



FIP BIODIVERSITY CO-BENEFITS

An in-depth analysis of the biodiversity results of the FIP portfolio, examined by modalities of conservation, protection, and restoration

// June 2023

RESULTS DEEP DIVE SERIES//

CIF Program: Forest Investment Program (FIP)

TOPICS

- Results and Impact
- Sustainable Forests
- Nature

BIODIVERSITY RESULTS¹



Natural Regeneration **+** Enrichment and active regeneration of degraded forests **+** Processes for land use planning and protection

Restoring Native Vegetation



Deterrence of illegal poaching and logging **+** Protection against forest encroachment and degradation **+** Prevention and control of forest fires

Countering Threats to Biodiversity



Forest-conducive cocoa landscapes **+** Community-driven reforestation via agroforestry **+** Processes for land use planning and protection

Promoting Sustainable Agroforestry and Silvopastoral Systems



FOREST INVESTMENT PROGRAM

CIF approved funding
\$598 Mn

Co-financing
\$1.165 Bn



Approx. 73.5 Mn to 127.8 Mn ha declared as protected to support biodiversity



27.7 Mn MtCO2 eq GHG emissions reduced

ACKNOWLEDGMENTS

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RESULTS DEEP DIVE SERIES

The Climate Investment Funds (CIF) is committed to rigorous and inclusive monitoring and reporting (M&R) on investments' contributions toward net-zero emissions and adaptive, climate-resilient, just, and socially inclusive development pathways. The M&R Results Deep Dive series is a supplement to CIF's annual results reports — while annual M&R provides a systematic synthesis of portfolio performance against each program's core indicators, the Deep Dives provide in-depth reviews of these results within specific thematic or developmental dimensions of climate change. As such, they offer greater granularity on the drivers and implications of various performance characteristics.

1. INTRODUCTION

This Results Deep Dive examines the biodiversity co-benefits achieved by the Forest Investment Program (FIP), a dedicated investment vehicle within the Climate Investment Funds (CIF). As of December 2022, FIP's committed portfolio entailed US\$598 million of own-account debt and equity investments, complemented by US\$1.165 billion of public and private co-financing, aimed at reducing GHG emissions from deforestation and forest degradation, and enhancing forest carbon stocks. FIP's two primary co-benefit objectives are (1) to reduce poverty by improving the quality of life of forest-dependent Indigenous peoples and forest communities; and (2) to reduce biodiversity loss and increase the resilience of forest ecosystems to climate variability and change.



Forest antelope in the Congo Basin

Within this frame, FIP deploys a multitude of sustainable forest management practices that, in tandem, also center on forest and forest-adjacent habitants' adaptation to the impacts of climate change. Among others, the practices enhance the human-forest nexus, such that dividends accrue toward both human development and wildlife preservation. For the conservation of biodiversity, FIP focuses on rehabilitating and reconnecting forest tracts to reduce ecosystem fragmentation, and on buttressing conservation efforts that increase the numbers and diversities of inhabitant species.² This case study examines the resultant impacts via three thematic intervention areas:



Restoring native vegetation

through vegetation enrichment and assisted natural regeneration that fosters healthy and resilient ecosystems



Countering threats to biodiversity

through prevention and control of forest fires; deterrence of illegal poaching and logging; and enhancement of legal and community forest protection



Promoting sustainable agroforestry (AFS) and silvopastoral (SPS) systems

through transforming forest-encroaching agricultural or livestock livelihoods into forest-integrated and forest-synergistic production systems

2. OVERVIEW OF RESULTS

FIP's combined utilization of a broad suite of forest management approaches has proven effective in generating country-level, systemic shifts in the approaches to increase forest cover that also support greater biodiversity. Actualization of results at the community/ground-level have been best achieved via alliance and coaction with national/policy-level actors, and with localized governance structures and sector-specific institutions and agencies, as exhibited in the effectiveness generated

by government-citizen cooperation for the curtailment of illegal poaching and logging (see examples below on Lao PDR, Mozambique and Côte d'Ivoire). Where livelihood activities have encroached on forest habitats, the development of alternate income channels, or forest-synergistic agro-pastoral systems, have proven highly effective when coupled with training and information delivery that enhance communities' capacities to generate and capture biodiversity dividends.



Student participating in tree planting in rural Ghana

3. RESULTS

This section reviews the results, framed within the thematic areas discussed above, of 21³ FIP projects in eight countries.⁴ The chapter examines concrete, project-based action, and analyzes how the solutions responded to economic, environmental, and other contextual drivers of biodiversity loss.

