

# CONGO BASIN FOREST ECOSYSTEM ACCOUNTS AND POLICY RECOMMENDATIONS

OVERVIEW

A regional synthesis report of  
ecosystem extent, condition, services,  
and asset accounts 2000-2020

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WORLD BANK GROUP

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## FOREWORD

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The Congo Basin forests are among the world's most valuable natural assets. As the second-largest tropical rainforest, they are essential for sustaining national economies, conserving biodiversity, and supporting the livelihoods of millions of people across Central Africa. They play a vital role in regulating regional rainfall, maintaining soil stability, and reducing erosion, and serve as the world's largest net carbon sink—playing a crucial role in global climate regulation.

This synthesis report offers the first regional overview of forest extent, condition, and ecosystem service values across six countries: Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon, and Republic of Congo. Building on country-level ecosystem accounts developed with World Bank support, it provides a robust evidence base for land-use planning, national policy, and climate finance strategies.

These forests generate immense economic value. The estimated value of their ecosystem services nearly doubled from US\$ 590 billion in 2000 to US\$ 1.15 trillion in 2020. The total forest asset value also grew significantly, from US\$ 11.4 trillion to US\$ 23.2 trillion over the same period. This underscores the expanding economic importance of forest ecosystem services over time. Over 90% of this value comes from global climate regulation. Forests stored 90.9 billion tons of carbon in 2020—10 times the annual global CO<sub>2</sub> emissions from the energy sector.

Yet, local communities and governments capture only a fraction of these benefits. Forests deliver critical domestic benefits, including wood provisioning, wild foods, sediment retention that protects farmland and infrastructure, and eco-tourism potential, worth US\$ 8 billion in 2020. These services contribute 5.4% of GDP in Central African Republic and 7.4% in Republic of Congo, supporting rural livelihoods and economic diversification across the region. Meanwhile, deforestation and degradation risks continue due to shifting agriculture, urban expansion, and growing land pressures—threatening both ecological integrity and development. Between 2000 and 2020, forest cover in the region declined by 8.6 million hectares—a 10.7% reduction—with the pace of loss nearly doubling during 2010–2020 compared to 2000–2010. This accelerating trend reflects rising land pressures and highlights the urgent need for financing sustainable forest management.

Congo Basin countries are recognizing the strategic role forests can play in sustainable development. Forest ecosystem accounts integrate nature's value into economic planning, support green value chains, and unlock climate finance. They also contribute to economic diversification and job creation—fostering jobs in sustainable forestry and nature-based tourism, particularly for rural youth and forest-dependent communities.

The World Bank is committed to turning data into action. Through the Global Challenge Program and regional platforms, we are strengthening forest governance, mobilizing finance, and making natural capital a pillar of inclusive, resilient growth.

The Congo Basin is not just Africa's Forest—it is a global treasure. Protecting it demands sustained investment, strong partnerships, and shared global responsibility.



Chakib Jenane  
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The World Bank

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## GLOSSARY

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**Asset value:** The monetary value of an ecosystem asset, calculated as the net present value of the expected future flows of ecosystem services it generates. The total asset value is the equivalent to “land value” that takes all ecosystem services into account.

**Basic spatial unit:** A geometrical construct representing a small spatial area (UN et al 2021), defined in this report as a grid square of 100 x 100 meters or 1 hectares.

**Biodiversity:** The variability among living organisms and the ecological complexes of which they are part. This includes variation within species, the diversity of species within ecosystems and the diversity of ecosystem types in nature (Convention on Biological Diversity; [www.cbd.int](http://www.cbd.int)).

**Built-up areas:** Transformed areas dominated by built infrastructure, including roads and buildings. Built-up areas range from large cities to small rural settlements.

**Carbon sequestration:** The removal of CO<sub>2</sub> from the atmosphere by plants and using the carbon in the building of plant biomass during growth, resulting in a reduction of atmospheric CO<sub>2</sub> concentration. The term refers to one of the components of the global climate regulation service.

**Carbon retention:** The amount of carbon remaining in an ecosystem in above- and below-ground biomass and soil. The term refers to one of the components of the global climate regulation service, while the measurement of the service is usually referred to as the carbon stock.

**Carbon sink:** A system that takes in and stores more carbon from the atmosphere than it emits as carbon dioxide.

**Carbon stock:** The amount of carbon in a defined area or ecosystem at a particular point in time.

**Carbon storage:** The amount of carbon contained in an area over a period of time, e.g. in vegetative biomass or in soils. This term is used synonymously with carbon stock and carbon retention.

**Catchment:** An area where water is collected by the natural landscape. Precipitation that falls in a catchment runs downhill into creeks, rivers, lakes, oceans, or into built infrastructure, such as reservoirs. In this document, the terms catchment and watershed are used interchangeably.

**Deforestation:** Implies the long-term or permanent loss of forest cover and implies transformation into another land use.

**Discount rate:** The interest rate used in discounted cash flow analysis to determine the present value of future cash flows.

**Ecological infrastructure:** Nature’s equivalent of grey or engineered infrastructure. It forms and supports a network of interconnected structural elements such as catchments, rivers, riparian areas and natural corridors supporting habitats, movement of animals and plants, and human wellbeing.

**Economic unit:** Economic entity engaging in economic activities and in transactions with other entities (SNA 2008). In ecosystem service accounts economic units are the users/beneficiaries of the ecosystem services. Economic units may be classified by sector (such as financial enterprisers and non-financial enterprisers, government, households, and not-for-profit institutions supporting households, or by industry based on the goods and services produced (such as agriculture, mining, manufacturing, health, and education). In these accounts, the economic units are classified as being either industry, government, or households.

**Ecosystem accounting area:** The geographical territory for which an ecosystem account is compiled.

**Ecosystem asset:** The primary spatial units for ecosystem accounting. Ecosystem assets are contiguous spaces of a specific ecosystem type characterized by a distinct set of biotic and abiotic components and their interactions. The definition of ecosystem assets is a statistical representation of the general definition of ecosystems from the CBD (UN et al 2021).

**Ecosystem condition:** The quality of an ecosystem measured in terms of its abiotic and biotic characteristics (UN et al 2021).



**Ecosystem extent:** The size of an ecosystem asset (UN et al 2021).

**Ecosystem services:** The contributions of ecosystems to the benefits that are used in economic and other human activity. In this definition, use incorporates direct physical consumption, passive enjoyment and indirect use (UN et al 2021). Benefits are the goods and services that are ultimately used and enjoyed by people and society (UN et al 2021).

**Ecosystem type:** Each ecosystem asset is classified to an ecosystem type. An ecosystem type reflects a distinct set of abiotic and biotic components and their interactions (UN et al 2021)

**Forest degradation:** Changes to forest ecosystems which negatively affect their structure or function (condition) and thereby lower their capacity to supply ecosystem goods and services.

**Forest-farm mosaic:** A landscape configuration where forest has been transformed by agricultural activities, but some natural characteristics are retained relative to pure cropland. Vegetation here comprises a mixture of secondary forest regrowth, small, uncleared forest patches, active and fallow agricultural fields, home gardens and village plantations. The dynamic and shifting patterns of forest and farmland in these areas cannot be realistically segregated and separately accounted for (in area terms) using satellite imagery.

**Gross operating surplus:** Defined in the context of national accounts as the contribution of capital to production (SNA 2008). It is gross output less the cost of intermediate goods and services to give gross value added, and less compensation of employees and taxes and subsidies on production and imports. It is gross because it makes no allowance for consumption of fixed capital.

**Land cover:** The observed physical and biological cover of the Earth's surface which includes natural vegetation and abiotic (non-living) surfaces.

**Lowland forest:** A lowland forest refers to a forest ecosystem found in low altitude, commonly below 700 meters above sea level), which is dense and humid.

**Moist forest:** Moist forests are forest ecosystems which experience high humidity and rainfall throughout the year. Moist forests of the Congo Basin can be divided into several major types based on soil and altitudinal factors. Montane, sub-montane, lowland, swamp (non-peat), peat and mangrove forests are types of moist forest.

**Montane forest:** Montane forests are located at higher altitudes (typically more than 1,500 meters above sea level) and exhibit high levels of endemic flora and fauna which are adapted to cooler temperatures and varying precipitation levels.

**Natural capital:** The stock of renewable and non-renewable resources (such as plants, animals, air, water, soils, and minerals) that combine to yield a flow of benefits to people.

**Natural capital accounting:** The process of measuring the total stocks and flows of natural resources and services in each ecosystem or region. Accounting for such goods may occur in physical or monetary terms.

**Peat forest:** A type of swamp forest that is underlain by a thick layer of peat. These forests tend to be highly dynamic and strongly influenced by water level fluctuations.

**Plantation:** Tree crops established by planting and seeding in the process of afforestation which are typically monospecific stands with exotic species or intensively managed stands of indigenous species to produce goods such as timber, oil palm, rubber and cocoa. Plantations usually have one or two tree species, which are of an even age class, with regular spacing between trees.

**Resource rent:** Resource rent (also known as economic rent) is defined as a surplus value, that is the difference between the price at which a resource, or the output from it, can be sold, and its respective extraction or production costs, including normal returns. In ecosystem accounting, the resource rent method estimates a value for an ecosystem service by taking the gross value of the final marketed good to which the ecosystem service provides an input and then deducting the cost of all other inputs, including labor, produced assets and intermediate inputs (UN et al 2021).

