



Forest policy diagnostics for the Democratic Republic of Congo (DRC)

Eliezer Majambu
Blaise-Pascal Ntirumenyerwa
Mihigo
Julia Naime
Colas Chervier
Arild Angelsen
Christopher Martius

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CIFOR

Jl. CIFOR, Situ Gede
Bogor Barat 16115
Indonesia
T +62 (251) 8622622
F +62 (251) 8622100
E cifor@cifor-icraf.org

ICRAF

United Nations Avenue, Gigiri
PO Box 30677, Nairobi, 00100
Kenya
T +254 (20) 7224000
F +254 (20) 7224001
E worldagroforestry@cifor-icraf.org

cifor-icraf.org

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The present report builds on the analytical framework introduced in the deforestation archetypes paper (de Sy et al. 2026). It applies this framework to examine national deforestation policies in the Democratic Republic of the Congo (DRC) in relation to identified archetypes. In parallel, similar analyses have been conducted for Brazil, Indonesia, and Peru. Together, these country studies and the archetypes paper form the foundation of the deforestation diagnostic framework.

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The assessments and views expressed in this report are those of the authors alone.

Summary

This report applies a deforestation diagnostics approach to identify which forest policies are most likely to work, where, and why. The diagnostics framework links policy effectiveness to forest context and behavioural mechanisms, recognizing that policies achieve results by acting on behavioural responses—such as sensitivity to incentives, enforcement credibility, and motivational drivers—which ultimately determine land-use decisions. Developed under CIFOR’s Global Comparative Study on REDD+, the approach combines three complementary components. First, it develops a spatial ‘deforestation archetype’ analysis that classifies the forest landscapes in the Democratic Republic of the Congo (DRC) according to forest cover, degradation, deforestation severity, and hotspot dynamics. Second, it constructs a typology of forest policies based on a behavioural theory of change, which categorizes policies according to the actors they target, the mechanisms they activate (material incentives, compliance and enforcement, social belongingness, or competence/self-efficacy), and the forest threats they address. Third, it links archetypes and policy types to assess the effectiveness of these policies in each circumstance. It integrates these three levels of analysis to provide a contextualized alternative to one-size-fits-all solutions to forest policy design while also avoiding a purely case-by-case analysis, thereby improving policy design supposed to target the right levers, enhance comparability, and achieve strategic learning within and across countries.

In the DRC, the archetype analysis reveals a forest landscape that remains predominantly intact but increasingly exposed to smallholder-driven deforestation in accessible forest mosaics. DRC has seen an 8.6% decrease in tree cover since the year 2000; annual deforestation rates oscillate around 0.7% since approximately 2016. Chronic deforestation areas are concentrated near urban centres and transport corridors, where charcoal production and subsistence agriculture dominate. Unlike commodity-driven dynamics elsewhere, forest loss is diffuse and closely linked to rural energy demand and population pressures.

The policy architecture includes the Forest Code, the national REDD+ strategy, community forestry concessions, land-use zoning, and donor-supported programmes such as CAFI (the Central Africa Forest Initiative). However, weak enforcement capacity, fragmented institutional mandates, armed conflict in parts of the country, and limited fiscal resources constrain implementation. Compliance-oriented instruments face credibility challenges in contexts where monitoring and sanctioning capacity are limited. Competence-oriented policies—such as community forestry and tenure clarification—are more promising in intact forest archetypes, where preventive governance can secure forest rights before large-scale pressures emerge.

The diagnosis suggests that effective forest policy in the DRC must integrate conservation with rural energy transitions, agricultural productivity improvements and institutional strengthening. In chronic deforestation archetypes near cities, addressing charcoal markets and improving alternative energy access is essential. In intact forest areas, early tenure recognition and community-based management may prevent future escalation. The DRC case illustrates that in high-forest, governance-constrained contexts, policy sequencing and governance reform are as critical factors as is the choice of the instruments.

1 Introduction

The Democratic Republic of Congo (DRC) hosts around a tenth of global tropical forests, and close to half of the forests on the African continent. Between 2001 and 2021, DRC lost 17.1 Mha of tree cover, equivalent to a 8.6% decrease since 2000. Annual deforestation rates in DRC oscillate around 0.7% of the territory, having remained relatively stable since 2016¹. In 2012, with the aim of addressing this deforestation, DRC engaged in a national REDD+ strategy. This strategy promotes a sustainable development policy based on seven pillars: agriculture, energy, forest, governance, demography, land-use planning and land-tenure. These pillars are integrated in the second letter of intention (LOI) implemented by international donors, the Central Africa Forest Initiative (CAFI) and DRC.

To improve current and future initiatives to reduce deforestation, practitioners and policymakers can benefit from prior knowledge about the impacts of policies implemented in similar contexts. With this in mind, CIFOR's Global Comparative Study on REDD+ has developed an approach to deforestation diagnostics which addresses the key question: which policies and measures are likely to work where, and why? This diagnostics approach can provide policymakers and practitioners with a tool to help identify the most robust policy interventions, based on policy experiences in comparable contexts. The approach is a middle ground between applying a 'one size fits all' solution to deforestation, and case by case interventions.

The deforestation diagnostics approach consists of three primary stages (Angelsen 2022; Chervier 2022). Firstly, a set of specific forest contexts – otherwise known as **archetypes** – is identified for the country, based on diagnostic variables. These variables describe aspects of the deforestation context that will most probably affect policy outcomes and their impacts. Second, **policies and measures** that support countries to address deforestation (or forest management and land cover change more generally) must be identified. Finally, the question of 'what is likely to work where?' can be addressed by examining available evidence around **context-dependent policy impact**.

This deforestation diagnostic approach is both a decision-making and research tool. For decision makers, the approach can identify the contexts in which different conservation measures are being implemented, as well as the most appropriate measures and public policies for each context. For researchers, the approach can help identify factors critical to understanding individual cases and place them within broader tropical forest contexts. For civil society, the archetypes can increase information and transparency about the different processes and dynamics of deforestation at the national level, including deforestation risks.

This report presents the complexity of deforestation contexts and relevant forest policies in the Democratic Republic of Congo (DRC). Section 2 presents the methodology used to classify and estimate forest (and deforestation) archetypes, and the archetype maps for DRC. Section 3 outlines our theory of change for forest policies and describes the three key attributes used to develop a typology for forest policies and measures. Section 4 outlines national level policies, as well as examples from two provinces (Tshopo and Mai-Ndombe), using the policy typology and seeking to link these to specific archetypes. Finally, in Section 5, we summarize and discuss briefly the relevance of the deforestation diagnostics approach.

1 Global Forest Watch country analysis <https://www.globalforestwatch.org/map/country> (consulted January 2023)

2 Archetypes: Defining the deforestation context

2.1 Overview of the archetype approach

To understand the contexts in which deforestation is occurring, we use archetype analysis. Archetype analysis is a methodological approach that identifies repeated, generalizable patterns of a specific phenomenon (Eisenack et al. 2021; Oberlack et al. 2019); this approach has recently been applied to studying deforestation patterns (Baumann et al. 2022; Buchadas et al. 2022). Archetype analysis classifies regions and landscapes into different categories (i.e., archetypes) according to a set of attributes, which we call the diagnostic variables. Each ‘case’ (i.e., geographical area) is assigned an archetype, which represents that particular type of landscape. An archetype is therefore a group of geographical areas which share a set of key attributes, or diagnostics variables.

We built the archetypes using a nested approach (Figure 1). A nested approach allows us to introduce regional complexity step-by-step: a first set of variables (i.e., building blocks) defines a small number of broad categories, the next set of variables further splits these into subcategories, and another set of variables gives a third and more detailed set of archetypes. Based on literature reviews and experimenting with several global, spatial datasets, we propose a two-level nested approach (Figure 1). The first level identifies archetypes based on three ‘typologies’ that are built using data on deforestation trends, forest cover and forest degradation. This is explained in Section 2.2. The second level defines ‘nested archetypes’ by incorporating metrics that describe drivers of deforestation as well as deforestation risks, and is explained in Section 2.3.

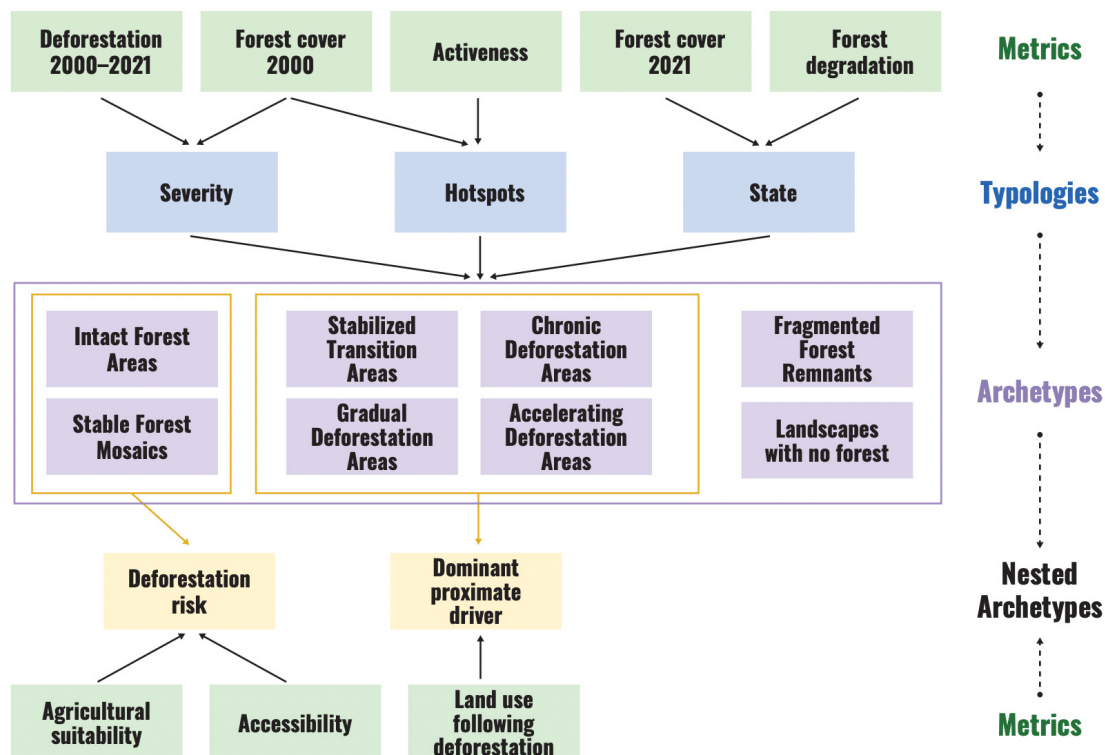


Figure 1. Conceptual framework used to build the archetypes and the nested archetypes

Future work may add a third level of archetype analysis, which will focus on specifying the quality of the governance and the actors present in the deforestation areas. This work will identify land users who are engaging in deforestation or forest extraction activities, tenure security and governance quality. For Level 3 analysis of the archetypes, there are two key challenges. First, how to define and measure the institutional and governance quality in a way that is comparable across regions and countries. Second, how to relate identified deforestation and forest degradation actors to specific geographical locations. At this stage, we tentatively discuss these Level 3 factors in Section 4.

2.2 Archetypes of deforestation

To build the archetypes, we use data from the Tropical Moist Forest (TMF) dataset (Vancutsem et al. 2021). Our focus is on the tropical moist forest biome. The miombo dry forest area in the south/southeast is not well covered.

The unit of analysis is a ‘landscape’, defined as a 5x5 km pixel. We selected the TMF dataset because – in addition to information on forest cover and deforestation – it also provides detailed information on forest degradation and post-deforestation recovery. This dataset characterizes forest state from the initial (2000) to the end (2021) of the observation period. We describe the landscape according to three main characteristics, or ‘typologies’: (i) current forest state, (ii) severity of deforestation, and (iii) whether the landscape is a deforestation hotspot.

‘Current forest state’ (Figure 2) describes the state of the forest in the 5x5 km landscape and is built using two metrics: forest cover in 2021 (as a percentage of land) and forest degradation in 2021 (as a percentage of forest). From this we see that 40% of DRC’s territory has landscapes with high forest cover with low levels of degradation, while 24.1% has low forest cover and high forest degradation, mostly in the south of the country (Khoji Muteya et al. 2025; Kleinschroth et al. 2019).

‘Severity of deforestation’ (Figure 3) describes the landscapes according to the extent of total forest cover lost since 2000. This is calculated based on two metrics – forest cover in 2000 (as a percentage of land) and gross forest cover lost in 2000 to 2021 (as a percentage of land). The map shows that most of the areas that had high forest cover in 2000 have experienced low rates of deforestation over the last two decades (39.5% of national territory).

‘Deforestation hotspots’ (Figure 4) highlights which landscapes have average annual deforestation rates above 1% and which are below that threshold. We also describe the hotspots considering changes over time, depending on whether the high deforestation rate (above 1%) is before 2015, after 2015, or high throughout the period. The analysis shows that the areas with the highest forest cover loss in 2000 to 2021 are in the central, eastern and northern parts of the country. Most deforestation hotspots have had consistently high deforestation rates over the years, in the sense that they have maintained deforestation rates above 1% before and after 2015 (Majambu 2023b; Molinario et al. 2020).

