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Biodiversity Credits and Carbon Markets as Financing Mechanisms for Environmental Sustainability in Nigeria: A Policy and Research Review

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Abstract

Nigeria loses forest at a scale measured in the tens to hundreds of thousands of hectares every year, and its wetlands, savannas, and marine ecosystems face mounting pressure from land-use change, extractive activity, and population growth. At the same time, two rapidly evolving global finance instruments — carbon markets and biodiversity credits — are increasingly discussed as complementary mechanisms for mobilizing private and public capital toward environmental sustainability. This paper examines the state, potential, and constraints of both mechanisms as financing tools for Nigeria's environmental sustainability agenda. Drawing on primary policy documents (the Climate Change Act 2021, Nigeria's 2021 Nationally Determined Contribution, the Energy Transition Plan, the Carbon Market Activation Policy, and Nigeria's NBSAP 2025–2030), official data (FAO's Global Forest Resources Assessment, Global Forest Watch, and the CBD Online Reporting Tool), and peer-reviewed literature on REDD+ effectiveness and biodiversity credit integrity, the paper traces the evolution of Nigeria's carbon market architecture — from the Cross River State REDD+ pilot to the 2024 Carbon Market Activation Policy — and situates it alongside the nascent global market for voluntary biodiversity credits, in which Nigeria's 2025–2030 National Biodiversity Strategy and Action Plan and the newly launched Biodiversity Finance Initiative represent early institutional footholds. The analysis finds that while Nigeria possesses substantial ecological assets — including the Cross River rainforest block, the Niger Delta mangrove complex, and a network of national parks covering about 3% of its land area — it faces significant governance, measurement, and market-access constraints that limit its ability to capture value from either mechanism at scale. Recent peer-reviewed evidence further cautions that REDD+ impacts to date have been positive but modest, and that most biodiversity credit suppliers do not yet meet high-integrity criteria, implying that Nigeria's institutional choices now will shape whether either mechanism delivers credible, lasting benefit. The paper concludes with policy recommendations for strengthening monitoring, reporting and verification (MRV) systems, harmonizing carbon and biodiversity governance, and building the domestic institutional capacity needed to convert Nigeria's natural capital into credible, investable environmental assets.

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1. Introduction

Environmental sustainability financing has become one of the defining policy challenges facing resource-rich but capital-constrained economies such as Nigeria. The country holds the largest remaining block of the Guineo-Congolian rainforest in West Africa within Cross River State, one of the most extensive mangrove systems in the world along its Niger Delta coastline, and a network of seven federally administered national parks covering roughly 20,156 square kilometres, or about 3% of its total land area (National Park Service Act, Cap. N65 LFN; News Agency of Nigeria [NAN], 2026). An eighth site, Yankari, was transferred from federal to Bauchi State administration in 2006 and today operates as a state game reserve rather than a national park (NAN, 2026).

Nigeria's remaining forest is under sustained pressure. According to the UN Food and Agriculture Organization's Global Forest Resources Assessment 2020 (FRA 2020), Nigeria's forest area declined from approximately 26.5 million hectares in 1990 to 21.6 million hectares in 2020 — a loss of roughly 5 million hectares, or an average annual rate of about 5% over the period, among the highest sustained rates of any country (FAO, 2020). Satellite-based estimates from Global Forest Watch, compiled in an independent forest-governance risk assessment, put 2020 forest loss at 40,594 hectares, around a third of it primary forest, following a peak of over 55,000 hectares in 2017 (Forest Trends, 2022). More recent Global Forest Watch-derived figures cited in Nigerian press reporting put 2023 natural forest loss at 81,200 hectares, with associated emissions of 54.6 million tonnes of CO2 (Guardian Nigeria, 2024). A peer-reviewed 2025 study using Global Forest Watch data found that, cumulatively between 2001 and 2020, Edo, Ondo, Cross River, Taraba, and Ogun states alone accounted for 54% of Nigeria's total tree-cover loss (Yahaya et al., 2025).

Two internationally recognised financing instruments have emerged as potential responses to this dual challenge of ecological loss and capital scarcity: carbon markets, which monetise verified greenhouse gas emission reductions or removals, and biodiversity credits, a newer and less standardised instrument that monetises measured positive biodiversity outcomes (Biodiversity Credit Alliance [BCA], 2024; Wunder et al., 2025). Nigeria has taken concrete steps on the carbon market side, notably through the Climate Change Act 2021, its 2021 Nationally Determined Contribution (NDC) update, the Cross River State REDD+ jurisdictional pilot, and the 2024 Carbon Market Activation Policy (NCMAP), which the federal government projects could unlock a market worth between US$736 million and US$2.5 billion by 2030 (Federal Republic of Nigeria, 2024; Nairametrics, 2024). On the biodiversity side, Nigeria adopted a revised National Biodiversity Strategy and Action Plan (NBSAP) for 2025–2030, with an indicative implementation budget of approximately US$474 million reported to the Convention on Biological Diversity (CBD Online Reporting Tool, 2025), and in 2025 launched a national Biodiversity Finance Initiative (BIOFIN) in partnership with the United Nations Development Programme (Voice of Nigeria, 2025).