**SEEA Central Framework.** A multipurpose conceptual framework for understanding the interactions between the economy and the environment. It provides concepts, definitions and classifications to support integrated accounting for physical flows (natural inputs from, and residual flows to, the

environment such as water, energy, air emissions, and solid waste); environmental transactions and transfers (such as environmental taxes, environmental subsidies, and environmental protection expenditure); and individual environmental assets (such as mineral and energy resources, timber, fish, land, soil, and water (UN et al 2021).

**SEEA Ecosystem accounting:** A spatially based, integrated statistical framework for organizing biophysical information about ecosystems, measuring ecosystem services, tracking changes in ecosystem extent and condition, valuing ecosystem services and assets and linking this information to measures of economic and human activity (UN et al 2021).

**Submontane forest:** Represents the transition zone between montane and lowland forests, typically starting from around 700-1,100 meters above sea level. It contains a mix of lowland and montane forest elements, as well as some elements specific to this intermediate zone. Submontane forest is often referred to as transitional forest.

**Sustainable:** Managing the use and protection of natural resources in a way (or at a rate) which enables social, economic and cultural well-being while ensuring these resources are sustained for future generations and any adverse effects on the environment are minimized.

**Swamp forest:** Seasonally and permanently inundated forests that occur along rivers and poorly drained areas.

**System of National Accounts (SNA):** The internationally agreed standard set of recommendations on how to compile measures of economic activity in accordance with strict accounting conventions based on economic principles (SNA 2008). The SNA provides a comprehensive and detailed record of the complex economic activities taking place within an economy and of the interaction between the different economic agents, and groups of agents, that takes place on markets or elsewhere (SNA 2008).

**Terra-firma forest:** Moist tropical forest that does not get seasonally flooded that is grows on dry land.

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## OVERVIEW AND KEY TAKEAWAYS

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Six countries contain the bulk of the Congo Basin Forests in Central Africa, namely: Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon, and Republic of Congo. The Democratic Republic of the Congo holds the largest forest area in absolute terms, with 122 million hectares, covering 53 percent of its territory<sup>1</sup>. Equatorial Guinea has the highest proportion of forest cover at 95 percent, though this amounts to just 2.6 million hectares. In contrast, the Central African Republic has the lowest percentage forest cover, with 10.7 million hectares representing 17.2 percent of its land area. Forests cover approximately 51 percent of Cameroon, 68 percent of the Republic of Congo, and 91 percent of Gabon. Together, these forests represent a critical ecological unit, supplying a diverse range of provisioning, regulating and cultural ecosystem services. However, across almost all countries, the trends of forest degradation and loss are increasing.

This report provides a synthesis of the Forest Ecosystem Accounts (2000-2020) compiled for each of these six countries (World Bank Group 2025a-f). Ecosystem accounting enables countries to assess the value of their ecological capital, a key component of national wealth, by monitoring changes in ecosystem extent, condition, and ecosystem services in both physical and monetary terms. The accounts follow the System of Environmental-Economic Accounting (SEEA) Ecosystem Accounting methods, a standardized framework that uses concepts, definitions, and classifications consistent with the System of National Accounts (SNA). The accounts document the changes in extent, condition, and the supply and value of selected ecosystem services across six forest ecosystem types (including mangroves) from 2000 to 2010, and from 2010 to 2020 for each of the six countries, at the scale of 100 x 100m, and summarize these trends at national and subnational scales. The overview is primarily aimed at policy makers, providing them with key findings and strategic insights. The full report is intended for technical practitioners within relevant ministries and agencies, as well as a broader audience involved in forest management, including stakeholders from knowledge and research institutions, universities, and related organizations.

While the extent and condition of forests were generally still remarkable across the Congo Basin in 2020, the pace of degradation and loss increased in 2010 to 2020 compared with the previous decade. Nevertheless, the aggregate benefits obtained from the ecosystem services assessed generally increased both in physical and monetary terms, due to increasing demand for these services for livelihoods, water and energy supply, tourism and above all, global climate regulation.

The value of domestic benefits provided by the forest ecosystems is significant, ranging from one percent of GDP for Equatorial Guinea to 15.4 percent of GDP for the Central African Republic. With global climate regulation being especially important, reflecting more than 95 percent of the value in most countries. Forest ecosystems in the Congo Basin retained around 90.9 billion tons of carbon in 2020, equivalent to 333.5 billion tons of carbon dioxide, which is 10x the amount of the total global emissions from the energy sector in 2020 (34.5 billion tons).

The total asset value of the Congo Basin's forests has almost doubled from US\$ 12.3 trillion in 2000 to US\$ 23.2 trillion in 2020. The overall asset value without the global public good value of climate change regulation stood at US\$ 106 billion in 2000 and US\$ 154 billion in 2020. While the total asset values are increasing, the per capita values are not keeping up with population growth. If one excludes the global public good value of carbon the picture becomes more negative, with a decrease in per capita of forests across all countries.

The Congo Basin forests offer substantial ecological benefits, many of which remain unmonetized, particularly global climate regulating services. By tapping into carbon and biodiversity credits, or innovative mechanisms like green and sustainability bonds, the Congo Basin Forest countries have a strong opportunity to link forest conservation with international financing. The forest ecosystem accounts for the Congo Basin Forest countries can improve understanding and inform policy development not only relating to the natural resource management sectors, but also for the sectors

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<sup>1</sup> This refers to the share of land covered by tropical dense forests, based on the forest definition adopted in this study.

that impact on these assets. These accounts should be institutionalized and enhanced periodically and extended to other ecological assets (such as grasslands, woodlands and marine ecosystems) and include other highly valuable ecosystem services such as regional rainfall regulation.

## KEY RESULTS

1

**WHILE NATURAL FORESTS IN THE CONGO BASIN REMAIN EXTENSIVE, THE PACE OF FOREST LOSS INCREASED IN THE LAST DECADE:** The Congo Basin's natural forest area remains extensive (Table O.1), but losses, especially of lowland forests, almost doubled in 2010-2020 compared to the previous decade.

Six countries contain the majority of the Congo Basin Forest area, with the DRC having by far the largest share, and with Equatorial Guinea and Gabon being almost entirely forested (Table O.1). Between 2000 and 2020, all natural forest and native ecosystems experienced declines in extent across the Congo Basin Forest countries. Lowland, submontane, and montane forests showed the strongest decreases. In contrast, anthropogenic land types, especially forest-farm mosaics and plantations, recorded substantial growth: forest-farm mosaics increased by nearly 95 percent between 2010 and 2020 alone. Cropland and built-up areas also expanded significantly, indicating a shift in ecosystem asset value from natural to human-modified landscapes. As a result, overall forest ecosystem extent decreased by more than 8.6 million hectares, or by 10.7 percent relative to 2000 (Table O.2). The DRC had the highest loss, at 5.9 percent, and also accounted for 85 percent of the losses across the six countries. Gabon had the lowest rate of forest loss, and forest extent increased in the Central African Republic, likely due to a combination of long term climate changes and carbon fertilization. The Central African Republic lies in a transition zone between tropical rainforest and savanna. In some northern areas, slightly improved moisture conditions, the effects of CO<sub>2</sub> fertilization, and variations in human pressure are contributing to forest edges shifting northward, expanding into areas that were previously savanna or degraded woodlands. The findings highlight the importance of addressing the underlying drivers of deforestation and forest degradation, such as agricultural expansion, illegal logging, and mining, to ensure effective forest management.

**Table O.1 Total Forest Extent in 2020 per Country, Percentage of Total Forest Area of the Six Countries, and Percentage of Total Extent in Country. Note that this includes Mangrove Forests.**

| COUNTRY                      | FOREST COVER 2000<br>(HECTARES) | PERCENTAGE OF<br>TOTAL FOREST<br>AREA | PERCENTAGE OF<br>NATIONAL AREA |
|------------------------------|---------------------------------|---------------------------------------|--------------------------------|
| Cameroon                     | 23,735,253                      | 11.2                                  | 49.6                           |
| Central African Republic     | 10,349,941                      | 5.2                                   | 17.2                           |
| Democratic Republic of Congo | 129,835,745                     | 59.5                                  | 53.0                           |
| Equatorial Guinea            | 2,638,353                       | 1.3                                   | 94.7                           |
| Gabon                        | 23,818,040                      | 11.5                                  | 90.1                           |
| Republic of Congo            | 23,734,423                      | 11.3                                  | 67.9                           |

Source: This Study

**Table O.2 Change in Total Forest Extent per Country from 2000 to 2020**

| COUNTRY                  | 2000               | 2010               | 2020               | NET<br>CHANGE<br>2000-2020 | % CHANGE      |
|--------------------------|--------------------|--------------------|--------------------|----------------------------|---------------|
| Cameroon                 | 23,735,253         | 23,602,458         | 23,063,959         | - 671,294                  | - 2.8%        |
| Central African Republic | 10,349,941         | 10,257,690         | 10,665,746         | 315,805                    | +3.1%         |
| Democratic Rep. of Congo | 129,835,745        | 127,427,660        | 122,218,115        | - 7,617,630                | - 5.9%        |
| Equatorial Guinea        | 2,638,353          | 2,621,038          | 2,570,207          | - 68,146                   | - 2.6%        |
| Gabon                    | 23,818,040         | 23,796,534         | 23,685,366         | - 132,674                  | - 0.6%        |
| Republic of Congo        | 23,734,423         | 23,627,102         | 23,282,279         | - 452,144                  | - 1.9%        |
| <b>Total</b>             | <b>214,111,755</b> | <b>211,332,482</b> | <b>205,485,672</b> | <b>- 8,626,083</b>         | <b>-10.7%</b> |