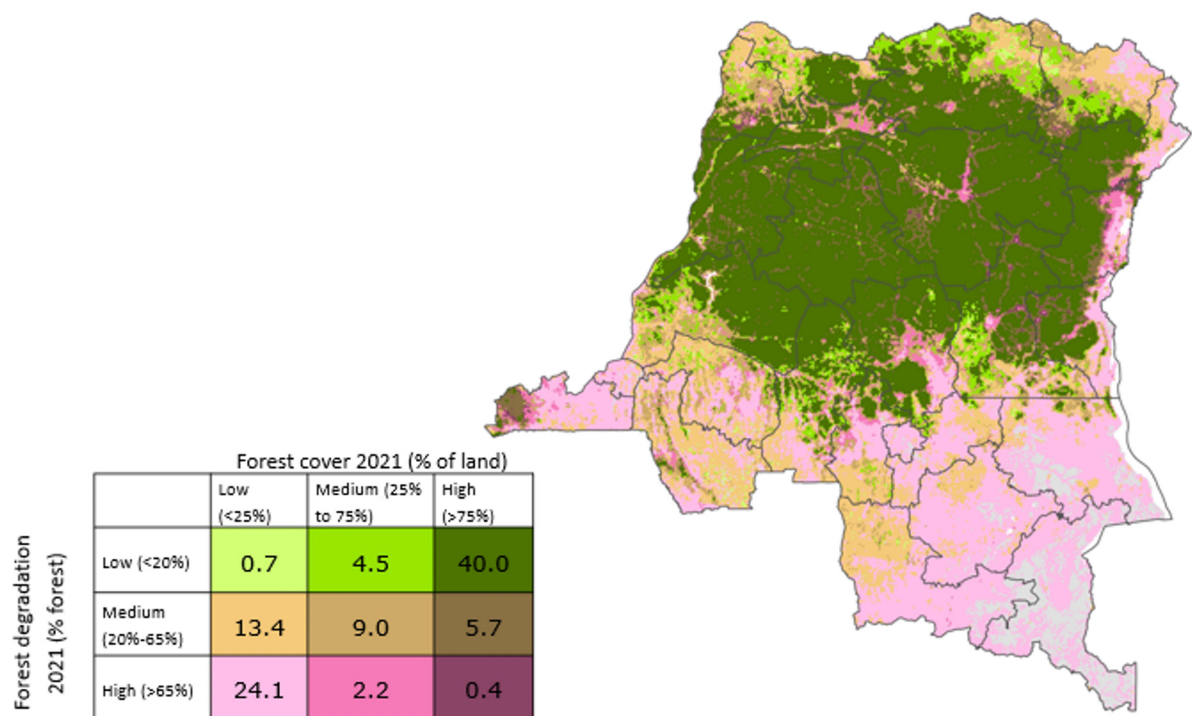


Figure 2. The current state of DRC's landscapes, based on forest cover and forest degradation in 2021

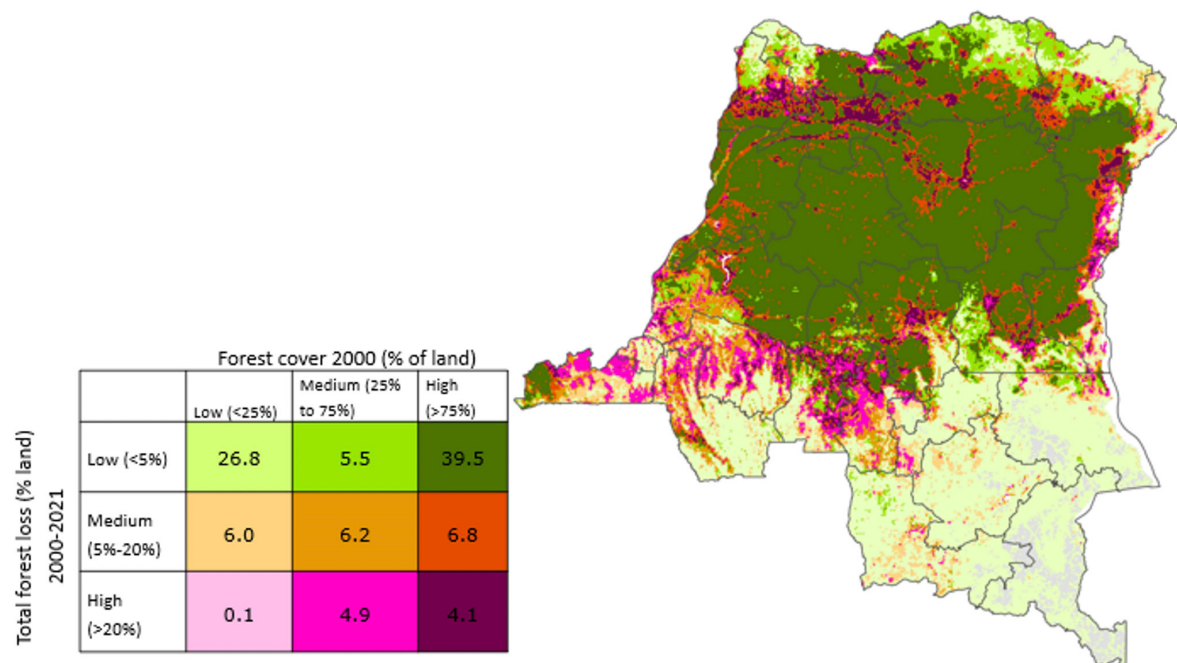


Figure 3. Severity of deforestation in DRC, based on forest cover in 2000 and total forest loss between 2000 and 2021

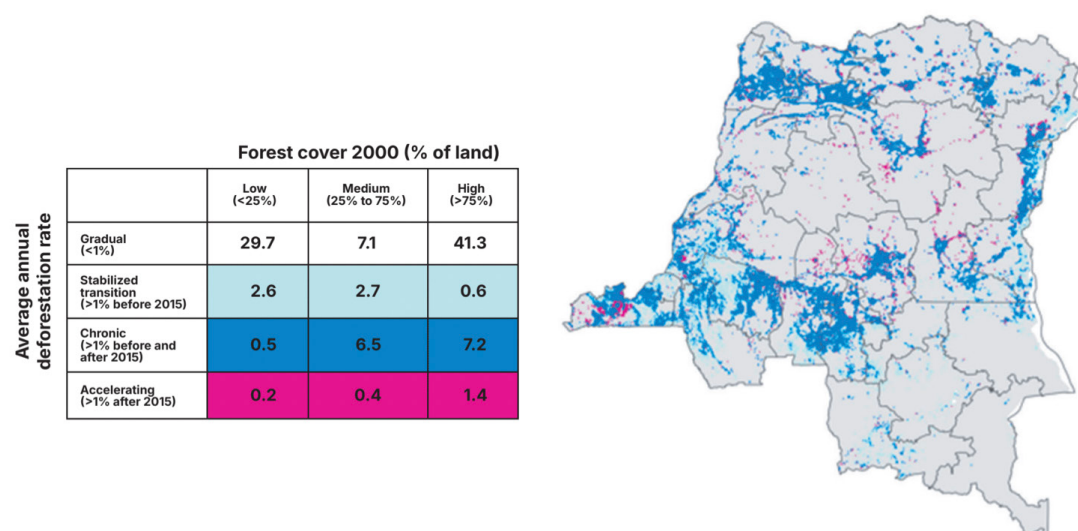


Figure 4. Deforestation areas with higher than 1% average annual deforestation (Hotspots)

Qualitative evaluation of the state, severity and hotspot typologies resulted in seven archetypes (Figure 5), with an eighth category of non-forest land that is no proper forest or deforestation archetype. We first defined two archetypes where deforestation has been historically low: intact forest areas and stable forest mosaics. These two archetypes shared low overall deforestation during 2000–2021, with intact forest areas having lower forest degradation. As such, these two archetypes consist of landscapes with relatively undisturbed forest. Together, they cover almost half of DRC territory (45% in total). The three provinces with the highest percentage of conserved forest are Tshopo (88%), Tshuapa (96%) and Equateur (81%).

We then distinguished four archetypes which we label ‘deforestation areas’. These landscapes describe areas where deforestation in 2000–2021 has been high or medium, or where the deforestation rate is higher than 1% – these areas therefore classified as hotspots. We also describe them considering how they have changed over time – ‘stabilized transition areas’ (i.e., old deforestation areas) are those with deforestation rates higher than 1% only before 2015, while ‘chronic deforestation areas’ have deforestation rates higher than 1% both before and after 2015, and ‘accelerating deforestation areas’ are those with deforestation rates higher than 1% only after 2015. ‘Gradual deforestation areas’ are those that have at least lost 20% of their forest cover since 2000, but where average annual deforestation rates have not been higher than 1% on average. Deforestation areas cover 27.3% of DRC’s territory and can be considered priority areas for policies aiming to reduce deforestation. Most deforestation areas (14.2%) are chronic deforestation areas, as they have maintained deforestation rates above 1% before and after 2015. The three provinces with the highest percentage of deforestation areas are Kwilu (60%), Kongo Central (65%) and South-Ubangi (49%).

The last two archetypes are ‘fragmented forest remnants’ and ‘landscapes with no forest’. ‘Fragmented forest remnants’ covers areas that have some forest cover left – to be distinguished from areas with no forest cover left (the last category in Figure 5). The main characteristic of fragmented forest remnants is having lower than 25% of forest cover in 2000 and 2021 and therefore have lower deforestation in the last two decades and lower deforestation rates. These cover approximately one quarter of the country’s land and are mostly located in the south and eastern part of the country. Only 1.6% of DRC’s territory has no forest left.

Archetype	Percentage
Intact Forest Areas	39.3
Stable Forest Mosaics	5.7
Stabilized Transition Areas	5.9
Chronic Deforestation Areas	14.2
Accelerating Deforestation Areas	1.9
Gradual Deforestation Areas	6.3
Fragmented Forest Remnants	25.2
Landscapes with no forest	1.6

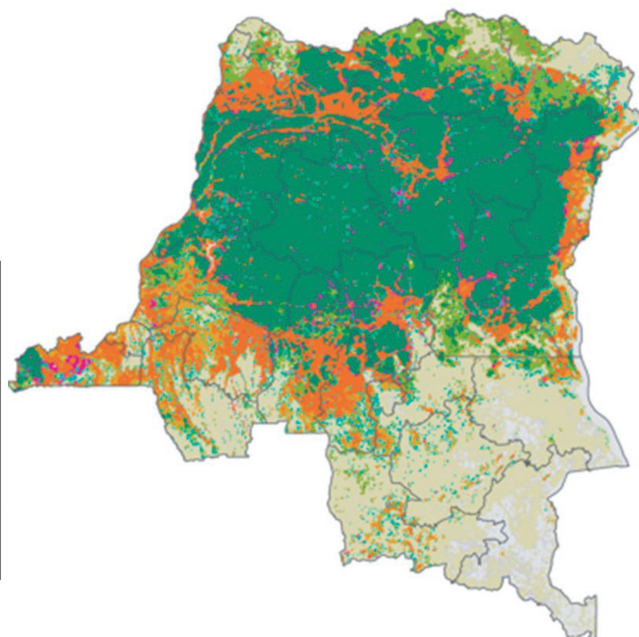


Figure 5. Archetypes of deforestation in DRC. See Annex Table 4, for the percentages of archetypes in each province

2.3 Nested archetypes

The second level of the archetype analysis provides more detail for the deforestation areas, intact forest areas and stable forest mosaics, through nested archetypes (see Figure 1). For the deforestation areas, we considered the direct drivers of deforestation (Figure 6). We included the following land uses/covers: tree plantations, forest regrowth, water, cropland, grassland, urban and shrubland (see Annex, Table 5, for a description of each category). The most significant land-use categories following deforestation are shrubland – grassland and grassland. While some of the shrubland-grassland can be associated to slash and burn subsistence agricultural activities, caution must be taken when attributing all grassland and shrubland areas to smallholders. In the north, in the provinces of Tshopo, Mongala and Equateur, tree plantations are also found to be a driver of deforestation. This makes DRC one of the countries most affected by deforestation after Madagascar (Masolele et al. 2024).

In terms of DRC's agricultural production, a total of 174 million tonnes of food was produced in the country between 2012 and 2015, and there were over 108 million livestock. On average, maize accounts for 69% of cereal production, and rice for 30%. Most of DRC's local rice in 2015 (34.5%) was produced in the former province of Orientale (Ituri, Bas Uele, Haut Uele and Tshopo). Kasai provided 16.6%, while 13.4% was produced in each of the provinces of Kinshasa, Kongo Central and Kwilu. DRC produces over 33 million tonnes of cassava every year, accounting for 79% of the country's total food production. Looking at 2015, Kinshasa, Kwilu and Kong Central provinces (the Western zone) were responsible for 31% of cassava production, followed by Kasai (14%) and the north and south Kivu (9%) (World Bank 2020). Pulses account for less than 1% of production annually in DRC, with beans being the most widely produced. The province of Kivu accounts for the majority of this – over 68% of beans in 2015. Similar to vegetables, oil seeds account for 1% of domestic production, most of which are groundnuts. The Western zone produces 36.6% of groundnuts, while Kasai produces 20.3%. On average, plantain accounted for 10% of DRC's annual production during 2012–2015. Ituri, Bas Uele, Haut Uele and Tshopo – collectively the former Eastern Province – were responsible for 45% of production and the Kivus 27.2% (MINAGRI-RDC 2018; World Bank 2020). Almost all this food is produced through rainfed, low-input agricultural methods.