This paper asks three interrelated questions, informed throughout by both primary policy documents and recent peer-reviewed literature. First, what is the current institutional and policy architecture underpinning carbon market participation in Nigeria, and what does rigorous evidence suggest about what such mechanisms actually achieve? Second, what is the nature of the emerging global biodiversity credit market, including the integrity concerns raised in recent academic assessments, and to what extent can Nigeria's ecological assets be converted into tradable biodiversity outcomes? Third, what governance, technical, and market barriers must be addressed for both mechanisms to deliver meaningful financing for environmental sustainability at scale? The paper proceeds as follows: Section 2 sets out the conceptual distinction between carbon and biodiversity credits, including evidence on their effectiveness and integrity; Section 3 profiles Nigeria's biodiversity and forest-loss context; Section 4 examines Nigeria's carbon market architecture in depth, including the Cross River REDD+ case; Section 5 turns to biodiversity credits and Nigeria's emerging institutional footholds; Section 6 sets out the wider financing and institutional landscape; Section 7 discusses barriers; Section 8 offers policy recommendations; and Section 9 concludes.

2. Conceptual and Policy Background

2.1 Carbon Markets

Carbon markets allow the trading of units representing verified reductions, avoidance, or removal of greenhouse gases, most commonly denominated in tonnes of carbon dioxide equivalent (tCO2e). They operate in two broad forms: compliance markets, created by regulation such as national emissions trading systems or the Paris Agreement's Article 6 mechanisms, and voluntary markets, in which companies and other entities purchase credits outside a regulatory mandate, typically to meet corporate climate commitments. The global carbon market, spanning both compliance and voluntary segments, reached a record value of roughly US$949 billion in 2023, and the voluntary offset segment specifically has been projected to grow from about US$331.8 billion in 2022 to US$1.6 trillion by 2028 (Nairametrics, 2024).

2.2 Biodiversity Credits

Biodiversity credits are a considerably newer and less standardised instrument. The Biodiversity Credit Alliance, a multi-stakeholder body launched at the 2022 Convention on Biological Diversity's 15th Conference of the Parties (CBD COP15), defines the concept in relation to Target 19(c) and (d) of the Kunming-Montreal Global Biodiversity Framework (K-M GBF), which calls on parties to encourage private-sector investment in biodiversity, including through biodiversity credits with appropriate social safeguards (BCA, 2024). WWF defines a biodiversity credit as “a certificate that represents a measured and evidence-based positive biodiversity outcome from nature restoration, conservation or stewardship activities” that is explicitly not intended to offset residual biodiversity damage elsewhere (WWF, 2024). This distinguishes biodiversity credits conceptually from biodiversity offsets, which compensate for a specific negative impact.

Unlike carbon, for which a tonne of CO2e is a scientifically uniform and fungible unit regardless of where it is avoided, biodiversity value is inherently heterogeneous, site-specific, and multidimensional — a hectare of restored mangrove and a hectare of restored savanna are not interchangeable in the way that a tonne of avoided emissions is. This is why WWF's position explicitly rejects a single universal unit of biodiversity outcome (WWF, 2024). The leading emerging methodology, Verra's Nature Framework launched for public consultation in 2024, instead uses “Quality Hectares” (Qha), a unit that adjusts the physical area of an ecosystem (“Extent”) by its ecological quality (“Condition”), with projects re-verified on a five-year monitoring cycle (ClimateSeed, 2024; Carbon Pulse, 2024). The nascent state of this market is reflected in its size: the World

Economic Forum estimated the global voluntary biodiversity credit market at only about US$8 million in 2023, but projected growth to roughly US$2 billion by 2030 and US$69 billion by 2050 as methodologies mature and corporate nature-related disclosure requirements expand demand (Drishti IAS, 2024). An earlier BloombergNEF estimate suggested the market could reach as much as US$160 billion by 2030 under a faster-growth scenario (OCBC, 2023), illustrating the wide uncertainty that still surrounds these projections.

summarizes the principal conceptual and market differences between the two instruments, which matter directly for how Nigerian policymakers should sequence their engagement with each.

Table 1. Comparison of Carbon Credits and Biodiversity Credits as Environmental Finance Instruments

Feature	Carbon Credits	Biodiversity Credits
Unit of value	Tonne of CO2-equivalent avoided, reduced, or removed (tCO2e)	A scheme-specific outcome unit (e.g., Verra's 'Quality Hectare' combining ecosystem extent and condition)
Fungibility	Highly fungible; one tonne is broadly interchangeable with another	Largely non-fungible; outcomes are site- and species-specific and not easily substitutable
Market maturity	Established since the 1997 Kyoto Protocol; global voluntary market valued near US$949 billion in related compliance and voluntary segments by 2023	Nascent; global voluntary market estimated at only about US$8 million in 2023, with growth projected to US$2 billion by 2030
Leading standards	Verra (VCS), Gold Standard, Article 6 compliance instruments	Verra Nature Framework (Quality Hectares), Wallacea Trust, Global Biodiversity Standard, various emerging national schemes
Primary policy driver	Paris Agreement (Article 6), national Nationally Determined Contributions (NDCs)	Kunming-Montreal Global Biodiversity Framework, Target 19(c)–(d)
Offsetting use	Widely used to offset residual emissions elsewhere	Generally not intended to offset biodiversity loss elsewhere; framed as additional positive contribution
Nigerian relevance	Nigeria Carbon Market Activation Policy (NCMAP); Cross River REDD+ jurisdictional pilot	Emerging interest via NBSAP 2025–2030, BIOFIN, and potential linkage to forest and wetland projects

Source: Researcher's Field works,2026

3. Nigeria's Biodiversity and Forest-Loss Context

Nigeria is one of the most biologically diverse countries in West Africa. Its avifauna alone totals roughly 940 recorded species, and its national parks and reserves host globally significant populations of the African elephant, chimpanzee, and the critically endangered Cross River gorilla, found nowhere else in the world outside the Nigeria–Cameroon border region (WorldAtlas, n.d.). The country's approximately 853 kilometres of Atlantic coastline and roughly 28,000 square kilometres of wetlands, about 3% of its 923,768 square-kilometre land area, include the Niger Delta mangrove complex, one of the largest mangrove ecosystems on Earth (Tudor Rose / CBD Secretariat, n.d.).