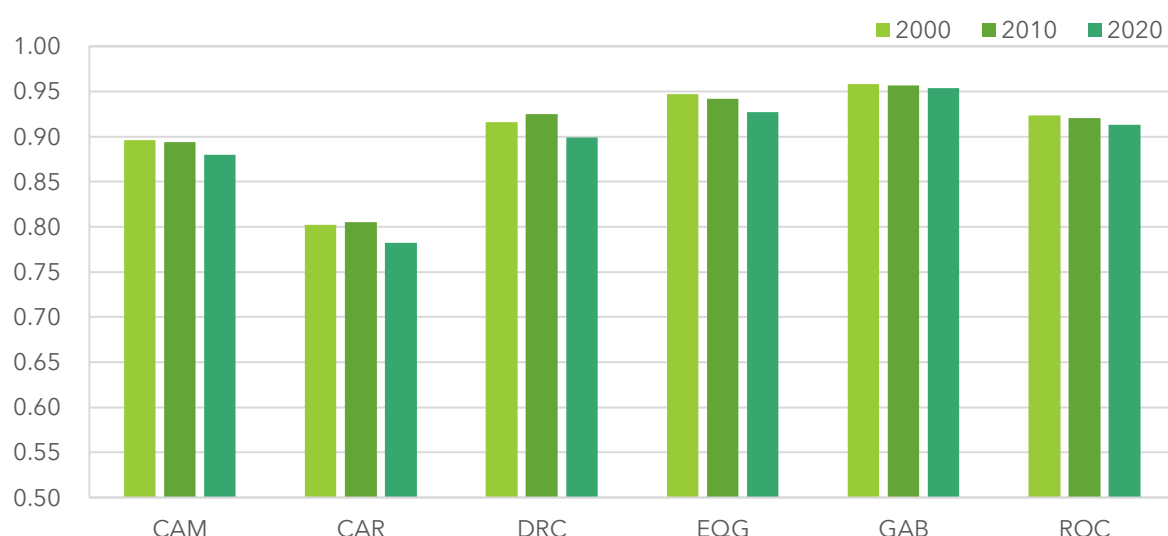
Source: This Study

## 2

**FOREST CONDITION IS GOOD BUT DECLINING:** The condition of Congo Basin forests remains generally good across most forest types, but signs of degradation are increasing, particularly in lowland, swamp, and mangrove forests, where declines have intensified since 2010.

Forest condition, assessed based on satellite-derived metrics, namely tree height, canopy cover, forest connectivity and landscape naturalness, is generally good, but has decreased slightly for most forest types (Figure O.1). Overall, condition was lowest across years in the montane forests of Cameroon and the DRC and submontane forest in CAR, indicating higher human modification of these ecosystems. Conversely, peat forests typically had high condition in all countries where they occur. At a country level, declines in forest condition were most pronounced in the DRC, Equatorial Guinea and Cameroon, with more moderate declines in Republic of Congo and the Central African Republic. Gabon maintained stable, high forest condition in all years, with only slight declines in condition evident. In general, declines in condition were more pronounced between 2010 and 2020, relative to 2000 to 2010. Overall, forest ecosystems are still in good condition, but degradation is expanding, especially near settlements and forest edges.

**Figure O.1 Changes in Overall Condition of the Dominant Forest Type, Lowland Forest, across the Six Countries, where a Score of 1 is the Intact Condition.**



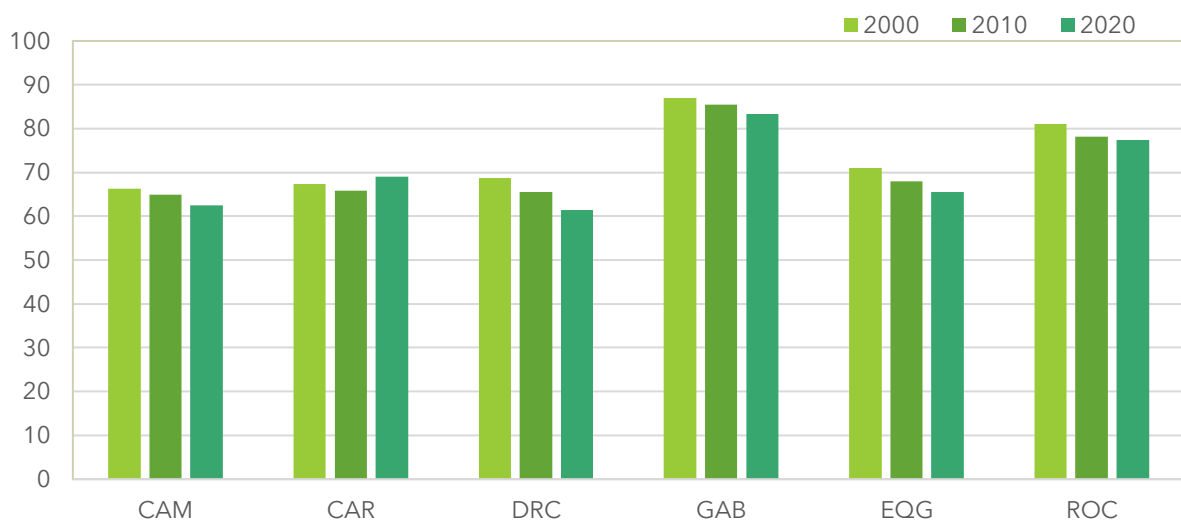
Source: This Study

## 3

**BIODIVERSITY IS HIGH BUT DECLINING:** Included as a pilot thematic indicator, the status of biodiversity, expressed in terms of overall level of intactness based on habitat indicators alone, is good overall, but is also declining.

The biodiversity status of the Congo Basin forests was assessed by comparing forest extent and condition in each of the accounting years to an estimated natural forest baseline, in conjunction with bushmeat hunting pressures as a proxy for human impacts on animal populations. This was used to estimate the remaining percentage of the Congo Basin's original forest biodiversity heritage. Biodiversity status declined between 2000 and 2020, with the steepest losses seen in lowland, swamp, and montane forests. While Gabon and the Republic of Congo (Figure O.2) maintained high biodiversity scores, reflecting large areas of intact forest with low human influence, countries like Cameroon, the Democratic Republic of Congo, and Equatorial Guinea experienced sharper declines, driven by deforestation and hunting. Peat forests consistently retained the highest biodiversity status. In contrast, montane and submontane forests were among the most transformed. The Central African Republic was the only country to show an overall improvement in biodiversity status, linked to forest expansion into savanna at the northern periphery of the rainforest massif. In general, the results were comparable to those estimated by the Biodiversity Intactness Index for Africa (bii4Africa) study, which was based largely on extensive expert-opinion. However, some notable differences with the bii4Africa data were apparent for certain countries and forest types, reflecting the different approach used. The bii4Africa metrics were generated from expert opinion, estimated for different groups of animals and plants, and produced for a single point in time.

**Figure O.2 Overall Forest Biodiversity Scores per Country for 2000, 2010, and 2020**



Source: This Study





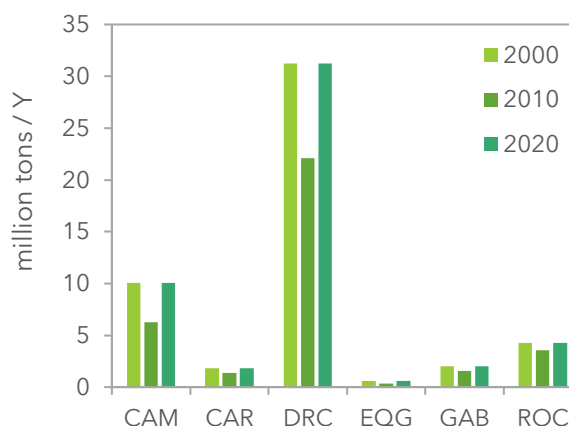
## 4

**USE OF PROVISIONING SERVICES IS INCREASING:** The use of provisioning services in the form of wood used for timber, poles and fuel, as well as plant foods, has generally increased due to increasing demand and lack of energy alternatives. Harvest of bushmeat has remained stable or increased in some countries, reflecting continued reliance on wild animals as a source of protein.

Wood use increased across the Congo Basin (Figure O.3, Figure O.4), driven by population growth and energy insecurity in some countries. Harvesting of wood for timber increased most rapidly in Cameroon and the Republic of Congo, with a marked rise in informal production in both countries. Gabon's timber sector became more formalized following its 2010 log export ban, resulting in a large drop in production in 2010, with a recovery in 2020. Harvesting of timber was variable across years in Equatorial Guinea, Central African Republic and the Democratic Republic of Congo. Pole harvesting rose steadily across all countries, with increasing use of forest-farm mosaics as a source of poles for household construction.