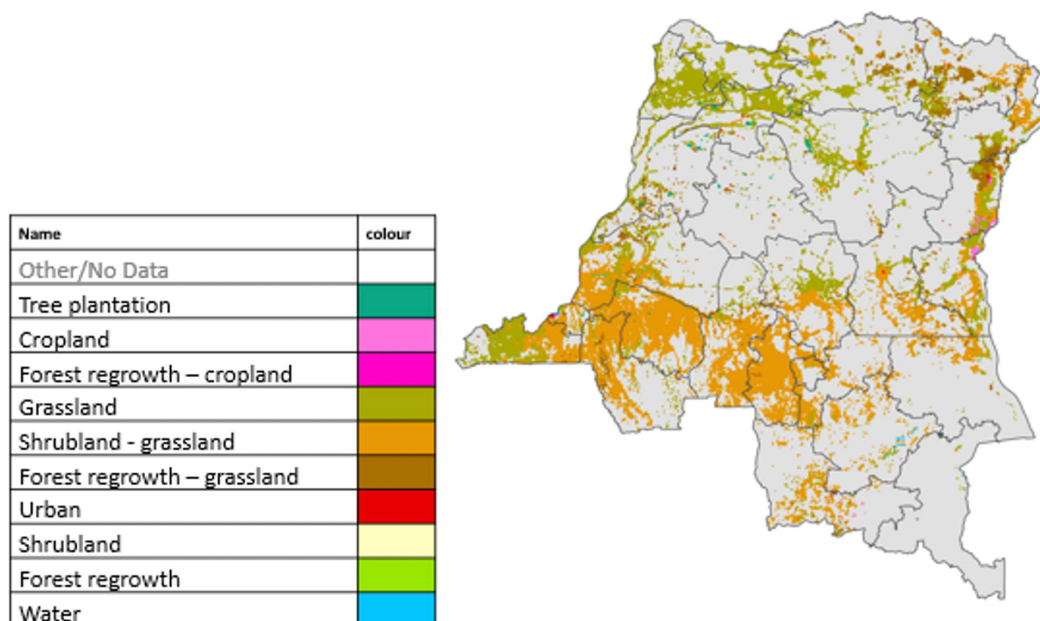


Figure 6. Land use following deforestation, considering only deforestation areas (see Figure 5)

In terms of the main agro-industrial crops, it is estimated that annually the DRC produce 26,144 tonnes of robusta coffee, 5,636 tonnes of arabica coffee, 5,353 tonnes of cocoa, 3,508 tonnes of tea, 3,485 tonnes of tobacco, 8,487 tonnes of oilseeds, 2,790 tonnes of cinchona and 1,996,565 tonnes of sugar cane².

To further describe intact forest areas and stable forest mosaics, we include information on the area's accessibility to urban areas and agricultural potential, to show the risk of agricultural-driven deforestation (Figure 7). We define accessibility based on the time it takes to travel to the nearest urban centre (Fischer et al. 2021; Weiss et al. 2018), which is defined as an area with 1,500 or more inhabitants per square km, or most of the built-up land cover coinciding with a population centre of at least 50,000 inhabitants.

Most forested area in DRC has medium to high agricultural suitability. Yet, agricultural expansion has remained low, in part due to a failure to deliver agricultural extension services and technologies to rural areas. This is said to be the result of lack of coordination and the non-adoption of agricultural policy and mandate, insufficient funding, relevant agencies having staff who are aging or who have lower competencies, and limited interaction between agencies and key actors for reasons of mobility (Ragasa et al. 2015; Ulimwengu et al. 2009). These factors are further exacerbated by the lack of roads. Where roads do exist, local and foreign armed groups create insecurity and prevent the delivery of agricultural products to consumption centres (Schouten et al. 2022). The only areas with high accessibility border the Congo River. The north-western part of the country, in the Equateur and South Ubangi provinces, is characterized by low agricultural suitability, and corresponds to peatland forests.

² <https://www.fao.org/republique-democratique-congo/fao-en-republique-democratique-du-congo/le-pays-en-un-coup-doeil/fr/> accessed 20 August 2024.

		Agricultural suitability		
Accessibility		Low suitability	Medium suitability	High suitability
	Low access			
	Medium access			
	High access			

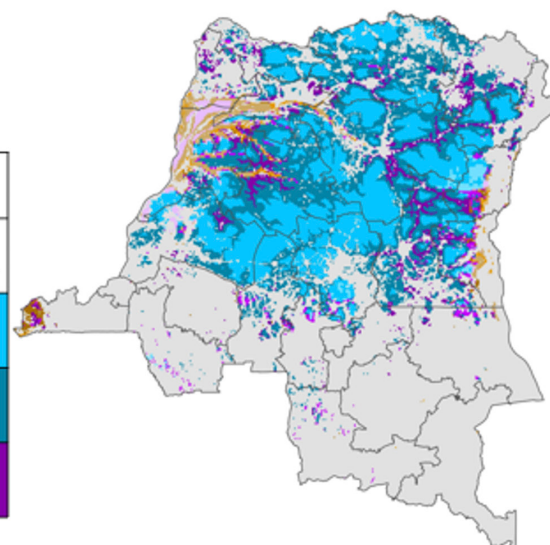


Figure 7. Risk of agricultural expansion in areas with intact forest areas and stable forest mosaics, considering accessibility and agricultural suitability

3 Typology of forest policies and measures

3.1 Forest policy theory of change

While the knowledge base on the impact of forest policies and measures is growing, drawing general lessons from case studies often remains challenging, due to the varying local and regional characteristics of each policy context. To be able to make relevant comparisons and draw lessons from different policies, the characteristic traits of each policy must be defined and assessed. The second part of the diagnostics approach is therefore to establish a typology for forest policies. A policy typology is a classification system that groups deforestation policies according to how similar or different they are.

To build this typology, we conducted a literature review and examined policy documents in Brazil, Indonesia, Peru and DRC. We identified a total of 35 policies and measures relevant to reducing deforestation (see Annex Table 6 for the list of policies and their definitions). We define a forest policy as “any policy, programme, or action aimed at changing or significantly affecting the behaviour of forest-related actors and thereby directly or indirectly contribute [sic] to avoiding deforestation” (Chervier et al. 2022). With this definition, policies and measures like those on agriculture, infrastructure and rural development are all relevant for this analysis, if their implementation is in forested landscapes and therefore, they impact upon the behaviours of those living there.

We built a generic theory of change (ToC) to describe the general causal pathway in which the policies generate impact, following the primary steps seen in the literature that evaluates theory (Börner et al. 2020; Niel et al. 2019; Weiss 1997; White 2009). This theory of change differs from other direct forestry policy and measure ToCs that can be found in the literature, however, in the sense that it puts emphasis on what behavioural motivations are catalysed as a direct consequence of implementing policies and measures (Figure 8).

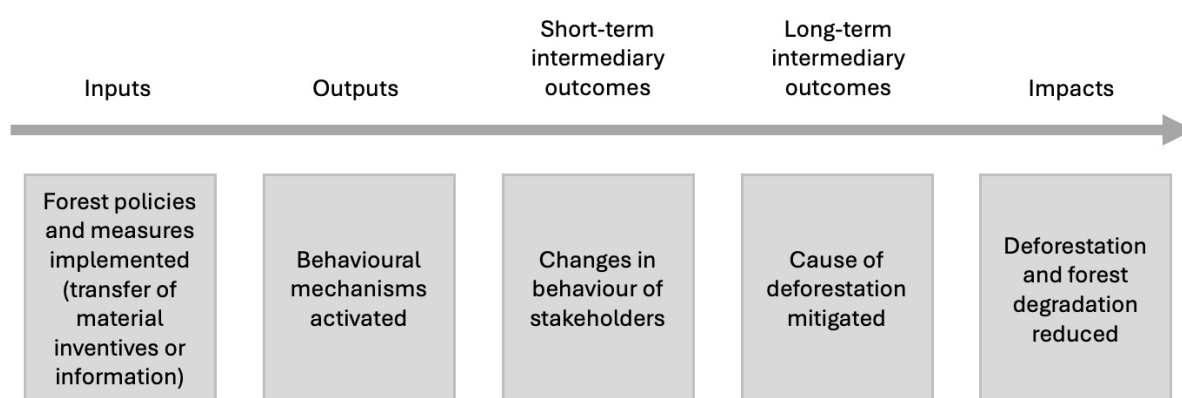


Figure 8. Generic theory of change for forest policies considered in deforestation diagnostics.

Source: Adapted from Chervier et al. (2022)

We focus on describing policies according to three traits of forest policies and measures that align with the three primary steps of our theory of change: (i) the stakeholders, (ii) the behavioural mechanisms³ activated by policies, and (iii) the forest threat targeted by the policy. These three characteristics are used to build the policy typology.

3.2 Actors targeted by the forest policies

Five main categories of actors are identified for the forest policy typology. The first is *producers* – these are those land/forest owners and users involved in forest-friendly, or forest-risk, products and commodities. We distinguish between small scale subsistence-oriented landholders, medium/large scale landholders, and companies with concessions. This distinction is necessary because the behavioural and economic responses of these actors are likely to be significantly different (Angelsen 1999; Pfaff et al. 2013).

The second category of actors include those stakeholders that are involved in the value chains of forest-friendly or forest-risk products and/or commodities, but who are not producers or consumers. These *supply chain actors* are therefore the input suppliers, agro-industrial companies or other middlemen that play a role in transforming a raw, deforestation-related product into a final consumption product.

The third category of actors is the *consumers* – the end users of deforestation-related products. In this category, we find private individuals and public entities located in producing and importing countries. For example, households consuming firewood or charcoal in forest-rich countries are considered consumers. Compared to other large tropical forest countries, however, such international links are less relevant in DRC.

The fourth category of actors is the *governments and public institutions* located in forest-risk tropical countries that have mandates to regulate land use. These actors can have responsibility at the national, regional or local level.

The fifth and final category is the *finance actors and investors*, including donors. These are involved almost exclusively in transferring assets, capital and resources that ultimately impact land-use changes in the tropics. This includes both public and private entities, for example investors, insurance companies, banks, asset managers and pension funds.

3.3 Behavioural mechanisms targeted by the policies

Drawing from both the economics as well as psychological literature, we identified four main behavioural mechanisms triggered by forest policies. Our basis is the Self-Determination Theory (SDT), which encompasses the concepts of intrinsic and extrinsic motivation, extrinsic motivations that are internalized, as well as human basic needs. Together this helps to account for the diversity of behaviour targeted by forest policies and measures (Deci and Ryan 1985). This theory has been applied extensively across natural resource conservation and management (Ezzine-de-Blas et al. 2019; Rode et al. 2015). The four mechanisms are: (i) maximization of material payoffs; (ii) compliance and obedience; (iii) social belongingness and satisfaction; and (iv) competence and self-efficacy.

Maximization of material payoffs assumes that individuals make decisions to maximize their own material payoffs – the neoclassical conceptualization of human behaviour (*Homo Economicus*). mechanism is associated with policies that either increase payoffs from desired behaviour, or decrease

3 In previous work, for example by Chervier et al (2022), these are referred to as ‘psychological mechanisms’. Here we have opted to change this term to ‘behavioural mechanisms’, as the focus is on the behavioural change of forest actors.

payoffs connected to undesired behaviour through transferring material resources that can be conditional or non-conditional, e.g., subsidies or taxes.

Compliance and obedience assumes that individuals respond to fear of punishment when not compliant with restrictions or standards established by norms or laws (Karp and Gaulding 1995). Authority figures, for example state entities, can usually exert power as a means of coercion to induce compliance or obedience. This behavioural mechanism has been associated with command-and-control policies like protected areas. While it can have impacts like maximization of material payoffs, it differs in the sense that incentives are given on a non-voluntary basis and there is coercion.⁴

Social belongingness satisfaction assumes that humans want to feel a sense of social belonging, in other words, a subjective feeling of inclusion or acceptance into a group of people, and this drives the tendency to conform to behaviours they believe to be approved by peers or wider society (Baumeister and Leary 1995). Pro-social motivations – for example reputation and honour, social approval and image, shame, pride and guilt – are triggered by this behavioural mechanism (Rode et al. 2015). This mechanism is usually related to informational policies like consumer awareness campaigns or disclosure initiatives that aim at revealing inconsistencies between corporate or individual behaviour and broader social values.

Competence/self-efficacy is the fourth behavioural mechanism, and it assumes that people are more likely to implement a given behaviour if they are confident that they are competent enough to successfully implement it. Bandura (1977) labels this as self-efficacy or “people’s beliefs in their capabilities to exercise control over their own functioning and over events that affect their lives”. This mechanism is typically associated with capacity-building, like technology extension services which aim to give beneficiaries a chance to practice the target behaviour and therefore develop mastery through experience (identified in the literature as the most influential source of self-efficacy).

The diversity of our identified behavioural motivations reflects the evolution of paradigms underlying the conservation of natural resources. This evolution has been characterized by a shift from command-and-control mechanisms, through financial incentives (Gómez-Baggethun et al. 2010), towards mechanisms that integrate lessons from psychology literature and social motivations to create behavioural change in forest users (Belinga et al. 2020; Moros et al. 2019).

3.4 Forest threat targeted by the policies

Forest policies and measures attempt to mitigate a minimum of one assumed cause of forest degradation and deforestation, be it direct or indirect. The national REDD+ strategy provides a framework for tackling these direct and the indirect drivers of deforestation.

Through the national REDD+ strategy, adopted by the Council of Ministers in 2012, national consensus was reached on the causes of deforestation and forest degradation (MECNT 2012b), based on a series of qualitative and quantitative studies and consultations. The main direct causes identified, in order of importance at national level, were: (1) slash-and-burn agriculture, (2) artisanal logging, (3) industrial logging, (4) carbonization, energy wood/fuelwood, (5) mining, and (6) bush fires. These activities are either illegal, legal or simply unregulated. The underlying causes identified were: (1) population growth; (2) weak governance (political decisions, mismanagement, civil wars); (3) urbanization and infrastructure development; and (4) economic aspects like poverty and unemployment (MECNT 2012b; MEDD 2018).