This natural capital is being eroded rapidly. Historical FAO assessments ranked Nigeria as having the world's highest deforestation rate of primary forest between 2000 and 2005, with a loss of 55.7% of remaining primary forest over that five-year window, attributed principally to logging, subsistence agriculture, and fuelwood collection (Forest Trends, 2022). More recent data show continued large-scale loss: Global Forest Watch-derived figures cited by Guardian Nigeria indicate Nigeria lost 1.33 million hectares of tree cover between 2000 and 2023, equivalent to a 13% reduction relative to the 2000 baseline and about 724 million tonnes of associated CO2 emissions, with 2023 alone accounting for 81,200 hectares of natural forest loss and 54.6 million tonnes of CO2e (Guardian Nigeria, 2024). A 2025 account citing Global Forest Watch and the Nigerian Conservation Foundation put 2024 losses at roughly 250,000 hectares of natural forest, with the Foundation's own working estimate of current annual losses at around 400,000 hectares (Leadership, 2025). Figure 3 juxtaposes several of these estimates, drawn from different sources, periods, and methodologies, to illustrate the persistently large scale of the problem rather than to suggest a single consistent time series.

Most of Nigeria's remaining dense forest is concentrated in the Niger Delta region and in the states of Bayelsa, Cross River, Edo, Ekiti, Ondo, Osun, Rivers, and Taraba, with Edo State alone accounting for an estimated 27% of national deforestation in 2020 and Cross River, Taraba, and Ondo together accounting for a further 40% (Forest Trends, 2022). The land-use sector, encompassing agriculture and forestry, is estimated to contribute 60% of Nigeria's total greenhouse gas emissions (Forest Trends, 2022), underscoring why forest- and land-based carbon and biodiversity finance mechanisms are especially relevant to the country's climate and conservation strategy. Table 2 and Figure 5 profile Nigeria's formal protected-area estate, which forms the institutional and spatial backbone on which much carbon and biodiversity financing would need to be built.

Table 2. Nigeria's National Parks by Area, Establishment Date, and State

National Park	Area (km²)	Established	State(s)
Gashaka Gumti	6,402	1991	Taraba, Adamawa
Cross River	4,000	1991	Cross River
Kainji Lake	5,341	1979	Niger, Kwara
Chad Basin	2,258	1991	Borno, Yobe
Old Oyo	2,512	1991	Oyo, Kwara
Kamuku	1,120	1999	Kaduna
Okomu	181	1999	Edo
Total (approx.)	≈20,156 (≈3% of national land area)	—	—

Source: Researcher's Field works,2026

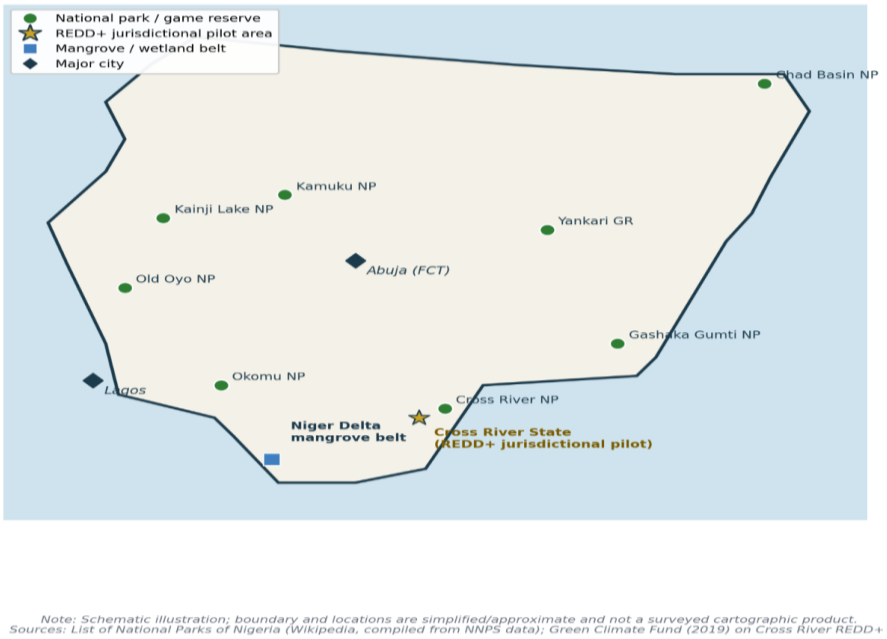


Figure 1: Schematic Map of Nigeria showing National Parks, the Cross River REDD+Pilot site, and the Niger Delta Mangrove Belt. *(illustrative; not a surveyed cartographic product).*
Source: *Researcher's Field works,2026*