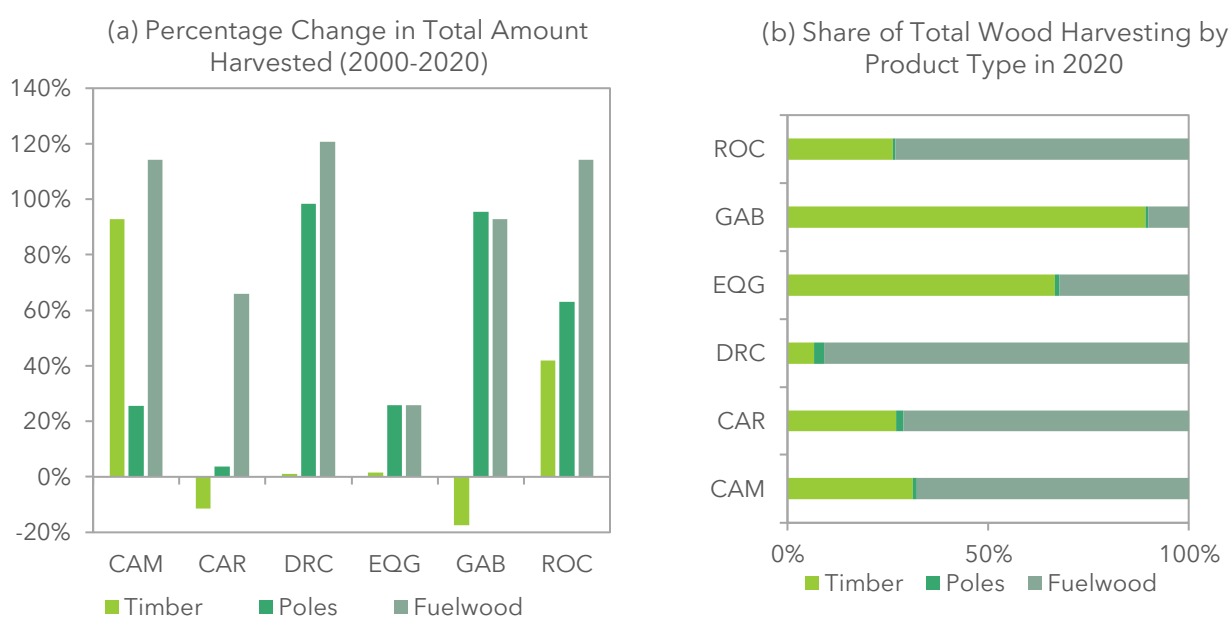
Fuelwood harvesting, which includes firewood and charcoal, doubled or more in most countries from 2000 to 2020 (Figure O.4), except for Equatorial Guinea where fuelwood use increased by a more modest 26 percent between 2000 and 2020. Harvesting of wood for fuelwood exceeded harvesting of wood for timber in Cameroon, Central African Republic, Republic of Congo and the Democratic Republic of Congo. Conversely, fuelwood harvesting was comparatively low in Gabon and Equatorial Guinea, reflecting the lower reliance on biomass fuels in these countries.

**Figure O.3 Total Combined Production of Wood Products, including Timber, Poles and Fuelwood (2000-2020)**



Source: This Study

**Figure O.4 (a) Percentage Change in Total Amount of Timber, Poles, and Fuelwood Harvested between 2000 and 2020 across Congo Basin Forest countries and (b) Share of Total Wood Harvesting by Product Type across Congo Basin Forest countries in 2020**

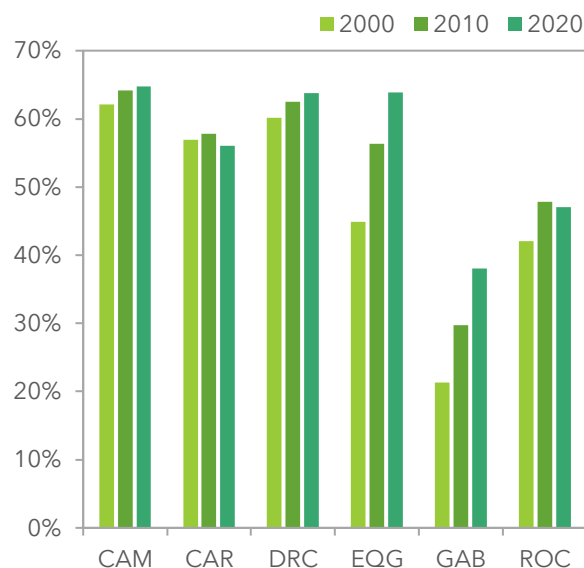


Source: This Study

Bushmeat remains a critical component of rural livelihoods and protein intake. The DRC accounts for the largest share of harvesting, followed by Cameroon and the Republic of Congo. Bushmeat production was estimated to increase by 23 percent between 2000 and 2020 in the Republic of Congo, by 42 percent in Equatorial Guinea and by 12 percent in the DRC. In all countries, bushmeat hunting is above the sustainable yield in all years (Figure O.5). Lowland forest remained the primary source of bushmeat in all years, though offtake was estimated to increasingly occur in forest-farm mosaics, reflecting the growing extent of these ecosystems and the possible decline in biomass in lowland forest.

Wild plant foods, including fruits, vegetables, and edible forest products, remain vital to household food security. Lowland forests supply over 70 percent of total harvests, although forest-farm mosaics have seen the most rapid growth in use. The DRC leads in volume. Cameroon and the Republic of Congo also recorded substantial increases.

**Figure O.5 Percentage of Bushmeat Harvesting above Sustainable Yield (2000, 2010, 2020)**



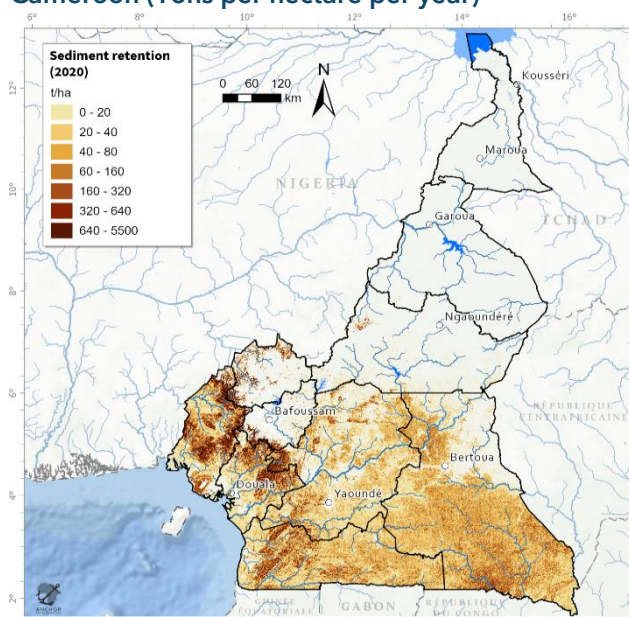
Source: This Study

## 5

**THERE IS INCREASING PRESSURE ON SEDIMENT RETENTION SERVICES DUE TO ACCELERATING FOREST LOSS AND DEGRADATION:** Forest capacity to supply sediment regulating services has decreased due to reductions in forest extent and forest degradation. This should be kept in check as there is increasing demand for the service for hydropower, domestic consumption and other users.

The amount of sediment exported to watercourses across the Congo Basin increased significantly between 2000 and 2020, reflecting increasing forest loss and degradation and other land cover changes. Additionally, export volumes rose more sharply between 2010 and 2020, indicating accelerating pressure on sediment retention services. Sediment export rates increased most rapidly in the Democratic Republic of Congo, rising by 71 percent between 2000 and 2020, followed by Equatorial Guinea (49 percent increase) and Cameroon (32 percent increase; Figure O.6). At the same time population sizes also increased drastically in all these countries: 97 percent in the DRC, 151 percent in Equatorial Guinea, and 74 percent in Cameroon. Conversely, Gabon had the smallest increase in sediment export rates (8 percent growth between 2000 and 2020) because of lower forest loss and degradation rates here.

**Figure O.6 Potential Loss of Sediment Caused by Lack of Vegetation in Areas Prone to Erosion in Cameroon (Tons per hectare per year)**



Source: This Study



Although sediment export rates are increasing, forest ecosystems continue to play a critical role in sediment retention. Due to its large extent, lowland forests accounted for the bulk of the sediment retention service in several countries. Montane and submontane forests also contributed significantly, typically with very high values per hectare since erosion rates would be very high in these steeper areas in the absence of forest vegetation cover. The overall capacity of forests to retain sediment declined slightly in most countries, except for Central African Republic where increasing forest extent resulted in an increase in the total capacity of forests to retain sediment. The increase in sediment export rates coupled with declines in sediment retention capacity suggests that the service is under growing pressure. If forest loss and degradation continue, the capacity of forests to regulate sediment could be further undermined, with implications for water supply, hydropower infrastructure, and river health. For example, in Equatorial Guinea the demand for the service increased by a factor of 5 over the accounting period because additional hydroelectric power stations were built between 2010 and 2020.

## 6

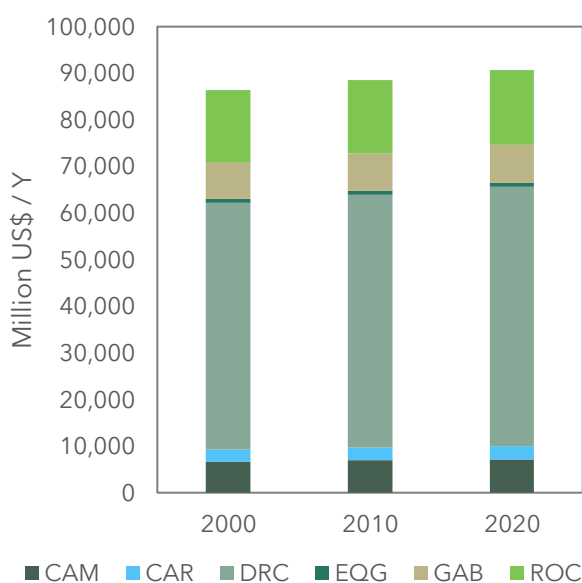
**CONGO BASIN FORESTS REPRESENT THE LARGEST NET CARBON SINK CURRENTLY, CONTRIBUTING SIGNIFICANTLY TO GLOBAL CLIMATE REGULATION: Forest capacity to regulate global climate change through carbon sequestration and storage is being compromised by reductions in forest extent and forest degradation, but this has been offset by positive effects of carbon dioxide fertilization on forest biomass.**

In this study, forest vegetation and soils across the Congo Basin were estimated to hold approximately 90 billion tons of carbon, making it the second largest tropical carbon stock globally after the Amazon (Figure O.7). In total, forests of the region retain an amount of carbon that is almost ten times greater than annual energy-related emissions across the world, underscoring the global significance of this service. This carbon is stored in above-ground and below-ground vegetation biomass, dead wood, leaf litter, and soils. The region includes the world's largest tropical peatland complex located in the Cuvette Centrale, which spans parts of the Republic of Congo and the Democratic Republic of Congo, with very high soil carbon retention here.