⁴ There is, however, a fine line between command-and-control mechanisms and taxes, as the (expected) fines in a command-and-control system can be seen as a form of taxation.

DRC policies to address direct deforestation threats fall into two types. The first type aims to address the limited capture of forest values and benefits of forest-friendly activities. Policies and measures under this category aim to: increase the captured or perceived values of standing natural forests, both when in use and not (Pascual et al. 2010); increase the benefits of forest-friendly activities that contribute to reducing deforestation and forest degradation (e.g., agroforestry, sustainable timber harvesting); and/or enhance the supply of forest ecosystem services. The second type of policies addresses the significant benefits gained from forest-degrading activities. Policies addressing this threat attempt to reduce the benefits of actions that result in deforestation, forest degradation or loss of forest ecosystem services, including unsustainable timber extraction and agricultural expansion.

Policies also target numerous indirect deforestation threats, like weak governance, ineffective human development and insufficient demand for forest-related commodities. Policies and measures that address weak governance tackle the underlying drivers of deforestation and forest degradation correlated with governance failures, for example corruption, weak law enforcement and open access conditions. Policies and measures that address inadequate human development also indirectly reduce deforestation by addressing the underlying drivers of deforestation and forest degradation associated with lack of economic alternatives or demographic pressures.

Finally, we see policies and measures that address inadequate demand for forest-related commodities; these seek to reduce demand for forest-risk products and commodities while increasing demand for those that are forest-friendly.

4 National and subnational policies

4.1 Introduction

To apply our forest typology to DRC's forest policies, we first listed the relevant policies that have been or are currently being implemented in the country. We then classified these policies according to our three forest policy attributes (see Table 1). We reviewed policy documents like the national REDD+ strategy of 2012, the Politique Nationale d'Aménagement du Territoire – national planning policy (Ministère de l'Aménagement du Territoire 2020), the national strategic plan for development (2024–2028), the government action plan, and REDD+ programmes through which deforestation is targeted.

We recognize that any given forest-related measure or policy could fall under several classifications and be assigned various attributes. For example, compliance with a forest protection norm might be triggered by behavioural mechanisms (e.g., fear of punishment), as well as be motivated by social belongingness. To categorize each policy and measure into one unique type, we identified a dominating attribute for each policy, for each of the three main steps of the ToC: the main actor targeted by the policy, the main behavioural mechanism, and the deforestation threat. This categorization should be understood as 'ideal types' (Weber 1952) with which to think through these kinds of initiatives. The 'ideal' part of the concept should not be understood as value judgement, but to their nature as idea-constructure. These interpretive devices serve as tools to think through social reality, but are also permeable and seldom exist in their pure form in practice. For a similar exercise in the Peruvian Amazon, see Sarmiento Barletti and Larson (2020).

4.2 National policies

4.2.1 Mapping of national policies

The REDD+ mechanism was launched in DRC in January 2009, with the first joint mission carried out by the United Nations for REDD+ (UN-REDD) and the Forest Carbon Partnership Fund (FCPF) of the World Bank (Majambu et al. 2023b; Ntirumenyerwa et al. 2020). In November 2009, DRC adopted its first regulation on REDD+: Decree 09/40 of 26 November 2009 establishing, the composition and organization of the implementing structure of the REDD process (MECNT 2010). REDD+ was first introduced six months before the adoption of this decree, in Decree 09/24 of 21 May 2009 establishing the organization and functioning of the National Forest Fund.

By 2030, DRC aims to have maintained forest cover at 63.5% (DRC Ministry of Environment and Sustainable Development 2018). Given recent deforestation trends, this implies that the country is looking to increase its forest cover by 6.5% or 15 million ha. The same objective is also stated in the revised NDC, submitted in 2021 to the secretariat of the UNFCCC (MEDD 2021) and the REDD+ framework strategy. To achieve this, policies against deforestation have been adopted at both national and subnational levels. Identification and selection of different implementation sites have been a key part in this process (Majambu et al. 2022).

The most threatened forest zones have been the focus of pilot policies. The process of identifying and selecting sites for REDD+ projects followed exploratory studies on DRC's REDD+ potential (Ehrenstein 2014; Majambu et al. 2022). The approach used initially consisted of a 'wall-to-wall representation'. This approach makes it possible to visualize deforestation sites using a map that

represents a forest zone while simultaneously showing space and time (Ehrenstein 2014). The visual information on this map supported the available data on changes in forest cover during 1990–2000, indicating a gross deforestation rate of around 0.25% (Ernest et al. 2010). The final choice of sites was made after consulting data from various sources, in particular the document on the state of forests in the Congo Basin (Majambu et al. 2022), and the FACET (African Forest Assessed Through Remote Sensing) initiative led by the OSFAC (Satellite Observatory of Central African Forests). The combination of these sources produced an atlas of forest cover and forest cover change in DRC for 2000–2010 (Majambu et al. 2022; MECNT 2012b). This showed that deforestation and forest degradation are unevenly distributed across the country. Areas requiring rapid intervention include those bordering major cities (Kinshasa, Lubumbashi, Kananga); those in the basin (Kisangani, Kindu); and those forming part of the former Great Equateur Province and the Albertine Rift zone (North and South Kivu).

To analyse DRC policy initiatives on deforestation, we first selected policy documents and scientific publications based on their relevance and direct or indirect link with policies adopted to reduce deforestation or conserve forests. We examined policies and/or initiatives at national level first and then policies for two selected provinces: Tshopo and Mai-Ndombe. These two provinces were chosen because they had the highest number of forest concessions and were among the first to benefit from REDD+ programmes.

We describe when and how policies were implemented and assess whether they worked. We then allocate four main categories to the policies: positive incentives; negative incentives; moratorium and conservation concessions; and protected areas.

DRC's forestry sector has undergone reforms to improve forest management and reduce deforestation since the early 2000s. These reforms continued with the government placing REDD+ on the political agenda with the intention to protect different forest types (Majambu et al. 2023b).

Forest management, including reduction of deforestation, is mainly regulated by the 2002 Forest Code in conjunction with several implementing policies, including REDD+ regulations. Forest management is integrated into the Constitution, the 2011 law that provides foundational principles regarding environmental protection (modified and completed by the Ordinance Law of 3 March 2023), and the 2014 law on nature conservation (modified by the Law of 30 January 2024).

According to the second letter of intent signed between DRC and CAFI, adoption of forest policy and revision of the forest code was expected by the end of 2023. Following a participatory and transparent process with all stakeholders, forest policy should be adopted to integrate the principles of land-use planning and the protection of valuable forests and peatlands, as well as local and community-based models of forest management (CAFI and DRC 2021). The future Forest Code should build on this strategic direction of forest policy, as well as integrate REDD+ related advances and identified challenges; updates on industrial, artisanal and community forest management; strengthened penalization around forestry and wildlife infractions; and new dynamics around conservation, biodiversity protection, and nature-based solutions (CAFI and DRC 2021).

Despite the existence of the forestry law and measures to implement it, DRC's forests remain the most threatened in the Congo Basin (Dalimier et al. 2022). Through the REDD+ process seven drivers of deforestation and forest degradation were identified: agriculture, forestry, land tenure, land-use planning, energy, demography and governance (MECNT 2012a). Initiatives developed at national level for the implementation of REDD+ constitute the bulk of policies to combat deforestation in the provinces. The provinces, in particular Tshopo and Mai-Ndombe, do not currently have specific policies to combat deforestation.

The national REDD+ strategy promotes the development of savanna areas and neglected agropastoral industries to contain deforestation (MECNT 2012a). In practice, however, this objective has proven

difficult to achieve under the agricultural components of REDD+ projects, particularly in Tshopo Province. Implementing agencies have distributed perennial cash crops—mainly cocoa, coffee, and oil palm—intended for already cleared or ‘vacant’ land, with the goals of stabilizing vegetation cover, reducing pressure on forests, and increasing rural incomes. Yet these crops often require additional clearing, create long-term incentives for plantation expansion, and are implemented without strong spatial planning or enforceable links to forest-protection policies. As a result, agricultural interventions have frequently been fragmented and poorly coordinated with forest governance frameworks, limiting their effectiveness in reducing deforestation.

Promulgation of the forest code in 2002 was not followed by adoption of a forest policy to clearly define the DRC government’s political vision. As such, beginning December 2009, FAO supported the process of the DRC formulating national forest policy. Yet, while this process was officially completed in October 2011 (Blanchez 2011), the document was never fully approved by all relevant stakeholders.

The importance of this policy was underlined by most stakeholders in the general forestry forum organized by the Minister for the Environment and Sustainable Development in June 2023. For these stakeholders, “the potential of the forest heritage in which [the DRC] abounds gives the general illusion that it is inexhaustible. However, in the absence of an appropriate forestry policy, a development plan for the national territory, a national forestry zoning plan and a sectoral development strategy, management of the forest conservation sector remains an unattainable dream” (DRC Environment Ministry 2023).

Although the forest policy has not yet been finalized, financial support of partners, including CAFI, has enabled the DRC government to have a national spatial planning policy. Adopted in October 2023 by the national assembly, this policy defines the ways in which land must be occupied.

Table 1. Forest policies in DRC, along with the targeted actors, behavioural mechanism and deforestation threat

Targeted actors	Behavioural mechanism	Deforestation threat	Policy instruments	Details of implementation	Examples and sources
Producers	Payoffs	Forest values and benefits	PES Community ecotourism Certification Conservation easement	Implemented under REDD+ with Interministerial Decree 006 (Sept 2023) Ministerial Order 47 (May 2018) for REDD+ investments	FSC certification (Chervier et al. 2024) LEAF REDD+ National REDD+ Strategy Forestry Code Law 11/009 National Strategic Plan for Development 2019–2023 (p 57) Ongoing discussion on APV/FLEGT https://medd.gouv.cd/wp-content/uploads/2019/11/Etat-de-lieux-APV-FLEGT-EN-RDC.pdf There are few experiences on forest certification, e.g., Compagnie Forestière de Transformation (CFT) obtained a certification called Legal Source TM. https://www.atibt.org/fr/news/8585/premiere-certification-tierce-partie-de-legalite-en-rdc
Producers	Payoffs	Benefits from other land uses	Road building Decree incentives	Decree 14/018 (2014) allocates forest concessions to local communities	PDL-145T; https://awa-afrika.com/veillejuridique/ProgrammedeDeveloppementLocaldes145T.pdf
Producers	Payoffs	Development conditions	ICDPs Cash transfers	Targeted through REDD+ pilot projects in multiple provinces	Projects: Mai-Ndombe, Tayna, Luki, Mambasa, Mitsoshi-Kabobo https://www.reddprojectsdatabase.org
Producers	Obedience	Benefits from other land uses	Offsetting schemes Moratoria Monitoring tools Local community forest concessions	2002 Logging moratorium (Decree 005/116) Conservation concession allocation rules (Decree 011/27, 2011) Decree 14/018 of 2 August 2014 establishing the terms and conditions for granting forest concessions to local communities	All archetypes, especially for logging areas https://www.leganet.cd/legislation.htm#2014

continue to next page

Table 1. Continued

Targeted actors	Behavioural mechanism	Deforestation threat	Policy instruments	Details of implementation	Examples and sources
Producers	Obedience	Governance	Protected areas Land-use zoning	Zoning through CARPE programme and National Spatial Planning Policy (2023)	Garamba, Kahuzi-Biega, Salonga, Virunga
Producers	Belongingness	Forest values and benefits	Environmental education	Embedded in Law 11/009 (2011) Ordinance Law 23/007 (2023)	National Strategic Plan for Development 2019–2024 (p 78) Government Action Programme 2024–2028 (p 44)
Producers	Competence	Forest values and benefits	Tenure formalization Community forests Conservation concessions	Forestry Code (2002) LCFCs under Decree 14/018 (2014) Decree 011/27 (2011)	Communities may claim up to 50,000 ha of forest land
Producers	Competence	Development conditions	Family planning	Implemented via nationwide health programmes	Kwete et al. (2018)
Multiple	Belongingness	Governance	Bilateral agreements Forums	CAFI–DRC Letter of Intent (2021–2031) Forestry Code	Supports multistakeholder platforms
Government	Payoffs	Governance	Ecological fiscal transfers Conditional loans	Loans: AfDB USD 117.9 million (2024) and World Bank USD 900 million (2023) for governance and education	https://africaarbitration.org/
Government	Competence	Governance	Decentralization Anti-corruption policies	Organic Law 08/016 (2008) Order 16/065 (2016)	Referenced in Government Programme 2024–2028
Supply chain	Payoffs	Demand	Procurement policies	Legal framework: Public procurement law 10/010 (2010) Decree 10/22 (2010)	https://www.droit-afrique.com/
Supply chain	Obedience	Demand	Due diligence policies	Decree 14/019 (2014) on procedural mechanisms for environmental protection	https://www.leganet.cd/

continue to next page

Table 1. Continued

Targeted actors	Behavioural mechanism	Deforestation threat	Policy instruments	Details of implementation	Examples and sources
Supply chain	Belongingness	Demand	Public disclosure initiatives	Promoted under Law 11/009 (2011), Art. 8	DRC adherence to EITI, public revenue and contract disclosure in extractive sector; potential extension to forestry sector. https://eiti.org/democratic-republic-of-congo
Consumers	Belongingness	Demand	Consumer campaigns	Framework in Law 11/009 (2011), Art. 4	WWF DRC campaigns (e.g., Kinshasa Clean Cooking) promoting sustainable charcoal consumption practices.
Consumers	Competence	Demand	Tech promotion (e.g., cookstoves)	Supported via CAFI LOI (2021–2031)	https://www.cafi.org/
Finance	Payoffs	Demand	Blended finance	Identified as a potential tool	Mai-Ndombe REDD+ project combines public, private and carbon credit funding. https://www.reddprojectsdatabase.org
Multiple	Payoffs	Forest values and benefits	Subsidies Improved credit access	Planned tools for deforestation mitigation	Microcredit and agricultural subsidies linked to agroforestry programmes (e.g., North Kivu, Equateur) supported by FAO and local microfinance institutions.
Multiple	Payoffs	Benefits from other land uses	Carbon tax Conditional credit	Carbon tax implementation is in planning phase Ordinance Law 23/007 of 3 March 2023, modified and supplemented by Law 11/009 of 9 July 2011, on the fundamental principles on the protection of environment, article 25 bis.	Policy discussion stage
Multiple	Obedience	Benefits from other land uses	Supply chain moratoria	Suggested as mechanism; no implementation yet	2002 national logging moratorium (Decree 005/116) acts as a functional supply-chain moratorium.

