



Strengthening Forest Monitoring for REDD+ in the Republic of the Congo:

**Insights from a REDDCompass-based
Assessment of the National Forest
Monitoring System**



Global Forest
Observations Initiative



Authors:

René Siwe Ngamabou^{1,2}, Carine F. Bourgeois^{1,2}, Destin Loge Lokegna², Madhy Petronique Poba Suki², Eugene Loh Chia³, Olivia E. Freeman², Ashley D. Lehman², Michel Toko-Puku⁴, Georges Claver Boundzanga⁵; Cherubins Brice Ouissika⁶; Gervais Madzous⁷; Jean-Joël Loumeto^{8,9}, Carine Milandou¹⁰; Dabney Matoko Kouediatouka^{10,11}, Sylvia N. Wilson²

¹Sinrex Sustainable Solutions, Central Africa Office, Yaoundé, Cameroon

²Wilpa Capacity Development LLC, Arlington, Virginia, United States of America

³Fokabs Inc., Ottawa, Canada

⁴Training Resources Group (TRG) Inc, Arlington, Virginia, United States of America

⁵Panel of Experts for the Emergence of Carbon Projects and Markets (PEEPMC), Brazzaville, Republic of the Congo

⁶Permanent Secretariat of the Congo–Central African Forest Initiative (CAFI) Partnership, Brazzaville, Republic of the Congo

⁷Regional Hub for Climate Action Transparency for Central Africa, Douala, Cameroon

⁸Ministry of Forest Economy, Brazzaville, Republic of the Congo

⁹Laboratory of Biodiversity, Ecosystem Management and Environment, Faculty of Science and Technology, Marien Ngouabi University, Brazzaville, Republic of the Congo

¹⁰National Center for Forest and Wildlife Resources Inventory and Management (CNIAF), Brazzaville, Republic of the Congo

¹¹ National REDD+ Coordination Unit, Brazzaville, Republic of the Congo

Contact:

René Siwe

rene.siwe@sinrexsolutions.com

Sylvia Wilson

sylvia.wilson@wilpacd.com

Cover Photo:

On the Lefini River, Republic of the Congo. Photo by Eva McNamara.

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Odzala-Kokoua National Park. Photo by Roni Ziade

EXECUTIVE SUMMARY

The Republic of the Congo (RoC) possesses one of the largest tropical forest estates in the Congo Basin and plays a critical role in global climate mitigation, biodiversity conservation, and sustainable development. As a High-Forest, Low-Deforestation (HFLD) country, it has committed to maintaining its forests as a net carbon sink while strengthening national capacities to monitor, report, and verify greenhouse gas emissions and removals from the forest sector. Since engaging in REDD+ in 2008, the country has progressively established the institutional, legal, and technical foundations necessary to support results-based climate action and international climate reporting.

Recognizing that robust National Forest Monitoring Systems (NFMS) are fundamental for transparent implementation of REDD+, achievement of Nationally Determined Contributions (NDCs), and access to climate finance, this assessment was undertaken to evaluate both the maturity of the Republic of the Congo's NFMS and the institutional capacity required to sustain it over the long term. The assessment combined two complementary participatory approaches. The Global Forest Observations Initiative (GFOI) REDDCompass was applied to evaluate progress across the four recognized pillars of NFMS development – Institutional Arrangements, Technical Design Decisions, Measurement and Estimation, and Reporting and Verification – while the Participatory Institutional Capacity Assessment and Learning (PICAL) methodology assessed the organizational performance of the National Centre for the Inventory and Management of Forests and Wildlife Resources (CNIAF), the institution mandated to host and manage the national monitoring system.

The results of these assessments were synthesized into a structured and prioritized set of actions that distinguishes capacities already in place from those requiring further

strengthening. This provides a practical investment roadmap for the Government and development partners, helping prioritize technical assistance, coordinate future support, and guide the long-term strengthening and sustainability of the NFMS. The assessment confirms that the Republic of the Congo has achieved significant progress in establishing an operational NFMS. Comprehensive legal and policy frameworks supporting REDD+ have been developed, including the National REDD+ Strategy, investment planning instruments, safeguards architecture, and institutional governance arrangements. Technical systems supporting forest monitoring have advanced substantially through operational satellite land monitoring, national forest inventory implementation, successive FREL submissions, and strengthened greenhouse gas estimation capacities consistent with IPCC guidance and UNFCCC reporting requirements. Practical implementation experience gained through the Sangha–Likouala Emission Reductions Program has further strengthened national expertise in monitoring, reporting, verification, and results-based payment processes.

Despite these achievements, the assessment identifies a series of institutional and technical priorities that require sustained attention to ensure long-term system effectiveness and sustainability. While governance structures and technical procedures have been established, many continue to operate through externally financed projects rather than permanent institutional arrangements. Coordination among institutions responsible for REDD+, greenhouse gas inventories, land-use monitoring, and broader climate governance remains insufficiently institutionalized. Important components of the NFMS – including quality assurance and quality control, uncertainty analysis, data integration, safeguards monitoring, registry development, and standardized operational procedures – remain under development and require further consolidation to ensure transparency, consistency, reproducibility, and long-term institutional ownership.

The institutional assessment of CNIAF demonstrates that the organization possesses a strong technical foundation and highly qualified staff capable of implementing increasingly sophisticated forest monitoring functions. However, institutional sustainability is constrained by weaknesses in human resource management, administrative systems, procedural documentation, internal knowledge management, operational financing, and information technology infrastructure. Addressing these constraints will be essential for maintaining institutional continuity, retaining technical expertise, and supporting the expanding responsibilities associated with REDD+, national climate reporting, and emerging climate and nature finance mechanisms.

The assessment also highlights important opportunities for future investment and technical cooperation. Priority interventions include strengthening institutional governance and inter-agency coordination; institutionalizing standard operating procedures and quality management systems; improving methodologies for estimating emissions from forest degradation and carbon stock enhancement; enhancing uncertainty analysis and data interoperability; developing sustainable financing mechanisms; and implementing structured,

long-term capacity development programs. Building on the substantial investments already made by the Government and its development partners, these actions would strengthen national ownership while reducing reliance on project-based implementation.

In a context of increasing international expectations for transparency, environmental integrity, and accountability under the Paris Agreement, the Republic of the Congo is well positioned to consolidate its National Forest Monitoring System as a permanent national public asset supporting evidence-based forest governance, sustainable land-use planning, and climate policy implementation. Continued strategic investments in institutional capacity, technical innovation, and governance will enable the country to meet evolving UNFCCC reporting requirements, strengthen readiness for results-based climate finance and Article 6 cooperation, and enhance the contribution of its forests to national development and global climate objectives. The findings and recommendations presented in this report therefore provide a practical roadmap for Government and development partners to prioritize future technical assistance and investment, ensuring that the NFMS remains robust, transparent, nationally owned, and fit for purpose in an evolving international climate policy landscape.

Keywords: REDD+; National Forest Monitoring System (NFMS); Measurement, Reporting and Verification (MRV); REDDCompass; Participatory Institutional Capacity Assessment and Learning tool (PICAL); Republic of the Congo; climate finance

ACRONYMS

Acronym (EN/FR)	Meaning (English)	Signification (Français)
AFOLU / AFAT	Agriculture, Forestry and Other Land Use	Agriculture, Foresterie et Autres Affectations des Terres
AGB	Aboveground Biomass	Biomasse aérienne
ARR	Afforestation and Reforestation	Reboisement et Reforestation
BGB	Belowground Biomass	Biomasse souterraine
BSP	Benefit Sharing Plan	Plan de Partage des Bénéfices
BTR	Biennial Transparency Report	Rapport de Transparence Biannuel
BUR	Biennial Update Report	Rapport Biennal Actualisé
CAFI	Central African Forest Initiative	Initiative pour la Forêt de l'Afrique Centrale
CATS	Carbon Assets Tracking System	Système de suivi des actifs carbone
CCB	Climate, Community & Biodiversity Standard	Norme Climat, Communauté et Biodiversité
CDM / MDP	Clean Development Mechanism	Mécanisme pour un Développement Propre
CERGE	Center for Geographic Research and Cartographic Production	Centre de Recherche Géographique et de Production Cartographique
CN-REDD	National REDD+ Coordination (Unit)	Coordination Nationale REDD+
CNCC	National Climate Change Committee	Comité National sur les Changements Climatiques
CNIAF	National Center for Forest and Wildlife Resources Inventory and Management	Centre National d'Inventaire et d'Aménagement des Ressources Forestières et Fauniques
CODEPA-REDD	Departmental REDD+ Committee	Comité Départemental REDD+
CONA-REDD	National REDD+ Committee	Comité National REDD+
COP	Conference of the Parties	Conférence des Parties

Acronym (EN/FR)	Meaning (English)	Signification (Français)
EF / FE	Emission Factors	Facteurs d'Émission
ER	Emission Reductions	Réduction des Émissions
ERPA / AARE	Emission Reductions Purchase Agreement	Accord d'Achat de Réductions d'Émissions
(e)SBAE	(Ensemble) Sample-Based Area Estimation	Approche d'estimation de superficie par échantillonnage (fondée sur une approche d'ensemble)
ESMF	Environmental and Social Management Framework	Cadre de Gestion Environnementale et Sociale
FACET	Monitoring the forests of Central Africa using remotely sensed data sets	Forêts d'Afrique Centrale Évaluées par Télédétection
FAO	Food and Agriculture Organization of the United Nations	Organisation des Nations Unies pour l'Alimentation et l'Agriculture
FCPF	Forest Carbon Partnership Facility	Fonds de Partenariat pour le Carbone Forestier
FGRM	Feedback and Grievance Redress Mechanism	Mécanisme de Gestion des Plaintes
FREL, FRL/ NERF, NRF	Forest Reference Emission Level, Forest Reference Level	Niveau d'Émissions de Référence des Forêts, Niveau de Référence des Forêts
FSC	Forest Stewardship Council	Organisation internationale de certification forestière
GCF	Green Climate Fund	Fonds Vert pour le Climat
GFOI	Global Forest Observations Initiative	Initiative Mondiale d'Observation des Forêts
GHG	Greenhouse Gas	Gaz à Effet de Serre
GHGI	Greenhouse Gas Inventory	Inventaire des Gaz à Effet de Serre
GIS / SIG	Geographic Information System	Système d'Information Géographique
HCV	High Conservation Value	Haute Valeur de Conservation
HFLD	High Forest, Low Deforestation	Forte couverture forestière, faible déforestation

Acronym (EN/FR)	Meaning (English)	Signification (Français)
IFM	Improved Forest Management	Gestion Améliorée des Forêts
IGN	National Geographic Institute	Institut Géographique National
IPCC	Intergovernmental Panel on Climate Change	Groupe d'experts intergouvernemental sur l'évolution du climat
LCIP	Local Community Investment Plan	Plan d'investissement des communautés locales
LiDAR	Light Detection and Ranging	Télédétection par Laser
LoI	Letter of Intent	Lettre d'Intention
MEDDBC	Ministry of Environment, Sustainable Development and the Congo Basin	Ministère de l'Environnement, du Développement Durable et du Bassin du Congo
MEF	Ministry of Forest Economy	Ministère de l'Économie Forestière
MRV	Measurement, Reporting and Verification	Mesure, Notification et Vérification
NCB	Non-Carbon Benefits	Bénéfices non liés au carbone
NDC / CDN	Nationally Determined Contribution	Contribution Déterminée au niveau National
NFMS / SNSF	National Forest Monitoring System	Système National de Suivi des Forêts
NFI / IFN	National Forest Inventory	Inventaire Forestier National
PCIV	Principles, Criteria, Indicators and Verifiers	Principes, Critères, Indicateurs et Vérificateurs
PICAL	Participatory Institutional Capacity Assessment and Learning	Outil Participatif d'Évaluation et d'Apprentissage des Capacités Institutionnelles
PMU	Program Management Unit	Unité de Gestion du Programme
PRONAR	National Afforestation and Reforestation Program	Programme National d'Afforestation et de Reboisement
QA / QC	Quality Assurance / Quality Control	Assurance Qualité / Contrôle Qualité
RIL / EFIR	Reduced-Impact Logging	Exploitation forestière à impact réduit
RBP / PLR	Results-Based Payments	Paiements liés aux résultats

Acronym (EN/FR)	Meaning (English)	Signification (Français)
REDD+	Reducing Emissions from Deforestation and Forest Degradation (plus conservation, sustainable management of forests, and enhancement of forest carbon stocks)	Réduction des Émissions issues de la Déforestation et de la Dégénération des forêts (plus conservation, gestion durable des forêts et augmentation des stocks de carbone forestier)
R-PP	Readiness Preparation Proposal	Document de Préparation à la Préparation (REDD+)
SEPAL	System for Earth Observation Data Access, Processing and Analysis for Land Monitoring	Système d'accès, de traitement et d'analyse des données d'observation de la Terre pour le suivi des terres
SIS	Safeguards Information System	Système d'Information sur les Sauvegardes
SLMS/SSTS	Satellite Land Monitoring System	Système de Suivi des Terres par Satellites
SOC / COS	Soil Organic Carbon	Carbone Organique du Sol
SOP	Standard Operating Procedure	Procédure Opérationnelle Normalisée
SYNA-MNV	National System for Measurement, Reporting and Verification	Système National de Mesure, de Notification et de Vérification
UFA	Forest Management Unit	Unité Forestière d'Aménagement
UMD	University of Maryland	Université du Maryland
UNCCD/ CNUUD	United Nations Convention to Combat Desertification	Convention des Nations Unies sur la Lutte contre la Désertification
UNDP/PNUD	United Nations Development Programme	Programme des Nations Unies pour le développement
UNFCCC/ CCNUCC	United Nations Framework Convention on Climate Change	Convention-Cadre des Nations Unies sur les Changements Climatiques
UN-REDD	United Nations Collaborative Program on REDD+	Programme ONU-REDD
USFS	United States Forest Service	Service Forestier des États-Unis
VCS	Verified Carbon Standard	Norme Carbone Vérifiée
VCU	Verified Carbon Units	Unité(s) de Carbone Vérifiée(s)
WB	World Bank	Banque Mondiale

1. INTRODUCTION

The Republic of the Congo (RoC) hosts a significant share of the Congo Basin forest, a critical ecosystem that supports livelihoods, drives economic development, and contributes to global climate regulation. Approximately 69% of the national territory, equivalent to 23.4 million hectares, is covered by forests, and annual deforestation is estimated at around 0.10%, or roughly 24,000 hectares per year¹. As a result, the country is classified as a High-Forest, Low-Deforestation (HFLD) nation, maintaining extensive forest cover alongside relatively low rates of forest loss.

Despite these historically low deforestation rates, pressures on forest ecosystems are increasing, driven notably by charcoal production, shifting cultivation involving slash-and-burn practices, mining, infrastructure development, urbanization, and unsustainable forest use. Accordingly, the land use sector remains the country's largest source of greenhouse gas (GHG) emissions². In response, the Republic of the Congo has committed, through its third Nationally Determined Contribution (NDC 3.0²), to maintaining and strengthening its role as a net carbon sink while reducing emissions from deforestation and other key sectors by up to 20.4% by 2030 compared to a business-as-usual scenario.

Since 2008, the RoC has engaged in Reducing Emissions from Deforestation and Forest Degradation, including the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks (REDD+) as a core instrument to address these drivers while supporting sustainable development objectives, including poverty reduction and the transition from reliance on oil revenues toward a more diversified, forest-based green economy. As part of this engagement, the country has developed a national REDD+ strategy, established a forest reference level to assess emission reductions and access results-based payments, and progressively strengthened the systems required to support implementation. A key pillar of this process is the development of a robust National Forest Monitoring System (NFMS, see **Box 1**), which enables continuous monitoring and measurement of the effects of policies and programs on reducing emissions from deforestation and forest degradation, as well as on the conservation and enhancement of forest carbon stocks.

To assess the maturity, functionality, and sustainability of its NFMS, the RoC conducted two complementary evaluations. First, a participatory system-level analysis was carried out using the Global Forest Observations Initiative (GFOI) REDDCompass framework. Second, an

¹ Republic of the Congo, National Forest Reference Emission Level / Forest Reference Level (FREL/FRL) submission to the UNFCCC, June 2024, technical assessment cycle 2025/2026;
https://redd.unfccc.int/media/vf_2024_12_24_FREL_republique_du_congo_soumission_dec_2024_rw_1712.pdf

² Republic of the Congo, Third Nationally Determined Contribution, submitted in February 2026;
<https://unfccc.int/sites/default/files/2026-02/CDN%203.0%20de%20la%20R%C3%A9publique%20du%20Congo%20version%20finale.pdf>

institutional capacity assessment was performed on the primary institution responsible for hosting the NFMS – the National Center for Forest and Wildlife Resources Inventory and Management (CNIAF) – using the Participatory Institutional Capacity Assessment and Learning (PICAL) methodology.

This report presents the results of these evaluations and highlights the following key elements:

- the country's progress in implementing REDD+ and establishing the NFMS and Measurement, Reporting, and Verification (MRV) system;
- the participatory approach used in conducting both the REDDCompass and PICAL assessments;
- the policy and technical recommendations to strengthen the NFMS and ensure compliance with national and international reporting and transparency requirements;
- the recommendations to strengthen institutional capacity within CNIAF;
- the strengths and limitations of applying the REDDCompass and PICAL frameworks to evaluate NFMS progress.