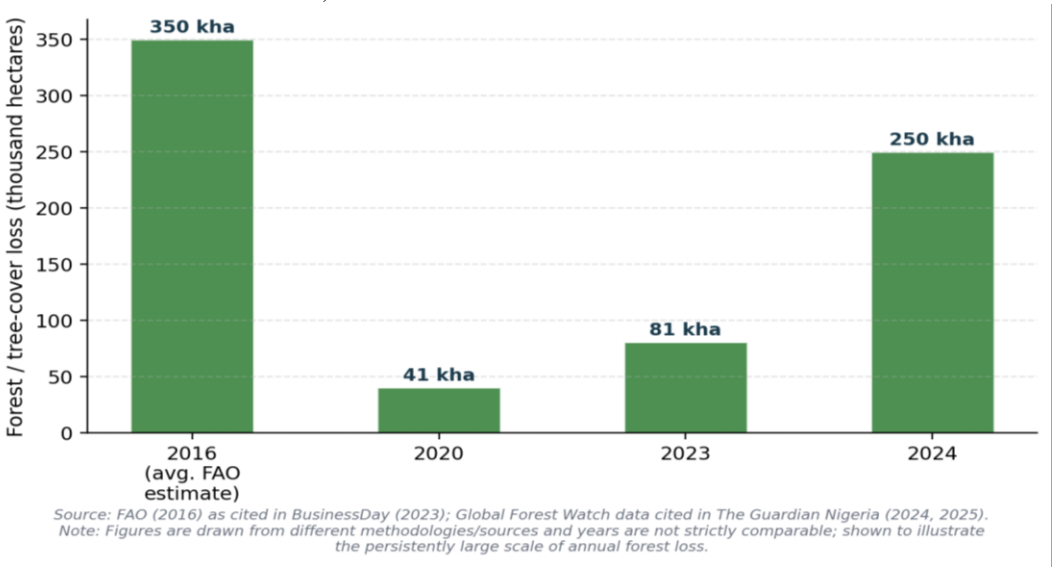


Figure 2. Selected estimates of annual forest loss in Nigeria across different sources and years.

4. Carbon Markets as a Financing Mechanism in Nigeria

4.1 Policy Foundations

Nigeria's engagement with carbon markets is anchored in its 2021 update to its Nationally Determined Contribution under the Paris Agreement and its 2022 Energy Transition Plan (ETP), which targets five priority sectors — power, transport, cooking, industry, and oil and gas — that together account for approximately 65% of national greenhouse gas emissions (Mondaq, 2026). Nigeria has also committed to a net-zero target by 2060, a transition the country's climate finance leadership has estimated will require approximately US$1.9 trillion in cumulative investment through 2060, of which at least US$410 billion would need to be above business-as-usual spending (S&P Global Commodity Insights, 2023).

The centrepiece of Nigeria's current carbon market strategy is the Carbon Market Activation Policy (NCMAP), developed under an Intergovernmental Committee inaugurated by Vice President Kashim Shettima in March 2024 following an announcement by President Bola Ahmed Tinubu at COP28 in December 2023, and co-chaired by the Executive Chairman of the Federal Inland Revenue Service and the Director General of the National Council on Climate Change (Carbon Herald, 2024; S&P Global Commodity Insights, 2023). The policy is supported by the Africa Carbon Markets Initiative (ACMI), a partnership launched at COP27 in November 2022 that also includes Kenya, Malawi, Gabon, and Togo, aimed at scaling Africa's supply of carbon credits into global markets (S&P Global Commodity Insights, 2023). Government estimates of the market's potential value by 2030 have varied across public statements, ranging from roughly US$736 million to US$2.5 billion (Nairametrics, 2024), with the policy also projected to generate between 600,000 and 2.3 million green jobs (Nairametrics, 2024). Figure 1 presents this range graphically, and separate academic commentary from the University of Nigeria, Nsukka has independently placed the 2030 estimate above US$2 billion (UNN, 2025).

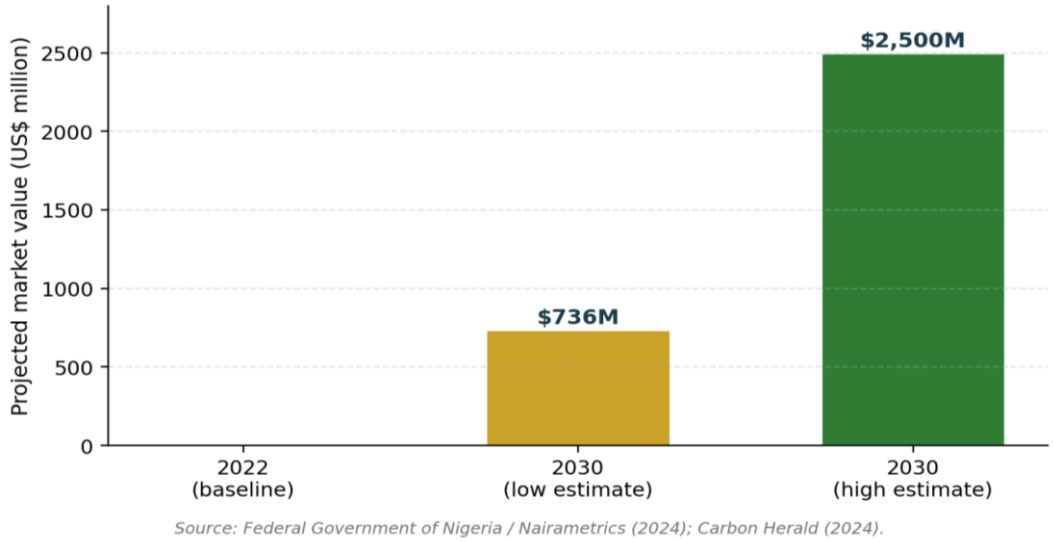


Figure 3. Projected value range of Nigeria's Carbon Market Activation Policy by 2030