4.2.2 Positive incentives

This section focuses on a mechanism that positively incentivises forest conservation, namely Payment for Environmental Services (PES). This has become an important tool for providing incentives to preserve the ecosystem and at the same time improve farmers' livelihoods, as they are paid for their provision of environmental services. In DRC, PES is at the heart of REDD+ and forestry policies. In December 2023, the National REDD Fund (FONAREDD) steering committee approved strategic guidelines for a large-scale PES programme. Key elements of this future national programme include: (1) payments to individuals for reforestation, agroforestry and perennial crops without deforestation; and (2) collective payments for the protection and management of community forests and the regeneration of natural forests⁵. Since 2008, DRC has implemented PES projects under the Clean Development Mechanism (CDM), in line with the United Framework Climate Change Convention (UNFCCC 1992). This includes the IBI project – a PES-reforestation project that focuses on carbon sequestration (Froger et al. 2016). After the CDM, DRC started experimenting with PES under REDD+ projects. PES is referred to in several DRC laws and policies, including Law 09/11 of 2011 on the fundamental principles of environmental protection (article 26), the Decree establishing the National Forest Fund (article 1), Law 14/003 of 2014 on nature conservation (article 69) and REDD+ regulations (e.g., Ministerial Order of 2018 on approving REDD+ investment projects; Ministerial Order of 2012 on the approval of REDD+ projects). Beyond these laws and regulations, PES is integrated into the national REDD+ strategy of 2012, as well as more recently in 2021 in the NDC and the second letter of intent signed between DRC and CAFI. Although PES has not yet been adopted as a national level policy, some projects are already using it. Individual payments can vary between USD 50 and USD 100 per hectare per year, depending on the PES activity in question. According to the CAFI website, some PES activities focus on resource production (food, charcoal, timber) and livelihood opportunities that offer an alternative to the destruction of natural forests (e.g., plantations, agroforestry, reforestation, deforestation-free agriculture). Others promote the protection of natural forest (sustainable forest management, conservation and/or the enhancement of forest carbon stocks)⁶. These PES aspects appear in REDD+ programmes implemented at local level, as is seen in documents about the Programme Intégré REDD+ (PIREDD; the Integrated REDD+ Programme) for the provinces of Equateur, Kwilu, Mai-Ndombe, Ituri, Bas Uélé, Tshopo.⁷

Evidence from the field is mixed. In Mai-Ndombe Province, the PES system has been challenged in the Bolobo territory by community conflicts over contracts signed between the project leader and World Wildlife Fund (WWF). Of the four contracts signed with communities, only one PES project seems to be working properly; lack of understanding around the terms of payment between WWF and the local community was identified as the root of this discord (Gauthier 2018).

Research conducted in Tshopo Province revealed that PES formed part of the deforestation programme funded by African Development Bank. This programme was implemented in the hinterlands of three cities including Mbuji-Mayi, Kananga and Kisangani (African Development Bank 2013). However, in this programme, PES is conditional on a reduction in deforestation being achieved. This programme was implemented over three years from May 2019 to June 2022, meaning that it could be too early to observe any deforestation reduction and thus for communities to benefit from the payment scheme.

5 <https://cafi.org/news/performance-based-financing-in-the-drc-cafis-next-phase-focuses-on-payments-for-environmental-services-building-local-capacity/>

6 <https://cafi.org/fr/ce-que-nous-faisons/paiements-pour-services-environnementaux/>

7 <https://fonaredd-rdc.org/le-cld-konkia-capitalise-les-paiements-sur-services-environnementaux-pour-des-oeuvres-communautaires/>

4.2.3 Negative incentives

Negative incentives in this context refer to regulatory measures taken by authorities to curb deforestation. These measures may include the adoption of moratorium on the granting of forest concessions or the creation, extension or rehabilitation of protected areas and conservation concessions.

4.2.3.1 Moratorium

Decree 005/116 of 24 October 2005 sets a moratorium on the allocation of new logging permits. This decree confirms and reinforces Ministerial Order CAB/MIN/AF. F-ET/194/MAS/02 of 14 May 2002, which suspends the granting of forestry allocations. The aim was to help the Congolese government to improve the governance of its forests so that they make a substantial contribution to the livelihood of local populations, on the one hand, and to fight deforestation, on the other.

The moratorium remained in force until two additional conditions had been met: (i) publication of the final results of the process of converting forestry titles (Supply Guarantee, letter of intent) into forestry concession contracts, including the effective termination of titles that had not been converted; and (ii) adoption, on the basis of a consultative process, of geographical planning for future allocations over a three-year period. This moratorium covers any acquisition of exploitation rights, including by exchange, relocation or rehabilitation of old titles. Following information available on the website of DRC's Ministry of the Environment and Sustainable Development, assessment indicates that all three conditions have almost been met: the first, through publication of Decree 08/09 of 8 April 2008 setting out the procedure for allocating concessions and its two implementing orders; and the second, through publication of the Ministry of the Environment's press release of 9 September 2014, giving the final results of the legal review of forest concessions. The third condition, geographical planning, seems to have been almost completely considered through the national inventories carried out in almost all provinces with the assistance of the National Forest Inventory, and conducted by the Forest Inventory and Management Department (DIAF)⁸.

Despite these advances, the review found no evidence that forest degradation and deforestation differed significantly between logging concessions and other areas, not even in concessions that had approved forest management plans (Chervier et al. 2024) it is also the main contributor to forest loss. Industrial logging concession is a forest management model that is likely to expand in the DRC in the coming years as the Government recently announced the probable end of the 2002 moratorium on logging concessions. It is thus crucial to understand whether this model can further the DRC's deforestation reduction efforts. The literature suggests that the effect of titling forestland on avoided deforestation and forest degradation is generally limited, unless environmental restrictions are enforced. The DRC's 2002 forest code introduced a new logging concession model that includes requirements to submit and implement Forest Management Plans (FMP).

4.2.3.2 Conservation concessions and protected areas

DRC is a country with significant potential in the field of nature conservation. Forest area is divided into 'classified forests' (state-managed gazetted forest reserves), 'permanent productive forests' (industrial-scale timber production concessions) and 'protected forest'. The rest are forests where the customary usufruct rights of communities have state recognition (DRC Forest Code 2002). Over the last few decades, all these forest categories have been seriously threatened. The political vision of DRC is to stabilize forest cover by 2030, before maintaining this forest cover to extend over 63.5% of the national territory (MECNT 2012). To achieve this, several efforts have been proposed and discussed. Some are linked to the creation and extension of conservation concessions, while others directly aim to

8 <https://medd.gouv.cd/le-moratoire-pour-quel-benefice-18-ans-apres/>

support protected areas. Although provided for in the 2002 Forest Code (articles 82 to 95 and 119), it was the introduction of REDD+ that made it possible to establish these types of concession. They were introduced nine years after the Forest Code was promulgated by Decree 011/27 of 20 May 2011 which established specific rules for allocating conservation forest concessions.

However, certain actors present and use the REDD+ objectives, for example those that promote forest conservation, to continue with practices that should have been preventing deforestation even without REDD+. An example of this is the six ministerial orders signed in September 2020 to grant a total of 1,376,375 hectares of forest conservation concessions. Both international and national NGOs signalled their disappointment at the lack of transparency throughout the granting process, highlighting this as a significant stumbling block. The DRC President response in October 2021 was to order the suspension of all questionable forest conservation concession contracts while awaiting audit outcomes. This April 2022 audit led to a series of policy measures, including the suspension of all illegally granted conservation and logging concession contracts, as well as creating a ministerial commission to revise all logging and conservation concession contracts granted by DRC to date (Majambu 2023).

Alongside these conservation concessions, DRC currently has 78 protected areas created in and outside natural forest environments, representing 13.5% of the surface area of national territory, estimated at 32,348,045 hectares (Pélissier et al. 2018). This area includes hunting grounds, nature reserves, national parks, biosphere reserves and wildlife reserves (e.g., Okapi Wildlife Reserve). To its Strategic Plan for Biodiversity (2010–2020) and the Aichi Targets, DRC integrated into its National Biodiversity Conservation Strategy of 2012 and its Strategic and Action Plan on Biodiversity (2016–2020) the goal of increasing protected area to 17%. DRC later signed the Kunming-Montreal Global Biodiversity Framework (2022), which targets 30% of terrestrial areas being protected to maintain biodiversity and ecosystem functions and services.

This target of increasing protected forest areas raises several challenges. Planning and management capacity is currently concentrated in a handful of high priority protected areas, where financial and technical partners are present. This is because the DRC government has invested minimally in the management of protected areas, and so most only exist in an administrative sense (IUCN 2010; Majambu et al. 2023a). Since the early 2000s, through the CARPE programme funded by the United States Agency for International Development (USAID), DRC improved the governance of some protected areas by creating conservation landscapes like Tumba Ledima Reserve, Maringa-Lopori-Wamba, Salonga-Lukenie-Sankuru, Maiko-Tayna-Kahuzi-Biega and Ituri-Epulu-Aru (Samndong and Nhantumbo 2015).

Despite this progress, many protected areas – even those under public-private partnerships – continue to be under threat from agricultural activities, the exploitation of natural resources, charcoal burning, armed groups and new settlements (Majambu et al. 2023a; Muyaya Kalambayi et al. 2022). The 2023 report on the state of conservation in the Virunga Park, submitted at the UNESCO Convention, cited the following threats: armed conflict, lack of security and political instability; the granting of a petroleum exploration permit within the Park; poaching by armed groups; encroachment; the expansion of illegal fishing zones; deforestation, charcoal production and livestock grazing; and road and military infrastructure within Park property. Since 1994, all the four national parks under the UNESCO Convention are included in the list of endangered sites (UNESCO Convention 2024).

While some protected areas enjoy a level of ‘passive protection’, i.e., they are in remote areas, have poorer soils and lack valuable minerals (or at least these have not yet been discovered), other protected areas overlap with logging and mining concessions (Ladewig 2025).

Another study, which looked at NGO actions to conserve biodiversity in protected areas, more specifically in the LUKI biosphere in Kongo Central Province, showed that NGO actions are less effective, or even non-existent, both in terms of livelihood improvements and governance of the reserve. It should be stressed

that there are challenges when it comes to livelihoods and protected areas in DRC; as Inogwabini (2014) reminds us, biodiversity conservation in DRC runs alongside a history of land and natural resource alienation beginning in early colonial times. This reality means that, despite the presence of NGOs, the LUKI biosphere faces threats including charcoal production, sawing, poaching, shifting cultivation, land encroachment, bush fires and trafficking in resources (Holenu Mangenda and Kamona Ntambi 2016).

In December 2018, World Conservation Society (WCS) signed a ten-year joint management contract for the Okapi Wildlife Reserve with the Congolese Institute for Nature Conservation (CINC) which manages protected areas. The management of the Reserve was therefore changed to a kind of ‘public-private partnership,’ often referred to as ‘shared governance’ (IUCN 2014). This kind of governance structure is often seen as useful when: (i) states cannot or do not wish to directly invest in managing a protected area for budgetary or political reasons; (ii) newly-created protected areas are in their development phase, or a ‘paper park’ (a de jure protected area lacking de facto protection) is being rehabilitated; or (iii) a protected area faces pressure from militarized poaching, necessitating specific expertise and significant resources. Except for (ii), the above characteristics match the Okapi Wildlife Reserve’s current situation.

4.2.3.3 Forest concessions for local communities

The development of community forests commenced in 2005 in DRC, following FAO recommendations on forest management. A DRC government request for FAO assistance to develop community forestry (Maindo and Kapa 2014) resulted in a community forestry project (FORCOM) taking place during 2007–2012, funded and developed with Belgian Technical Assistance (CTB). In 2009, the non-government organisation Forests Monitor developed another project alongside this, named FORCOL (local community forests), which received 18 months of funding from the British government through DFID, its Department for International Development (Samyn et al. 2010). In 2014, a decree defining how community forests would be allocated was promulgated, followed two years after by a ministerial order on the management and exploitation of local community forest concessions. In other Congo Basin countries, for example Cameroon, the system for community forests is typically organized around one element, however the DRC system is structured around two elements: local community forest concessions and local community forests. The purpose of this is to increase local participation and community responsibility for forest management, with the idea of enabling the forest sector to contribute further to local development. However certain evaluations of the country’s community forestry highlight numerous obstacles to overcome during implementation, making it challenging to achieve its goals of increasing local participation and development of forest-dependent populations (Adebu et al. 2019; Buttoud and Nguingiri 2016; Lescuyer et al. 2019). Meanwhile, members of the Barumbi Tshopo community forest in Tshopo Province felt the scheme had unrealistic goals and that initially-presented advantages of community forestry were unachievable (Majambu et al. 2021).