Box 1 : Overview of National Forest Monitoring Systems (NFMS) under REDD+



The NFMS is the set of institutional, technical, and procedural arrangements a country establishes to generate transparent and consistent information on forest areas, carbon stocks, and GHG emissions/removals.

It forms the backbone of REDD+ MRV systems, typically combining:

- **Satellite Land Monitoring Systems (SLMS)** to track land-use and forest-cover change;
- **National Forest Inventories (NFI)** to assess carbon stocks and changes in forest biomass;
- **GHG Inventory systems** to report emissions and removals in the Agriculture, Forestry and Other Land Use (AFOLU) sector.

Under the United Nations Framework Convention on Climate Change (UNFCCC), the requirement for countries to establish an NFMS was formalized in 2010, at COP 16 in Cancún³, which states that developing countries undertaking REDD+ activities should develop:

“a robust and transparent National Forest Monitoring System for the monitoring and reporting of REDD+ activities, with, if appropriate, subnational monitoring and reporting as an interim measure.”

Further guidance on NFMS modalities and MRV was adopted in 2013 at COP 19 in Warsaw⁴, which specifies that NFMS should build upon existing systems, enable MRV of REDD+ activities, and be flexible to accommodate different national circumstances and capacities.

The following sections provide an overview of the Republic of the Congo's REDD+ trajectory and the progressive establishment of its NFMS. They summarize key institutional, legal, and

³ UNFCCC COP 16 (Cancún 2010), Decision 1/CP.16, paragraph 71(c); <https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>

⁴ UNFCCC COP 19 (Warsaw 2013); <https://unfccc.int/sites/default/files/resource/docs/2013/cop19/fre/10a01f.pdf>

technical developments supporting REDD+ implementation, results-based payments, and national climate reporting, the institutional and technical components of NFMS assessed in this study.

1.1. Progress in REDD+ Implementation in the Republic of the Congo

Since 2008, the Republic of the Congo has made substantial progress across all three phases of REDD+, readiness, implementation, and results-based payments, with support from the Forest Carbon Partnership Facility (FCPF), UN-REDD, and other technical and financial partners. This progress, illustrated in **Figure 1**, is reflected in the development of a national REDD+ strategy, the establishment of institutional and technical foundations for its implementation, and the initial engagement with results-based payment mechanisms.

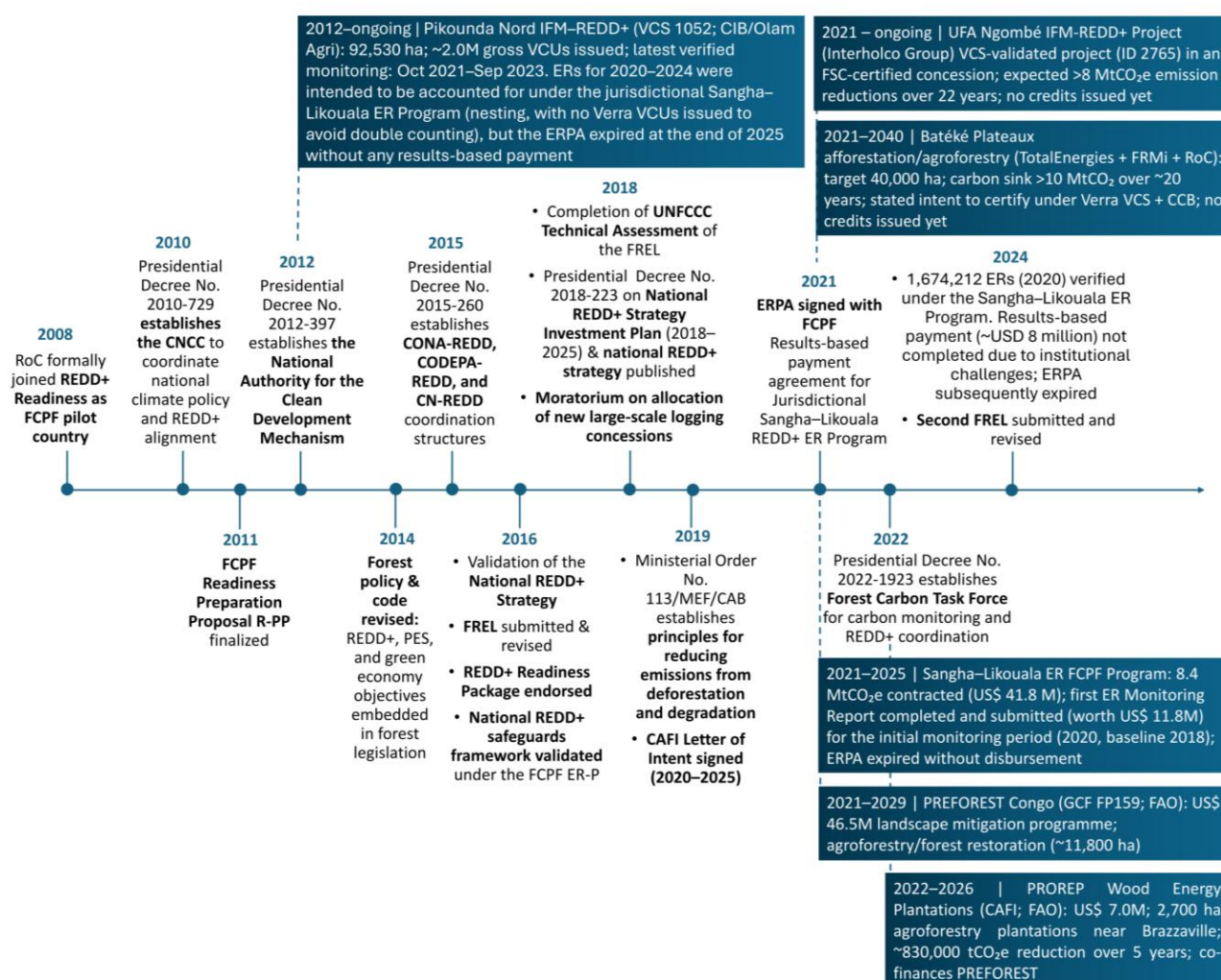


Figure 1: Key milestones in REDD+ implementation in the Republic of the Congo (2008–2025). The figure summarizes the major milestones in the development of the national REDD+ institutional, legal, and technical framework, including the National Forest Monitoring System (NFMS) and the Sangha–Likouala jurisdictional Emission Reductions Program under the FCPF Carbon Fund. The blue boxes highlight complementary climate finance and carbon market initiatives. Reported emission reduction volumes and financial values are indicative, as public registries generally disclose credit issuance and retirement, but not necessarily the financial terms of private transactions.

As a result, REDD+ has emerged as a key national instrument for climate mitigation and adaptation, sustainable forest management, improved governance, poverty reduction, social inclusion, and development⁵. The Ministry of Environment, Sustainable Development and the Congo Basin (MEDDBC) oversees the broader climate policy, national commitments, and engagement with the United Nations Framework Convention on Climate Change (UNFCCC), while the Ministry of Forest Economy coordinates the technical implementation of the REDD+ process.

Readiness Phase

To coordinate national climate action and ensure alignment with UNFCCC commitments, the RoC government established the National Climate Change Committee (CNCC) under the technical supervision of the Ministry of Environment, Sustainable Development, and the Congo Basin (MEDDBC) through Presidential Decree No. 2010-729 of 2010⁶. In 2012, Presidential Decree No. 2012-397⁷ established the Designated National Authority (DNA) for the Clean Development Mechanism (CDM), under the authority of the Minister responsible for Sustainable Development and the Environment. The DNA was mandated to contribute to the achievement of the objectives of the Kyoto Protocol under the United Nations Framework Convention on Climate Change (UNFCCC) and to promote compliance with national sustainable development principles through the evaluation and approval of CDM projects. The institution represented one of the country's first national mechanisms for the governance of carbon projects and international climate cooperation.

Following its engagement with the FCPF in 2008, the country progressively laid the legal, institutional and technical foundations for REDD+. The operationalization of REDD+ was formalized through Decree No. 2015-260 of 27 February 2015⁸, which established the institutional framework for its governance and implementation. This framework was subsequently further detailed in the National *Cadre Fonctionnel*. A multi-sectoral, multi-

⁵ Republic of the Congo. CN-REDD. (2019) REDD+ Country Completion Report Template for the Republic of Congo. Forest Carbon Partnership Facility, 2019; https://www.forestcarbonpartnership.org/system/files/documents/FCPF_Rapport%20de%20cl%C3%B4ture%20Janvier%202020_CN-REDD_R%C3%A9publique%20du%20Congo.pdf

⁶ Republic of the Congo. Presidency of the Republic. Decree No. 2010-729 of 30 November 2010 establishing, defining the mandate, organization and functioning of the National Climate Change Committee (Comité National sur les Changements Climatiques – CNCC); <https://sgg.cg/JO/2010/congo-jo-2010-49.pdf>

⁷ Republic of the Congo. Presidency of the Republic. Decree No. 2012-397 of 23 April 2012 establishing, defining the mandate and organization of the Designated National Authority for the Clean Development Mechanism (CDM); <https://sgg.cg/JO/2012/congo-jo-2012-17.pdf>

⁸ Republic of the Congo. Presidency of the Republic. Decree No. 2015-260 of 27 February 2015 establishing, organizing, and defining the mandates and functioning of the bodies responsible for the management and implementation of the REDD+ process; https://liziba.cg/wp-content/uploads/2020/11/Decret-n°2015-260_Organe-Gestion-mise-en-oeuvre-du-processus-de-Reduction.pdf

stakeholder National REDD+ Committee (CONA-REDD), chaired by a representative of the Presidency of the Republic, serves as the highest decision-making and strategic oversight body for the national REDD+ process. This committee is supported by the National REDD+ Coordination (CN-REDD), which serves as the operational and technical body and operates under the auspices of the Ministry of Forest Economy (MEF). The decree also established the Departmental REDD+ Committees (CODEPA-REDD) at decentralized level to act as focal points to the CN-REDD across the country's administrative departments. Both CONA-REDD and CODEPA-REDD are structured around four stakeholder platforms – public administration, private sector, civil society organizations, and Indigenous Peoples, to ensure inclusive governance.

A major achievement in the readiness phase was the preparation and validation of the National REDD+ Strategy⁹ in 2016, which was subsequently approved by Presidential Decree No. 2018-223 of 5 June 2018¹⁰.

The strategy outlines national objectives to reduce emissions from deforestation and forest degradation while promoting sustainable forest management, biodiversity conservation, and the enhancement of forest carbon stocks. It is supported by an Investment Plan (2018–2025)¹¹, which provides a strategic framework structured around six sectoral programs, including (i) Sangha and Likouala Emission Reductions Program (ER-P), (ii) agroforestry and fuelwood initiatives in Pool and Plateaux, (iii) coastal and forest ecosystem management in Mayombe, (iv) forest plantations and agroforestry in the Niari Valley, (v) the Chaillu Massif program, and (vi) community agroforestry program in the Congolese Basin. The total estimated budget exceeds USD 300 million.

To support the registration and monitoring of REDD+ activities and associated GHG emissions/removals, the country has initiated the development of a dedicated REDD+ registry, which will be integrated into the National Measurement, Reporting and Verification System (SYNA-MNV) platform¹². The initial components of this system have been established through the CNIAF's geospatial registry of REDD+ initiatives, serving as an informational platform for compiling and visualizing project- and program-level data.

⁹ Republic of the Congo. Ministry of Forest Economy. 2018. National REDD+ Strategy of the Republic of the Congo. April 2018; <https://faolex.fao.org/docs/pdf/Con191465.pdf>

¹⁰ Republic of the Congo. Presidency of the Republic. 2018. Decree No. 2018-223 of 5 June 2018 approving the National Strategy for Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation, including Sustainable Forest Management, Biodiversity Conservation, and Enhancement of Forest Carbon Stocks; <https://www.sgg.cg/JO/2018/congo-jo-2018-24.pdf>

¹¹ Republic of the Congo. Ministry of Forest Economy. 2018. Investment Plan for the National REDD+ Strategy of the Republic of the Congo (2018–2025); <https://faolex.fao.org/docs/pdf/Con186288.pdf>

¹² National Measurement, Reporting and Verification System (SYNA-MRV) Platform; <https://syna-mnv.cg/>

In anticipation of the country's engagement in the carbon market, Presidential Decree No. 2022-1923 of 26 December 2022 established the National Carbon Committee or Forest Carbon Task Force¹³ responsible for evaluating and accrediting programs, projects, and pricing related to carbon credits.

In parallel, a comprehensive safeguards framework has been developed, including the Strategic Environmental and Social Assessment (SESA)¹⁴; a Safeguards Information System (SIS)¹⁵ to collect and disseminate information on safeguards implementation; a Feedback and Grievance Redress Mechanism (FGRM)¹⁶; and a benefit-sharing mechanism^{17,18}. The SIS is further complemented by nationally adopted Principles, Criteria, Indicators and Verifiers for REDD+ (PCIV-REDD+), aligned with the UNFCCC Cancun Safeguards, World Bank Operational Policies, and other international standards, including those under the EU FLEGT VPA¹⁹. Together, these constitute the main operational tools finalized during the readiness phase.

The integration of REDD+ into existing national policy frameworks was also progressively achieved throughout the readiness phase. Early alignment is reflected in the National Forestry Policy (2014–2025)²⁰, which defines a national vision for sustainable forest management, biodiversity conservation, and REDD+ integration. This was subsequently reinforced by Law No. 33-2020 of the Forest Code²¹, which embeds REDD+, safeguards, community forestry, and sustainable land-use objectives into national legislation, while clarifying that carbon rights are

¹³ Republic of the Congo. Presidency of the Republic. Decree No. 2022-1923 establishing, defining the mandate, organization and functioning of the national body responsible for the regulation, monitoring and oversight of the carbon market, known as the Forest Carbon Task Force; <https://sgg.cg/JO/2023/congo-jo-2023-01.pdf>

¹⁴ Forest Carbon Partnership Facility (FCPF), Republic of the Congo REDD+ Readiness Package reference documents; <https://www.forestcarbonpartnership.org/republic-congo-r-package-reference-documents>

¹⁵ Republic of the Congo. CN-REDD. Safeguard information system, SIS; <https://www.forestcarbonpartnership.org/sites/fcp/files/fcp-docs/2016/Aug/SIS%20project%20document.pdf>

¹⁶ Republic of the Congo. CN-REDD. Draft Feedback and Grievance Redress Mechanism (FGRM) for REDD+ in the Republic of the Congo; <https://www.forestcarbonpartnership.org/sites/fcp/files/fcp-docs/2016/Aug/Draft%20FGRM%20CN-REDD.pdf>

¹⁷ Republic of the Congo. Ministry of Forest Economy. Overview of the national REDD+ process ; <https://economie-forestiere.gouv.cg/projets/description-detaillee-des-projets/processus-redd-en-republique-du-congo>

¹⁸ Republic of the Congo, Strategic Environmental and Social Assessment (SESA) for REDD+, draft report prepared during the readiness phase under the Forest Carbon Partnership Facility; https://www.forestcarbonpartnership.org/sites/fcp/files/fcp-docs/2016/Aug/SESA%20draft%20report%20Aug%202015_0.pdf

¹⁹ Voluntary Partnership Agreement between the European Union and the Republic of the Congo on forest law enforcement, governance and trade in timber and derived products to the European Union (FLEGT); [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22011A0406\(03\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22011A0406(03))

²⁰ Republic of the Congo, National Forest Policy of the Republic of the Congo (2014-2025); <https://faolex.fao.org/docs/pdf/con143403.pdf>

²¹ Republic of the Congo, Law No. 33-2020 of 8 July 2020 on the Forest Code; <https://www.sgg.cg/JO/2020/congo-jo-2020-04-sp.pdf>

aligned with forest ownership, recognizing public, private, and community entitlements to carbon credits. Arrêté No. 113/MEF/CAB of 8 January 2019²² further operationalizes the framework by defining procedures for the approval, implementation, validation, and issuance of emission reductions, promoting community forestry and legal timber harvesting, affirming state sovereignty over forest carbon resources, and ensuring compliance with UNFCCC Cancun Safeguards and FCPF requirements. Together, these elements consolidate REDD+ within the national legal, institutional and operational framework.

Implementation phase

This phase is characterized by the implementation of measures, policies and pilot projects to investigate how REDD+ can be used to reduce emissions and enhance removals. The signing of a Letter of Intent in 2019 between the Government of the Republic of the Congo and the Central African Forest Initiative (CAFI) for the period 2020–2025²³ marked the country's transition to REDD+ implementation. This agreement supports the implementation of the National REDD+ Investment Plan and outlines commitments in critical areas such as land-use planning, forest protection, and deforestation control.

Key commitments of the Investment Plan include (i) develop a national land-use policy through inclusive, multi-sectoral spatial planning; (ii) direct agro-industrial plantations toward savannah areas, following the 2018 ban on large-scale logging concessions in forest areas; (iii) identify and avoid the conversion of High Carbon Stock and High Conservation Value forests; (iv) temporarily cap deforestation at 20,000 hectares per year; and (v) avoid drainage and degradation of peatlands.

This was further strengthened by complementary climate-finance initiatives, notably the Project to Reduce Greenhouse Gas Emissions from Forests in Five Departments of the Republic of the Congo (PREFOREST Congo), funded by the Green Climate Fund (GCF), and the Project to Strengthen the Sustainable Wood Energy Potential in the Republic of the Congo (PROREP), funded by the Central African Forest Initiative (CAFI). Both initiatives are implemented by FAO and provide results-based or programmatic financing for forest conservation, agroforestry, and sustainable wood-energy supply without generating tradable carbon credits. Additional details and references are provided in **Annex 1**.