Institutionally, the policy establishes a Carbon Market Oversight Body (CMOB) within the National Council on Climate Change and a Carbon Market Implementation Unit (CMIU) responsible for project certification, emissions accounting, and liaison with the UNFCCC's Article 6 supervisory body, alongside an Intergovernmental Committee on Carbon Market Activation (IGCCMA) for inter-ministerial coordination (RSIS International, n.d.). The policy also envisages a phased transition from voluntary market participation toward a domestic compliance regime, potentially including a national emissions trading system and carbon pricing instruments (Mondaq, 2026), with institutional duties distributed across the National Environmental Standards and Regulations Enforcement Agency (NESREA) for compliance, the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) for oil and gas emissions, and the Securities and Exchange Commission and Nigerian Exchange for trading-platform development (RSIS International, n.d.).

4.2 Case Study: The Cross River State REDD+ Pilot

The most advanced sub-national carbon finance initiative in Nigeria is the Cross River State (CRS) REDD+ programme. Cross River State contains approximately 50% of Nigeria's remaining forest cover and has pursued REDD+ readiness since the early 2010s, including the development of a state-level REDD+ strategy, submission of a sub-national Forest Reference Emission Level (FREL) to the UNFCCC, and the establishment of a sub-national approach to environmental and social safeguards (Green Climate Fund, 2019). A Green Climate Fund-supported project, “Making Nigeria's Cross River State Investment Ready for REDD+,” has aimed to complete the outstanding technical and institutional requirements — the so-called Warsaw Framework components of REDD+ — needed to access results-based payments from both market and non-market sources, while building the monitoring, reporting and verification (MRV) capacity, a jurisdictional carbon registry, and a “nested” approach allowing individual project-level activities to aggregate into the state-wide accounting framework (Green Climate Fund, 2019).

Independent research on the livelihoods dimension of the Cross River programme found that more than half of surveyed forest-community households identified direct financial payment and access to natural resources as the perceived benefits of forest carbon protection, with household income the strongest predictor of support for continued participation; the same study found rising incomes from several non-timber forest products such as Gnetum africanum (afang) and bushmeat alongside declining income from others such as rattan cane since the programme's inception (Amuyou et al., 2021). This mixed evidence illustrates a recurring theme in REDD+ implementation globally: carbon finance can generate meaningful local benefits, but outcomes are uneven across communities and forest products, underscoring the importance of robust benefit-sharing design. Not all assessments have been positive, however: a widely cited 2014 civil-society report by the Nigerian organisation Social Action documented cases in which forest-dependent communities in Cross River State experienced restricted access to customary forest resources and inadequate consultation following REDD+-related land-use restrictions (Social Action, 2014). Taken together, the evidence suggests that the programme's long-term legitimacy depends on stronger free, prior and informed consent procedures and more transparent benefit-sharing arrangements than have always been achieved in practice.

4.3 Assessment

Taken together, Nigeria's carbon market architecture has progressed substantially on paper — from NDC commitments and an Energy Transition Plan to a named oversight body, a carbon market policy, and an advanced sub-national REDD+ pilot — but, as of the period covered by this review, the market remains in an activation rather than an operational phase. No large-scale, verified credit issuance and sale comparable to the projected US$736 million to US$2.5 billion figures had yet materialised, and much of the institutional infrastructure described in the 2024 policy, including the digital carbon registry and the compliance-market transition, remained under development (RSIS International, n.d.).

5. Biodiversity Credits and Nigeria's Emerging Institutional Footholds

5.1 The Global State of Play

Biodiversity credit markets remain considerably less developed globally than carbon markets, with most schemes still in pilot or consultation phases as of 2024. Verra's Nature Framework, developed with input from organisations including Conservation International and the International Union for Conservation of Nature (IUCN), was opened for public consultation in 2023 and formally unveiled at CBD COP16 in October 2024, with the first projects expected to be registered from April 2025 (ClimateSeed, 2024; Carbon Pulse, 2024). The Biodiversity Credit Alliance, whose secretariat is jointly facilitated by UNDP, the UNEP Finance Initiative, and the Swedish International Development Cooperation Agency, has emphasised that credibility depends on both supply-side integrity (the quality of underlying projects) and demand-side integrity (rules preventing credits from being used to "wash" biodiversity harm), with a particular focus on the role of Indigenous Peoples and Local Communities represented on its Communities Advisory Panel (BCA, 2024).

The Kunming-Montreal Global Biodiversity Framework, adopted at CBD COP15 in December 2022, calls for mobilising at least US$200 billion annually by 2030 from all sources for biodiversity, using instruments that include payments for ecosystem services, green bonds, and biodiversity credits (Drishti IAS, 2024). WWF has adopted a cautious institutional position, stating it will not develop, endorse, promote, or encourage the sale of voluntary biodiversity credits unless clear conditions are met on buyer eligibility, prohibition of offsetting claims, robust claims standards, and restrictions on secondary-market trading (WWF, 2024).