Despite this situation, as they analysed the realities of the Mai-Ndombe REDD+ programme and rhetoric around it, Berk and Lungungu (2020) believed that community forests offer local communities in DRC the best chance of defending their interests and benefitting directly from climate-friendly livelihoods.

4.3 Policies in Tshopo and Mai Ndombe provinces

Efforts to fight deforestation are measured by actions taken on the ground. To this end, two provinces were selected for further analysis: Tshopo and Mai-Ndombe.

4.3.1 Tshopo Province

The province of Tshopo was a district of the former Province Orientale. The latter was administratively made up of four districts: Bas-Uélé, Haut-Uélé, Ituri and Tshopo. In 2015, these districts were elevated

to the rank of provinces, in accordance with article 2 of the 2006 Constitution which established territorial division, increasing the number of DRC provinces from 11 to 26, including the city of Kinshasa. The reasons for this territorial division can be found in the explanatory memorandum to the 2006 Constitution, which states that: “In order to consolidate national unity, which had been damaged by successive wars, and to create centers of dynamism and development at grassroots level, the constituent state divided the Congolese state administratively into 25 provinces and the city of Kinshasa, which has legal personality and exercises the local powers listed in this Constitution” (DRC 2006).

With a surface area of 199,567 km², Tshopo is the largest province in DRC (Ndeke Zamba and Tamidribe Tanyobe 2018). Vegetation varies greatly with altitude. There are mountain rainforests, bamboo forests and Zambezi savannahs (tree savannahs at low altitudes, tall grass savannahs at medium altitudes and bare savannahs at high altitudes). The province of Tshopo has 7,912 km² of protected area, which represents about 4% of its surface area. It also has 41,222 km² (21%) of forest concessions and 24,155 km² (12%) of mining areas (UNPD 2016)

Tshopo, then a district of the former province Orientale, was selected in 2010 as the site of one of the first REDD+ projects. Financed by the African Development Bank, the aim of these projects was to learn lessons that would enrich the REDD+ process at national level (African Development Bank and Congo Basin Forest Fund 2010). In practice, however, these lessons were not captured or integrated at the national level (Majambu et al. 2023b).

The selection of Tshopo Province as a site for implementing deforestation reduction programmes is justified by the fact that between 2001 and 2021, this province had the highest rate of deforestation and degradation in the country (UNPD 2016). The main direct drivers of this forest cover loss were: (i) slash-and-burn agriculture; (ii) artisanal timber exploitation; (iii) wood energy production (charcoal and firewood); (iv) industrial logging; and (v) artisanal mining (Batsi et al. 2023; Ciza et al. 2015; Kranz et al. 2018; Shapiro et al. 2021; Yamfwa et al. 2024). The province of Tshopo is in a complex and worrying situation when it concerns mining. On 1 January 2025, the provincial Minister of Mines denounced irregularities for 142 mining companies operating in this province. These companies – despite holding simple exploration permits – are openly mining in defiance of the rules laid down in the current mining code.⁹

This situation illustrates the challenges faced by the mining sector in DRC, which is characterized by uncontrolled exploitation and inadequate regulations. This situation reflects weak governance of natural resources, and was identified by UNPD as a major cause of deforestation in Tshopo. Additional pressures are felt through population growth and migration, rehabilitation of road infrastructure and rapid urbanization (UNPD 2016).

These diverse drivers are closely linked, and their effects combine to accelerate forest degradation and deforestation. For example, high population growth has increased the need for food and energy. This has led to high demand for charcoal and firewood (electricity coverage is low) and to the extension of slash-and-burn agriculture, with even shorter fallow periods. This over-exploitation of the land impoverishes the soil and pushes farmers to clear primary forests for new land and higher yields. Similarly, urbanization is increasing demand for timber for construction and furniture. Some – with the necessary assets – can make a good income from timber exploitation, while others are turning to small-scale artisanal mining (IPIS 2023). While the mining sites themselves (direct effect) may not be large, a recent study on eastern DRC suggests that the trigger effects on deforestation (by attracting agriculture and new settlements) are about 28 times larger than the direct effect (Ladewig et al. 2024).

9 <https://www.congoquotidien.com/2025/01/02/actualite-rdc-mines-tshopo-irregularites/>

These challenging realities catalysed Tshopo Province becoming a site for implementation of two major REDD+ projects. The first was funded by the African Development Bank (AfDB) and the second by Central Africa Initiative (CAFI). We discuss these in turn below.

4.3.1.1 The African Development Bank (AfDB) project

Abbreviated to PIREDD MBKis and funded by the AfDB, this project covers the provinces of Tshopo, East Kasai (Mbuji-Mayi) and West Kasai (Kananga). Approved and validated in June 2011 by the AfDB's Forest Investment Programme (FIP), this project was initially scheduled to begin in March 2015. However, some stakeholders felt that irregularities had marred the selection process of local implementing agencies. To clear up any misunderstanding, the AfDB opened a litigation process to clarify grievances raised by aggrieved parties. After nearly four years of litigation, the project was finally officially launched on 27 May 2019 for a total of three years. However, following implementation challenges, an amendment was signed by the FIP coordination unit extending the project duration by six months (Majambu et al. 2022).

Beyond commercial crops like *Theobroma cacao* (cocoa), *Coffea Arabica* (coffee) and *Aracaceae* (palm), the project introduced land-use plans, compliance with which would lead to payments for environmental services (PES). Governance structures were also established, including local development committees and rural agriculture and management councils (CARGs).

The main challenge of this project has been the lack of communication between some of the provincial actors and the project manager, which has complicated implementation. This can be seen in ambiguity, particularly among senior ministry officials and the provincial environmental coordinator, around the objectives and funding of projects. Majambu et al. (2022) report that in January 2021, one official in charge of provincial environmental coordination ordered the removal of PIREDD MBKis signs from the Kisangani Zoo in Tshopo Province to express his dissatisfaction with the project.

4.3.1.2 UNDP project

This four-year project was launched on 5 May 2018 in Tshopo Province, with implementation entrusted to the United Nations Development Programme. However, a consortium of national and local NGOs was only recruited two years later in June 2020 to implement project activities. In its 2020 annual report, the UNDP cites political instability as the justification for this delay, saying this prevailed in Tshopo for almost two years, depriving it of an interlocutor empowered to involve the province in project activities (UNDP 2021). Despite this political instability, some components of the project were implemented directly by UNDP and other contracted organizations, including the distribution of food crops (maize, rice and peanuts), the identification and selection of implementation sites, and participatory mapping which led to preparation of a provincial land-use plan, territorial development plans and land-use plans for three project implementation areas (Tropenbos-RDC 2020). By distributing food crops to a small number of rural households, the aim was to disseminate farming models with a low environmental impact, thus reducing the use of chemical inputs that impoverish the soil, which justifies the development of new fields. While on paper this reduces one of the drivers of deforestation and forest degradation, in practice it requires buy-in from local people. Interviews conducted in Baego and Yawenga, via Basugo, revealed that the delivered seeds did not produce the expected results in the fields. During field interviews, local people claimed this was because the seeds had not been certified, as planned by the project. Lack of results following project activities not only discourages farmers; it also prevents them from changing their practices towards more sustainable use of the surrounding forests (Majambu et al. 2022).

The project focused on natural resource governance (forests and land) and sustainable agriculture, combining food crops and trees (agroforestry). In terms of governance, activities consisted of creating and strengthening the capacity of multistakeholder platforms, in particular local development

committees, agricultural management councils and local advisory committees. The project also supported local people to prepare natural resource management plans (PSGRN) and land-use plans (PSAT). Majambu et al. (2022) show that compliance with these plans will be challenging as most of the governance structures put in place remain ineffective in reducing deforestation. In fact, many of the leaders of these structures accepted positions in the hope of receiving office supplies and a regular bonus from the project, which was not the case. The December report by the Isangi Territorial Agricultural Inspectorate (ITAGRI) confirms observations and analysis on this point. This report mentions delays in the payment of bonuses, particularly for agricultural instructors (ITAGRI 2021).

Sustainable agriculture activities included supporting people to grow perennial crops like *Theobroma cacao* (cocoa), *Coffea Arabica* (coffee) and *Aracaceae* (palm), alongside other species. Agroforests meanwhile consist of agroforestry species like *Albizia sp.*, *Leucaena leucocephala* and *Millettia sp.* and fruit species like *Citrus sinensis* (orange), *Persea americana* (avocado) and *Annona muricata* (soursop). The aim of promoting these crops is threefold: to make best use of cleared or 'vacant' land, to stabilize the vegetation cover and to reduce pressure on the forest (Majambu et al. 2022). However, cultivation of degraded forest land can reduce soil fertility (Sebillotte et al. 1993) and increase greenhouse gas emissions as deforestation continues, contrary to the objectives of REDD+.

It is important to note that all land-use plans produced by PIREDD (Oriental and MBKis) have remained dead letters, insofar as their preparation has not been followed up by a provincial edit likely to make them binding.

Table 2. Significant deforestation policies in Tshopo Province

Main categories	Subcategories	Policies	Relevant forest archetype(s)	Comments
Rewards (positive incentives)	PES, conditional payments more generally	PIREDD Oriental and PIREDD MBKis	Chronic deforestation areas	Particularly relevant in chiefdoms where REDD+ programmes are implemented
	Certification	Jodora conservation concession in Tshopo	Intact forest areas, stabilized transition areas	This forest concession was previously intended for industrial exploitation, however since 2015, it has been converted into a conservation concession.
Punishment (negative incentives)	Moratoriums, bans (commodities)	Creation of community forests	Intact forest areas, stabilized transition areas, gradual deforestation areas	Although these forests were not created with conservation in mind, they have become community forests because local communities lack the financial resources to use them sustainably.
	Protected areas, zoning (land)	Creation and rehabilitation of protected areas like Lomami National Park and Yangambi Reserve	Mainly intact forest areas	Supervision of community tenure and traditional activities in Yangambi Reserve and Lomami National Park

continue to next page

Table 2. Continued

Main categories	Subcategories	Policies	Relevant forest archetype(s)	Comments
Enabling and competence	Decentralization, devolution	Setting up advisory councils in accordance with the article 6 of the forestry law	Several, but particularly in deforestation areas	The Forest Advisory Council oversees forest management in the province and other decentralized entities, and is responsible for providing advice on forest classification and downgrading projects.
	Land tenure clarification and security	Land-use plans for Isangi, Bafwasende and Ubundu territories in Tshopo Province Simple management plans for natural resources for implementation sites of the two REDD+ programmes (Oriental and MBKis) in Tshopo	Several, but particularly in deforestation areas	Land tenure clarification and security is the result of implementation of land tenure and land-use planning pillars contained in the REDD+ programmes
	Technology provision (cookstoves, climate-smart agriculture)	REDD+ programmes	Several	Improved cookstoves were only distributed to a sample of the population in Tshopo.
	Infrastructure	REDD+ projects	Several (in REDD+ project implementation zones)	Construction of administrative offices in the sectors and chiefdoms of Isangi centre and Babelo sector, in Tshopo. These infrastructures consist of offices for the administration of decentralized entities.
Belongingness (transparency and engagement)	Multistakeholder forums	Forestry Code (2002) National Rural Development Strategy (2010) Decree 18/030 on the creation, organization and operation of a steering committee for the territorial development project in the Democratic Republic of Congo REDD+ processes in general	All forest archetypes	These legal frameworks provide for the existence of various multistakeholder platforms, including the provincial advisory council, the agricultural and management council (CARG) and local development committees (LDCs)
	Consumer campaigns	N/A		

4.3.2 Mai-Ndombe Province

Formerly part of Bandundu Province, Mai-Ndombe was created in 2015 following implementation of the territorial division provided for in the 2006 Constitution. As soon as it was created, this new province was selected to become a major location for implementation of deforestation and forest degradation policies. Mai-Ndombe extends to 123,000 km², almost 5% of DRC territory. Forest cover makes up 78,900 km² (62%) of the province, with the rest being mainly savannah. The Mai-Ndombe ecosystem is part of the world's largest swamp forest, extending over 6.57 million hectares from Lake Mai-Ndombe to Lake Tumba in Equateur Province and Lake Tele in the Republic of Congo (Mariteuw and Franks 2019). Ecosystems in this province form a Ramsar biodiversity hotspot and offer great potential for combating climate change through REDD (Gauthier 2018).

Mariteuw and Franks (2019) maintain that, despite fragmentary and contradictory data, it is likely that the population of this province is more than 2.125 million, with an average density of around 17 inhabitants/km². Mai-Ndombe received significant attention from REDD+ donors and agencies when it became a new province, being described in 2018 as a 'laboratory for REDD+' and becoming a magnet for external funding (Berk and Lungungu 2020; Fishbein and Lee 2015; Gauthier 2018; Reyniers 2021).

The choice of this province as a site for implementing REDD+ initiatives is primarily due to its geographical location. Mai-Ndombe is a major supplier of agricultural and timber products sold in Kinshasa, the capital. This large city is close enough for forests to be threatened by this demand, which comes on top of fuelwood production, uncontrolled bush fires connected to slash-and-burn agriculture, industrial and informal logging. Drivers underlying these factors include poverty, population growth, a lack of technical and economic alternatives, poor natural resource management, and unregulated land tenure (Fishbein and Lee 2015; MEDD 2020).

