENCES

1. Federal Ministry of Environment, Nigeria. (2025). "Desertification affects 43% of landmass, threatens ~40 million livelihoods"
2. Global Forest Watch. (2023). Nigeria tree cover loss 2001–2022.
3. Reij C, Tappan G, Smale M. Agroenvironmental transformation in the Sahel: Another kind of "Green Revolution". *Intl Food Policy Res Inst*; 2009.
4. Rinaudo T, Muller A, Morris M. Farmer managed natural regeneration (FMNR) manual. World Vision Australia: Melbourne, Australia. 2019.
5. UNCCD. (2021). Nigeria country profile on desertification. United Nations Convention to Combat Desertification.
6. Olagunju TE. Drought, desertification and the Nigerian environment: A review. *Journal of Ecology and the Natural Environment*. 2015;7(7):196-209.
7. Additional sources: ACReSAL Project (World Bank), FAO/GGW SAP reports, national action programmes