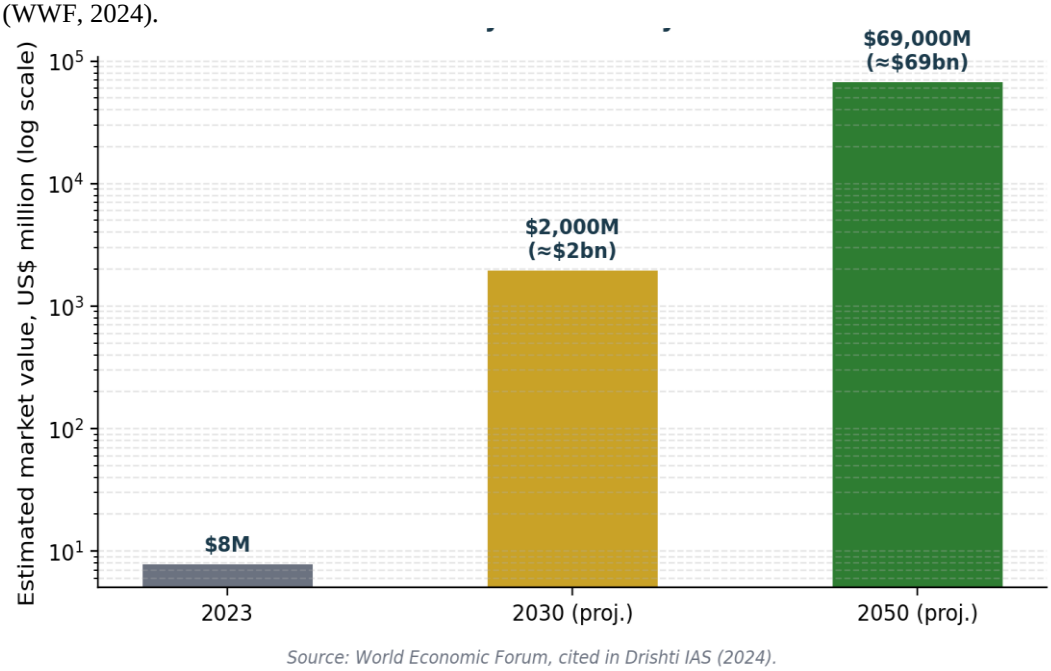


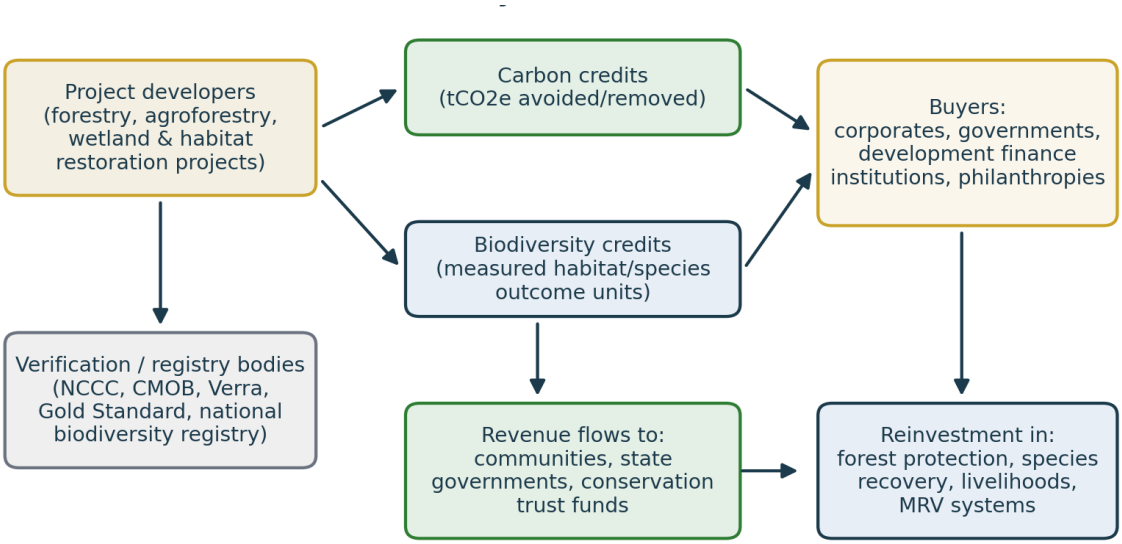
Figure 4. World Economic Forum projections for the global voluntary biodiversity credit market, 2023–2050 (log scale).

5.2 Nigeria's Position

Nigeria does not yet have an operational biodiversity credit scheme, but it has established the policy foundations on which one could eventually be built. The country's National Biodiversity Committee oversees implementation of the National Biodiversity Strategy and Action Plan, and in 2025 the government adopted a revised NBSAP for the 2025–2030 period, built around 23 national targets explicitly mapped to the corresponding goals of the Kunming-Montreal Global Biodiversity Framework (Africa Sustainability Matters, 2025). Nigeria has been a party to the Convention on Biological Diversity since 1994 and played an active role, alongside the broader ECOWAS bloc, in shaping GBF provisions on equity, sustainable use, and benefit-sharing during the COP15 negotiations (The Cable, 2024).