²² Republic of the Congo. Ministry of Forest Economy. (2019) Ministerial Order No. 113 of 8 January 2019 establishing the principles governing the process for reducing greenhouse gas emissions from deforestation and forest degradation, including sustainable forest management, biodiversity conservation, and the enhancement of forest carbon stocks; <https://sgg.cg/JO/2019/congo-jo-2019-04.pdf>

²³ Central African Forest Initiative (CAFI) & Government of the Republic of the Congo. (2019). Letter of Intent on the establishment of a long-term partnership to implement the Investment Plan of the National REDD+ Strategy (2020–2025); https://www.forestcarbonpartnership.org/system/files/documents/LOI_Eng_Fully%20signed_.pdf



Results-based payment phase

The 2018 approval of the Sangha-Likouala Emission Reductions Program (ER-P) by the FCPF Carbon Fund signaled a shift to results-based payments. In 2021, an Emission Reductions Payment Agreement (ERPA)²⁴ was signed between the government of RoC and the World Bank as trustee of the FCPF Carbon Fund. The Agreement committed up to USD 41.8 million for approximately 8.4 million tonnes of verified CO₂ emission reductions over the 2020–2025 accounting period. The first Emission Reductions Monitoring Report (ERMR) was prepared and submitted in accordance with FCPF requirements, demonstrating the operational capacity of the national Measurement, Reporting and Verification (MRV) system. However, although the technical work was completed and the verification process initiated, the first results-based payment was ultimately not made due to institutional and governance challenges, and the ERPA reached its expiry without any disbursement.

In parallel, several private sector actors initiated the development of REDD+ projects certified or developed under voluntary carbon market standards. Among these are the Pikounda Nord Improved Forest Management REDD+ (IFM-REDD+) project, developed by Congolaise Industrielle des Bois (CIB), a subsidiary of Olam Agri, and the Ngombé Forest Management

²⁴ World Bank. 2021. Republic of Congo: Emission Reductions Program in Sangha and Likouala Project (P163361). Washington, DC: World Bank; <https://documents1.worldbank.org/curated/en/214181619731912596/txt/Republic-of-Congo-Emission-Reductions-Program-in-Sangha-and-Likouala-Project.txt>

Unit (UFA) project, developed by the Interholco Group. Additional initiatives include the Batéké Plateaux afforestation project led by TotalEnergies (BaCaSi, Batéké Carbon Sink), the JACA-Mbé carbon sequestration project developed by RENCO GREEN SARLU in the Pool Department, and the ECOZAMBA program led by the Société Nationale des Pétroles du Congo (SNPC).

It is important to note other mitigation efforts – improved cookstove programs implemented by the oil and gas company Eni-Congo in Pointe-Noire and Brazzaville, alongside earlier initiatives led by the NGO Initiative Développement, which plays a key role in community engagement and local implementation. Collectively, these initiatives contribute to reduced-impact logging, forest conservation, agroforestry, and sustainable wood-energy production. Further details on these programs and initiatives are provided in **Annex 1**.

The results-based payment phase has also been marked by efforts to develop a national nesting framework. According to Olam Agri²⁵, while the Pikounda Nord IFM-REDD+ project continues to operate under Verra's Verified Carbon Standard (VCS), the emission reductions generated during the 2020–2024 monitoring period were intended to be accounted for under the jurisdictional Sangha–Likouala ERP supported by the FCPF. Consequently, no Verra VCUs were or will be issued for this period, thereby avoiding double accounting of emission reductions. However, following the expiration of the FCPF ERPA, the future accounting and commercialization of these emission reductions remain to be determined^{26,27}.

Pending the operationalization of a national registry, emission-reduction recording and tracking of these programs, projects and initiatives currently rely on external systems, including the World Bank's Carbon Assets Tracking System (CATS) for FCPF operations²⁸ and standard registries (e.g., Verra, Gold Standard) for project-based credit issuance and accounting.

²⁵ Olam Agri / CIB. Pikounda Nord REDD+ Project Information Note – Verra VCS Project ID 1052; <https://www.olamagri.com/content/dam/olam-agri/assets/webp/ps/wood/redd-project/redd-project-pdfs/project-information-note-pikounda-redd.pdf>

²⁶ World Bank. Republic of Congo – Sangha Likouala ER-P (FCPF Carbon Fund), Project P163361 documentation and ISR; <https://documents1.worldbank.org/curated/en/099122225103542400/pdf/P163361-3ea8f59d-2235-4716-b0b9-b21eb5631040.pdf>

²⁷ Verra Registry. Pikounda Nord Improved Forest Management (IFM) – REDD+ Project (VCS Project ID 1052). Verified Carbon Standard (VCS); <https://registry.verra.org/app/projectDetail/VCS/1052>

²⁸ World Bank. Carbon Assets Tracking System (CATS): Operational Guidelines / Registry Operations Manual. Forest Carbon Partnership Facility (FCPF); https://www.forestcarbonpartnership.org/system/files/documents/Registry_Operations_Manual.pdf

1.2. National Forest Monitoring System (NFMS): technical and institutional arrangements

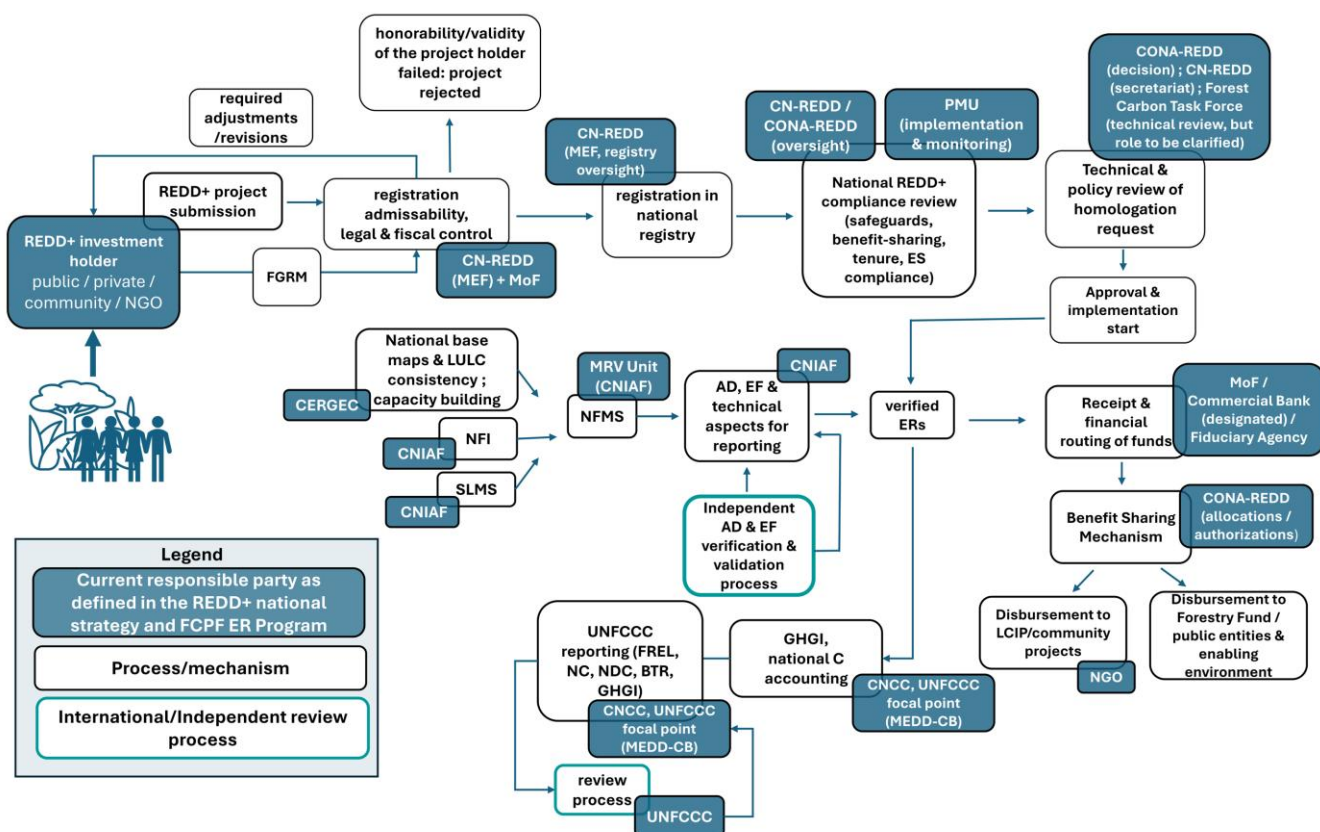
The establishment of a robust and sustainable National Forest Monitoring System (NFMS) and Measurement, Reporting, and Verification (MRV) framework is central to the Republic of the Congo's (RoC) engagement in REDD+ and its access to results-based payments. Institutional responsibility for monitoring land use and forest cover change lies with National Center for Forest and Wildlife Resources Inventory and Management (CNIAF), as stipulated by Law No. 26-2023 of 15 September 2023²⁹. This mandate is implemented through a satellite-based land monitoring system (SLMS) for activity data assessment, national forest inventories (NFI) for updating carbon stocks and estimating emission factors, and the estimation of greenhouse gas (GHG) emissions from land-use change—together forming the “Système National de Mesure, de Notification et de Vérification (SYNA-MNV)”. The institutional framework is further anchored in the Forest Code (Law No. 33-2020, Articles 92 and 93) and the National REDD+ Strategy, which designates SYNA-MNV as a core technical pillar and assigns its implementation to CNIAF.

The SYNA-MNV integrates data on forest and land-use dynamics, as well as associated emissions and removals, to support REDD+ measurement and verification across the National Forest Domain (DFN)^{30,31}. Its design builds on multi-stakeholder consultations conducted during the readiness phase, which informed key methodological choices such as land-use classification, forest definitions, and priority GHGs. CNIAF works in close collaboration with sectoral ministries, research institutions, the private sector, civil society organizations and technical and financial partners to generate data and information on forest and land-use change, and associated emissions and removals. These outputs form the basis for national climate reporting in this sector. The Ministry of Environment, Sustainable Development and the Congo Basin (MEDDBC), as the UNFCCC focal point, is responsible for submitting reports to the UNFCCC. **Figure 2** illustrates the institutional architecture of the SYNA-MNV and its integration into the broader REDD+ and climate change monitoring and reporting processes.

²⁹ Republic of the Congo. Law No. 26-2023 of 15 September 2023 establishing the National Center for Forest and Wildlife Resources Inventory and Management (CNIAF); <https://www.sgg.cg/textes-officiels/lois/2023/congo-loi-2023-26.pdf>

³⁰ Republic of the Congo. Ministry of Forest Economy (MEF). Ministerial Order No. 113/MEF/CAB of 8 January 2019 establishing the principles governing the process for reducing greenhouse gas emissions from deforestation and forest degradation (REDD+); <https://www.clientearth.fr/media/evnmsbd1/2019-01-08-arrete-nxx113-mef-du-8-janvier-2019-determinant-les-principes-sur-le-processus-redd-congo-ext-fr.pdf>

³¹ Republic of the Congo. National REDD+ Coordination (CN-REDD) 2015. National System for Measurement, Reporting and Verification (SYNA-MRV) for the REDD+ process in the Republic of the Congo; <https://www.forestcarbonpartnership.org/system/files/documents/MRV%20methodological%20approach.pdf>



AD: Activity Data; BTR: Biennial Transparency Report; C: Carbon; CERGEC: Centre for Geographic Research and Cartographic Production; CNCC: National Committee on Climate Change; CN-REDD: National REDD+ Coordination (Ministry of Forest Economy); CNIAF: National Center for Inventory and Management of Forest and Wildlife Resources; CONA-REDD: National REDD+ Steering Committee; EF: Emission Factors; ER: Emission Reductions; ERPA: Emission Reductions Payment Agreement; ES: Environmental and Social; FCPF: Forest Carbon Partnership Facility; FGRM: Feedback and Grievance Redress Mechanism; FREL: Forest Reference Emission Level; GHGI: Greenhouse Gas Inventory; LCIP: Local Community Investment Plan; LULC: Land Use and Land Cover; MEDD-CB: Ministry of Environment, Sustainable Development and the Congo Basin; MEF: Ministry of Forest Economy; MoF: Ministry of Finance; MRV: Measurement, Reporting and Verification; NC: National Communication; NDC: Nationally Determined Contribution; NFI: National Forest Inventory; NFMS: National Forest Monitoring System; NGO: Non-Governmental Organization; PMU: Program Management Unit; QA/QC: Quality Assurance / Quality Control; SLMS: Satellite Land Monitoring System; UNFCCC: United Nations Framework Convention on Climate Change

Figure 2 : Institutional architecture of the National Forest Monitoring System (NFMS) within the REDD+ framework in the Republic of the Congo. The figure illustrates how the NFMS is embedded within the national REDD+ governance framework, supporting forest monitoring, measurement, reporting and verification (MRV), and national and international climate reporting. It highlights the main institutional roles and information flows linking data generation, technical review, REDD+ governance, and reporting to the UNFCCC. Institutions are shown according to their responsibilities under the National REDD+ Strategy, the Sangha–Likouala Emission Reductions Program, and related regulatory instruments. Colors distinguish national institutions (blue), process and decision steps (white), and independent or international review and verification processes (green).

To enhance technical capacity for monitoring and reporting, the country has strategically partnered with the United States Forest Service International Programs and Trade (USFS-IPT) and the Global Land Analysis and Discovery (GLAD) laboratory at the University of Maryland (UMD) through the SilvaCarbon initiative, as well as with the Food and Agriculture Organization (FAO) and the European Commission's Joint Research Centre (JRC). These collaborations have provided critical training and support in advanced forest monitoring tools while also fostering an environment of continuous capacity development. This has enabled the production of data and statistics that are crucial for informing the country's international climate commitments, including Nationally Determined Contributions (NDCs) and Forest Reference Emission Levels (FRELs).

To date, the RoC has submitted two National Communications (NC) and three NDCs³², with NDC 3.0 submitted in February 2026³³. Two FRELs have been submitted – the first in 2016³⁴ and an update submitted in 2024¹, incorporating revised methodologies and updated activity data. Both submissions underwent technical assessment by the UNFCCC, ensuring alignment with international standards and strengthening the credibility of the country’s emission estimates. The FREL establishes the historical baseline against which REDD+ performance is assessed under the UNFCCC.

Through its Sangha–Likouala Emission Reductions Program (ER-P), the Republic of the Congo has gained valuable hands-on experience in implementing and verifying results-based payment mechanisms under the REDD+ framework. This experience has provided the country with tangible insights into the operational challenges and technical requirements inherent in REDD+ implementation, particularly in the context of monitoring, reporting, and verification (MRV). While the program has strengthened the country’s MRV framework, it has also underscored the increasing demands placed on the National Forest Monitoring System (NFMS) regarding data quality, consistency, and the need for improved institutional coordination.

Given that the NFMS serves as the foundation for both international climate reporting and access to results-based climate finance, its robustness, coherence, and long-term sustainability have become central to the country’s climate strategy. The NFMS plays a crucial role not only in ensuring transparent and accurate emissions reporting but also in supporting the integration of forest management with broader national objectives, such as land-use planning, biodiversity conservation, and the achievement of the Sustainable Development Goals (SDGs).

In this evolving context, periodic assessments of the NFMS are essential to identify emerging gaps, evaluate system performance, and pinpoint areas for targeted improvements. These assessments are necessary to ensure the continued effectiveness of the NFMS and its alignment with both international standards and the country’s evolving national priorities. By conducting regular evaluations, the Republic of the Congo can adapt to changing needs, strengthen institutional capacities, and safeguard the sustainability of the NFMS, ensuring its continued contribution to both national and global climate objectives.

³² Republic of the Congo. Reports submitted to the UNFCCC;

https://unfccc.int/reports?f%5B0%5D=corporate_author%3A281&items_per_page=10&order=field_document_sb&search_2=&search3=&sort=desc

³³ Third Nationally Determined Contribution of the RoC, submitted in February 2026;

<https://unfccc.int/sites/default/files/2026-02/CDN%203.0%20de%20la%20R%C3%A9publique%20du%20Congo%20version%20finale.pdf>

³⁴ Republic of the Congo, National Forest Reference Emission Level / Forest Reference Level (FREL/FRL) submission to the UNFCCC, January 2016; https://redd.unfccc.int/submissions/by-country/country_detail/cog.html



A freshly felled tree in RoC. Photo by Olivia Freeman.

2. METHODOLOGICAL APPROACH IN ASSESSING PROGRESS IN THE NFMS

Two complementary assessments were conducted to evaluate the implementation status, functionality, and institutional sustainability of the NFMS in the Republic of the Congo. First, a participatory system-level analysis was undertaken to evaluate the NFMS against internationally recognized good practices using the Global Forest Observations Initiative (GFOI) REDDCompass framework, detailed in **Box 2**. Second, an institutional capacity assessment of the National Center for Forest and Wildlife Resources Inventory and Management (CNIAF), the institution responsible for hosting and managing the NFMS, was conducted using the Participatory Institutional Capacity Assessment and Learning (PICAL) methodology, presented in **Box 3**. Together, these assessments provide a comprehensive evaluation of both the technical performance of the NFMS and the institutional capacities required to ensure its long-term sustainability and effectiveness.