3.1 Restoring Native Vegetation

FIP projects' restoration of native forest flora, while delivered to restore organic carbon sinks, are also designed to enhance conditions for biodiversity—the reconstitution or reconnection of forest patches preserves and/or reestablishes genetic flows; replenishes soil vitality; and reinforces natural watersheds and hydrological pathways. The Deep Dive analyzed nine FIP projects utilizing vegetation restoration as a means to deliver biodiversity outcomes, representing 237,000 hectares (ha)⁵ of forest landscapes rehabilitated by utilizing the following approaches:

Assisted Natural Regeneration (ANR). This is FIP's primary modality for habitat restoration, delivering 193,000 ha of coverage, although the program's wider afforestation and reforestation actions also deliver sanctuaries for biodiversity. ANR is a natural-succession-centric approach to rehabilitation of forest tracts, mainly by mitigating conditions barring the autonomous propagation and maturing of organically occurring saplings.

FIP's ANR interventions have proven to be both a cost effective and non-invasive approach to the reestablishment of endemic flora, drawing on community participation to facilitate the endogenous regeneration of healthy forest

ecosystems. ANR actions in Indonesia, where 30 community groups established 6,000 ha of protected forests on erstwhile woodlands, tracked habitation by native flora and fauna via diversity index assessments. The indices recorded 15 species of flora (including four endangered and four vulnerable) were restored to an “abundant” rating, implying that each can viably regenerate with or without human intervention, and over 20 species of fauna (including the vulnerable-classified flying lemur and the critically vulnerable Bornean orangutan) have been recorded to settle in the area.

INDONESIA: ASSISTED NATURAL REGENERATION



6,000 ha
of protected forests
reestablished



30
community groups
engaged



15 species
of flora restored to
an abundant rating



20 species
of fauna settled
in the area, incl.
orangutan

The ANR of 172,000 ha in the Democratic Republic of Congo (DRC) focused primarily on community-driven curtailing of bushfires for forest and savanna reestablishment, subsequently recording the return of antelope, squirrels, cane rats, and other wildlife to restored landscapes, alongside communities reporting improved air quality and rainfall in the intervention areas.

In nascent conservation contexts, institutional reinforcement, and community buy-in remain crucial

for the longer-term preservation of restorative arrangements. Lao PDR's ANR of 3,540 ha of forests, designed specifically to restore biodiversity corridors and ecosystem services, was coupled with institutional and community capacity building, and the development of (1) participatory village land use planning; (2) village development plans; and (3) conservation agreements as means to reduce habitat loss due to human activity.

ANR activities in Côte d'Ivoire have rewilded 557 ha of reclaimed illegal gold panning sites with the support of community-driven fire protection and encroachment surveillance. More details follow in section 3.2.

Enrichment and active regeneration of degraded forests. In Ghana and Côte d'Ivoire, restoration of degraded woodland habitats has included the establishment of community-managed forest plantations; the deterrence of slash-and-burn agriculture; community-driven prevention of forest fires; legalized protections for classified forests and timber trees; and the development of non-forest extractive, alternate livelihoods. In Ghana, areas less suitable for teak plantations and buffer zones along water streams were reforested with endemic genera and endangered native tree species, with aims to transform the open savannas into dense forest ecosystems that are able to support the restocking of endangered fauna. The project has planted 9,000 ha, of which 2,000 ha included the reinstatement of indigenous species, and from Ghana, a forest plantation entity supported by the FIP, has received certification for sustainable management of over 3,300 ha from the Forest Stewardship Council, and 7,200 ha from Verified Carbon Standards.

FIP in DRC has coupled enrichment of 2,913 ha of degraded forest lands with community planting of fast-growing tree species via Payment for Ecosystem

Services, or PES arrangements — a dual-purpose, reforestation and poverty reduction measure, akin to conditional cash transfers — with local populations since observing the return of wildlife.

Formalized processes for land use planning and protection. The formal demarcation and declaration of priority reforestation areas is a crucial fortifier when enforcing protections, advancing the deterrence, monitoring, and indictment of human encroachment. In Brazil, strengthening implementation of the Rural Environmental Registry (Cadastro Ambiental Rural; CAR) — a self-declaratory registry of landholdings and land use — has allowed for a legalized earmarking of areas for forested biodiversity conservation within rural landscapes, and for the identification and designing of connectivity corridors between forest patches. Through this support for the CAR as an instrument to apply Brazil's Forest Code, FIP has contributed to the registration of approximately 72.5 million ha to 126.8 million ha in the Cerrado Biome as permanent preservation areas or legal reserves.⁶ Within the actions of a parallel project in Brazil's Cerrado Biome, land-use planning and training measures delivered to landowners have produced conservation and restoration practices on 10,843 ha, and landscape management carried out by 1,000 farmers.