In 2025, the Federal Ministry of Environment, through its Department of Forestry, launched Nigeria's national Biodiversity Finance Initiative (BIOFIN) in Abuja, in partnership with the UNDP-supported global BIOFIN programme, explicitly to close the country's biodiversity conservation financing gap, which sits within a global estimated annual nature-loss cost of more than US$500 billion (BusinessDay, 2025; Voice of Nigeria, 2025). According to the Director of Forestry, Nigeria has already begun integrating biodiversity finance into national development planning through increased budgetary allocations to forestry and conservation programmes, new partnerships with development organisations, and efforts to mainstream biodiversity considerations into agriculture, energy, and infrastructure planning (Voice of Nigeria, 2025). Nigeria has also experimented with crowdfunding as an innovative, citizen-participation financing mechanism for biodiversity projects, soliciting modest contributions from large numbers of individual Nigerians (Tudor Rose / CBD Secretariat, n.d.).

None of these initiatives yet constitutes a functioning biodiversity credit market in the sense defined by the Biodiversity Credit Alliance or WWF — that is, a scheme issuing verifiable, tradable units tied to measured ecological outcomes. Rather, Nigeria's current biodiversity finance architecture (NBSAP, BIOFIN, budgetary integration, crowdfunding) represents the institutional and planning layer that would need to precede any credible biodiversity credit scheme. Figure 4 sets out, in stylised form, how carbon and biodiversity credit finance would need to flow from project developers through verification and registry bodies to buyers, and back to communities and reinvestment, a structure Nigeria has only partially built for carbon and has yet to build for biodiversity.



Source: Author's construction, based on BCA (2024), WWF (2024), and Nigeria's Carbon Market Activation Policy (2024).

Figure 5. Conceptual flow of finance through carbon and biodiversity credit mechanisms, as relevant to Nigeria's institutional context.

6. Institutional and Financing Landscape

Realising either mechanism at scale requires coordinated action across a wide range of federal, sub-national, and international institutions. Table 3 summarises the principal Nigerian and international actors currently engaged, while Table 4 summarises the specific financing instruments available or emerging.

Table 3. Key Institutional Actors in Nigeria's Carbon and Biodiversity Finance Architecture

Institution	Role in carbon and biodiversity financing
National Council on Climate Change (NCCC)	Apex federal body coordinating national climate policy; hosts the Carbon Market Implementation Unit (CMIU) and, through the Carbon Market Oversight Body (CMOB), manages project certification and communication with the UNFCCC Article 6 supervisory body
Federal Inland Revenue Service (FIRS)	Co-chairs the intergovernmental carbon market committee; responsible for carbon tax administration and fiscal incentives linked to the Carbon Market Activation Policy
Federal Ministry of Environment	Custodian of the National Biodiversity Strategy and Action Plan (NBSAP 2025–2030) and the Biodiversity Finance Initiative (BIOFIN); oversees forestry policy through its Department of Forestry
National Environmental Standards and Regulations Enforcement Agency (NESREA)	Environmental compliance monitoring and enforcement relevant to project-level safeguards
Nigerian Upstream Petroleum Regulatory Commission (NUPRC)	Oversight of oil- and gas-sector emissions, a major source category under the Energy Transition Plan
Securities and Exchange Commission (SEC) / Nigerian Exchange (NGX)	Development of domestic carbon-trading platforms and market infrastructure
Cross River State Government / State Forestry Commission	Sub-national implementing partner for the REDD+ jurisdictional pilot, including the Forest Reference Emission Level (FREL) and benefit-sharing arrangements
United Nations Development Programme (UNDP) / Green Climate Fund (GCF)	Technical and results-based finance support for REDD+ readiness and the BIOFIN process
International standard-setters (Verra, Gold Standard, Biodiversity Credit Alliance)	Certification methodologies and registries that Nigerian projects would need to access to sell credits internationally

Source: Researcher's Field works,2026

Table 4. Summary of Carbon and Biodiversity Financing Instruments Relevant to Nigeria

Instrument	Application to Nigeria
REDD+ results-based payments	Cross River State has submitted a sub-national Forest Reference Emission Level and developed a REDD+ strategy to qualify for payments for verified emission reductions from reduced deforestation
Compliance and voluntary carbon markets (Article 6)	The Carbon Market Activation Policy (2024) seeks to position Nigeria to generate Internationally Transferable Mitigation Outcomes (ITMOs) under Article 6.2 and to supply the voluntary market across the power, transport, cooking, industry, and oil and gas sectors identified in the Energy Transition Plan
Biodiversity Finance Initiative (BIOFIN)	UNDP-supported national process, launched in 2025, to design financing solutions that close Nigeria's biodiversity conservation funding gap
Voluntary biodiversity credits	Not yet operational in Nigeria, but the global emergence of frameworks such as Verra's Nature Framework offers a template that could, in principle, be applied to Nigerian forest, wetland, and savanna restoration projects
Green bonds and public-private partnerships	Identified in Nigeria's NBSAP and COP16 commitments as innovative financing routes to mobilise both domestic and international capital
Community crowdfunding	Piloted by Nigeria as a citizen-participation financing mechanism for biodiversity projects, mobilising small individual contributions

Source: Researcher's Field works,2026

A recurring institutional theme is fragmentation: carbon market governance is concentrated under the National Council on Climate Change and the Federal Inland Revenue Service, while biodiversity governance sits primarily under the Federal Ministry of Environment's Department of Forestry, with limited formal linkage between the two tracks despite their shared reliance on the same forest and wetland landscapes, particularly in Cross River State and the Niger Delta. Sub-national governments, which hold constitutional authority over land and, in practice, much operational control over forest resources, remain unevenly engaged; Cross

River State's decade-long REDD+ investment stands in contrast to the comparatively limited sub-national biodiversity finance activity in other high-deforestation states such as Edo and Taraba.