2.1. REDDCompass-based assessment

Grounded in IPCC Good Practice Guidance and GFOI's Methods and Guidance Documentation (MGD), REDDCompass provides a structured diagnostic approach to assess the institutional, technical, and methodological aspects of the NFMS against a set of recommended actions. This process helps identify key achievements, gaps, and challenges.

The REDDCompass assessment was conducted through a country-led participatory approach involving 15 participants, primarily from the National Center for Forest and Wildlife Resource Inventory and Management (CNIAF). Participants were organized into four working groups, each assigned to evaluate one of the REDDCompass pillars: (i) Institutional Arrangements, (ii) Technical Design Decisions, (iii) Measurement and Estimation, and (iv) Reporting and Verification.

An Excel-based spreadsheet was used to assess the 86 REDDCompass recommended actions for NFMS. For each action, groups reached consensus on the level of progress (*finalized, in progress, or not initiated*), supported by justification and evidence (e.g., technical reports, ministerial decrees, etc.). Actions that were incomplete or ongoing were further disaggregated to highlight priority activities, enabling resources to be directed toward the most important actions. The results were subsequently reviewed and validated in plenary.

Box 2 : Overview of the REDDCompass Framework for NFMS Assessment



The REDDCompass framework³⁵ was developed by the Global Forest Observations Initiative (GFOI) between 2014 and 2016 as a diagnostic tool to support countries in designing and improving National Forest Monitoring Systems (NFMS).

Relevance: It provides a stepwise, country-led approach that ensures NFMS systems evolve toward transparency, consistency, and credibility, key for accessing results-based payments under REDD+.

Structure: The tool is organized around four core components or *key themes*, each representing a critical dimension for the operationalization of an NFMS: (1) Institutional Arrangements, (2) Technical Design Decisions, (3) Measurement & Estimation, and (4) Reporting & Verification. Each theme is further structured into concepts, which are then broken down into concrete actions.

The REDDCompass framework results in a total of 86 recommended actions that serve as benchmarks or guiding checkpoints that countries can use to assess the maturity and completeness of their National Forest Monitoring System, highlighting strengths and gaps rather than strict requirements.

However, not all 86 recommended actions fall neatly within a single concept. Several actions overlap multiple thematic areas, reflecting the interlinked nature of institutional, technical, and procedural aspects of forest monitoring. The REDDCompass framework is therefore intentionally flexible, allowing countries to interpret and group actions according to their national circumstances and institutional configurations.

Evaluation levels / attributes of each action: In REDDCompass, each of the 86 recommended actions is accompanied by qualitative levels or attributes such as Minimum, Advanced, Refined, Collation & Processing, Process, Instruction, QA/QC, and Record Keeping. These represent the level, steps or milestones that can be achieved for a given action and help the countries interpret how the action can evolve over time, from basic establishment (minimum) toward more refined and higher quality implementation. Rather than a single “yes/no” status, they allow for a nuanced assessment of maturity, for example, whether processes exist, whether they are documented, whether quality checks are in place, and whether records are archived.

³⁵ GFOI – REDDCompass Diagnostic Tool; <https://www.reddcompass.org/actions/fr-3/filter>



Theme (I), Institutional arrangements refers to the definition and institutionalization of basic mandates and responsibilities across the full range of stakeholders, together with the human, financial, material, and technical resources required for REDD+

implementation. It also covers the communication channels, coordination mechanisms, and operational processes that ensure institutions function effectively and transparently.

Institutional arrangements play a critical role in enabling countries to translate complex technical data—such as greenhouse gas (GHG) emissions and carbon stock changes—into methodological and policy-relevant information that can guide the implementation of REDD+ activities. Within this theme, actions are designed to build progressively on one another as follows:

- Establishing *Forest policy and governance frameworks* provides the legal and institutional foundation for REDD+;
- The *Identification of institutions responsible for Measurement, Reporting, and Verification (MRV)* ensures that roles and responsibilities are clearly defined and supported with resources.
- The *definition of institutional and operational processes* allows these institutions and policies to function in a coordinated, transparent, and accountable way, and
- The *Development of methods and tools* builds on these processes, enabling the application of technical instruments, guidelines, and procedures necessary for credible and transparent REDD+ implementation.

Effective institutional arrangements ensure that REDD+ is implemented in a coordinated, transparent, and accountable manner, strengthening the credibility and impact of national climate actions.



Theme (2), Technical Design Decisions

encompasses the methodological and strategic choices involved in establishing an NFMS.

While each country's NFMS reflects its own objectives and national circumstances, certain design elements are essential for ensuring that the system is operational, sustainable, and aligned with REDD+ requirements. An NFMS must be capable of systematically collecting, processing, and integrating data in order to generate reliable information on both the current state and historical trends of key forest variables relevant to national objectives.

Core actions within this theme include the development and adoption of:

- *A definition of forest*, to establish the basic scope for what is being monitored;
- *A representation of the REDD+ system*, to clarify which activities are included and how they are tracked;
- *The identification of carbon pools*, to ensure completeness in emissions and removals coverage
- *Land use and land cover stratification models*, to support consistent measurement across space and time;
- *The selection of approaches, methods, and measurement levels*, to tailor the system to national capacities and reporting needs; and
- *The determination of spatial and temporal application objectives*, to define the resolution and frequency at which information will be generated.

Together, these design decisions create a coherent framework that allows countries to generate credible and policy-relevant forest monitoring information under REDD+.



Theme (3), Measurements and estimations

focuses on the acquisition, processing, and management of data needed to estimate emissions and removals. These estimates depend on baseline information drawn from both field-based measurements and model predictions as well as spatial data from remote sensing and related models. Once collected, the data must be processed using statistical methods in line with IPCC Good Practice Guidance, including the estimation of areas, carbon stock changes, and associated uncertainties — while also accounting for carbon pool dynamics following disturbances.

Within this theme, actions build progressively to ensure that estimates are scientifically robust and suitable for REDD+ reporting:

- *Collecting field and remote sensing observations* provides the raw data for monitoring;
- *Data processing* and analysis transforms observations into usable information;
- *Quantification and management of uncertainties* ensure transparency and scientific credibility;
- *Integration of observations and estimation* methods strengthens consistency and reliability
- *Preservation and storage of information* secure long-term usability and institutional memory.

This theme ensures that emission estimates are scientifically robust, transparent, and suitable for national reporting under REDD+.



Theme (4), Reporting and verification cover both the internal and external processes required under the UNFCCC to ensure that greenhouse gas (GHG) data reported by Parties are reliable, transparent, and comprehensive.

Robust reporting and verification systems are essential for transparency, good governance, accountability, and credibility of results, while also building trust in the effective use of resources.

To account for each nation's efforts in estimating emissions and removals, the UNFCCC has established international procedures for the review and verification of reported data, including GHG inventories and REDD+ submissions (such as FRELs/FRLs). These must be supported by strong national systems of internal verification, aligned with the methodologies and outcomes used to generate estimates.

The key actions under this theme to ensure data credibility include:

- *Reporting of the AFOLU (Agriculture, Forestry, and Other Land Use) sector within the national GHG inventory* provides the foundation for REDD+ consistency with national reporting;
- *Non-carbon reporting* (e.g. co-benefits, safeguards, governance-related data) broadens the scope to include sustainable development aspects, as well as their impacts on the well-being and livelihoods of forest-dependent communities;
- *REDD+-specific reporting* ensures alignment with FRELs/FRLs and results-based payment requirements;
- *Internal and external analysis* and verification processes strengthen credibility, comparability, and trust in reported results.

This theme ensures that reported data are credible, scientifically sound, transparent, and meet international standards for REDD+ recognition and support.



Taking a soil sample in a peatland forest. Photo by Olivia Freeman.

2.2. Institutional Capacity Assessment of CNIAF

To assess the effective performance of the NFMS, the Participatory Institutional Capacity Assessment and Learning (PICAL) framework (see **Box 3** for an overview of the methodology) was applied to examine the organizational and management processes within CNIAF, the main institution responsible for hosting and managing the NFMS. The assessment focused on CNIAF's core functions, including forest inventory, monitoring of Forest Management Units (UFAs) and associated management plans, forest cover change analysis and mapping, and technical support for compliance with the Forest Code.

The PICAL assessment was conducted as a facilitated, guided self-assessment involving CNIAF technical and management staff from relevant functional units. It combined scoring exercises, structured group discussions, and interviews to evaluate organizational performance and functioning. The process enabled participants to critically review institutional procedures, governance mechanisms, and organizational performance across key institutional functions—including leadership, human resources, financial management, technical capacity, stakeholder engagement, knowledge management, and accountability systems—organized into four dimensions: (i) administrative capacity; (ii) organizational learning capacity; (iii) system strengthening capacity; and (iv) demand for performance. Each of these dimensions is further divided into several sub-dimensions, for a total of 37 assessment criteria (see **Annex 2**). Each dimension was assessed using a six-level maturity scale (0–5), ranging from deficient to continuous improvement, reflecting the existence, adequacy, and application of

institutional processes. The participatory nature of the exercise ensured internal ownership of the findings and supported the identification of priority areas for institutional strengthening: (i) administrative capacity and leadership; (ii) organizational learning; (iii) system coordination and resource mobilization; and (iv) demand for institutional performance. Each dimension was scored using a six-level maturity scale (0–5), ranging from deficient to continuous improvement. Scores were collectively validated to ensure consensus and transparency. The findings were then synthesized into a SWOT analysis and a prioritized capacity-building action plan, which was reviewed and endorsed by staff to promote ownership and implementation.

Box 3 : The PICAL Framework for Institutional Capacity Assessment

PICAL

The Participatory Institutional Capacity Assessment and Learning (PICAL) methodology is a structured, participatory diagnostic framework developed by the United States Agency for International Development (USAID) to support organizations in systematically assessing, understanding, and strengthening their institutional and organizational capacities.

Relevance: PICAL complements system-level and technical assessments, such as REDDCompass, by focusing on institutional functionality, governance, management practices, and performance incentives. In the context of National Forest Monitoring Systems (NFMS) and REDD+, PICAL provides critical insights into whether mandated institutions possess the organizational capacity required to sustainably implement monitoring, reporting, and verification (MRV) functions.

Structure and analytical dimensions: The PICAL methodology assesses institutional capacity across four core dimensions, each representing a critical pillar of organizational performance: (i) administrative capacity; (ii) organizational learning; (iii) system capacity strengthening; and (iv) demand for organizational performance. Each dimension is broken down into sub-components and scored using a six-level maturity scale ranging from deficient to continuous improvement.

Scoring scale and maturity levels: For each sub-dimension, institutional capacity is assessed using a six-level ordinal scale, reflecting progressive stages of organizational maturity:

- 0 – Deficient: Standard procedures are absent or non-existent;
- 1 – Emerging: Procedures exist but are largely incomplete or inadequate;
- 2 – Developing: Procedures are mostly defined but applied inconsistently or inadequately;
- 3 – Established: Procedures are applied consistently, but with limited attention to quality;
- 4 – Mature: Procedures are applied with attention to quality and continuous improvement;
- 5 – Continuous Improvement: Processes are fully institutionalized, performance-driven, and subject to systematic learning and results-based management.

Methodological approach: The PICAL process, as applied by and for CNIAF in the RoC, follows a **facilitated self-assessment approach**, typically involving:

- An initial orientation and training on the PICAL methodology;
- Individual and group scoring exercises conducted by internal analysts;
- Focus group discussions to validate scores and identify strengths, weaknesses, opportunities, and threats (SWOT/FFOM);
- The formulation of a time-bound institutional capacity strengthening plan based on identified priorities.

By combining qualitative scoring with participatory reflection, PICAL functions both as a diagnostic tool and a capacity-building process, fostering institutional ownership, learning, and accountability.



3. MAIN STRENGTHS AND GAPS IN THE RoC NFMS

This section presents the outcomes of the NFMS evaluation in the Republic of the Congo, combining a system-level assessment based on REDDCompass and an institutional capacity assessment of CNIAF using PICAL. It examines the level of maturity (key achievements) and challenges (gaps) across the four main NFMS themes: (i) institutional arrangements, (ii) technical design decisions, (iii) measurement and estimation, and (iv) reporting and verification. For each theme, the REDDCompass assessment results are summarized in a dedicated table, presenting for each action the level of implementation achieved, the main evidence supporting the assessment, the remaining gaps, and the corresponding priority actions for strengthening the NFMS. The results of the PICAL assessment are integrated under Theme 1 (Institutional Arrangements).

3.1. Theme (1): Institutional Arrangements

The REDDCompass assessment, summarized in **Table 1**, indicates that the Republic of the Congo has made substantial progress in establishing the institutional foundations for REDD+ and NFMS implementation. As reported in the Introduction, core elements are in place, including a defined stakeholder landscape, a formalized REDD+ coordination structure, a national strategy and investment framework, and operational arrangements for emission reductions and benefit sharing under the Sangha–Likouala ER Program. Key planning

functions are also established, including the identification of REDD+ activities and drivers, priority mitigation options, and a framework for national forest inventory data management.

At the same time, several institutional functions remain only partially operational or insufficiently institutionalized. Although mandates and coordination mechanisms exist, implementation remains uneven, and often relies on project-based arrangements, reflecting a gap between established frameworks and their effective functioning, particularly in coordination, data management, reporting, and system integration.

The complementary PICAL institutional assessment provides an internal diagnosis of CNIAF's organizational performance in support of NFMS implementation. It confirms strong technical expertise and core operational functions, while highlighting structural and managerial constraints affecting the effectiveness and long-term sustainability of NFMS implementation, particularly in management systems, internal coordination, and procedural formalization.

Results of the PICAL Assessment of CNIAF's Institutional Capacity

The PICAL assessment highlights that CNIAF benefits from a solid institutional and technical foundation, characterized by highly qualified national staff with significant experience in forest and wildlife inventories and management, clearly defined organizational structures, a functioning management committee, and an established legal and regulatory framework.

At the same time, the assessment identifies structural weaknesses that constrain operational effectiveness. These include reliance on interim staffing arrangements, the absence of formal human resource management tools (such as job descriptions, performance indicators, and procedural manuals), limited procedural standardization, and weak internal communication and knowledge-sharing mechanisms. In addition, insufficient equipment, IT infrastructure, and financial resources—particularly delays in salary payments—affect staff retention and the continuity and quality of operations.

The assessment also points to opportunities to strengthen CNIAF's role through engagement with technical and financial partners, collaboration with academic and research institutions, and a supportive legal and policy environment. The assessment process itself further provides a platform for collective learning and capacity development.

However, external pressures pose risks to institutional sustainability, including increasing competition from private actors in forest inventory and monitoring activities, potential conflicts of interest, and the continued risk of losing skilled staff due to financial insecurity. These challenges may undermine CNIAF's ability to assert its mandate and maintain its central role in NFMS implementation.

Identified challenges

Operationalization of key NFMS processes

Several processes remain ad hoc or confined to project-level implementation, particularly under the Sangha–Likouala ER-Program. These include incomplete consolidation of national MRV/NFMS scope; incomplete QA/QC frameworks; the absence of permanent procedures for results-based payment processing and registry systems beyond the ER Program; and gaps in safeguards integration, validation procedures, and long-term system maintenance. In addition, structured mechanisms for lesson-learning, feedback integration, and continuous system improvement remain underdeveloped.

Operationalization of coordination structures

Beyond these functional gaps, challenges also relate to the institutionalization of key structures. Although the AFOLU GHG inventory team has been designated through a ministerial service note and assigned responsibility to prepare national climate reporting outputs, it continues to operate largely on a project- or activity-based basis rather than as a permanent, fully institutionalized structure with dedicated and sustained operational capacity. This limits regular coordination, data exchange, and integration with REDD+ reporting processes.

Similarly, several climate change and REDD+ related bodies have been established by presidential, prime ministerial, and ministerial decrees, including CONA-REDD, CN-REDD and the National Observatory. However, publicly available information on the frequency of their meetings and operational activities is limited, making it difficult to assess the extent to which their respective mandates are exercised and effectively coordinated. Although these structures define the formal governance architecture of REDD+ in the Republic of the Congo, many coordination functions have, in practice, been implemented through project-based arrangements rather than through the institutional mechanisms originally envisaged, raising questions about the long-term institutionalization and sustainability of the governance framework.

Overlapping mandates

Overlapping mandates between REDD+ institutions, climate governance bodies, and sectoral ministries contribute to unclear responsibilities and reduced coordination effectiveness. More recently, the Carbon Task Force established by Decree No. 2022-1923 provides a high-level cross-ministerial platform for overseeing carbon market development. While it has strong coordination potential, its articulation with existing REDD+ and NFMS structures remains to be clarified.

Institutional capacity constraints within CNIAC

The PICAL assessment highlights structural constraints affecting CNIAC's ability to sustainably deliver NFMS functions. These include interim staffing arrangements, limited human resource management tools, weak knowledge-sharing mechanisms, and insufficient administrative standardization. While staff possess strong technical expertise, leadership and management systems remain under development. At the same time, persistent financial constraints—including delayed salary payments, insufficient operational budgets, and continued reliance on external project financing—undermine staff retention, institutional stability, and operational continuity. External pressures, including competition from private actors and weak enforcement of CNIAC's mandate, further reduce the institution's authority and operational effectiveness.