BRAZIL'S CERRADO: FIP RURAL LANDSCAPES PROJECT⁷ AND FIP CAR PROJECT⁸



10,843 ha

where conservation or restoration practices were adopted



72.5 - 126.8 Mn ha

at least 20% of landholding area registered as protected

3.2 Countering Threats to Biodiversity

FIP activities have focused on three primary anthropogenic threats to biodiversity: (1) wildlife poaching and trading, (2) forest encroachment and degradation, and (3) the uncontrolled spread of forest fires — each exacerbated by weak governance measures and a lack of policy coordination. As such, FIP projects combine action at the downstream (local community) levels, with reforms and/or reinforcement at the upstream (government institution) levels, thereby strengthening conditions for across-the-board endorsement, monitoring, and enforcement of conservation legislation. Across FIP projects, approximately 73.5 to 127.8 million ha⁹ have been formally declared as protected to support biodiversity, and 219,000 ha¹⁰ received enhanced protection from patrols and other measures.



Village near Vang Vieng, Lao PDR

Institutionalization and institutional effectiveness.

Within the governance sphere, the establishment of operational protocols and monitoring systems has enhanced institutional agency, capacity, and buy-in for ecosystem management. In Mozambique and Côte d'Ivoire, the strengthening of existing governance and surveillance mechanisms of forest law enforcement institutions has expanded and accelerated the enactment of ecosystem protections, curtailing illegal logging (i.e., seizing wood and banning, eliminating, and relocating 22 forest operators in 47 forest concessions), and preventing illegal mining and poaching (i.e., apprehending 22 gold panners and 11 poachers). Biodiversity conservation actions in Côte d'Ivoire also included the erection of boundary girding to separate forest complexes from the rural environment, with 48 kilometers (km) of wire fencing constructed to prevent encroachment, poaching, charcoal burning, gold panning and human-wildlife conflicts, and 6km of electrified lines erected for the quarantining of elephants.

Behavior change, community action, and self-sustainability.

With the support of the aforementioned procedural formalizations of institutional ratifications, at the community level, village patrols have contributed to the decrease of biodiversity threats, with the training and outfitting of civilian inspection units serving to increase the spatial reach and effectiveness of monitoring and mitigation. In Lao PDR, the deployment of an Operational Logging and Forest Degradation Monitoring System within the provincial and district agriculture and forestry offices resulted in the organization and training of 17 village patrol teams. These units act as extension agents in the reduction of environmental crimes related to forest destruction, forest degradation, and wildlife poaching over an expanded coverage area of 80,000 ha.

In Côte d'Ivoire, the reach of institutional surveillance teams has been augmented via the mobilization of community patrol missions, with 30 village auxiliaries enlisted from forest-adjacent locales. In such cases, the effective and recipient-relevant bolstering of community agency may contribute to multiplier, spillover, and sustainability effects. The Community Forest Fire Brigades — established, trained, and equipped to reduce and/or suppress anthropogenic fires in Indonesia's Danau Sentarum National Park — have expanded their reach well beyond the project's jurisdiction. Currently, the brigades protect additional forest tracts equivalent to 350 percent of the intervention's target region, covering a total of 430,000 ha.

3.3 Promoting Sustainable Agroforestry and Silvopastoral Systems

Agroforestry (AFS) and silvopastoral (SPS) systems are forest-integrated and ecosystem-synergistic production systems, which allow for continued and/or enhanced food security and income generation in forest zones, while delivering a range of biodiversity-augmenting benefits, namely, increased diversity of vegetation, greater soil fertility, and decreased thermal stresses for wildlife. The 216,500 ha¹¹ brought under AFS and SPS by the FIP utilize a range of tailored and often overlapping approaches:

Forest-conducive cocoa landscapes. In Ghana and Côte d'Ivoire, two of the world's leading cocoa producers, shifting cultivation had resulted in drastic reforestation rates. Therefore, FIP actions in these countries have sought, in tandem, to protect and reestablish forest habitats, while increasing the productivity, carbon density, and ecological vitality of agricultural tracts. The establishment of yield-increasing agroforestry has been supported by the provision of well-suited forest-tree seedlings for trees' integration in and ecological diversification of

cocoa landscapes. In addition, the provision of high-yielding and/or shade-preferential seed varieties for cultivation, and of training and resources for organic soil enrichment, has strengthened agroforestry systems. Approximately 80,000 ha in Ghana and 22,700 ha in Côte d'Ivoire are now hosting synergistic, agroforest ecosystems.