The REDD+ initiatives implemented in Mai-Ndombe Province aim to reverse the situation by improving management of natural resources. Activities have been carried out to strengthen land management, encourage participation and improve the livelihoods of local populations and Indigenous Peoples. According to a FONAREDD report (2023), the primary activities are:

- Producing 568 maps of formal and informal public and private sector landholdings;
- Producing one provincial Edict on the planning and development process for the sustainable management of natural resources;
- Designing five development plans: one at provincial level and four at territorial level;
- Training and equipping environmental, agricultural and land registry services in four territories in Mai-Ndombe Province;
- Creating and strengthening of governance structures, like local committees (569), farmers' forest committee (1), and Farm and Rural Management Councils (4).

The programme has, however, encountered several challenges in its implementation (FONAREDD 2023). At the provincial level, land administration staff have been trained and computer equipment made available, but so far, the construction of a land administration building has not materialized, and the human and technical capacities of land administration remain weak. Insecurity reported in Mai-Ndombe has slowed planned activities in the field, and overall implementation has been hampered by political instability, including changes in provincial governments.

Table 3. Significant deforestation policies in Mai-Ndombe Province

Main categories	Subcategories	Policies	Relevant forest archetype	Comments
Rewards (positive incentives)	PES	Benefits sharing plan for Mai Ndombe programme adopted in May 2022	Accelerating deforestation areas	Particularly relevant in REDD+ implementation sites in Mai Ndombe Province
	Conditional payments			
	Conditional credit and subsidies		Chronic deforestation areas	
Punishment (negative incentives)	Certification	Verified Carbon Standard (VCS) for Era Congo	Gradual deforestation areas	In Mai-Ndombe, ERA Congo is the only VCS-certified company
	Moratoriums Bans (commodities)	14,228 hectares of savannah protected	Chronic deforestation areas	
	Decentralization Devolution	Setting up the advisory councils in accordance with the article 6 of the forestry law	Chronic deforestation areas	As in Tshopo Province, the Forest Advisory Council in Mai Ndombe oversees forest management and other decentralized entities, and is responsible for providing advice on forest classification and downgrading projects.
Enabling and competence	Land tenure clarification and security	• 568 maps of landholders • 1 provincial edict on the planning and sustainable management of natural resources; • 1 development plan and 4 development plans at the territorial level	Chronic deforestation areas, accelerating deforestation areas	It represents a significant step forward to have a provincial edict, but it remains to be seen whether it will be respected by everyone.
	Technology provision (cookstoves, CSA)	Promotion of cookstoves through the Energy pillar of REDD+	Chronic deforestation areas	According to the FONAREDD report, no cookstoves were distributed in REDD+ implementation sites in this province.
	Infrastructure	Construction of administrative offices in sectors and chiefdoms in Konika village and in four territories (Inongo, Kutu, Kiri, Oshwe) in Mai Ndombe	Chronic deforestation areas, accelerating deforestation areas	These infrastructures consist of offices for decentralized administration (sectors of chiefdoms) and/or devolved entities
Belongingness (transparency and engagement)	Multistakeholder forums	Setting up local development committees and the Farm and Rural Management Council	Chronic deforestation areas, accelerating deforestation areas, gradual deforestation areas	The majority of these multistakeholder platforms already existed. REDD+ is helping to strengthen them and implement them where they did not already exist.
	Consumer campaigns	N/A		

5 Concluding observations

The Deforestation Diagnostics analysis, including analysis of DRC forest archetypes, provides a useful lens to understand forest cover dynamics and patterns in the country and explore relevant policies. Yet compared to the two other main countries with rainforest (i.e., Brazil and Indonesia) the legal framework and policies to protect forests in DRC are still at an incipient stage. For instance, the revision of Brazil's Forest Code in 2012 introduced stringent conservation obligations for private landowners and reinforced the constitutional recognition of Indigenous land rights, supported by mechanisms like the Rural Environmental Registry (CAR). In the Brazilian context, deforestation is predominantly driven by cattle ranching and soybean cultivation (Cohn et al. 2014; Erasmus et al. 2020; Gollnow and Lakes 2014). Conversely, in Indonesia, deforestation pressures stem largely from palm oil expansion, logging and mining activities (Giljum et al. 2022). Both countries participate in REDD+ initiatives and have implemented moratoriums on forest conversion; however, enforcement capacity remains comparatively stronger in Brazil, despite recent political challenges. In contrast, Indonesia's regulatory framework has been significantly weakened by pro-investment legal reforms, notably the enactment of the 2020 Omnibus Law, which diluted key environmental protections (Anggraeni et al. 2020).

In DRC, the Forest Code adopted in 2002 lays foundations for forest governance, introducing measures like moratorium on new concessions, community forestry and planned conservation areas. The legal framework is currently under revision and interacts with related laws on the environment, conservation, Indigenous rights, mining, land tenure and agriculture.

With international support, notably through REDD+ and the Central Africa Forestry Initiative (CAFI), an anti-deforestation dynamic has emerged, resulting in the current aim for 63.5% forest cover by 2030 (Ministry of Environment of DRC 2012). This strategy is intended to promote sustainable development via seven pillars: agriculture, energy, forest, governance, demography, land-use planning and land tenure. These pillars guide programmes funded by international donors through FONAREDD (National REDD+ Fund). Implementation of these pillars represents a process of institutional transformation for DRC. It is important to note that successive national policy, such as the National Strategic Plan for Development 2019–2023, takes these pillars into consideration (Ministry of Planning 2019), while successive national programmes on environment, forest, water and biodiversity consider some of the pillars, including forestry. However, DRC still faces major institutional gaps, with outdated or absent policy documents in key sectors. The Government Action Programme (2024–2028) aims to address these gaps before 2030 through new policies aligned with the second Letter of Intent under CAFI (Primature 2024).

While policy formulation processes – particularly in the areas of forestry, land tenure, energy and land-use planning – have been established, the development of REDD+ programmes, especially in Tshopo and Mai-Ndombe provinces, has remained limited. Implementation of REDD+ programmes has been mainly driven through a classical top-down approach, with international donors and their international partners supporting structural reform in DRC (Rasoamanana et al. 2025). When the administrative structure of REDD+ was set up, 11 focal points were established – with one focal point in each province, 11 provinces at the time. The aim was to enable provincial participation in the development of REDD+ activities (Ministry of Environment of DRC 2012). Given the dependence of the REDD+ process on external funding and the slowness in REDD+ promises materializing, however, these provincial structures have disappeared, even in provinces with the greatest REDD+ challenges and potential, like Mai-Ndombe and Tshopo (Katsongo 2020).

Administrative division in the DRC can be seen as an opportunity for REDD+ to achieve results likely to change local behaviours, as actions need to be focused on the local level and at the lowest administrative scale. Yet, financial and organizational aspects are still the main challenges to achieve sustainable results with a decentralized administrative system. REDD+ is still a process dominated by international actors, including international NGOs. Associated with multilateral and bilateral agencies, these actors constitute the dominant category of implementors of DRC policies to reduce deforestation, including REDD+ (Kengoum et al. 2020a, b; Majambu et al. 2024). The participation of these actors in the domestic policy debate has been characterized by a discourse that promotes REDD+ as means of remuneration through the sale of carbon credits (Majambu et al. 2023b). Carbon revenue may not necessarily be through carbon markets but could also be through result-based payments from sources like the Okapi Fund.

While the strong presence of international actors in REDD+ in DRC does not guarantee for the sustainability, it has played a positive role in the diffusion of the process from the national to subnational and local levels (Majambu et al. 2022).

In Tshopo Province, REDD+ was implemented with a payment for ecosystem services (PES) logic. These payments are conditional on compliance with the land-use plan and a simple management plan for natural resources. PES may increase community participation and engagement in deforestation reduction projects, as observed in Nigeria (Isyaku 2021). Yet, unless the land-use plans drawn up are backed up by a provincial decree to make them binding, it is unrealistic to expect a change in the way the population perspectives on, and use of, forest resources.

To contribute to reducing deforestation, projects must not only integrate positive incentives through PES, but also address the needs of communities by securing their land rights and fostering a climate of cooperation (Davis and Goldman 2019). Beyond this element, the emergence of territorial dynamics – driven by the development of land-use and simple management plans, and the creation or revitalization of multistakeholder platforms – could contribute to the reconfiguration of relations between local communities and their environment.

Field research conducted by Majambu et al. (2022) on a REDD+ project site in Tshopo Province, highlighted the critical importance of several factors for achieving deforestation reduction objectives – factors that have not been sufficiently integrated into the project cycle. One critical issue is the need for sustained support to project beneficiaries. Following the termination of REDD+ interventions, local communities no longer received assistance, which significantly impeded efforts to maintain and monitor the long-term impacts on forest cover and extract valuable lessons for future initiatives. As noted by Ballet et al. (2009), the provision of ongoing benefits is fundamental to the success of community-based natural resource management.

The promotion of export-oriented (or cash) crops has also been proposed within DRC's national REDD+ strategy to reduce pressure on primary forests, provided such crops are cultivated on fallow lands or abandoned plantations. However, empirical evidence casts doubt on the reliability of this approach. Studies by Vyawahare (2022) and Windey (2020) reveal that the expansion of cocoa cultivation over the past decade has significantly contributed to forest encroachment and deforestation in Tshopo Province, driven by the financial incentives associated with these crops. This experience underscores a long-standing debate in the literature (e.g., Angelsen and Kaimowitz 2001) regarding whether the introduction of profitable crops alleviates deforestation by replacing more land-intensive practices or instead exacerbates forest loss by making agricultural expansion into forested areas more economically attractive.

Concerning Mai-Ndombe Province, the provincial authorities have demonstrated a degree of dynamism, exemplified by the publication of a decree on natural resource management. Five more provincial decrees were expected before the end of 2023, as outlined in the Mai-Ndombe project documentation (FONAREDD 2023). Unfortunately, these have not materialized. Regardless, Mai-Ndombe Province stands out as the province with the highest number of land-use maps produced as a result of REDD+ interventions.

Despite these advances, research conducted by Koh et al. (2024) in Mai-Ndombe indicates that climate-related economic incentives have been limited in impact, given the entrenched interests and subsequent investments made into extractive industries. The province has overlaps in land intended for livestock, timber, mining and carbon concessions, as well as overlaps in areas where both state and private actors have oil exploration permits. This situation underscores the vulnerability of REDD+ initiatives in Mai-Ndombe, as land-use planning efforts and conservation measures remain precarious when confronted with the competing priorities of dominant economic actors.

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Annexes

Table A1. Percentage of each archetype seen in each province

Province	No forest left (%)	Stabilized transition areas (%)	Chronic deforestation areas (%)	Accelerating deforestation areas (%)	Gradual deforestation areas (%)	Fragmented forest remnants (%)	Stable forest mosaics (%)	Intact forest areas (%)
Bas-Uele		0.9	12.1	2.0	5.1	9.5	21.5	48.8
Kinshasa	6.9	34.1	16.1	0.2	8.3	33.6	0.7	
Kongo-Central	0.4	16.8	39.4	8.5	9.3	11.4	2.0	12.1
Kwango	1.4	16.4	15.8	0.4	11.2	51.0	2.8	1.0
Kwilu	0.2	23.1	36.2	1.0	12.5	25.2	1.5	0.4
Lomami	0.6	9.5	4.4	0.3	11.4	68.4	4.2	1.3
Lualaba	3.0	7.5	2.9	0.4	7.4	75.5	3.3	0.0
Mai-Ndombe	0.0	10.5	19.5	2.4	6.8	1.4	6.9	52.5
Maniema	0.0	2.9	9.6	2.7	4.2	12.6	15.4	52.6
Mongala		0.7	37.3	1.9	3.4			56.6
Nord-Kivu	0.0	9.1	21.9	1.5	3.8	2.9	0.7	60.1
Equateur		2.3	9.1	1.7	5.4	0.1	0.8	80.6
Nord-Ubangi		2.9	18.5	2.3	6.0	20.1		12.7 37.4
Sankuru		0.8	16.4	5.6	5.8	7.1	4.0	60.3
Sud-Kivu	0.7	12.8	15.6	2.0	7.8	9.4	1.7	50.1
Sud-Ubangi		2.2	44.9	2.2	6.2	12.6		10.3 21.5
Tanganyika	6.4	4.3	3.3	0.3	5.1	75.0	4.2	1.4
Tshopo		0.3	6.9	2.8	2.3		0.0	87.6
Tshuapa		0.1	0.9	1.0	1.7		0.1	96.3

continue to next page

Table A1. Continued

Province	No forest left (%)	Stabilized transition areas (%)	Chronic deforestation areas (%)	Accelerating deforestation areas (%)	Gradual deforestation areas (%)	Fragmented forest remnants (%)	Stable forest mosaics (%)	Intact forest areas (%)
Haut-Katanga	21.0	0.5	0.2		0.2	78.1	0.0	
Haut-Lomami	2.2	5.8	1.3	0.2	7.6	82.4	0.6	
Haut-Uele	0.7	2.5	13.8	1.3	9.9	30.6	24.1	17.2
Ituri	1.6	7.6	11.4	2.5	6.4	16.9	1.3	52.3
Kasaï-Central		11.7	41.8	1.9	16.6	13.7		3.0
Kasaï-Oriental	6.6	17.1	14.6	0.2	15.1	46.3		11.4
Kasaï	0.2	7.5	23.9	3.2	8.4	15.0	7.7	34.1

Table A2. Follow up land-use categories used to describe deforestation areas

Follow up land use	Description
Tree plantation	Tree plantations, mainly oil palm and rubber.
Forest regrowth	Tree cover regrowth (visible for at least 3 years) after a full removal of tree cover that has remained without regrowing trees for at least 2.5 years.
Water	Permanent and seasonal water
Cropland	Land that is covered with annual crops, which are sowed or planted and harvestable at least once within a 12-month period after sowing/planting. This annual cropland produces an herbaceous cover and is sometimes combined with some tree or woody vegetation. Perennial woody crops will fall under a different classification (i.e., as the appropriate tree cover or shrub land cover type).
Grassland	This classification includes any area which is predominantly covered by natural herbaceous plants (i.e., plants that do not have a persistent aboveground stem or shoots, and that lack definite firm structure). This includes areas like grasslands, savannahs, prairies, steppes and pastures, with a cover of 10% or more, irrespective of human and/or animal activities like grazing and selective fire management. Woody plants (e.g., shrubs and/or trees) can be present if they make up less than 10% of the cover. These areas may also contain uncultivated cropland (i.e., areas without harvest/bare soil period) in the reference year.
Urban/built-up	Land covered by buildings (both residential and industrial), roads and other man-made structures like railroads. Urban green areas (i.e., parks and sport facilities) are not considered under this classification, while waste disposal sites and extraction sites are considered as bare.
Shrubland	This classification includes any area predominantly covered by 10% or more natural shrubs. Shrubs (evergreen or deciduous) are defined as woody perennial plants with persistent and woody stems, without no defined main stem being less than 5 m tall. Trees can be present in scattered form if their cover is less than 10%. Similarly, herbaceous plants can be present at any density.
Other/no data	Other land uses (e.g., bare, wetlands).