Support opportunities

Both assessments identify priority opportunities to consolidate institutional arrangements and operationalize key NFMS functions. REDDCompass points to the potential to scale existing institutional gains achieved under the Sangha–Likouala ER-Program by formalizing national procedures for MRV/NFMS scope definition, roles and responsibilities in the REDD+ framework, inter-institutional coordination with the national GHG inventory, safeguards information management, tracking of ER within the national registry, and results-based payment processing beyond the ER-Program framework. Experience from the FCPF ERPA provides a concrete basis for institutionalizing workflows related to verification, fiduciary controls, data integration, QA/QC, and reporting, while addressing gaps in documentation, continuity, and national ownership.

The PICAL assessment complements the REDDCompass analysis by identifying where institutional strengthening is required within CNIAF. It underscores opportunities to leverage partner support to stabilize human resources, professionalize internal management systems (HR, procedures, knowledge management), strengthen leadership and coordination, and address chronic constraints related to equipment, IT infrastructure, and financial sustainability. It further highlights the potential to deepen collaboration with academic and research institutions to support applied research, innovation, and skills development linked to NFMS and MRV functions, as well as to embed participatory mechanisms, including structured stakeholder engagement, feedback loops, and, where appropriate, community-level monitoring.



Table 1 : REDDCompass Assessment for Theme (1), Institutional Arrangements. Progress, completed actions, and remaining priorities related to the institutional framework for REDD+ in the RoC, including coordination, governance, benefit-sharing mechanisms, and NFMS operationalization

Theme (1) Institutional Arrangements (27 recommended REDDCompass actions)	
Completed 	Key REDD+ stakeholders and sectoral institutions identified, mapped and engaged through the establishment and operationalization of the relevant REDD+ committees and coordination platforms (e.g. ministries in charge of Forest Economy, Environment, Agriculture/Livestock and Finance/Budget; CN-REDD; CNIAF; CONA-REDD; and CODEPA-REDD), as defined by Decree No. 2015-260 and Order No. 113/MEF/CAB (2019) (1) National REDD+ coordination established — CN-REDD serves as the technical coordination body under the MEF, under the strategic oversight of CONA-REDD (3) Processes for ER transfer and benefit sharing defined — Benefit Sharing Plan (BSP), ER transfer and payment arrangements established under the Sangha–Likouala ER-Program and associated ERPA (16) Documented framework for NFI data collection, processing, and storage established, including standardized field procedures and data management led by CNIAF, used for national biomass/carbon estimation (18) Key REDD+ activities identified and spatially defined, based on analysis of deforestation/degradation drivers, wood energy consumption survey, national FREL, and National REDD+ Strategy/Investment Plan; operationalized in the Sangha–Likouala ER-Program, i.e. reduced-impact logging (RIL), land-use planning, High Conservation Value (HCV) protection, governance measures (22) Drivers of deforestation and forest degradation assessed, and priority REDD+ response options identified through REDD+ readiness assessments (including the Strategic Environmental and Social Assessment – SESA), the National REDD+ Strategy, the national FREL, and the Sangha–Likouala ER-Program design. Major drivers include fuelwood demand, agricultural expansion, infrastructure and mining development, and forest management practices (23) REDD+ countermeasures defined — including through the National REDD+ Strategy/Investment Plan and Sangha–Likouala ER-Program intervention framework (e.g. improved forest management, land-use planning/zoning, governance and compliance, HCV protection, community-based measures); with supporting legal measures such as Ministerial Order N°9450/MAEP/MAFDPRP guiding agro-industrial plantations toward savanna areas (24) National REDD+ strategy and action framework established — including the National REDD+ Strategy and Investment Plan (2018–2025), operationalized through the Sangha–Likouala ER Program (27)

In Progress



NFMS/MRV scope defined—aligned with the national FREL under the Sangha–Likouala ER Program (same geographic scope, carbon pools, methods, and QA/QC procedures); monitoring operational at the program, sectoral, and concession levels (2)

Roles and responsibilities for REDD+ emission and removal estimation partially defined — CNIAF MRV Unit established (Note No. 030/MEF/CAB/CNIAF, Jan 2019); key institutions identified (4)

Community-based monitoring system not yet established — monitoring implemented at ER Program, sector and concession levels; community roles not yet defined (5)

Roles and mechanisms for non-carbon benefits partially defined—based on the draft REDD+ Safeguards Information System (SIS), the REDD+ Principles, Criteria, Indicators and Verifiers (PCIV-REDD+), and multiple-benefits mapping. Responsibilities are shared among CN-REDD, CONA-REDD, an independent REDD+ oversight body, CNIAF, CODEPA-REDD and sectoral ministries. Safeguards implementation arrangements were established under the Sangha–Likouala ER Program, with oversight by CN-REDD and implementation by the PMU. The national SIS and its integration with the NFMS and REDD+ registry remain under development, with ongoing support from the UN-REDD Programme (6)

Roles and responsibilities for benefit sharing and ER payments defined — through the national Benefit Sharing Mechanism and the PCIV-REDD+ framework. Operational arrangements were established under the Sangha–Likouala ER Program, with benefit sharing implemented through national and local governance structures, consistent with FCPF Benefit Sharing Plan Assessment Criteria 31–33 and the PCIV-REDD+ framework (7)

Capacity to understand and apply UNFCCC/IPCC requirements needs strengthening—training has been conducted, but knowledge remains uneven and knowledge transfer has not yet been institutionalized (8)

Coordination between REDD+ and GHG inventory partially established — ad hoc mechanisms including ministerial note creating a national GHG communication team; process for regular data exchange, methodological alignment and approval remains to be institutionalized (9)

NFMS/MRV development plan drafted — SYNA-MNV framework and action plan developed (FAO–COMIFAC 2015–2018); requires updating and institutional adoption (10)

Operational NFMS/MRV plan established — SYNA-MNV operational plan in place; requires updating and wider dissemination (11)

Sustainable financing not yet secured — NFMS/MRV implementation remains largely financed through time-bound partner-supported projects; no permanent national budget line has been established for NFMS/MRV (12)

National processes to complement UNFCCC reporting and verification partially established — FREL and ER Program technically reviewed with stakeholder participation; however, a permanent inter-ministerial review mechanism has not yet been institutionalized (13)

Establish processes to identify lessons learned and integrate improvements —partially implemented through ad hoc reviews (e.g. ER-Program implementation, technical missions, capacity-building activities); no formal, recurring system for capturing and integrating improvements (14)

Process for receiving results-based payments defined — institutional and procedural arrangements for results-based payments were defined under the FCPF ERPA; however, these arrangements have not been institutionalized as a permanent national system (15)

	Remote sensing data framework partially established — CNIAF produces activity data; standardized procedures and long-term data management framework under development, with ongoing capacity strengthening (17) Safeguards information framework partially established — safeguards instruments developed under the Sangha–Likouala ER Program; national SIS validated but is not yet fully operationalized (19) Data integration framework incomplete — MRV unit combines SLMS and NFI data; SYNA-MNV portal established to support traceability and verifiability; full end-to-end integration framework (who provides what, formats, validation steps, archiving) still under development (20) QA/QC procedures under development — QA/QC capacity-building initiated, procedures under preparation, including training reports and preliminary documentation for data verification and validation across NFMS components (21) Land-use policy harmonization partially achieved — addressed through the National REDD+ Strategy, the REDD+ Investment Plan, the Forest Investment Plan (PIF), and supported by the CAFI Letter of Intent (LoI); cross-sector coordination remains limited (25) Capacity-building framework incomplete — capacity needs have been assessed through institutional diagnostics (including the CNIAF PICAL assessment) and technical training initiatives; however, no consolidated, funded national capacity-building plan has been established (26)
Priority Actions 	Complete the definition and nationwide implementation of the NFMS/MRV scope aligned with the national FREL; community-level monitoring is not currently included due to cost–benefit considerations (2) Fully formalize roles, responsibilities, and coordination for REDD+ estimation across institutions to ensure clarity, continuity, and transparency (4) Assess and define community-based monitoring; evaluate role, scope, and cost-effectiveness; define responsibilities where appropriate (5) Formalize roles, indicators, and monitoring protocols for non-carbon benefits and integrate them into the national SIS and REDD+ reporting system (6) Establish a continuous, institutionalized capacity-building program on UNFCCC, IPCC, and REDD+ reporting requirements across all NFMS institutions (8) Institutionalize coordination between REDD+ and GHG inventory systems; establish permanent mechanism for data exchange, methodological alignment, and approvals (9) Update and operationalize SYNA-MNV/NFMS development plans; consolidate priorities, budgets, responsibilities, and timelines, aligned with current institutional and technical design choices (10) Update and disseminate the SYNA-MNV operational plan more widely through the SYNA-MNV web portal (https://syna-mnv.cg/) (11) Secure a dedicated national budget line for NFMS/MRV through integration into the annual finance law, while exploring sustainable financing mechanisms, including allocations from future REDD+ benefit-sharing arrangements and results-based climate finance, where applicable (12) Formalize national verification processes by establishing a permanent inter-ministerial technical group with defined roles, procedures, training, and lesson-sharing mechanisms (13) Establish formal lesson-learning processes by developing institutional mechanisms to capture and integrate improvements into the NFMS (14)

	Formalize a national RBP receipt and financial routing procedure (roles, approvals, fiduciary controls, reporting, timelines) applicable beyond the ER-P (15) Develop and document a remote sensing data framework by defining standards, workflows, responsibilities, and capacity needs for transparent and consistent NFMS outputs (17) Operationalize the SIS data pipeline by defining collection tools, roles, QA/QC, archiving, and links with NFMS and REDD+ reporting (19) Document and institutionalize the data integration workflow (inputs → processing → validation → estimates → reporting), including roles and responsibilities, version control of datasets, methods and outputs, QA/QC procedures, and reproducibility requirements (20) Finalize and institutionalize QA/QC procedures—define roles and responsibilities, quality controls, error correction procedures, and version control of datasets, methods, and outputs across all NFMS components (21) Strengthen cross-sectoral harmonization of anti-deforestation measures through implementation of the REDD+ Investment Plan and the Forest Investment Plan (PIF); improve coordination across land-use sectors in line with the CAFI Letter of Intent (25) Consolidate a multi-year capacity-building plan — including budget, responsibilities, delivery plan, and monitoring indicators; building on PICAL assessment results (26)
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3.2. Theme (2): Technical Design Decisions

The Republic of the Congo has made substantive progress in establishing the methodological and strategic foundations of its National Forest Monitoring System (NFMS) and REDD+ reporting framework (see **Table 2**). A national forest definition is formally adopted and consistently applied through the National Forest Reference Emissions Level (FREL), with clear thresholds for minimum area, canopy cover, and tree height, as well as explicit land-use inclusions and exclusions.

Key methodological elements are in place. The temporal scope of the FREL is defined (2016–2021), with a nationally consistent spatial extent aligned with the REDD+ strategy, and land-cover change data have been extended through 2022 to support consistency checks and future updates. A resource-appropriate sampling and data integration approach has been operationalized through the NFMS (SYNA-MNV), combining satellite monitoring, permanent NFI plots, and GHG inventory data in line with IPCC guidance. Forest stratification and typologies are defined and applied, priority REDD+ activities are identified, and methodological choices (approaches, tiers, scope, pools, and gases) are reflected in national reporting.

These elements demonstrate that the core technical architecture of the NFMS is in place and aligned with REDD+ reporting requirements.

Identified challenges

<i>Refinement and documentation of stratification approaches</i>	Forest stratification is established but requires further refinement to better capture ecological, climatic, and disturbance gradients. The documentation of the stratification model, including its rationale for reporting, remains fragmented and requires consolidation into a coherent technical framework.
<i>Methodological approaches related to degradation and carbon enhancement</i>	While deforestation is well covered, methodological approaches for estimating emissions from forest degradation and carbon stock enhancement remain comparatively underdeveloped and require strengthening in future FREL revisions.
<i>Carbon pool data consolidation and validation</i>	Carbon pools and gases are defined, but a consolidated national inventory of datasets by pool and stratum is lacking. Existing analyses—often spreadsheet-based—require consolidation and further technical validation to support robust estimation and prioritization of key pools and reservoirs.
<i>Data Integration and institutionalization of methodological choices</i>	Methodological choices across the NFMS, FREL, and reporting systems are not yet fully consolidated or institutionalized. Data integration workflows remain partially defined, and formal documentation of end-to-end processes (inputs, processing, validation, reporting) is incomplete.
<i>Data gaps, investment planning, and system sustainability</i>	Systematic analyses of data gaps, investment needs, and long-term sustainability requirements remain incomplete. Existing assessments are fragmented, and there is currently no consolidated, costed strategy aligning methodological priorities with data collection, institutional strengthening, and capacity-building efforts.

Support opportunities

<i>Strengthening methodological frameworks and documentation</i>	Targeted support can consolidate and formally document forest stratification models, including ecological and disturbance-based refinements, and improve transparency and reproducibility of methodological choices.
<i>Improving estimation approaches for key REDD+ activities</i>	Further technical support is needed to strengthen methodologies for forest degradation and carbon stock enhancement, including improved emission factors, integration of additional carbon pools, and alignment with evolving IPCC guidance.

*Developing a national
carbon data
architecture*

Consolidating carbon pool datasets into a structured national data catalogue, with clear metadata, validation procedures, and prioritization of key reservoirs, would significantly improve data transparency and analytical robustness.

*Enhancing data
integration and
system coherence*

Support is needed to assess and formalize technical options for integrating multiple data sources across the NFMS, FREL, and reporting systems, including the development of standardized workflows and documentation of data processing and validation steps.

*Planning for
sustainability and
long-term investment*

Priority actions include conducting structured analyses of data gaps and investment needs and translating the results into phased, costed strategies for data collection, methodological improvements, institutional strengthening, and capacity development. This would strengthen the long-term sustainability of the NFMS and improve readiness for future REDD+ submissions.



Drone photo of erosion outside of Kintélé. Photo by Michael Furniss.

Table 2: REDDCompass Assessment for Theme (2), Technical Design Decisions. Status of methodological and strategic choices underpinning the design of the NFMS, including forest definition, stratification, carbon pool identification, REDD+ activity selection, and emission estimation parameters.

Theme (2) Technical Design Decisions (20 recommended REDDCompass actions)	
Completed 	National forest definition established and applied, defined in the FREL (0.5 ha, 3 m, 30% canopy), including/excluding specific land uses (e.g. plantations vs. agricultural crops such as oil palm); developed through national consultations (2014 forest-definition workshop, REDD+ consultations), validation workshops, and multi-sector expert inputs (28, 29, 30) Sampling and data-integration approach defined and operationalized, implemented through the NFMS (SYNA-MNV), combining satellite monitoring, permanent-plot NFI, and the national GHG inventory to assess REDD+ performance against the FREL; aligned with IPCC (2006/2003) guidance, UNFCCC decisions, and the national forest definition (38) Temporal scope of the FREL defined; revised FREL uses 2016–2021 as the reference period (base year 2016); earlier submissions relied on historical data (2000–2012) (40) Spatial scope of REDD+ reporting defined at the national level — both FREL submissions (2016 and 2024) apply a national framework covering the entire territory. Jurisdictional programs, such as the Sangha–Likouala ER Program, are designed to be nested within this framework through harmonized methodologies, including application of the 0.1% adjustment factor for HFLD countries to avoid double counting (41)
In progress 	Forest land stratification established, refined and documented for reporting— national forest typology documented in the FREL; the revised 2024 FREL applies refined ecological and physiographic stratification (Sayre et al., 2014), combined with probability-based change stratification using the Sample-Based Area Estimation (SBAE) approach (referred to as "Ensemble Sample-Based Area Estimation", eSBAE, in the FREL) and supported by the Random Forest supervised machine learning algorithm, improving the characterization of deforestation and forest degradation (32, 33) Priority REDD+ activities identified and operationalized — FREL covers deforestation and degradation; National REDD+ Strategy defines actions (forest control/zoning, RIL/certification, protected areas, afforestation/agroforestry, alternative livelihoods, PCI-REDD+, SYNA-MNV deployment); further work needed on data integration, mapping harmonization, and field sampling to reduce uncertainties (34) REDD+ activities documented but require methodological strengthening — activities defined in the FREL; estimation methods for degradation and carbon stock enhancement remain to be improved (35) Carbon pool data partially documented by strata — the FREL specifies carbon pools (AGB, BGB, dead wood, litter), SOC for deforestation, and gases (CO₂, CH₄, N₂O) by forest stratum; datasets by stratum remain incomplete, with progressive integration of additional carbon pools and ecosystems (e.g. peatlands, mangroves) planned (36) Carbon pool analysis initiated — activity data and workshop outputs available; further consolidation and technical validation of pool significance required (37) Complementary data collection planned but incomplete — permanent NFI plots exist; prioritized data collection strategy and methodological enhancements still needed (39)

	NFMS/MRV methodological framework partially defined — FREL and national communications define approaches and tiers; full documentation and institutionalization across systems remain incomplete (42) Methodological choices documented for transparency — based on IPCC (2003/2006/2019) and GFOI principles; key elements defined (definitions, period, scale, activities, pools, gases) (43) Multiple data integration approaches evolving but not fully assessed — the FREL identifies data integration needs; no formal national assessment has been conducted. The 2016 FREL integrated multiple forest change datasets (FACET, GAF AG and UMD/GLAD) using a decision-tree approach, while the 2024 FREL adopts the eSBAE framework to further strengthen multi-source data integration (44) Identify investment needs in staff, equipment, and institutional arrangements to sustain NFMS/MRV operations —discussed in workshops, but investment requirements remain fragmented and insufficiently consolidated (45) Data gaps identified but not systematically assessed — FREL highlights limitations; no formal gap analysis to guide methodological improvements (46)
Priority Actions 	Define a stratification model distinguishing managed vs. unmanaged forests; current typologies partially reflect management, but no clear operational definition exists to attribute anthropogenic emissions/removals (31) Refine and document forest stratification criteria by integrating ecological, climatic, and disturbance variables to support future FREL updates (32) Produce a consolidated technical note documenting the stratification model, its assumptions, and its application for REDD+ reporting (33) Clarify integration of additional REDD+ activities in future FREL/NFMS updates, including sustainable forest management, conservation, and enhancement of forest carbon stocks; requires strengthening of SYNA-MNV/NFMS, application of the eSBAE approach and other advanced spatial/statistical estimation methods, integration of afforestation and reforestation data from the National Afforestation and Reforestation Programme (PRONAR), improved emission factors (field data), and inclusion of additional carbon pools (e.g. peatlands), through stepwise implementation aligned with UNFCCC reporting cycles (34) Improve and document methodological approaches for degradation and carbon stock enhancement estimates in future FREL revisions (35) Develop a structured data catalogue by pool/stratum/source — covering NFI, studies, projects, and default datasets; identify gaps and priorities, particularly for degradation and SOC estimates (36) For each REDD+ activity, consolidate carbon pool and reservoir analyses into a documented and reproducible national assessment (37) Develop a prioritized and costed data collection plan targeting key carbon reservoirs for FREL improvement (39) Formally document and institutionalize methodological choices (approach, tier, method) across the NFMS, FREL, and UNFCCC reporting (42) Conduct a technical assessment of data integration options to support revisions of the FREL and NFMS workflows (44)

	Develop a consolidated, costed investment plan to support long-term NFMS and MRV sustainability (45)
	Undertake a structured data gap analysis to inform methodological upgrades in future FREL submissions (46)
	Identify priority data gaps and develop a phased, costed national data acquisition plan aligned with key categories (47)
	Prepare a targeted capacity-building plan aligned with data types, methodological choices, and NFMS improvement priorities (48)

3.3. Theme (3): Measurement and Estimation

The RoC has established the core technical components required for measurement and estimation under its National Forest Monitoring System (NFMS/SYNA-MNV) framework (see **Table 3**), including operational systems for activity data assessment, emission factor and GHG estimation aligned with REDD+ and national GHG inventory requirements.