The Democratic Republic of Congo holds the largest share of forest carbon in the region, with its lowland rainforests storing over 27 billion tons of carbon and a further 21 billion tons of carbon in its peat forests as of 2020 (Table O.3). Forests in the Republic of Congo stored an estimated 16 billion tons of carbon in 2020, including exceptionally large stocks in its peat forests (more than 10 billion tons of carbon).

Despite deforestation and degradation pressures, the Congo Basin remains a net carbon sink due to increased tree growth in intact forests, driven in part by the carbon dioxide fertilization effect that enhances biomass accumulation. However, studies suggest that forest carbon uptake rates in Central Africa are beginning to decline. If forest loss and degradation accelerate, the Congo Basin could transition from being a net sink to a net emitter of carbon, particularly for countries with higher forest loss and degradation rates, undermining regional and global climate targets.

**Figure O.7 Combined Carbon Retention by Forest Ecosystems in the six Central African countries**



Source: This Study

**Table O.3 Biomass, Soil, and Total Carbon Content of Forest Ecosystems across the Congo Basin Forest countries and their Average Carbon Retention per Hectares in 2020, Ranked by Total Carbon**

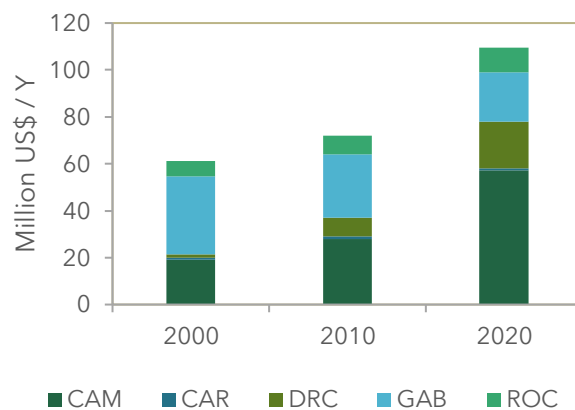
| COUNTRY                      | TOTAL BIOMASS CARBON (MT) | TOTAL SOIL ORGANIC CARBON (MT) | TOTAL CARBON (MT) | AVERAGE T/HA |
|------------------------------|---------------------------|--------------------------------|-------------------|--------------|
| Cameroon                     | 4,521                     | 2,558                          | 7,079             | 294          |
| Central African Republic     | 1,846                     | 1,077                          | 2,923             | 258          |
| Democratic Republic of Congo | 24,230                    | 31,410                         | 55,640            | 421          |
| Equatorial Guinea            | 579                       | 302                            | 882               | 338          |
| Gabon                        | 5,538                     | 2,576                          | 8,115             | 341          |
| Republic of Congo            | 4,567                     | 11,400                         | 15,967            | 670          |

## 7

**FOREST-BASED TOURISM IS A GROWING SOURCE OF ECONOMIC VALUE IN THE CONGO BASIN:** The nature-based tourism value of forests has increased in most countries thanks to investment in tourism and forest biodiversity protection.

Ecosystem-based tourism, such as wildlife viewing and visits to protected forests, ranges from 64 percent to over 85 percent of attraction-based tourism value in the Congo Basin. From 2000 to 2020, its value grew significantly in most countries (Figure O.8). Cameroon led the way, with forest tourism value tripling to US\$ 57.3 million by 2020. The Democratic Republic of Congo saw a 14-fold increase to nearly US\$ 19.8 million, with most of this value coming from eastern montane forests. In the Republic of Congo, ecosystem-based tourism value rose from US\$ 6.5 to US\$ 10.5 million, while Gabon saw a decline. The Central African Republic's ecosystem-based tourism remained low, reflecting ongoing instability in the country. No data were available to estimate the value of ecosystem-based tourism in Equatorial Guinea.

**Figure O.8 Nature-based Tourism Value of Forests across five countries, in 2020**



Source: This Study

## 8

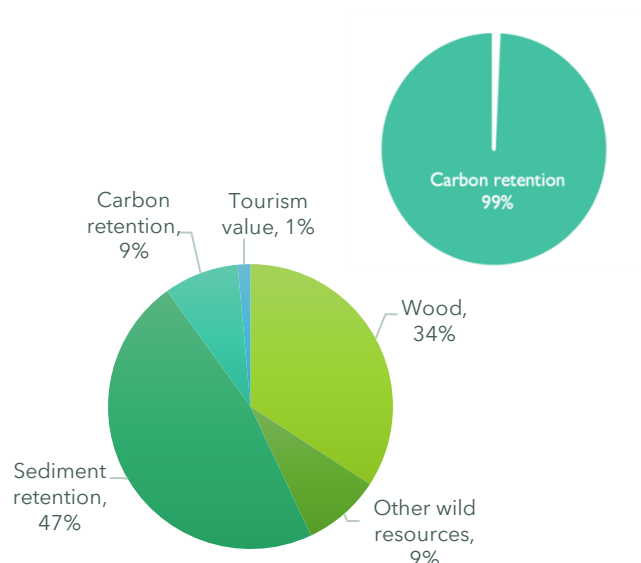
**THE FOREST ECOSYSTEM SERVICES ASSESSED WERE WORTH NEARLY US\$ 985 BILLION PER YEAR AS OF 2020:** The value of most services increased over time, but the largest increase came from the carbon retention, reflecting its global public good value.

Between 2000 and 2020, forest ecosystem services in the Congo Basin increased significantly in both physical and monetary terms. Wood harvesting from forests nearly doubled from 26.6 to 50 million tons, while the use of wild foods (including bushmeat) rose from 492,000 to 575,000 tons. Carbon stocks increased from 86.4 to 90.6 million tons. Sediment retention remained somewhat stable at around 12.9 billion tons per year, with slight declines over time.

The total monetary value of forest ecosystem services rose from US\$609 billion in 2000 to US\$1152 billion in 2020, with carbon retention making up over 99 percent of the total. Lowland forests consistently provided the largest share of both physical and economic value, followed by peat forests and forest-farm mosaics. While very little of the global value of carbon retention accrues to the Congo Basin Forest countries (such as in the form of carbon credit sales or climate finance), the remainder of the value that does accrue to each country is still significant, ranging from one percent of GDP for Equatorial Guinea to 15.4 percent of GDP for the Central African Republic.

The combined domestic value of ecosystem services across the six countries amounted to US\$4.8 billion in 2000 and US\$ 7.8 billion in 2020 (Table O.4). The relative contributions of the different ecosystem services assessed to the latter value are shown in the pie chart (Figure O.9). It is important to note that these values represent a conservative estimate as the forest accounts do not include all forest ecosystem services nor the values of biodiversity to residents of the basin and the rest of the world, which could be substantial. In particular, they exclude the value of regional rainfall regulation by the Congo Basin Forests across the African continent.

**Figure O.9 Composition of Total Forest Ecosystem Service Value using the Global Social Cost of Carbon (Inset) and Contribution of Ecosystem Services to the Domestic Value of the Congo Basin Forest, in 2020**



Source: This Study

**Table O.4 Aggregate Supply of Forest Ecosystem Services (US\$ millions)**

| FOREST ECOSYSTEM SERVICES              | MONETARY VALUE<br>(CONSTANT 2024 US\$ MILLION)<br>GLOBAL CARBON VALUE |                |                  | MONETARY VALUE<br>(CONSTANT 2024 US\$ MILLION)<br>COUNTRY-SPECIFIC CARBON VALUE |              |              |
|----------------------------------------|-----------------------------------------------------------------------|----------------|------------------|---------------------------------------------------------------------------------|--------------|--------------|
|                                        | 2000                                                                  | 2010           | 2020             | 2000                                                                            | 2010         | 2020         |
| Wood <sup>^</sup>                      | 1,412                                                                 | 1,837          | 2,598            | 1,412                                                                           | 1,837        | 2,598        |
| Other wild resources <sup>^</sup>      | 578.2                                                                 | 653.3          | 671.9            | 578.2                                                                           | 653.3        | 671.9        |
| Sediment retention                     | 2,323                                                                 | 2,683          | 3,577            | 2,323                                                                           | 2,683        | 3,577        |
| Global climate regulation <sup>#</sup> | 604,562                                                               | 832,873        | 1,145,407        | 541.8                                                                           | 782.0        | 1,024.1      |
| Tourism value                          | 61.2                                                                  | 72.0           | 109.4            | 61.2                                                                            | 72.0         | 109.4        |
| <b>TOTAL VALUE</b>                     | <b>608,936</b>                                                        | <b>838,118</b> | <b>1,152,362</b> | <b>4,916</b>                                                                    | <b>6,028</b> | <b>7,980</b> |

<sup>^</sup>Note that for harvested resources, values are net of input costs and do not include any value addition, and are therefore different from total sectoral value in the SNA.

<sup>#</sup> The value to the entire world is expressed in terms of annualized "global social cost of carbon" (GSCC).