Farmer in Mozambique

Community-driven reforestation via agroforestry. Delivered to reestablish plant growth on degraded forest tracts, or increase species' diversity on agricultural tracts, the 2,500 ha of agroforestry in Indonesia has included the introduction of fast-growing, forest tree species, alongside income-yielding rubber and fruit trees, as well as the intercropping of coffee, vegetables, and food crops. This has resulted in direct and indirect income generation for over 6,800 beneficiaries, incentivizing participation in the reforestation action.

Curtailling forest encroachment via agroforest soil enrichment. In the establishment of agroforests in Mozambique, the provision of soil-fertilizing seedlings (i.e., leguminous crops, fruit trees, and nitrogen-fixing flora) was aimed explicitly at extending the productive lifespans and regenerative capacities of agricultural plots, thereby deterring previous plot-migratory practices by commercial farmers, wherein iterant expansions and relocations toward areas of unexploited soil fertility resulted in

slash-and-burn encroachment on forest habitats. Seven thousand two hundred ha of agroforests have been established thus far, assuring long-term land fixtures for 3,100 local producers.

In DRC, the 24,500 ha of agroforest¹² were also aimed at increasing the productivity and ecological capital of agricultural tracts, encouraging sedentism of agricultural populations, and thereby abating the incineration of forests resulting from shifting

cultivation. The fertility of degraded savanna soils was restored via the introduction of targeted enrichment crops (e.g., maize, yam, cassava, etc.), alongside technical assistance to ensure uptake and continuity among farmers. One such intervention, establishing 3,700 ha of acacia plantation forests on degraded woodlands, has since exhibited a radical shift in habitat health, transforming savannas to forests, and supporting fertilizing fauna such as caterpillars, and roving wildlife such as antelopes.



Plant nursery in Ghana

4. CHALLENGES AND CONSIDERATIONS

Conserving biodiversity is a complex endeavor that requires coordinated action via multipronged initiatives that, in tandem, tackle the socioeconomic and environmental issues that are highly intertwined with maintaining and restoring natural capital. Across the three thematic areas selected, this Results Deep Dive highlights the heterogeneity of the approaches required to deliver and sustain biodiversity restoration. Similarly, the resultant assessment methodologies required for understanding project contributions are heterogeneous and require considerations of

species composition; changes to the richness of species; the reduction of forest fragmentation; improvements in the conditions for reduced genetic isolation; improved connectivity; and a better understanding of how interactions at the forest-edge of fragmented landscapes can affect species' survival. FIP and other CIF programs continue to work toward robustness and effectiveness by deepening knowledge generation through analysis of more diverse, detailed, and far-reaching sources of evidence.



Forest in Berekum, Ghana

ENDNOTES

- 1 Obtained by the Forest Investment Program in eight countries - Brazil, Burkina Faso, Côte d'Ivoire, Democratic Republic of Congo, Ghana, Mozambique, Indonesia and Lao PDR.
- 2 Climate Investment Funds. 2011. Forest Investment Program Results Framework. <https://www.cif.org/resource-collections/integrated-results-frameworks/forest-investment-program-results-framework?type=resource>
- 3 The selection of projects reviewed within this Results Deep Dive is based on reference to biodiversity actions within country-level FIP reporting documents, and where related results and information were available within project-level reporting documents.
- 4 Brazil, Burkina Faso, Côte d'Ivoire, Democratic Republic of Congo, Ghana, Mozambique, Indonesia and Lao PDR.
- 5 Based on the following results reported:

ANR: 10,843 ha from Brazil's Integrated Landscape Management in the Cerrado Biome project; 557 ha from Côte d'Ivoire's Forest Investment Program; 171,987 ha from DRC's Improved Forested Landscape Management (IFLMP) project; 6,000 ha from Indonesia's Community Focused Investment to Address Deforestation and Forest Degradation (CFI-ADD+) project; 3,540 ha from Lao PDR's Protecting Forests for Sustainable Ecosystem Services project; 670 ha from Mozambique Forest Investment Project (MozFIP).

