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Report No: ICR00090

IMPLEMENTATION COMPLETION AND RESULTS REPORT

IDA CREDIT 60380, GEF TF A4646, AND BIOCARBON FUND INITIATIVE FOR SUSTAINABLE FOREST LANDSCAPES TF A4645

ON A

CREDIT

IN THE AMOUNT OF SDR 12.6 MILLION
(US$17 MILLION EQUIVALENT)

AND A GLOBAL ENVIRONMENTAL FACILITY GRANT
IN THE AMOUNT OF US$8.05 MILLION

AND A GRANT FROM THE BIOCARBON FUND
IN THE AMOUNT OF US$7.75 MILLION

TO THE
REPUBLIC OF ZAMBIA

FOR THE
ZAMBIA INTEGRATED FOREST LANDSCAPE PROJECT
August 26, 2024

Agriculture and Food
Eastern And Southern Africa

CURRENCY EQUIVALENTS

(Exchange Rate Effective July 31, 2024)

Currency Unit =	Zambian Kwacha (ZMW)
ZMW26.08 =	US$1
US$1.33 =	SDR 1

FISCAL YEAR
January 1 - December 31

Regional Vice President:	Victoria Kwakwa
Country Director:	Nathan M. Belete
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ABBREVIATIONS AND ACRONYMS

BioCF	BioCarbon Fund
BSP	Benefit-Sharing Plan
CFMA	Community Forest Management Agreement
CFMG	Community Forest Management Group
COMACO	Community Markets for Conservation
CPF	Country Partnership Framework
CSA	Climate-Smart Agriculture
EFA	Economic and Financial Analysis
ENPV	Economic Net Present Value
EP	Eastern Province
EP-JSLP	Eastern Province Jurisdictional Sustainable Landscape Project
ERPA	Emission Reduction Purchase Agreement
ERPD	Emission Reduction Program Document
ERR	Economic Rate of Return
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EX-ACT	Ex-Ante Carbon-Balance Tool
FBCR	Financial Benefit/Cost Ratio
FD	Forestry Department
FLIS	Farmer-Led Irrigation Schemes
FNPV	Financial Net Present Value
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GMP	General Management Plan
GPS	Global Positioning System
GRZ	Government of the Republic of Zambia
HFO	Honorary Forest Officer
ICR	Implementation Completion and Results Report
IRR	Internal Rate of Return
ISFL	Initiative for Sustainable Forest Landscapes
ISFM	Integrated Soil Fertility Management
ISR	Implementation Status and Results Report
LF	Lead Farmer
M&E	Monitoring and Evaluation
METT	Management Effectiveness Tracking Tool

MGEE	Ministry of Green Economy and Environment
MRV	Measurement, Reporting, and Verification
MTR	Midterm Review
NPV	Net Present Value
PAD	Project Appraisal Document
PDO	Project Development Objective
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
SCD	Systematic Country Diagnostic
SCF	Standard Conversion Factor
SESA	Social and Environmental Safeguards Assessment
SNDP	Sixth National Development Plan
ToC	Theory of Change
WOP	Without Project
WP	With Project
ZIFLP	Zambia Integrated Forest Landscape Project

TABLE OF CONTENTS

DATA SHEET

BASIC DATA

Product Information

Operation ID	Operation Name
P161490	Zambia Integrated Forest Landscape Project
Product	**Operation Short Name**
Investment Project Financing (IPF)	Zambia Integrated Forest Landscape
Operation Status	**Approval Fiscal Year**
Closed	2017
Original EA Category	**Current EA Category**
Partial Assessment (B) (Approval package - 04 May 2017)	Partial Assessment (B) (Restructuring Data Sheet - 12 SEP 2022)

CLIENTS

Borrower/Recipient	Implementing Agency
Republic of Zambia	Eastern Province Provincial Administration, Ministry of Green Economy and Environment

DEVELOPMENT OBJECTIVE

Original Development Objective (Approved as part of Approval Package on 03-May-2017)

To improve landscape management and increase environmental and economic benefits for targeted rural communities in the Eastern Province and to improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency.