Source: This Study

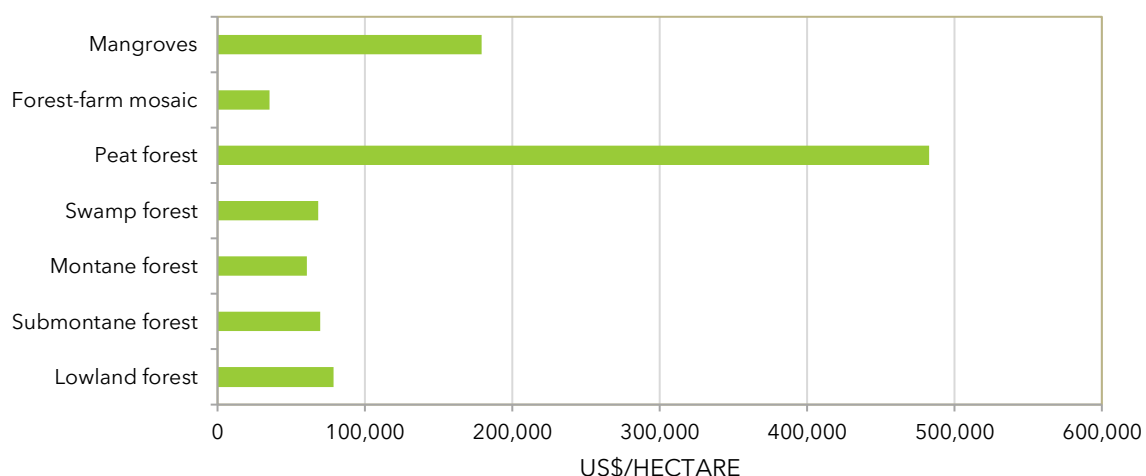
**FOREST ECOSYSTEMS ARE APPRECIATING ASSETS:** The total asset value of the Congo Basin's forests is estimated to have nearly doubled from US\$12.3 trillion in 2000 to US\$ 23.2 trillion in 2020, largely driven by the rising social cost of carbon.

9

Asset value is a measure of the value of forested land which includes the expected value of ecosystem services that it will provide over time, in this case 100 years. As such it is comparable with the value of conventional assets such as farmland or built infrastructure. Between 2000 and 2020, the total asset value of forests across the six main Congo Basin Forest countries grew by 89 percent, from US\$ 12.3 trillion to over US\$ 23.2 trillion (in constant 2024 US\$), largely driven by the rising social cost of carbon. Lowland and peat forests were the largest contributors, while forest-farm mosaics saw the fastest growth in asset value (515 percent). Some forest types lost value from shrinking extent. Peat forests had the highest per unit area asset value of forest ecosystem types, reflecting their very high carbon retention value, followed by mangrove forests (Figure O.10). This value includes the value of climate regulation services (carbon sequestration and storage) to the rest of the world.

When excluding the value to the rest of the world, the overall asset value of the region's forests is estimated to have been US\$ 103 billion in 2000 and US\$ 150 billion in 2020, and the highest average per hectare asset values were found in mangroves and montane forests.

**Figure O.10 Average Asset Value of Forest Ecosystems per Unit Area for 2020 (Constant 2024 US\$ per Hectare)**



Source: This Study

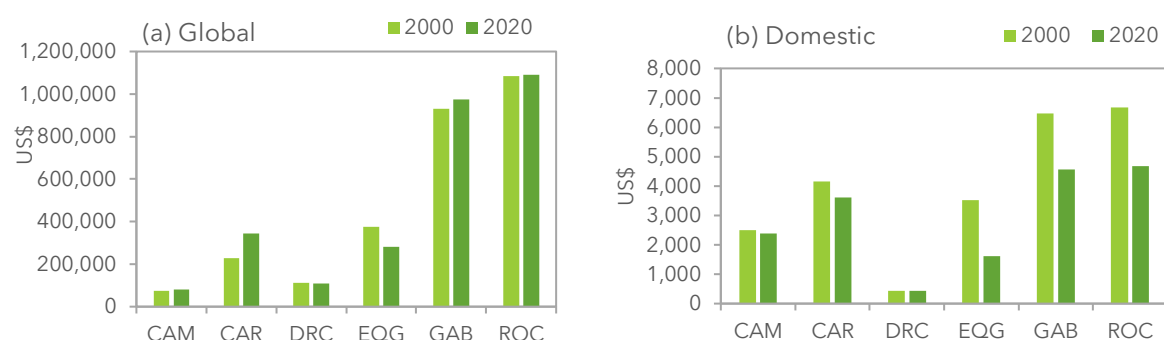
10

**FOREST VALUE HAS KEPT UP WITH POPULATION:** The per capita asset value of forests has increased in some countries over 20 years, meaning that the increases in value have managed to keep pace with population growth in some cases. If one excludes the global public good value of carbon the picture becomes more negative, with a decrease in per capita of forests across all countries.

When using the global social cost of carbon, per capita forest values were highest in Gabon and the Republic of Congo (Figure O.11). In percentage terms, Cameroon and the Central African Republic saw the strongest increases in per capita value (10 percent and 50 percent respectively), while Equatorial Guinea experienced declines.

The picture becomes more negative when using country-specific carbon values (Figure O.11), which gives a better indication of per capita benefits to local people in each of the Congo Basin Forest countries. Using this metric, the per capita value of forest ecosystems declined over time in all countries, including a 58 percent decline in Equatorial Guinea.

**Figure O.11 (a) Change in Global Forest Asset Values (2000 to 2020) per Capita in Constant US\$, using the Global Carbon Value; and (b) Changes in Domestic Forest Asset Values (2000 to 2020) per Capita in Constant US\$, using the Country Specific Carbon Value.**



Source: This Study

# 11

**ADJUSTED MACROECONOMIC INDICATORS POINT TOWARDS UNSUSTAINABLE DEVELOPMENT:** Resource depletion is increasing, posing sustainability risks. Economic growth has not been balanced with long-term wealth preservation.

Sustainable development in the Congo Basin Forest countries was assessed by integrating the forest ecosystem accounts with macroeconomic data, refining traditional measures like GDP to account for natural capital depletion. Adjusted Net National Income (ANNI) improves on Net National Income (NNI) by deducting both fixed and natural capital consumption, providing a clearer picture of sustainable income. Adjusted Net Savings (ANS) reflects a country's true savings rate by incorporating education investment, natural resource depletion, and pollution costs. Using data from the World Bank and sustainability thresholds for forest resources, environmental depletion and its economic impact is quantified to support policymaking and long-term sustainability. Most countries experienced substantial growth in ANNI, particularly the Democratic Republic of Congo, where ANNI increased more than sevenfold, and Cameroon, which maintained high levels throughout the 20-year accounting period. However, trends in ANS were mixed (Table O.5), with some countries showing positive savings and others facing low or negative values, indicating ongoing challenges in sustaining long-term wealth amid natural resource depletion.

**Table O.5 ANS for Each Accounting Year and Country (Constant US\$ Millions 2024)**

| COUNTRY                      | 2000    | 2010  | 2020   |
|------------------------------|---------|-------|--------|
| Cameroon                     | -324    | -748  | 444    |
| Central African Republic     | 122     | 60    | -293   |
| Democratic Republic of Congo | No data | 2,234 | 6,584  |
| Equatorial Guinea            | No data | 3,884 | -2,984 |
| Gabon                        | 298     | 1,217 | -487   |
| Republic of Congo            | -1,741  | 156   | -266   |