National workshops and technical consultations have been conducted to assess software, hardware, and institutional requirements for activity data assessment and NFMS implementation. Operational calculation tools, currently based on structured spreadsheet systems, are used to estimate emissions in line with national greenhouse gas inventory requirements and REDD+ reporting. Capacity-building efforts have also strengthened national expertise in National Forest Inventory (NFI) methodologies, digital forest data management, and quality control procedures.

Significant progress has been achieved in the generation of activity data. The country has developed an operational satellite-based forest monitoring chain used to produce national forest-cover change maps supporting FREL submissions. This system has been developed with technical support from FAO, the University of Maryland, and the U.S. Forest Service, and enables systematic monitoring of both deforestation and forest degradation for national reporting and REDD+ accounting. Earlier analyses combined multiple sources of forest cover change information, including datasets produced through the *Monitoring the Forests of Central Africa Using Remotely Sensed Data Sets* (FACET) project, led by OSFAC in collaboration with South Dakota State University and the University of Maryland and supported by the United States Agency for International Development (USAID) Central Africa Regional Program for the Environment (CARPE); forest cover change assessments developed by GAF AG for the Republic of the Congo (covering the reference years 1990, 2000, and 2010); and the *Global Forest Change* dataset produced by the Global Land Analysis & Discovery (GLAD) Laboratory at the University of Maryland (UMD), using a decision-tree approach aligned with the national forest definition. In the revised 2024 FREL, this methodology was reinforced through the adoption of the Sample-Based Area Estimation (SBAE, referred to as “Ensemble Sample-Based

Area Estimation”, eSBAE in the FREL), which combines dense Landsat time-series analysis, automated change-detection algorithms, systematic sampling, machine learning, and visual interpretation within an integrated cloud-computing workflow. This strengthened the transparency, reproducibility, statistical rigor, and spatial explicitness of activity data estimation for both deforestation and forest degradation. Multi-date monitoring workflows and associated uncertainty estimates are now applied in national reporting, indicating that activity data production is operational, although further standardization is still required.

Progress has also been made in field data collection and the development of emission factors through the first National Forest Inventory (NFI), launched in 2010 and completed in 2015, and subsequently strengthened between 2021 and 2024 through the addition of more than 400 new inventory plots under the CAFI project. The inventory provides field-based information on forest structure, biomass, and carbon stocks across multiple forest types, forming the basis for national emission factor development and supporting estimates of forest degradation and carbon stock enhancement. Dedicated field campaigns—including in mangrove ecosystems and other priority forest types—have further strengthened emission factor datasets. The MRV Unit has developed standardized workflows and tools for emission and removal estimation, applied in the preparation of the FREL, national GHG inventories, and MRV processes supporting FCPF results-based payments. Methodological documentation supporting measurement and estimation, including assumptions, input datasets, and analytical procedures, is available through national reference documents such as FREL submissions and REDD+ investment planning documents.

Data management infrastructure supporting measurement and estimation is in place through SYNA-MNV, including dedicated servers and web-based platforms for secure data storage, quality control, documentation, and dissemination. The SYNA-MNV web portal facilitates access to geospatial datasets, methodological documentation, and monitoring outputs, supporting collaboration between CNIAF and partner institutions. While this represents a significant step toward improved transparency and interoperability, formalized data-sharing protocols, validation procedures, and institutional responsibilities across contributing agencies remain under development.

Initial quality assurance and quality control (QA/QC) procedures and accuracy assessment methods have also been established. Activity data validation relies on stratified sampling and Collect Earth Online (CEO) visual interpretation to generate reference datasets, while uncertainty estimates are produced for both cartographic outputs and emission calculations.

Identified challenges

<i>Systematization, QA/QC, and uncertainty integration</i>	Despite significant progress, key challenges remain in systematization, quality assurance and control, and uncertainty integration. While activity data and field observations are produced, QA/QC procedures are not yet fully finalized, standardized, or consistently applied across all NFMS components, limiting reproducibility and audit readiness. Accuracy assessment and uncertainty reporting approaches are defined but not yet institutionalized as routine elements of each monitoring cycle, and reference datasets and outputs are not systematically archived.
<i>Emission factors and NFI alignment with REDD+ needs</i>	Field data collection through the National Forest Inventory continues to expand; however, existing protocols and datasets remain only partially aligned with REDD+ requirements for estimating forest degradation and carbon stock enhancement. Emission factor development remains incomplete for several priority forest types and carbon pools, and a comprehensive uncertainty framework for field-derived emission factors has not yet been fully operationalized.
<i>Data integration, traceability, and system robustness</i>	Cross-source data integration and traceability remain limited. The long-term suitability of current estimation tools has not been formally assessed, and documented procedures for reconciling multiple datasets—including version control, roles, and update timelines—are lacking, constraining repeatability, transparency, and continuous improvement.

Support opportunities

<i>Operationalizing QA/QC and uncertainty frameworks</i>	Targeted support (see Table 3) should prioritize finalizing and operationalizing QA/QC procedures for activity data, field observations, and emission estimates, with clearly defined responsibilities and training to ensure consistent application across institutions. This includes institutionalizing routine accuracy and uncertainty reporting for each monitoring cycle—through sampling plans, confusion/error matrices, and systematic archiving of reference datasets—and establishing a national uncertainty propagation framework integrating activity data and emission factors with confidence reporting.
<i>Consolidating workflows and documentation</i>	Support is needed to consolidate measurement and estimation processes into a single structured framework (methods, data sources, roles, update cycles), anchored in an updated SYNA-MNV operational manual and supported by strengthened data and document management systems.
<i>Strengthening data, methods, and system sustainability</i>	Additional technical assistance should focus on strengthening field measurements for emission factor development, improving the statistical robustness of activity data estimates, expanding monitoring of complex ecosystems (including swamp forests and peatlands), and developing structured national uncertainty analyses to guide targeted data investments. Enhancing data management, version control, and long-term archiving will further improve transparency, reproducibility, and audit readiness of the NFMS.

Table 3: REDDCompass Assessment for Theme (3), Measurement and Estimation. Achievements, ongoing activities, priority actions for data collection, uncertainty management, and emission estimation under the NFMS, encompassing remote sensing, field inventories, QA/QC, and uncertainty integration.

Theme (3) Measurement and Estimation (25 recommended REDDCompass actions)	
Completed 	Software and hardware needs assessed — through national workshops on activity data and NFMS implementation, and a consultative retreat identifying institutional capacity and data needs for REDD+ monitoring (59) Operational tools for emission estimation established — emission estimates produced using calculation tools (including Excel-based systems) aligned with national GHG inventory and REDD+ reporting; training conducted on NFI methods and digital tools for data management, QA/QC, and analysis (63) Methodological and design choices documented and justified for REDD+ activities — including FREL documentation and a draft SOP for estimating emissions and removals (71)
In progress 	Capacity needs for data collection and land-use monitoring partially assessed — FREL defines methods and tiers; NFI and SLMS teams trained; PICAL assessment completed with a three-year capacity-building plan under implementation; infrastructure assessment still pending (49) Remote sensing data sources identified, documented and evolving — the 2016 and 2024 FRELs document and justify the selection of multiple remote sensing data sources and forest change products appropriate for national REDD+ monitoring objectives. The revised 2024 FREL builds on the multi-source approach adopted in the 2016 FREL and incorporates the eSBAE approach, strengthening the transparency, reproducibility, statistical robustness, and spatial explicitness of activity data estimates for deforestation and forest degradation (50) Multi-date activity data production operational but not fully institutionalized — forest-cover change maps and uncertainty estimates produced for FREL, but the historical two-year cycle was interrupted, and procedures for documenting data and methodological updates have not yet been formalized (51) Activity data process partially documented — mapping reports, methodological notes, and NFI documentation referenced in the FREL; no consolidated process documentation (roles, workflows, QA/QC, R&D priorities) (52) QA/QC procedures for activity data under development — training conducted and draft procedures prepared; not yet finalized and not consistently applied across NFMS components (53) Field data collection partially supports carbon stock estimates — NFI data and links to forest cartography exist; alignment with REDD+ degradation and enhancement needs remains limited (54) QA/QC for field observations partially implemented — procedures exist within NFI but are not systematically applied across all REDD+ field activities (57) Measurement and estimation processes partially documented — NFI manuals/results, biomass/carbon calculations, and mapping reports exist; need consolidation into a structured M&E process and clearer identification of development priorities for future iterations (data gaps, methodological upgrades, institutionalization) (58) Data integration tools in place but not fully assessed — Excel-based tools used for FREL; scalability and integration with NFMS components not yet evaluated (60) Accuracy/precision assessment for activity data —based on stratified sampling and Collect Earth Online visual interpretation to generate reference points described in the FREL; mapping products are systematically subject to accuracy assessment and associated uncertainty statistics (64) Uncertainty analysis for emission factors (EF) incomplete — NFI dataset under finalization; improvements needed for specific ecosystems (e.g. swamp forests, mangroves) and carbon pools (SOC); formal uncertainty framework (measurement, model, representativeness) not yet fully operationalized (65)

	Uncertainty combination not yet standardized — FREL includes AD accuracy and EF improvement elements, but no consolidated national method for combining uncertainties; standardized uncertainty propagation approach remains to be defined and institutionalized (66) Centralized data management, archiving, and sharing system partially operational — A network with dedicated storage and archiving servers has been established at CNIAF, access protocols have been defined, and both system administrators and staff have been trained; standardized protocols have been developed for CNIAF services, a list of potential data-producing institutions has been compiled, and a data-sharing protocol has been drafted; however, migration from decentralized storage, extension of the system to other institutions, and finalization of access protocols and the screening process for external institutions remain to be completed. (72, 73)
Priority Actions 	Conduct a comprehensive national capacity assessment, consolidate initial needs (consultative retreat, FAO CBIT-Forest tool) with PICAL results, covering skills, infrastructure, tools, and budget (49) Document remote sensing data selection rationale (AD) by defining minimum sensor specifications aligned with the national forest definition, continuity rules for time series, and interoperability constraints; formalize calibration procedures, CNIAF data responsibilities, and reproducible workflows (50) Formalize a repeatable multi-date AD production protocol with uncertainty reporting; building on existing workflows (eSBAE, 2024 FREL), document standardized pipeline (inputs → processing → outputs → archiving) and systematically attach accuracy/uncertainty metrics (51) Compile concise AD process and improvement roadmap; compile REDD+ Investment Plan and FREL materials into an operational note covering governance, workflows, QA/QC, and prioritized R&D agenda, building on the “Areas for Future Improvement” sections already identified in national reporting (52) Finalize, formalize, and operate QA/QC procedures for activity data within the NFMS (53) Strengthen and adapt field data collection protocols on forest carbon stock variation to better support REDD+ degradation and stock enhancement estimates (54) Assess whether forest fires constitute a significant emission source; evaluate significance, identify affected strata, and design field data collection for emission factor development. Preliminary analyses of burned biomass statistics (2000–2020) were conducted in 2022, but were not officially published (55) Assess fire emissions in high-carbon soils (e.g. peatlands); determine relevance and, if needed, develop stratified sampling protocols (burned/unburned, burn depth) aligned with reporting objectives and costs (56) Standardize and apply QA/QC procedures consistently across all field data collection activities (57) Produce a consolidated M&E process document integrating the SYNA-MNV framework, REDD+ Investment Plan (2018–2025), institutional roles (CNIAF, CN-REDD, CONA-REDD), and the technical workflow for activity data production based on the eSBAE approach used; include methods, data sources, update procedures, and priority improvements already identified for the next FREL cycle (statistical improvement, in situ emission factors, complex reservoirs/ecosystems, national modeling/allometric equations, unplanned deforestation) (58) Evaluate the suitability of existing tools and determine whether more robust or integrated solutions are required (60) Establish formal data integration and reconciliation procedures, define workflows, roles, timelines, and version control for combining multiple datasets; align with NFMS reporting cycles (not yet initiated) (61) Develop and apply QA/QC procedures for emission estimates, formalize and operationalize QA/QC beyond identification of needs (62) Standardize AD accuracy/precision assessment workflows, formalize procedures for sampling design, confusion matrices, uncertainty reporting, and archiving (64)

	Finalize priority NFI components and document EF uncertainties, complete datasets (e.g. swamp forests), document uncertainty sources (measurement, model, sampling), and integrate recent field data (e.g. mangroves, soils) into QA/QC plans (65) Define a national uncertainty propagation framework (AD + EF), formalize standardized methods combining activity data and emission factors (e.g., tree measurements and biomass), with reported confidence levels for FREL/FRL and ER reporting (66) Conduct a quantitative uncertainty assessment following IPCC guidance to identify key categories contributing most to overall emission uncertainty; prioritize methodological improvements and data investments (not yet initiated) (67) Systematically document errors, assumptions, and methodological choices, focusing on high-uncertainty categories and integrating into continuous improvement frameworks (not yet initiated) (68) Define and document technical approaches to reduce uncertainty, including improvements in data collection, stratification, EF, and integration methods. Link uncertainty reduction actions to data collection and analysis workflows (not yet initiated) (69) Produce standardized technical documentation for measurement and estimation, covering methods, data sources, workflows, and QA/QC, aligned with IPCC requirements and NFMS institutional arrangements (not yet initiated) (70)
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3.4. Theme (4): Reporting and Verification

The Republic of the Congo has made tangible progress in meeting key REDD+ reporting and verification requirements (see **Table 4**). It has submitted two Forest Reference Emission Levels (FREL) in 2016 and in 2024, including all required UNFCCC elements (Decision 13/CP.19 and annex), and successfully completed the international technical assessment process. Initial steps have also been taken to improve coherence between REDD+ reporting and the AFOLU GHG inventory, with REDD+ technical staff contributing to national communications and early exchanges helping to identify methodological alignment needs.

At the national level, key milestones include:

- a technically assessed and approved FREL/FRL package, demonstrating capacity to compile UNFCCC reporting requirements and engage in iterative technical review processes.
- the development of a Benefit Sharing Plan (BSP) and a framework for non-carbon benefits under the FCPF-ER Program, with participatory design and indicator-based approaches, although reporting routines remain to be operationalized.

Identified challenges

<i>Coordination with AFOLU reporting systems</i>	Despite these advances, coordination between REDD+ reporting and the AFOLU GHG inventory remains largely ad hoc. Although the AFOLU GHG inventory team has been designated through a ministerial service note and assigned responsibility for preparing national climate reporting outputs (e.g. National Communications and BURs/BTRs), it operates primarily on a project- or activity-based basis rather than as a permanent institutional structure. As a result, methodological alignment, data exchange protocols, and joint validation procedures are not systematically documented or institutionalized, affecting traceability and consistency across reporting cycles. REDD+ results are also not yet systematically integrated into BUR/BTR annexes.
<i>Verification systems and review readiness</i>	The system lacks a structured internal verification and expert review framework, as well as standardized national procedures to prepare for, participate in, and follow up on international technical assessment processes. This includes gaps in systematic archiving of review outcomes and in the integration of recommendations into NFMS planning and official documentation, limiting institutional learning and continuous improvement.
<i>Operationalization of BSP and non-carbon benefits reporting</i>	While BSP and non-carbon benefits are clearly defined in program design, they remain insufficiently operationalized for routine reporting. Standardized reporting packages—including templates, roles and responsibilities, reporting schedules, QA/QC procedures, and publication pathways—are not yet fully established to support consistent and periodic reporting.