7. Barriers and Constraints

Several structural barriers limit Nigeria's ability to convert its natural capital into credible, investable carbon and biodiversity assets.

- Measurement, reporting and verification (MRV) capacity: Robust carbon accounting requires consistent, science-based monitoring; Nigeria's national Forest Reference Emission Level submission and the Cross River sub-national FREL represent early steps, but a nationwide, interoperable digital carbon registry able to track issuance, transfer, and retirement in line with international systems has been identified as still under development (RSIS International, n.d.).
- Absence of a universal biodiversity metric: Unlike carbon, biodiversity outcomes cannot be reduced to a single fungible unit, which complicates both domestic policy design and the credibility of any future Nigerian biodiversity credit scheme; even leading international bodies such as WWF and the Biodiversity Credit Alliance are still resolving fundamental questions of metrics, safeguards, and buyer-claim standards (BCA, 2024; WWF, 2024).
- Governance fragmentation: Carbon and biodiversity policy are administered by different federal bodies with limited formal coordination, risking duplicated effort or missed synergies, particularly in landscapes such as Cross River State and the Niger Delta where forest carbon and biodiversity values are co-located.
- Deforestation pressure outpacing conservation finance: With annual forest loss estimated in the hundreds of thousands of hectares (BusinessDay, 2023; Leadership, 2025), the scale of ongoing ecological loss may be outrunning the still-nascent pace of carbon and biodiversity finance mobilisation.
- Community benefit-sharing and equity: Evidence from the Cross River REDD+ programme shows uneven household-level benefits, with income from some non-timber forest products declining even as overall carbon-related payments have grown (Figshare/Sussex research), highlighting the risk that finance flows may not translate automatically into equitable local outcomes.
- Market access and buyer confidence: Nigeria's carbon and prospective biodiversity credits would need to meet the standards of international registries such as Verra and Gold Standard to attract serious institutional buyers, a process that requires sustained technical capacity and credible independent verification (RSIS International, n.d.; ClimateSeed, 2024).
- Security and land tenure: Much of Nigeria's remaining forest lies in areas affected by land-use conflict, insecure community tenure, or weak reserve administration, factors reported to allow illegal logging to continue with limited enforcement (Leadership, 2025).
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8. Policy Recommendations

Based on the preceding analysis, five priority actions would strengthen Nigeria's ability to use carbon and biodiversity credit mechanisms as genuine financing tools for environmental sustainability.

- Complete and operationalise the national carbon registry and MRV infrastructure envisaged under the Carbon Market Activation Policy, prioritising interoperability with international systems so that Nigerian credits are recognised and tradable in global markets (RSIS International, n.d.).
- Formally integrate biodiversity considerations into the Carbon Market Oversight Body's mandate, or establish an explicit coordination mechanism between the National Council on Climate Change and the Federal Ministry of Environment, so that forest-carbon projects in landscapes such as Cross River State and the Niger Delta are designed to deliver measurable biodiversity co-benefits from the outset, rather than pursuing carbon and biodiversity finance as parallel, uncoordinated tracks.
- Use the BIOFIN process to pilot a small number of jurisdictional biodiversity credit demonstration projects, drawing on emerging international methodologies such as Verra's Quality Hectare approach, before attempting national-scale rollout, allowing Nigeria to build institutional learning and buyer credibility incrementally.
- Strengthen community benefit-sharing safeguards in REDD+ and future biodiversity credit projects, informed by the mixed livelihood outcomes observed in Cross River State, to ensure that payments translate into durable improvements in household welfare and continued community support for conservation.
- Mobilise blended and innovative finance — including green bonds, public-private partnerships, and continued crowdfunding — to bridge the gap between current conservation budgets and the scale of financing needed, recognising that carbon and biodiversity credit revenues, even at the optimistic 2030 projections cited in this paper, would only partially cover Nigeria's estimated multi-trillion-dollar net-zero transition costs and multi-hundred-billion-dollar share of global annual nature-loss costs (BusinessDay, 2025; S&P Global Commodity Insights, 2023).

9. Conclusion

Nigeria possesses substantial natural capital — extensive forests, mangroves, savannas, and a protected-area network covering roughly 3% of its land area — that could, in principle, be converted into significant environmental finance flows through carbon markets and, in time, biodiversity credits. The country has made real institutional progress: a Carbon Market Activation Policy with defined oversight bodies, an advanced sub-national REDD+ pilot in Cross River State, an updated National Biodiversity Strategy and Action Plan for 2025–2030, and a newly launched Biodiversity Finance Initiative. Yet both mechanisms remain more promise than delivery. Carbon markets are in an activation rather than operational phase, and biodiversity credits remain a genuinely nascent global instrument, still without a universally accepted metric, in which Nigeria has taken only preliminary institutional steps. Closing this gap between potential and realised finance will require sustained investment in measurement and verification infrastructure, closer coordination between Nigeria's carbon and biodiversity governance tracks, credible community benefit-sharing, and continued diversification into complementary instruments such as green bonds and blended finance. Given the scale and pace of ongoing forest

loss documented in this paper, the window for building these mechanisms before further irreversible ecological loss occurs is narrowing, making near-term institutional action a matter of considerable urgency.

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