Restoration: 14,185 ha from Brazil's Integrated Landscape Management in the Cerrado Biome project; 3,027 ha from Burkina Faso's Gazetted Forests Participatory Management Project for REDD+ (PGFC/REDD+); 2,004 ha from Côte d'Ivoire's Forest Investment Program project; 2,913 ha from DRC's Integrated REDD+ Project in the Mbuji-Mayi/Kananga and Kisangani Basins project; 12,944 ha from Ghana's Enhancing Natural Forest and Agroforest Landscapes Project; 5,053 ha from Engaging Local Communities in REDD+ /Enhancement of Carbon Stocks project; 369 ha from Ghana's Country Report; 1,880 ha from Indonesia's Community-Focused Investments to Address Deforestation and Forest Degradation (CFI-ADD); 411 ha from Lao PDR's Protecting Forests for Sustainable Ecosystem Services project; 306 ha from the Mozambique Forest Investment Project (MozFIP).
- 6 The CAR project covers properties in the Cerrado Biome, both within and outside the administrative region of Legal Amazon. According to Article 12 of the Brazilian Forest Code, at least 35% of the area of each rural property that falls within Brazil's Legal Amazon and carries cerrado vegetation, and 20% of the area of each rural property in the rest of the Cerrado Biome, must be protected as Legal Reserves (RLs) or Areas of Permanent Protection (APP). This estimated range is derived from the 20% and 35% protection parameters for rural properties registered under the CAR for the Cerrado Biome in these respective regions. See: http://www.planalto.gov.br/ccivil_03/ato2011-2014/2012/lei/l12651.htm
- 7 Integrated Landscape Management in the Cerrado Biome
- 8 Environmental Regularization of Rural Lands in the Cerrado of Brazil
- 9 Based on the following results reported: approximately 72,460,000 ha to 126,805,000 ha from the Environmental Regularization of Rural Lands in the Cerrado of Brazil project; 153,761 ha from Burkina Faso's Decentralized Forest and Woodland Management project and Gazetted Forests Participatory Management Project for REDD+; 76,000 ha from Côte d'Ivoire's Forest Investment Project Phase 2; 832 ha from Ghana's Engaging Local Communities in REDD+/Enhancement of Carbon Stocks project; 18,172 ha from Indonesia's Community-Focused Investments to Address Deforestation and Forest Degradation.
- 10 Based on results reported including 18,172 ha from Indonesia's Community-Focused Investments to Address Deforestation and Forest Degradation(CFI-ADD+) as reported in the country report; 80,000 ha from Lao PDR's Protecting Forests for Sustainable Ecosystem Services project.
- 11 Based on the following results reported: 26,645 ha from Burkina Faso's Climate Change Mitigation and Poverty Reduction through the Development of the Cashew Sector in Burkina Faso (Wouol project) as reported in the country report; 2,000 ha from Brazil's Macauba Palm Oil in Silvicultural System project; 22,719 ha from Côte d'Ivoire's Forest Investment Project as reported in the country report; 21,494 ha from DRC's Landscape Management project and 3,073 ha from the Integrated REDD+ Project in the Mbuji-Mayi/Kananga and Kisangani Basins project; 131,005 from Ghana's Engaging Local Communities in REDD+/Enhancement of Carbon Stocks project; 2,551 ha from Indonesia's Community-Focused Investments to Address Deforestation and Forest Degradation (CFI-ADD+) project and Promoting Sustainable Community-Based Natural Resource Management and Institutional Development project; 7,195 ha from the Mozambique Forest Investment Project (MozFIP).
- 12 Based on the following results reported: 3,073 ha from the Integrated REDD+ Project in the Mbuji-Mayi/Kananga and Kisangani Basins project, and 21,494 ha from the Improved Forested Landscape Management Project.

THE CLIMATE INVESTMENT FUNDS

The Climate Investment Funds (CIF) is one of the largest multilateral climate funds in the world. It was established in 2008 to mobilize finance for low-carbon, climate-resilient development at scale in developing countries. Fifteen contributor countries have pledged over US\$11 billion to the funds. To date CIF committed capital has mobilized more than \$64 billion in additional financing, particularly from the private sector, over 70 countries. CIF's large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. It tests new business models, builds track records in unproven markets, and boosts investor confidence to unlock additional sources of finance. Recognizing the urgency of CIF's mission, the G7 confirmed its commitment to provide up to \$2 billion in additional resources for CIF in 2021.



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