Source: CWON (World Bank 2024d) and forest depletion from this study



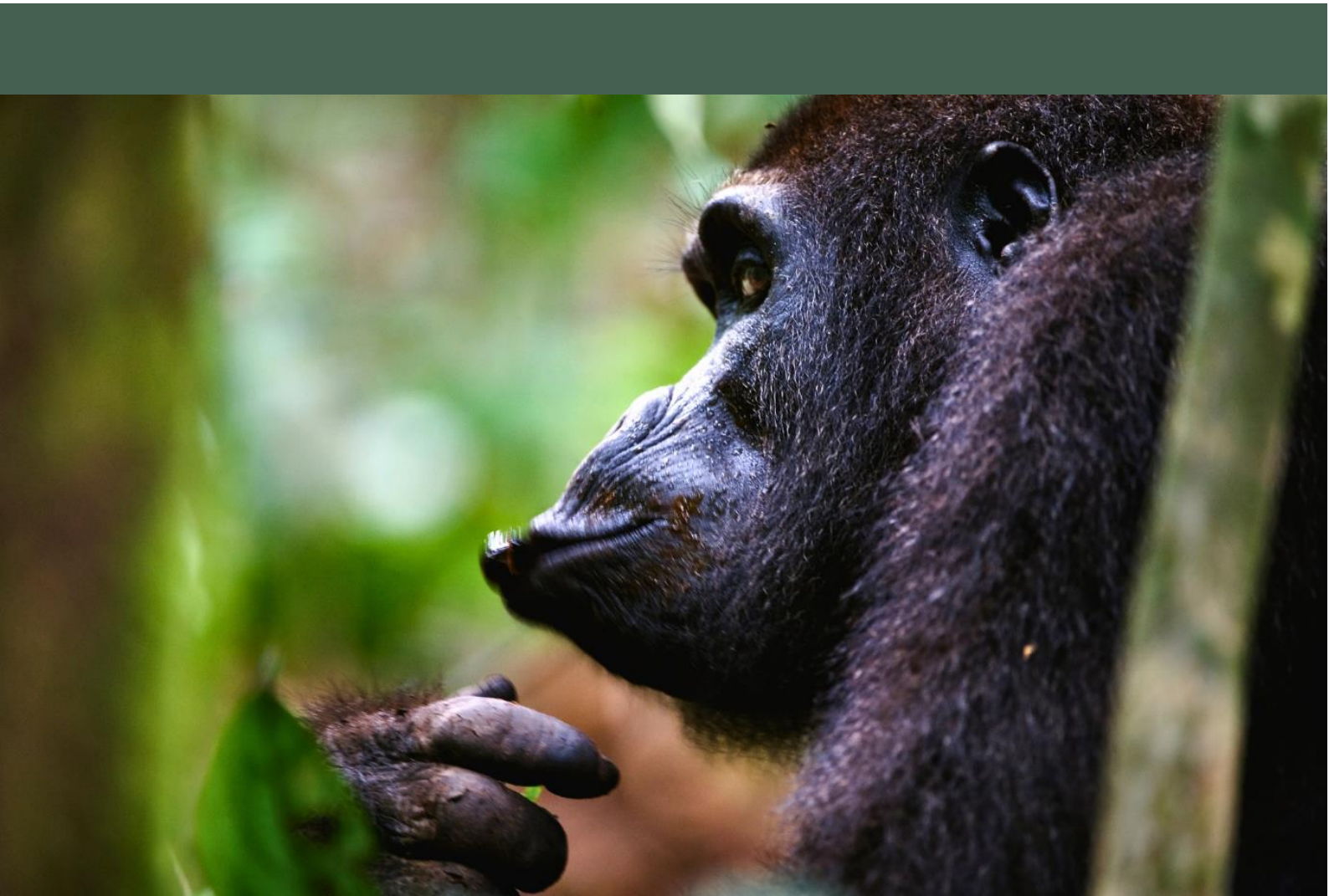
## 12

**SUBNATIONAL INSIGHTS CAN INFORM LOCAL PLANNING:** Subnational analysis reveals distinct spatial patterns in resource use and ecosystem service pressures, highlighting priority areas where sustainable management is most urgently needed.

This analysis was conducted at a granular scale, which meant that it was possible to summarize data and trends at subnational levels. This enhances understanding of ecosystem services and pressures on ecosystem condition and extent. By identifying spatial variations and provincial-level trends, the results offer a strong foundation for informing localized planning and prioritization of ecosystem service hotspots. For example, the study found that much for the growth in tourism in the DRC was concentrated in montane and submontane forests in the eastern region, home to high-profile destinations like Virunga and Kahuzi-Biega National Parks. In the Republic of Congo, bushmeat harvesting showed geographic disparities in access and dependence – while harvesting decreased sharply in urban Brazzaville département, it rose in rural départements like Lékoumou and Cuvette. This spatially explicit approach enhances the relevance and applicability of our findings for national and subnational decision-makers. This can support investment prioritization by helping identify high-impact opportunities that enhance livelihoods and safeguard environmental integrity.

***Note on Data Reliability***

The reliability of ecosystem service estimates varies by data source, service type, and methodology, with overall confidence ranging from moderate to high. Higher confidence is associated with formal timber production, bushmeat harvesting, and climate regulation due to robust national data and validated methods. In contrast, estimates for informal timber use, wild plant harvesting, spatial mapping, and certain tourism and urban fuelwood data carry lower confidence due to reliance on regional proxies and assumptions.



## KEY POLICY MESSAGES AND RECOMMENDATIONS

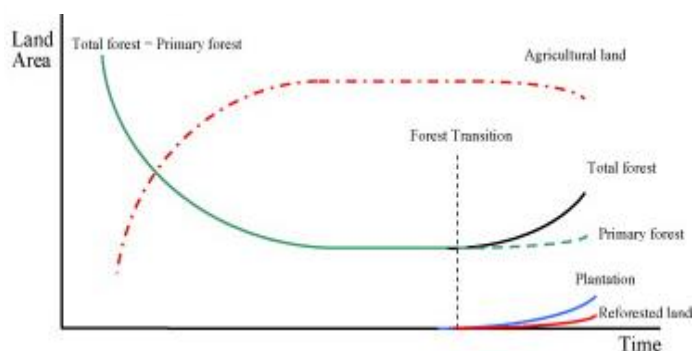
# 1

**THE CONGO BASIN COUNTRIES ARE HOME TO FORESTS OF CRITICAL GLOBAL IMPORTANCE, AND PRESERVING THESE VITAL ECOSYSTEMS REQUIRES STRONG SUPPORT FROM GLOBAL PARTNERS:** It is possible to pursue a sustainable development path that maintains forest cover and avoids the high costs experienced by other countries that have depleted their forests.

Whereas many of the world's forested countries have undergone a typical forest transition path that led to deforestation and are currently attempting to reverse some of their forest loss (Figure O.12), several of the Congo Basin Forest countries are known as "high forest, low-deforestation" (HFLD) countries that have lost relatively little of their forest cover relative to other tropical regions. As such, there has been relatively little concern about deforestation until recently, even though the region holds the world's second largest rainforest massif that is critical to global wellbeing.

However, the recently increasing rate of deforestation is concerning. If current trends persist, the Congo Basin's vast forest estate could face significant degradation within a few decades. However, the region still has the opportunity to focus on a green development path by fostering the sustainable management of their forests. By investing in sustainable forest management now, the Congo Basin Forest countries can avoid the future costs of forest loss, protect vital ecosystem services like rainfall regulation, and support food and water security. In this regard, the Congo Basin Forest countries can benefit from further strengthening international and regional cooperation and financing, especially through climate finance instruments, and participation in global negotiations to monetize global ecosystem services and receive fair compensation. Priority recommendations and policy implications based on the NCA results are presented in Table O.6.

**Figure O.12 Land Use Changes of the Forest Transition**



Source: Barbier et al (2010)

# 2

**INVEST IN AND INSTITUTIONALISE NATURAL CAPITAL ACCOUNTING:** Natural capital accounting processes need to be institutionalized as a valuable tool in planning and decision support, to continue to improve ecosystem accounting over time. This will require strengthening national institutional capacity, data collection, and statistics.

Robust forest ecosystem accounts contribute to better reflecting the contribution of forests to the economy and to a better understanding of how economic activities affect forest natural wealth. The reliability and success of natural capital accounts is premised on the availability of good quality data. Therefore, it is important to enhance the availability and quality of national data in Congo Basin forest countries. In order to maximize the usefulness of the ecosystem accounts, the Congo Basin Forest countries need to embed NCA within national statistics and planning institutions. This helps to ensure the institutionalization of data-systems that are cyclically updated, including data relating to ecosystem extent and condition, timber statistics, population census data, agricultural productivity, fuelwood collection, and rates of electrification so that these can be used effectively in combination with high quality global datasets to continue improving the accuracy and utility of the accounts. Over time, the natural capital accounts can be extended to other ecosystems (including coastal areas, croplands) and other sectors (e.g. water)



In the intermediate term, each country should take incremental steps toward institutionalizing natural capital accounting, such as assigning 2–3 personnel from the National Institute of Statistics to focus on this work, gradually increasing the associated budget and activities, and establishing a dedicated project unit for ecosystem and natural capital accounts. It is also vital to allocate resources to build technical and institutional capacity for continuous data collection, processing, and use in policymaking. As NCA provides a mechanism to integrate nature into economic planning and link environmental and economic policy, it is important to involve key institutions such as the Ministries of Finance, Environment, and Agriculture. Organizing targeted activities or follow-up analyses that demonstrate the policy relevance of the accounts will also help build institutional buy-in and ensure sustained commitment.

### 3

**MAINSTREAM FOREST VALUES IN POLICY AND DEVELOPMENT PLANNING:** Forest values and their relevance need to be fully understood across all sectors and considered in national and sectoral policy and planning. Mainstreaming of ecosystem accounting can help inform the Congo Basin Forest countries' national and sectoral planning and policy decisions for smarter growth.

These accounts have shown that forests not only support forestry production but also provide a wider range of benefits across multiple sectors. Sediment retention services reduce the operational costs of the water and electricity sectors, while global climate regulation helps to curb climate change, lowering risks and costs associated with shifts in temperature and rainfall, as well as the increasing frequency of climate-related natural disasters. Forests also support the health and well-being of thousands of households by providing resources for shelter and food, clean water supply, and medicinal plants – representing significant savings for both households and the health, housing, and social welfare sectors.

However, increasing pressure from mining, infrastructure, agriculture and charcoal production is accelerating forest degradation and shifts toward human-transformed landscapes. Ecosystem accounting provides critical spatial data to identify where these pressures are highest and where ecosystem services are most valuable. This information can guide integrated land-use planning, helping countries balance development with conservation. Strategic planning of infrastructure and better planning in sectors like mining, agriculture, and urban expansion can reduce unintended forest loss. Improved alignment of national and sectoral policies can strengthen sustainable development. Consequently, the cross-sectoral coordination and the use of spatial ecosystem data for integrated land-use planning, especially to protect high-value forest areas from degradation (e.g., forest edges, near roads and cities) and restore degraded areas.

### 4

**TAKE ACTION TO MONETIZE AND INCENTIVIZE ECOSYSTEM SERVICES FOR SUSTAINABLE DEVELOPMENT:** Much of the value of forest ecosystem services remains unrealized, particularly in the case of regulating services. This presents significant opportunities to grow the region's wealth and sustain increasing asset values per capita.

This study highlights that the Congo Basin's forests provide substantial ecological and climate regulation benefits, not only for the region but also globally. Yet, despite their critical role, forests do not contribute meaningfully to economic growth. This is a missed opportunity, especially considering that countries are seeking to diversify their economies to build more resilient development pathways. There is an opportunity to better monetize the value of these forests through a combination of domestic policy instruments and global financing mechanisms. Opportunities such as carbon and biodiversity credits, payments for ecosystem services, and REDD+ offer pathways to generate revenue while protecting critical ecosystem functions.