Support opportunities

<i>Strengthening REDD+–AFOLU integration</i>	Table 4 points to clear, practical support pathways centered on institutionalization and repeatability. Priority support should focus on formalizing coordination between REDD+ and AFOLU reporting systems through standing mechanisms (e.g., joint working sessions, agreed protocols, defined QA/QC roles, and synchronized reporting calendars). This would enable consistent integration of REDD+ results, assumptions, and datasets into national reporting cycles.
<i>Establishing verification and learning systems</i>	Targeted assistance is needed to establish a structured internal verification and learning system, including capacity building, standardized procedures, and archiving/knowledge-sharing mechanisms. This would strengthen national readiness for UNFCCC and FCPF technical reviews and ensure that review recommendations are systematically tracked and integrated into NFMS improvements.
<i>Operationalizing BSP and harmonizing reporting frameworks</i>	Additional support should focus on operationalizing BSP and non-carbon benefits reporting through standardized indicators, defined data responsibilities, verification procedures, and publication routines aligned with ER Program monitoring systems. Developing a consolidated “requirements crosswalk” aligning UNFCCC, AFOLU, and FCPF reporting expectations into a single national reference framework would further enhance consistency, efficiency, and transparency across reporting and validation processes.



Basile Mpati of CNIAF gives a training on how to properly use soil sampling equipment for technicians from the neighboring Democratic Republic of the Congo's Department of Forest Inventory and Zoning. Photo by Eva McNamara.

Table 4: REDDCompass Assessment for Theme (4), Reporting and Verification. Progress and remaining actions related to REDD+ and GHG reporting, verification procedures, benefit-sharing, and continuous improvement mechanisms ensuring transparency and compliance with UNFCCC requirements.

Theme (4) Reporting and Verification (13 recommended REDDCompass actions)	
Completed 	Two FREL submissions completed (2016, 2024), both include all elements required under Decision 13/CP.19 and underwent UNFCCC technical assessment with responses to reviewer comments; priority remains to institutionalize a permanent workflow (roles, timelines, response protocols, archiving) for future updates (75, 76)
In progress 	Coordination between REDD+ and AFOLU GHG inventory initiated — the MRV Unit hosted within CNIAF contributes to national GHG reporting, enabling initial alignment of methods and identification of gaps; coordination remains ad hoc, with differences in approaches, methods, and tiers not yet systematically documented or jointly validated (74) Harmonization of international reporting requirements partially addressed — the ER Program was designed to align benefit-sharing and safeguards with national REDD+ strategies and reporting; however, no consolidated mapping of reporting requirements or harmonized national reporting framework has been established (78) Benefit Sharing Plan (BSP) reporting framework established but not operationalized — BSP developed through participatory process and validated in 2020 with M&E indicators; however, no operational system has been established to report on BSP implementation, including fund allocations, benefit distribution, grievances, and results (79)

	Non-carbon benefits (NCB) monitoring defined but not operationalized — NCBs identified under the ER Program, with monitoring included in operational costs; indicator framework not yet translated into periodic national reporting (data sources, baselines/targets, QA/QC, publication) (80)
Priority Actions 	Institutionalize coordination between the CNIAP MRV Unit and the AFOLU GHG inventory team; establish regular joint sessions, agreed protocols, and documented roles and responsibilities to ensure consistent and traceable alignment between REDD+ reporting and AFOLU inventories across all submissions (74) Integrate REDD+ results into BUR/BTR reporting; operationalize coordination to ensure inclusion of REDD+ results, assumptions, and QA/QC elements in each reporting cycle (77) Produce a harmonization note mapping requirements across different reporting processes (definitions, accounting parameters, safeguards, benefit-sharing, non-carbon benefits), and formalize how each report is produced, validated, and published (78) Set up a BSP implementation reporting package (templates, reporting schedule, and assigned responsibilities) covering fund allocations, benefit distribution, payments to beneficiaries, grievances, and Key Performance Indicator reporting (79) Finalize a non-carbon benefits monitoring framework (indicator definitions, data collection responsibilities, verification/QA, and reporting frequency) and publish NCB results alongside ER monitoring reports (80) Establish internal verification capacity for UNFCCC processes; create dedicated structure and provide training/documentation to support FREL/FRL technical assessment and RBP verification (81) Develop and apply standardized QA/QC procedures for GHG accounting estimates; formalize SOPs for internal verification aligned with NFMS institutional arrangements (82) Strengthen capacity for UNFCCC technical assessments, ensure sustained national participation, ownership, and follow-up of international review recommendations (83) Systematize documentation and dissemination of verification outputs, archive analyses, conclusions, and recommendations from assessments and workshops; integrate into NFMS improvement and communication tools (84) Establish feedback loop from verification to NFMS planning, ensure recommendations are tracked, prioritized, and integrated into planning and budgeting processes (85) Develop comprehensive capacity-building programs on verification, structured training on QA/QC, verification workflows, and participation in UNFCCC review processes (86)

4. STRATEGIC RECOMMENDATIONS FOR STRENGTHENING THE NFMS IN THE REPUBLIC OF THE CONGO

The following recommendations identify priority actions arising from the REDDCompass assessment and the complementary PICAL institutional capacity analysis. They aim to consolidate existing NFMS achievements while addressing remaining gaps in institutionalization, coordination, methodological robustness, and long-term sustainability. The recommendations are structured to support a phased strengthening of the NFMS, from immediate consolidation of institutional arrangements and coordination mechanisms to medium- and long-term improvements in technical systems, data integration, and financial sustainability. They also aim to ensure that the NFMS functions as a permanent public system capable of supporting REDD+, Article 6 mechanisms, and broader land-use governance objectives.



4.1. Institutional Strengthening and Legal Framework

The primary institutional challenge is not the absence of institutional arrangements, but their partial operationalization and limited coherence. Although REDD+ governance structures and NFMS-related institutions are formally established, overlapping mandates, fragmented coordination, and uneven implementation continue to constrain their effectiveness. This reflects broader governance and institutional weaknesses affecting the operationalization of the NFMS, including the limited institutionalization of emerging areas such as carbon market regulation and benefit-sharing arrangements.

A key priority is therefore to consolidate and formalize the institutional framework through a comprehensive legal and organizational review. This review should clarify mandates and responsibilities across key entities—including CNIAF, CN-REDD, CONA-REDD, CERGEC/IGN, and national GHG inventory teams—and establish clear roles for data production, validation, archiving, safeguards reporting, and national and international reporting obligations. This review should also support the development of a robust regulatory framework for carbon market participation, including mechanisms under Article 6 of the Paris Agreement, while ensuring alignment with NFMS-based carbon accounting and reporting systems. In addition, coordination between the Ministry of Forest Economy and the Ministry in charge of Environment should be strengthened to improve coherence and ensure consistency between REDD+ implementation, MRV functions, and national climate reporting.

In this context, the institutional strengthening priorities identified through the PICAL assessment have been translated into a structured three-year Performance Improvement Plan for CNIAF. The plan follows a phased approach, with Year 1 focusing on foundational reforms, including clarifying roles, strengthening procedures and leadership practices, and establishing coordination and stakeholder engagement mechanisms. Year 2 consolidates operational capacity through improved working conditions, equipment, knowledge management, and resource mobilization systems. Year 3 focuses on institutionalizing results-based management through advanced training, participatory evaluation, and external review. Accountability and sustainability are supported through dedicated monitoring arrangements, periodic reviews, and proactive donor engagement, ensuring that capacity strengthening is both nationally owned and sustained over time.

Efforts should focus on operationalizing existing coordination mechanisms rather than creating new ones, including reactivating underutilized bodies, aligning mandates across climate- and REDD+-related institutions, and ensuring regular data exchange and joint decision-making processes. The experience gained through the Sangha–Likouala Emission Reductions Program provides a strong foundation for this process: workflows related to verification, safeguards, fiduciary management, and benefit sharing should be formalized into national procedures and scaled beyond project-level implementation.

Recent progress, including the July 2025 data-sharing agreement under the SYNA-MNV platform, demonstrates the feasibility of improved coordination and integrated data governance. Building on this momentum, strengthening institutional mandates and formal coordination processes will be essential to reduce fragmentation, enhance transparency, and ensure the systematic integration of NFMS outputs into national climate policy and reporting frameworks, including future carbon market transactions and results-based finance.

4.2. Human Resources and Operational Environment

The long-term performance of the NFMS depends fundamentally on the stability and capacity of its technical staff, particularly within CNIAF. The PICAL assessment highlighted persistent human resource constraints, including interim staffing, limited career development pathways, and financial insecurity, factors that directly threaten institutional memory, staff retention, and operational continuity.

Priority actions include the professionalization of human resource management through formal job descriptions, performance appraisal systems, and continuous training plans, alongside the gradual transition from project-based financing toward predictable domestic budget allocations. In parallel, strengthening financial sustainability is essential: beyond advocating for a dedicated government budget line for NFMS and MRV operations, the country should consider allocating a defined share of revenues from carbon credit transactions, consistent with the Benefit Sharing Plan (BSP) under the Sangha–Likouala ER Program and future national arrangements, to support core NFMS functions, including infrastructure maintenance and staff remuneration. Such an approach would reinforce national ownership, reduce structural dependence on external partners, and create a more predictable financing base for long-term MRV sustainability.

Operational conditions also require targeted investments. Reliable internet connectivity, modern computing infrastructure, secure centralized data servers, field equipment, and adequate office space are essential to ensure data integrity, traceability, operational efficiency, and staff productivity. Strategic reinvestment of a portion of future results-based payments in strengthening the National Forest Monitoring System (NFMS) infrastructure and stabilizing its human resources would create a virtuous cycle in which carbon finance not only rewards verified emission reductions but also reinforces the institutional capacity needed to sustain high-quality forest monitoring, reporting, and verification over the long term.

4.3. Data Sharing, Digital Infrastructure, and System Integration

Although key NFMS components, satellite monitoring, forest inventory, and emission and removal estimation, are functioning, data flows between institutions remain partially

fragmented. Strengthening interoperability across systems is essential to ensure transparency, efficiency, and traceability.

A unified digital architecture should be developed to connect the NFMS with the REDD+ registry, the Safeguards Information System (SIS), and other national climate reporting platforms. Standardized protocols for data exchange, metadata documentation, version control, and archiving would enhance reproducibility and credibility of estimates. Establishing centralized servers with secure backups and automated workflows would further reduce risks of data loss and inconsistencies.

Publishing key NFMS outputs under open-data principles, where appropriate, would improve transparency and foster trust among stakeholders, while enabling researchers and partners to contribute to methodological improvements.

4.4. Capacity Building and Methodological Harmonization

Despite substantial technical support over the past decade, capacity-building efforts remain uneven and often project-specific. A coordinated national training strategy should be developed to consolidate expertise in carbon accounting, statistical estimation, uncertainty analysis, and remote sensing.

Harmonizing methodologies across institutions and reporting cycles is particularly important. National guidelines should formalize consistent approaches for activity data estimation, sampling design, emission factor development, and uncertainty calculation, aligned with IPCC Good Practice Guidance and UNFCCC REDD+ reporting requirements. This would reduce discrepancies between datasets and strengthen confidence among reviewers and investors.

Emerging technologies, such as artificial intelligence, machine learning, and cloud-based processing, offer opportunities to increase efficiency and analytical precision. Integrating these tools into NFMS workflows, while building local expertise to manage them, could significantly lower long-term costs and enhance national autonomy.

Expanding and maintaining permanent and temporary NFI plots, increasing field verification, and incorporating high-resolution imagery will further strengthen emission factor accuracy and improve detection of degradation and other REDD+ activities.

4.5. Linking Emissions to Drivers, Strengthening the FREL, and Supporting Carbon Finance

To better inform policy and investment decisions, the NFMS should move beyond national-level estimates to provide more detailed analyses linking emissions to specific drivers, sectors, and geographic areas. This would enable more targeted interventions, improve the effectiveness of REDD+ strategies, and strengthen the policy relevance of NFMS outputs for climate and land-use decision-making.

The availability of new inventory data and improved activity data provides an opportunity to update and strengthen the national FREL, incorporating more robust treatment of REDD+ activities such as degradation, forest enhancement, and potentially non-CO₂ emissions. A more comprehensive and robust FREL would enhance eligibility for future results-based finance and Article 6 cooperation, including by supporting the generation of internationally transferable mitigation outcomes (ITMOs) consistent with national accounting.

Finally, ensuring that nationally generated data serve as the authoritative basis for verification, rather than relying primarily on third-party project datasets, will allow the Republic of the Congo to retain greater ownership of emission reductions and maximize domestic benefits. Institutionalizing NFMS-based baselines for both jurisdictional and project-level accounting will strengthen transparency, prevent double counting, and position the country to engage more effectively with voluntary and compliance carbon markets, while providing a more transparent basis for revenue allocation and benefit-sharing arrangements.

5. INSTITUTIONALIZATION OF NFMS ASSESSMENT FOR CONTINUOUS IMPROVEMENT AND STRATEGIC DECISION-MAKING

The combined REDDCompass and PICAL assessments have resulted in a comprehensive and structured diagnosis of the National Forest Monitoring System (NFMS), identifying targeted areas for improvement alongside concrete and prioritized support opportunities. These findings not only provide a clear roadmap for national system strengthening but also offer a valuable basis for development partners to align their interventions with nationally identified priorities, helping to reduce fragmentation and avoid parallel or uncoordinated initiatives.

In a context of increasing international requirements for transparency, technical robustness, consistency, and traceability in climate reporting—particularly under the UNFCCC framework, the emerging mechanisms established under Articles 6.2 and 6.4 of the Paris Agreement, and evolving methodological standards—the regular repetition of such assessments would facilitate continuous monitoring of institutional and technical progress, enable the early identification of emerging gaps and risks, and support more adaptive, coordinated, and evidence-based implementation. This iterative approach would also help ensure that complex monitoring systems remain effective, resilient, and aligned with evolving international requirements over time, while promoting more strategic coordination of partner support. Building on this, institutionalizing periodic, combined system-level and institutional assessments of the NFMS would be key to support continuous improvement, adaptive implementation, and more strategic coordination of partner support.

The combined application of REDDCompass and PICAL provides a robust and complementary framework to support such a process. REDDCompass enables a structured assessment of system-level maturity across institutional, technical, and reporting dimensions, while PICAL offers a deeper diagnosis of institutional performance, including constraints related to human resources, management systems, and financial sustainability that directly affect NFMS functionality. Together, these approaches help link observed system-level gaps to their underlying institutional drivers.

At the same time, both methodologies rely on participatory self-assessment processes, which strengthen national ownership but may not fully capture discrepancies between formal arrangements and operational realities. This highlights the importance of complementing internal assessments with periodic external validation or moderated review processes to enhance objectivity, consistency, and credibility over time.

In a context characterized by a diverse and increasingly complex donor landscape, a structured and transparent articulation of needs is critical to enhance coordination, avoid fragmentation of support, and improve the overall effectiveness of investments in the NFMS.



6. CONCLUSION

The combined REDDCompass and PICAL assessments provide a comprehensive and nationally grounded evaluation of the maturity, functionality, and sustainability of the National Forest Monitoring System (NFMS) in the Republic of the Congo. The findings confirm that the country has progressed beyond the REDD+ readiness phase and has entered an operational stage, characterized by functioning monitoring capacities, verified emission reductions, and active engagement with results-based climate finance mechanisms.

A key strength lies in the progressive alignment between institutional arrangements, technical monitoring systems, and access to climate finance. The implementation experience of the Sangha–Likouala Emission Reductions Program under the Forest Carbon Partnership Facility demonstrated the capacity of national data systems to support monitoring, reporting and international technical review, while also revealing institutional constraints that prevented completion of the results-based payment process. This represents a significant milestone in the Congo Basin context, where few countries have operationalized NFMS outputs at jurisdictional scale. The program has also served as a practical platform for testing MRV workflows, safeguards implementation, benefit-sharing mechanisms, and inter-institutional coordination, thereby accelerating institutional learning.

The Republic of the Congo made strong progress in integrating, or “nesting”, project-level carbon initiatives within the national jurisdictional framework. The Pikounda Nord IFM-REDD+ project illustrates how private-sector initiatives can align with national accounting

systems while avoiding double counting. This emerging approach strengthens transparency and environmental integrity and positions the country in line with evolving best practices for jurisdictional accounting and potential future cooperation under Article 6 of the Paris Agreement.

More broadly, the coexistence of multiple financing mechanisms, including jurisdictional results-based payments (FCPF), voluntary carbon standards, and multilateral climate finance programs (GCF, CAFI), reflects a diversified and complementary forest-climate portfolio. This layered architecture enhances resilience while reinforcing the central role of the NFMS as the technical backbone supporting all mitigation, reporting, and financing processes.

Despite these achievements, the assessment highlights persistent structural challenges that may affect long-term sustainability. Institutional mandates are generally well defined, but their effective implementation remains uneven due to limited human resources, dependence on external project financing, and gaps in procedural formalization. The PICAL assessment of CNIAF underscores that technical capacity alone is insufficient without stable staffing, predictable funding, adequate infrastructure, and clear management systems. These organizational factors are critical to ensuring continuity, institutional memory, and national ownership.

Overall, the Republic of the Congo has reached a pivotal stage in its REDD+ trajectory. The technical foundations of the NFMS are largely in place, and the country has demonstrated its capacity to generate verified emission reductions and mobilize diverse climate finance streams. The key challenge now lies in consolidating these achievements into a fully institutionalized, nationally owned system, transforming project-based successes into permanent public functions embedded within national governance.