Table A3. Description of forest policies considered in deforestation diagnostics

Policy name	Description
Payments for ecosystem services (PES)	“Voluntary transactions between service users and service providers that are conditional on agreed rules of natural resource management for generating offsite services” (Wunder 2015). This includes both government- and user-financed PES.
Conservation ecotourism	“Ecotourism is a specific kind of tourism, distinguished from nature tourism and outdoor recreation by its conservation and development goals. Tourism, when designed and practiced as ecotourism, can benefit wildlife and biodiversity, create incentives to protect landscapes, and support local communities” (Stronza et al. 2019).
Certification schemes	Programmes that “accredit goods and services that have met defined process standards meant to protect the environment and social welfare in the places of origin” (Lambin et al. 2014). These schemes are typically connected to either a premium price incentive or preferable market access and encompass private initiatives like the Roundtable for Sustainable Palm Oil (RSPO) sustainable palm oil certification and Forest Stewardship Council (FSC) certified sustainable timber.
Conservation easements	“a negotiated, legally binding agreement between individuals who own property and a second-party organization (e.g., state agency or nongovernmental organization like a land trust). A conservation easement restricts specific activities on the property to meet the owner’s goals and the organization’s conservation objectives” (Farmer et al. 2011).
Avoid infrastructure development	Preventing new road or infrastructure construction or closing existing roads to prevent deforestation or limit impacts on biodiversity-rich areas (Angelsen 2010).
Integrated conservation and development programmes (ICDPs)	“Initiatives that aim to manage and conserve natural resources including biodiversity with socioeconomic development components or goals (Brandon and Wells 1992). Some have understood this as conservation approaches that include the use of socio-economic investment tools to achieve conservation objectives” (Minang and van Noordwijk 2013).
Conditional cash transfers	This involves giving an income source to poor households that is dependent on them undertaking actions typically connected to education and health. “Conditional cash transfers aim to enhance human capital and thereby reduce the intergenerational transfer of poverty” (Ferraro and Simorangkir 2020).
Offsets/cap and trade	“Compensating for losses of biodiversity components at an impact site by generating (or attempting to generate) ecologically equivalent gains, or ‘credits’, elsewhere (i.e., an offset site). Offsets can be achieved in two main ways: (1) via averted loss from ongoing or anticipated impacts (e.g., avoided deforestation or degradation) at a site through the removal of threatening processes and (2) by enhancement of a degraded site through restoration and rehabilitation (‘restoration offsets’)” (Maron et al. 2012). CAR – the Environmental Reserve Quotas – was initiated as an offset mechanism (Soares-Filho et al. 2016).
Government moratoria	This is a government measure aiming to restrict land-based development activities through the temporary suspension of new land-related rights. One example of this is Indonesia’s moratorium on new timber, oil palm and logging concessions (Busch et al. 2015).
Protected areas	“A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Dudley 2008). “The term embraces a wide range of different management approaches, from highly protected sites where few if any people are allowed to enter, through parks where the emphasis is on conservation but visitors are welcome, to much less restrictive approaches where conservation is integrated into the traditional (and sometimes not so traditional) human lifestyles or even takes place alongside limited sustainable resource extraction. Some protected areas ban activities like food collecting, hunting or extraction of natural resources while for others it is an accepted and even a necessary part of management” (Dudley 2008).

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Policy name	Description
Land-use zoning	“Land use zoning results from a spatial planning process that divides a territory into zones with different rules and regulations for land use, management practices, and land cover change. In and of itself, zoning does not promote sustainability but supports legal land use regulations for different units of a landscape” (Lambin et al. 2014). This encompasses establishing forest estate boundaries.
Environmental education	“Encompasses approaches, tools, and programmes that develop and support environmentally related attitudes, values, awareness, knowledge, and skills that prepare people to take informed action on behalf of the environment” (Ardoin et al. 2020). This targets various actors, including the potentially marginalized.
Conservation concessions	“Comprise public land of which the access, management and exclusion rights are granted to non-government actors for conservation purposes, typically for a specific period of time” (Schleicher 2018). Concessions are typically connected with the prospect of direct payments given to keep the forest intact.
Tenure recognition	Policies that promote the recognition of tenure rights. Here recognition implies a legal process to formalize (through either law or de jure process) those rights already being held through informal, customary or de facto mechanisms (Fitzpatrick 2005).
Community forest management	Forest management approaches where governance is devolved to local community groups or institutions, to varying degrees (Bowler et al. 2012).
Logging concessions	Scheme through which the state “gives a company the exclusive right to exploit timber resources over clearly defined boundaries in its private domain for a specified period. In return, concessionaires must meet several requirements in terms of taxation or provision of public goods.” (Lescuyer et al. 2012)
Family planning programmes	Interventions that encourage family planning to lower fertility rates (Sellers 2017).
Ecological fiscal transfers (EFTs)	Scheme that “transfer public revenue between governments within a country based on ecological indicators. Here, ‘ecological’ refers to ecological public functions of governments, which encompass both nature conservation and abatement of environmental pollution. EFT may transfer revenue ‘vertically’ from higher-level to lower-level governments or ‘horizontally’ between governments at the same level. EFT may be ‘general-purpose’ transfers to subnational government budgets that can be spent on any priority of recipient jurisdictions, whether ecological or non-ecological. Or they may be ‘specific-purpose’ transfers earmarked for a particular ecological use, for example, reforestation or water treatment.” (Busch et al. 2021)
Conditional debt relief	“Debt to foreign countries and to international banks may encourage forest loss. Debt-for-nature swaps try to address this by reducing international debt, typically in exchange for establishing a conservation trust fund within the debtor nation.” (Pfaff et al. 2013)
Conditional loan or overseas development aid	Conditional loans attach certain reforms – like expanded park areas, improved law enforcement, economic policy changes – to lending from governmental bodies and multilateral financial institutions (Pfaff et al. 2013).
Political decentralization	“Any political act in which a central government formally cedes powers to actors and institutions at lower levels in a political-administrative and territorial hierarchy” (Ribot et al. 2006). “Political decentralization involves the transfer of power to actors or institutions that are accountable to the population in their jurisdiction” (Ribot et al. 2006).
Anti-corruption policies	Policies that aim to influence the cost and benefits of corruption related to forest use, for example, reducing opportunities to extract excessive private income through bribes; as well as increasing consequences and/or the probability of being discovered and punished (by increasing accountability and transparency) (Tacconi et al. 2009). Such reforms must frequently exist outside the forest sector so as to regulate how political parties are financed; they regulate lobbying, judicial reform, establishment of anti-corruption commissions and free media (Tacconi et al. 2009).

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Policy name	Description
Procurement policies	These are criteria that governments establish around their purchases of forest-risk products (Brack 2013). One example is the EU Renewable Energy Directive (EU RED), which stipulates that all biofuels used in the EU must observe sustainability criteria (Walker et al. 2013).
Due diligence requirements on industry	“Requirements on industry, requiring companies to put in place procedures to minimize the chance of them handling illegal products, as in the EU Timber Regulation and the Australian Illegal Logging Prohibition Act” (Brack 2013).
Public disclosure initiatives	Initiatives, which involve public and/or private attempts to increase the availability of information on behaviours harmful to the environment (Tietenberg 1998). “Disclosure initiatives have been instituted by civil society, often with the backing of financial institutions (banks, pension funds, asset managers, insurance companies and foundations), to emphasise the importance of full information and disclosure throughout the supply chains” (Walker et al. 2013) and by governments (Cisneros et al. 2015).
Consumer/social media campaigns/ boycotts	Marketing strategies targeting changes in consumer behaviours (i.e., increasing consumption of forest friendly products and reducing consumption of deforestation-risk products). This is done through increasing consumer awareness around environmental sustainability, as well as informing consumers about the risks and benefits of specific services and products (Dangelico and Vocalelli 2017). This has led to boycotts, where an organization calls upon consumers to avoid purchasing a specific brand/product (Walker et al. 2013).
Extension programmes to curb demand for timber products	These are programmes targeting the adoption of practices and technologies that reduce timber demand, e.g., cookstoves (Chan et al. 2015) or that increase supply of non-forest timber, e.g., agroforestry (Minang et al. 2014).
Blended finance initiatives	A model to strategically direct public finance to mobilize or de-risk private or other sources of finance for sustainable development, concessional finance and green bonds. These initiatives utilize private capital to fund more sustainable agricultural practices (United Nations, Inter-agency Task Force on Financing for Development 2022).
Monitoring tools	These are satellite-based systems to detect deforestation in real time. Free deforestation alerts reduce the cost of monitoring forests to policymakers and by doing so reduce the cost of implementing deforestation policy (Moffette et al. 2021). Monitoring can encourage compliance with laws (Rasmussen and Jepsen 2018), and is the key tool for targeting law enforcement activities in the Brazilian Amazon (Assunção et al. 2017)
Bilateral agreements	“Bilateral agreements between consumer and producer countries to establish licensing systems designed to ensure that only legal products enter trade between the two, and improve forest governance in the producer country, such as the voluntary partnership agreements currently being negotiated and implemented under the EU Forest Law Enforcement, Governance and Trade (FLEGT) initiative” (Brack 2013). Such a programme “is intended to reinforce producer-country government reforms that aim to improve forest governance” (Pfaff et al. 2013).
Multistakeholder forums	“Purposefully organized interactive processes that bring together stakeholders to participate in dialogue, decision-making and/or implementation regarding actions seeking to address a problem they hold in common or to achieve a goal for their common benefit” (Sarmiento Barletti et al. 2020)
Tax relief and environmental subsidies	Environmental subsidies are economic transfers by a legislator intended to reduce the costs of activities which contribute to environmental protection or reducing the extraction and use of natural resources (European Union 2015). Tax reliefs are “arrangements and provisions in general tax schemes, with the explicit aim of providing positive financial incentives steering the taxpayers’ behaviour in a more biodiversity-friendly direction” (Ring and Schröter-Schlaack 2011). “Usually applies reduced rates or exemptions conditional on certain ‘biodiversity-friendly’ requirements that the taxpayer should fulfil” (Ring and Schröter-Schlaack 2011).

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Policy name	Description
Environmental tax, user fees and reduced subsidies	Tax levied on an actor causing an environmental externality (i.e., environmental damage), to incentivize them to mitigate or avoid this damage (Hansen and Lund 2018). This includes tariffs like taxes due on a specific type of export/import. Here we include user fees (for example, financial mechanisms to secure revenue from ecosystem services/biodiversity users) and the reduction of subsidies (particularly for agriculture).
Conditional access to credit	Policy that ensures rural credit concessions are conditional upon proof of compliance with legal requirements to protect the environment. One prominent example is Resolution 3545, published by the Brazilian Central Bank in 2008 (Assunção et al. 2020).
Moratoria/ standards associated with market exclusion	“Moratoria are agreements, brokered by civil society, whereby a significant proportion of an industry agrees to avoid purchasing products arising from a particular area or from deforestation in a specific area” (Walker et al. 2013). “The soy moratorium in Brazil took shape shortly after an NGO report linking illegal deforestation to soy fed to chickens sold in major fast-food chains” (Lambin et al. 2014).

CIFOR-ICRAF Working Papers contain preliminary or advanced research results on important tropical forest issues that need to be published in a timely manner to inform and promote discussion. This content has been internally reviewed but has not undergone external peer review.

This report is part of a wider inquiry into the intertwined challenges of climate change, deforestation and policy design, where global environmental goals depend on highly local realities. Forest loss remains a major driver of emissions, but its causes and trajectories vary widely across regions, shaped by governance systems, economic pressures and social dynamics. Moving beyond generic prescriptions, this study adopts a context-sensitive perspective that asks not only what policies exist, but how and where they are likely to be effective. In the Democratic Republic of the Congo, vast tropical forests remain largely intact, yet face growing pressure from small-scale agriculture, fuelwood demand and infrastructure expansion. Unlike contexts dominated by industrial drivers, deforestation here is often diffuse, incremental and closely tied to livelihoods, making policy design particularly challenging. The report applies a diagnostic framework that links patterns (archetypes) of forest change with the behavioural mechanisms that policies aim to influence, including incentives, regulation, social dynamics and capacity constraints. This approach helps identify which interventions are most relevant in different settings, from remote forest areas to emerging frontiers. The DRC's case highlights the importance of aligning forest conservation with development needs, strengthening governance while recognizing structural limitations. By grounding policy analysis in context, the report offers a way to navigate complexity and support more effective, equitable strategies to reduce deforestation.



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