Given that carbon retention accounts for most of the estimated asset value, the findings strongly highlight the global interest in maintaining standing forests in the Congo Basin. This presents a clear opportunity for the international community, both public and private, to invest in conservation efforts through climate finance mechanisms. Even a modest investment, representing a small fraction of the total estimated carbon value, could provide highly cost-effective returns in terms of avoided emissions and global climate benefits.

Beyond international mechanisms, innovative domestic financing tools, such as green bonds, sustainability-linked debt instruments, and tax incentives for conservation, could be developed. It is also vital to promote systems for payments for ecosystem services to create incentives for forest protection. These can support the policy actions to foster sustainable utilization of forests through higher value addition to support the national economy while minimizing the pressure on forests.

## 5

**FOSTER REGIONAL COOPERATION AND KNOWLEDGE EXCHANGES TO SUPPORT SUSTAINABLE FOREST MANAGEMENT:** The Congo Basin Forest countries should deepen regional coordination by through regional processes, including COMIFAC, Climate Commission for Congo Basin, and other initiatives for improving forest ecosystem accounts and forest data sharing and joint monitoring, and collaboratively managing transboundary landscapes.

A harmonized regional approach can enhance policy alignment, enable joint programming, and expand access to climate and carbon finance. Coordinated positions in international forums, coupled with South-South knowledge exchange, will amplify the region's voice and accelerate progress toward common environmental and development goals.

## 6

**PRIORITIZE INTEGRATED LAND USE PLANNING TO FOSTER SUSTAINABLE FOREST MANAGEMENT AND ECONOMIC DEVELOPMENT:** Adopt integrated land-use planning that protects high-risk forest areas, restores degraded lands, and balances agricultural expansion with forest conservation.

To support forest-friendly and sustainable development in the Congo Basin, countries should prioritize integrated land-use planning that protects high-risk forest areas, restores degraded lands, and balances agricultural expansion with forest conservation through agroforestry and climate-smart practices. Strengthening local and regional planning using forest ecosystem data will help safeguard intact forests and guide restoration efforts. Economic development should be rooted in sustainable forest-based sectors such as certified timber, non-timber forest products (NTFPs), and eco-tourism, which create jobs while preserving natural ecosystems. To improve food and water security, efforts must focus on reducing slash-and-burn agriculture, restoring erosion-prone areas, managing watersheds, and mapping sediment flows. Wildlife conservation can be supported by reducing bushmeat reliance and promoting alternative protein sources. Finally, expanding access to clean energy and improving sustainable fuelwood and charcoal supply chains, especially near urban areas and population centers, will help reduce pressure on forests and improve rural livelihoods. Collectively, these actions will advance inclusive growth, forest conservation, and long-term resilience across the region.



## 7

**LEVERAGE CLIMATE FINANCE AND CARBON MARKET OPPORTUNITIES TO SUPPORT SUSTAINABLE FOREST ECONOMY:** Advance readiness and capacity to attract global climate and carbon financing through innovative mechanism to incentives the protection of standing forests and payments for carbon emissions reductions and removals from restoring degraded forests.

To unlock the full potential of the Congo Basin's forests for sustainable development, countries must advance readiness and capacity to access global climate and carbon finance through innovative mechanisms that incentivize the protection of standing forests and reward emissions reductions and removals from forest restoration. This requires building robust technical and legal systems to participate effectively in carbon and biodiversity credit markets, such as enhancing measurement, reporting, and verification (MRV) systems, establishing transparent registries, and improving regulatory frameworks. NCA data should guide the identification of priority areas and support the design of credible project pipelines for carbon finance, emphasizing measurable ecosystem benefits. Financing instruments such as REDD+, performance-based payments, and green bonds present opportunities to monetize climate regulation services and attract both public and private investment. In parallel, countries should strengthen domestic resource mobilization through fiscal tools—like carbon taxes and timber levies—to support forest conservation and green growth. Innovative mechanisms such as sustainability-linked bonds and loans can further align economic incentives with environmental performance. To ensure long-term success and social equity, benefit-sharing systems must be transparent and inclusive, enabling local communities to share in the economic value generated from ecosystem service markets and conservation efforts.



Table O. 6 Priority Recommendations based on the Forest Ecosystem Services Assessment

| POLICY DIRECTION                                                                                | RECOMMENDATION                                                     | KEY ACTIONS AND PRIORITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) <b>NCA INSTITUTIONALIZATION AND INTEGRATION INTO PLANNING</b>                                | i) <b>Enhance National Data Availability and Quality</b>           | <ul style="list-style-type: none"> <li>Invest in national forest inventories, household surveys (fuelwood, bushmeat, NTFPs), biodiversity monitoring, and high-resolution land-use/land-cover mapping</li> <li>Regularly collect and harmonize data across Environment, Forestry, Energy, Agriculture sectors.</li> <li>Improve data on informal forest resource use to capture comprehensive ecosystem service values.</li> <li>Establish formal data-sharing protocols across ministries/agencies to enhance collaboration and reduce duplication.</li> </ul>                                                                                                               |
|                                                                                                 | ii) <b>Institutionalize Forest Ecosystem Accounts</b>              | <ul style="list-style-type: none"> <li>Designate a national lead agency (e.g., National Statistics Office or Ministry of Planning) to coordinate NCA efforts</li> <li>Create a dedicated NCA unit within the national statistics system responsible for dataset management and periodic updates (every 5–10 years).</li> <li>Build technical capacity through training, partnerships with regional bodies (COMIFAC, Africa NCA-COP), and sustained knowledge retention.</li> <li>Expand NCA scope beyond forests to include wetlands, coastal areas, grasslands for a holistic ecosystem view</li> </ul>                                                                      |
|                                                                                                 | iii) <b>Mainstream Forest Ecosystem Accounts into Policymaking</b> | <ul style="list-style-type: none"> <li>Embed forest NCA data into national development, sectoral strategies, energy, and rural development plans</li> <li>Incorporate NCA-based indicators (e.g., Adjusted Net Savings (ANS), Adjusted Net National Income (ANNI)) in macroeconomic assessments</li> <li>Develop spatial decision-support tools and dashboards to guide policy and subnational resource allocation.</li> <li>Introduce green fiscal reforms like eco-taxes and subsidies based on NCA spatial-economic data.</li> </ul>                                                                                                                                       |
| 2) <b>Integrated land use planning, sustainable forest management, and economic development</b> | i) <b>Strengthen integrated Land-Use Planning</b>                  | <ul style="list-style-type: none"> <li>Strengthen land-use zoning, legal enforcement, watershed management, and cross-sectoral coordination, especially at provincial levels</li> <li>Control pressures from agriculture, road expansion, artisanal logging, land speculation</li> <li>Enhance sub-national land-use planning to safeguard intact forests and prioritize the restoration of degraded areas, guided by results from subnational forest ecosystem extent and condition accounts.</li> <li>Link forest protection with urban energy policies to reduce fuelwood dependence</li> <li>Regulate bushmeat extraction; promote alternative protein sources</li> </ul> |



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|                                                                              | <b>ii) Promote sound (forest-smart) economic diversification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Promote forest-smart economic diversification: certified timber, NTFPs, eco-tourism</li> <li>Support private sector engagement with green finance, technical training, market access, incentives (tax exemptions, preferential procurement)</li> <li>Empower forest communities through secure land tenure, participatory planning, benefit sharing</li> <li>Strengthen enforcement, satellite-based and community forest monitoring systems</li> <li>Promote climate-smart agriculture, agroforestry, and erosion control in sediment-sensitive catchments.</li> </ul> |
|                                                                              | <b>iii) Ensure energy security</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Expand access to clean energy (LPG, electricity) and clean cooking technologies in rural and urban areas</li> <li>Support sustainable fuelwood harvesting and improved charcoal production with managed supply zones near urban centers</li> <li>Use NCA data to target interventions in high biomass-reliance zones to expand clean energy access</li> </ul>                                                                                                                                                                                                           |
| <b>3) Leverage climate finance and monetize forest ecosystem services</b>    | <ul style="list-style-type: none"> <li>Build technical and legal readiness for carbon and biodiversity credit markets: strengthen MRV systems and transparent registries</li> <li>Use NCA data to develop pipelines for climate finance projects (REDD+, performance-based payments, green bonds) targeting priority restoration/conservation zones.</li> <li>Mobilize domestic resources via fiscal instruments: carbon taxes, timber extraction fees, eco-compensation</li> <li>Explore innovative finance instruments: sustainability-linked loans and bonds to incentivize forest protection.</li> <li>Ensure equitable benefit-sharing to local communities for ecosystem service markets</li> <li>Maintain High Forest Low Deforestation (HFLD) status with enhanced monitoring, enforcement, transparent governance</li> <li>Foster international partnerships and co-financing for large-scale projects.</li> </ul>                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>4) Future research and outreach to enhance and advance NCA priorities</b> | <ul style="list-style-type: none"> <li>Expand ecosystem services assessed to include local climate regulation, rainfall generation, water flows, agricultural productivity</li> <li>Quantify cross-border ecosystem service flows (e.g., sediment regulation in Congo Basin) to support regional collaboration (through COMIFAC, CEMAC).</li> <li>Strengthen academic partnerships with universities, think tanks, regional centers for research and capacity building.</li> <li>Assess viable financing options (including innovative and sustainability-linked financing) for sustainable forest management</li> <li>Conduct outreach via media, schools, local assemblies to raise awareness of natural capital values.</li> <li>Incorporate NCA content into national curricula and environmental officer training</li> <li>Support South-South learning through Africa NCA Community of Practice and regional platforms for methodological alignment and policy influence.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |







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