Strengthening institutional coordination, stabilizing human resources, harmonizing methodologies, and ensuring that nationally generated data serve as the authoritative basis for all carbon accounting will be critical next steps. By building on its experience with jurisdictional crediting and nested approaches, the Republic of the Congo is well positioned to expand access to climate finance and play a leading role in advancing integrated forest governance and climate mitigation in the Congo Basin.

ANNEX 1: REDD+ PROGRESS AT SUB-NATIONAL LEVEL AND RESULTS-BASED PAYMENTS

Emission Reductions Program (ER-P) of Sangha-Likouala under the FCPF

The REDD+ implementation phase in the Republic of the Congo has been marked by the development of jurisdictional programs, most notably the Sangha–Likouala Emission Reductions Program (ER-P), which covers the country’s two most forested departments, Sangha and Likouala, spanning more than 12 million hectares and representing nearly 60% of national forest cover (Sangha–Likouala ER-P, 2018).

The preparation of the program began in 2016 and was finalized and approved by the Forest Carbon Partnership Facility (FCPF) Carbon Fund in December 2018. It targeted the generation of approximately 8.4 million tonnes of verified CO₂ emission reductions by 2025 through reduced-impact logging practices, avoidance of conversion of High Conservation Value (HCV) forests, improved land-use planning, and strengthened forest governance. It constitutes a major jurisdictional initiative to operationalize Phases 2 (implementation) and 3 (results-based payments) of the REDD+ process in the Republic of the Congo and is among the first jurisdictional REDD+ programs in Africa.

On 22 April 2021, the Republic of the Congo signed an Emission Reductions Payment Agreement (ERPA) with the World Bank, acting as trustee of the FCPF Carbon Fund³⁶. The ERPA provided for results-based payments of up to USD 41.8 million, corresponding to verified ERs of up to 8.4 million tonnes of CO₂ for the accounting period 2020–2025.

The ER-P became fully operational on 5 October 2022, with a carbon price set at USD 5 per tonne of CO₂, excluding prior readiness investments. The first Emission Reductions Monitoring Report (ERMR) was prepared and submitted in accordance with FCPF requirements, demonstrating the operational capacity of the national Measurement, Reporting and Verification (MRV) system³⁷. However, although the technical work was completed and the verification process initiated, the first results-based payment was ultimately not made due to institutional and governance challenges, resulting in the ERPA expiring without any disbursement.

³⁶ World Bank. 2021. Republic of Congo: Emission Reductions Program in Sangha and Likouala Project (P163361). Washington, DC: World Bank; <https://documents1.worldbank.org/curated/en/214181619731912596/txt/Republic-of-Congo-Emission-Reductions-Program-in-Sangha-and-Likouala-Project.txt>

³⁷ World Bank, Republic of the Congo: Sangha–Likouala Emission Reductions Program (ERP) – Implementation Status and Results Report, Forest Carbon Partnership Facility (FCPF) Carbon Fund, 2024–2025; <https://documents1.worldbank.org/curated/en/099103124163024924/pdf/P163361-7b8b8ffa-0e32-49c1-81bc-8227c019c335.pdf>

To preserve the technical and institutional achievements of the program following the closure of the FCPF Carbon Fund, the Government of the Republic of the Congo and its partners are exploring opportunities to continue leveraging the emission reductions through future jurisdictional carbon finance mechanisms. In parallel, the World Bank and the Architecture for REDD+ Transactions (ART) are developing a general framework to facilitate the transition of FCPF programs to the ART TREES standard³⁸, under which the Sangha–Likouala ER Program could, where appropriate, eventually be considered.

The reference level applied to the ER-P differs from the national FREL submitted to the UNFCCC in 2016. It was adjusted slightly upward relative to average historical emissions to reflect the High-Forest, Low-Deforestation (HFLD) national context while remaining consistent with FCPF methodological requirements.

Institutional oversight of safeguards and non-carbon benefits under the Sangha–Likouala ER-P is ensured by the National REDD+ Coordination (CN-REDD), while implementation, monitoring, and reporting are carried out by the Program Management Unit (PMU), supported by a dedicated safeguards team. Implementation partners, including concession holders, NGOs, and community organizations, are responsible for applying safeguard measures and collecting monitoring data, which are compiled and reviewed within the program’s governance structure. Safeguards are implemented in line with FCPF requirements and build on existing national environmental and social frameworks, while their integration into the national Safeguards Information System (SIS) remains under development, with ongoing support from the UN-REDD Program.

Climate Finance and Results-Based Payment Initiatives

In parallel with jurisdictional REDD+ implementation, the Republic of the Congo has supported several project-level and programmatic initiatives combining voluntary carbon market standards with results-based climate finance mechanisms.

The Government entered several public–private partnerships, including with Congolaise Industrielle des Bois (CIB), one of the country’s leading FSC-certified industrial logging companies and a subsidiary of Olam Agri, to develop the Pikounda Nord Improved Forest Management (IFM-REDD+) project in the Sangha region. Covering 92,530 hectares of previously allocated selective logging concessions, it was designed to prevent planned harvesting and maintain carbon stocks. Registered under the Verified Carbon Standard (Verra VCS Project ID 1052; project start date: January 2012), it has issued more than two million Verified Carbon Units (VCUs). According to Olam Agri, while the project continues to operate under the Verra VCS, the emission reductions generated during the 2020–2024 monitoring period were intended to be accounted for under the Sangha–Likouala jurisdictional Emission

³⁸ Forest Carbon Partnership Facility (FCPF). <https://www.forestcarbonpartnership.org/high-integrity-transition-path-jurisdictional-redd-programs-under-fcpf-standard>

Reductions Program (ERP) supported by the Forest Carbon Partnership Facility (FCPF). Consequently, no Verra VCUs were or will be issued for this period in order to avoid double counting^{39,40,41}. However, following the expiration of the FCPF Emission Reductions Payment Agreement (ERPA), the future accounting and commercialization of these emission reductions remain to be determined.

The Ouesso Forestry Industry of the Interholco Group developed the REDD+ UFA Ngombé project in northern Congo⁴², registered under the Verified Carbon Standard (VCS Project ID 2765) and targeting over 8 million tCO₂ over 22 years through reduced-impact logging practices (EFIR) and conserving natural forest areas within the concession. Although validated, no credits have yet been issued.

In line with its commitment to achieving net-zero emissions by 2050, TotalEnergies, in partnership with the Government of the RoC and the French consultancy firm Forêt Ressources Management (FRM/FRMi), launched a 40,000 ha afforestation/reforestation initiative in the Batéké Plateaux (BaCaSi, Batéké Carbon Sink), targeting over 10 million tCO₂ over 20 years and seeking certification under VCS and CCB standards. The project is reported to be under development and not yet registered or issued credits⁴³. In collaboration with local communities, the project integrates agroforestry systems supporting agriculture, fuelwood substitution, and sustainable wood energy supply, alongside assisted natural regeneration and selective harvesting to promote native species recovery, while supplying lumber and plywood to Brazzaville and Kinshasa by 2040.

Another afforestation and reforestation initiative currently under implementation is the Mbé Carbon Garden Project (JACA-Mbé), developed by RENCO GREEN SARLU in the Pool Department under the National Afforestation and Reforestation Program (PRONAR)⁴⁴. Officially launched in 2023, the project aims to establish a carbon sink through the development of approximately 40,000 hectares of forest and agroforestry plantations and

³⁹ Olam Agri / CIB. Pikounda Nord REDD+ Project Information Note – Verra VCS Project ID 1052; <https://www.olamagri.com/content/dam/olam-agri/assets/webp/ps/wood/redd-project/redd-project-pdfs/project-information-note-pikounda-redd.pdf>

⁴⁰ World Bank. Republic of Congo – Sangha Likouala ER-P (FCPF Carbon Fund), Project P163361 documentation and ISR; <https://documents1.worldbank.org/curated/en/099122225103542400/pdf/P163361-3ea8f59d-2235-4716-b0b9-b21eb5631040.pdf>

⁴¹ Verra Registry. Pikounda Nord Improved Forest Management (IFM) – REDD+ Project (VCS Project ID 1052). Verified Carbon Standard (VCS); <https://registry.terra.org/app/projectDetail/VCS/1052>

⁴² Verra Registry. UFA Ngombe REDD+ Project (VCS Project ID 2765). Verified Carbon Standard (VCS); <https://registry.terra.org/app/projectDetail/VCS/2765>

⁴³ ATIBT / TotalEnergies & FRMi. Launch of a 40,000 ha plantation project in Batéké Plateaux; <https://www.atibt.org/en/announcements/30/total-and-frmi-launch-40-000-hectares-forest-plantation-in-the-republic-of-congo>

⁴⁴ Renco Green. Ja.Ca.Mbé Afforestation and Reforestation Project; <https://www.renco.it/projects/jacambe-afforestation-and-reforestation-project>

plans to generate and market carbon credits on the voluntary carbon market. To date, however, the project does not appear to be registered under an international carbon certification standard nor to have generated any verified carbon credits.

Likewise, the ECOZAMBA project, led by the Société Nationale des Pétroles du Congo (SNPC), targets over 50,000 ha of plantations and agroforestry systems on degraded lands with an estimated 22 million tCO₂ sequestration potential over 20 years^{45,46}. Still under development and not formally registered, it reflects national efforts to expand nature-based climate solutions while highlighting implementation challenges^{47,48}.

Additional mitigation initiatives include Eni-Congo's improved cookstove projects in Pointe-Noire⁴⁹ and Brazzaville (North⁵⁰ and South⁵¹) (VCS Project IDs 4873, 4874, 4875), targeting reductions in fuelwood and charcoal consumption and generating over 3.4 million tCO₂ over 10 years. Earlier cookstove initiatives include the Gold Standard-certified "Improved Cook Stove Project in Brazzaville" (GS1205, VPA 3⁵²). implemented by the NGO Initiative Développement, which issued 13,559 credits between 2014 and 2016, of which 10,524 were retired, with revenues reportedly reinvested in local income-generating activities.

These private and market-based initiatives align with the National Afforestation and Reforestation Program (PRONAR, 2011), aimed at expanding forest cover, enhancing national carbon sequestration, and supporting the transition to a green economy.

Complementary climate-finance programs have also been mobilized. Among these, the LITUKA project, funded by CAFI and implemented by Initiative Développement (ID) in partnership with the Ministry of Forest Economy, aims to establish a sustainable value chain for the production and dissemination of improved cookstoves in Brazzaville and Pointe-

⁴⁵ SNPC & Forêt Ressources Management (FRM). ECOZAMBA afforestation and agroforestry project presentation (Plateaux Batéké, Republic of the Congo); https://www.cif2025.cg/assets/supports/6_AYMAR_EBIOU_PRESENTATION_SNPC_ECOZAMBA_TABLE RONDE_3.pdf

⁴⁶ ATIBT. Launch of the ECOZAMBA afforestation project led by SNPC and FRM in the Republic of the Congo (approx. 50,000 ha plantation initiative); <https://www.atibt.org/fr/annoncements/212/lancement-du-projet-eco-zamba-la-snpc-et-frm-mettent-en-place-un-projet-d-afforestation-au-congo>

⁴⁷ Energy Capital & Power. SNPC develops EcoZamba carbon project to expand Congo's carbon credit market; <https://energycapitalpower.com/snpc-carbon-credit-market-1000h-trees/>

⁴⁸ EcoZamba Project – Official project website; <https://ecozamba.org/en/home/>

⁴⁹ Cookstove Project Eni-Congo Pointe-Noire; <https://registry.verra.org/app/projectDetail/VCS/4873>

⁵⁰ Cookstove Project Eni-Congo Brazzaville Nord; <https://registry.verra.org/app/projectDetail/VCS/4874>

⁵¹ Cookstove Project Eni-Congo Brazzaville Sud; <https://registry.verra.org/app/projectDetail/VCS/4875>

⁵² Gold Standard. GS1205 Sustainable Energy for Development Programme of Activities (PoA), VPA 3: Improved Cook Stove Project in Brazzaville (Republic of the Congo). Gold Standard Impact Registry; <https://registry.goldstandard.org/projects/details/400>

Noire⁵³. The project plans to distribute 8,300 improved cookstoves by the end of 2026 and contributes to the implementation of the Republic of the Congo's national improved cookstove deployment targets set out in its NDC 3.0. The PREFOREST Congo project, financed by the Green Climate Fund (GCF, Project FP159) and implemented by FAO since November 2021 through approximately 2029, targets forest conservation, agroforestry, and sustainable land management across five departments (Plateaux, Pool, Bouenza, Niari, and Kouilou)^{54,55,56}. Similarly, the PROREP Wood Energy Plantations project (USD 7 million budget funded by CAFI and implemented by FAO through 2022–2026) supports ~2,700 ha of dedicated wood-energy plantations and agroforestry systems around Brazzaville, targeting ~830,000 tCO₂ over five years⁵⁷. These initiatives are structured as results-based climate finance programs rather than voluntary carbon credit projects and therefore do not issue VCUs or credits through standard registries.

Overall, REDD+ implementation in the Republic of the Congo is closely aligned with the country's Nationally Determined Contribution (NDC 3.0), in which forests and land use constitute the core mitigation pillar. These implementation efforts rely on the development of a robust National Forest Monitoring System, which provides the technical foundation for measurement, reporting, and verification.

⁵³ Initiative Développement (ID) & Central African Forest Initiative (CAFI). 2024. LITUKA – Rapport annuel 2024; https://mptf.undp.org/sites/default/files/documents/2025-04/2024_rapport_annuel_id_lituka_140442_vf.pdf

⁵⁴ Green Climate Fund. FP159 – PREFOREST Congo project page; <https://www.greenclimate.fund/project/fp159>

⁵⁵ FAO safeguards page – PREFOREST Congo (GCP/PRC/021/GCF); <https://www.fao.org/environmental-social-safeguards/project-detail/preforest-congo---project-to-reduce-greenhouse-gas-emissions-from-forests-in-five-departments-in-the-republic-of-congo/en>

⁵⁶ FAO. GCF approval announcement for PREFOREST Congo (USD 46.5 million); <https://www.fao.org/africa/news-stories/news-detail/Green-Climate-Fund-approves-FAO-project-to-tackle-deforestation-and-improve-livelihoods-of-smallholder-farmers-in-the-Republic-of-Congo/en>

⁵⁷ CAFI. PROREP – Wood Energy Plantations project page; <https://cafi.org/project/wood-energy-plantations-prorep/>

ANNEX 2: PICAL ASSESSMENT DIMENSIONS AND ASSESSMENT CRITERIA

The PICAL framework evaluates institutional capacity through four complementary dimensions comprising a total of 37 assessment criteria (sub-dimensions). Each criterion is assessed using a six-level maturity scale (0–5), described in **Table 5** below, which evaluates the existence, adequacy, implementation, and continuous improvement of institutional processes.

Table 5: Six-level institutional maturity scale used in the PICAL assessment to evaluate the existence, adequacy, implementation, and continuous improvement of organizational processes.

Score	Maturity level	Description
0	Deficient	Standard operating procedures or institutional processes do not exist.
1	Emerging	Procedures or processes exist but are largely incomplete or inadequate.
2	Developing	Procedures are generally adequate but are applied inconsistently or inadequately.
3	Established	Standard procedures are implemented adequately, although limited attention is given to quality assurance or continuous improvement.
4	Mature	Procedures are consistently implemented with attention to quality, effectiveness, and continuous refinement.
5	Continuous Improvement	Institutional processes are fully institutionalized, consistently implemented, regularly monitored, and continuously improved through results-based management.

The assessment criteria are grouped under the four PICAL dimensions and cover the principal organizational functions and institutional processes evaluated during the assessment. Together, they provide a comprehensive framework for assessing institutional performance, governance, organizational learning, system strengthening, and demand for performance. **Table 6** summarizes the four dimensions and their corresponding assessment criteria.

Table 6: The four PICAL assessment dimensions—Administrative Capacity, Organizational Learning Capacity, System Strengthening Capacity, and Demand for Performance—and their 37 associated assessment criteria (sub-dimensions) used to evaluate institutional capacity and organizational performance.

Dimension	Assessment criteria (sub-dimensions)
1. Administrative Capacity (10 assessment criteria)	(1) Leadership; (2) Roles and responsibilities; (3) Human resources (staffing); (4) Human resources (salaries and incentives); (5) Information management; (6) Financial management; (7) Communications and reporting; (8) Physical infrastructure and equipment; (9) Compliance and audit; (10) Decision-making processes.
2. Organizational Learning Capacity (7 assessment criteria)	(1) Leadership for capacity development; (2) Organizational planning; (3) Monitoring, evaluation and learning; (4) Knowledge management; (5) Operational research; (6) Stakeholder perceptions; (7) Ability to articulate institutional needs.
3. System Strengthening Capacity (11 assessment criteria)	(1) Policy development; (2) Oversight; (3) Capacity development; (4) Resource mobilization; (5) Resource allocation; (6) Decentralization; (7) Logistics system; (8) Information sharing; (9) Coordination system; (10) Stakeholder feedback; (11) Responsiveness to expressed needs.
4. Demand for Performance (9 assessment criteria)	(1) Stakeholder feedback; (2) Internal accountability; (3) External accountability; (4) Inclusion; (5) Participation; (6) Transparency; (7) Anti-corruption mechanisms; (8) Staff understanding of institutional mandate; (9) Performance incentives.

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