FINANCING

Financing Source	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing	17,000,000.00	17,000,000.00	17,367,663.67
IDA-60380	17,000,000.00	17,000,000.00	17,367,663.67
World Bank Administered Financing	15,800,458.00	15,800,458.00	15,800,458.00
TF-A4646	8,050,458.00	8,050,458.00	8,050,458.00
TF-A4645	7,750,000.00	7,750,000.00	7,750,000.00
Total	**32,800,458.00**	**32,800,458.00**	**33,168,121.67**

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Type	Amount Disbursed (US$M)	Key Revisions
20-Jun-2022	Portal	22.64	• Components • Reallocations • Other Changes
12-Sept-2022	Portal	22.97	• Components • Disbursement Estimates • Loan Closing Date Extension • Reallocations

KEY DATES

Key Events	Planned Date	Actual Date
Concept Review	05-Oct-2015	05-Oct-2015
Decision Review	12-Jan-2017	17-Jan-2017
Authorize Negotiations	22-Mar-2017	20-Mar-2017
Approval	04-May-2017	04-May-2017
Signing		13-Sept-2017
Effectiveness	30-Jan-2018	30-Jan-2018
ICR/NCO		26-Aug-2024
Restructuring Sequence.01	Not Applicable	20-Jun-2022
Restructuring Sequence.02	Not Applicable	12-Sept-2022
ICR Sequence.01 (Final)	--	25-Aug-2024

Operation Closing/Cancellation	29-Feb-2024	29-Feb-2024

RATINGS SUMMARY

Outcome	Bank Performance	M&E Quality

ISR RATINGS

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	23-Oct-2017	Satisfactory	Satisfactory	0.00
02	09-May-2018	Satisfactory	Satisfactory	1.72
03	08-Nov-2018	Satisfactory	Satisfactory	3.59
04	20-May-2019	Satisfactory	Satisfactory	5.44
05	07-Nov-2019	Moderately Satisfactory	Moderately Satisfactory	9.27
06	18-May-2020	Moderately Satisfactory	Moderately Satisfactory	11.86
07	21-Sept-2020	Moderately Satisfactory	Moderately Satisfactory	13.15
08	31-Mar-2021	Moderately Satisfactory	Moderately Unsatisfactory	15.33
09	28-Oct-2021	Moderately Satisfactory	Moderately Unsatisfactory	17.32
10	02-May-2022	Moderately Satisfactory	Moderately Satisfactory	21.16
11	27-Jul-2022	Moderately Satisfactory	Moderately Satisfactory	22.97
12	05-Dec-2022	Moderately Satisfactory	Moderately Satisfactory	24.82
13	28-Jun-2023	Moderately Satisfactory	Moderately Satisfactory	28.17
14	18-Dec-2023	Satisfactory	Moderately Satisfactory	30.98
15	28-Feb-2024	Satisfactory	Moderately Satisfactory	33.17

SECTORS AND THEMES

Sectors

Major Sector	Sector	%	Adaptation Co-benefits (%)	Mitigation Co-benefits (%)

Themes

Major Theme	Theme (Level 2)	Theme (Level 3)	%

ADM STAFF

Role	At Approval	At ICR
Practice Manager	Mark E. Cackler, Magda Lovei	Frauke Jungbluth
Regional Director	Juergen Voegele	Iain G. Shuker
Global Director		Shobha Shetty
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ADM Responsible Team Leader	Ademola Braimoh	Silvia Mauri
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ICR Main Contributor	Easther Chigumira	

I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. At the time of appraisal, Zambia was categorized as a lower-middle-income country with a population of around 16 million. The nation's economic growth averaged 7.4 percent annually from 2004 to 2014, with a gross domestic product (GDP) of US$27.1 billion in 2015, equating to a per capita income of approximately US$1,300. However, by mid-2015, changes in global economic conditions led to a decrease in copper prices, Zambia's primary export, which resulted in economic challenges, including wider fiscal and trade deficits. Domestic issues such as budget deficits, inconsistent rainfall, and increased power outages contributed to a reduction in economic growth. The appreciation of the US dollar also resulted in the devaluation of the Zambian kwacha. The poverty rate in the country was high, with an estimated 54.4 percent of Zambians living in extreme poverty (below US$1.90 per day, purchasing power parity terms), particularly in rural areas.

2. Zambia's environmental challenges included significant deforestation, forest degradation, and encroachment on protected areas, which contributed to high greenhouse gas (GHG) emissions[1] and increased vulnerability to climate change. In 2011, land use, land use change, and forestry accounted for 74% of these emissions, with the energy sector at 23%. From 2001 to 2017, Zambia lost about 2.5 million hectares of forest, releasing approximately 252 MtCO2e. The primary drivers of deforestation and land degradation, especially in the Eastern Province (EP), stem primarily from clearing land for agriculture (mainly maize and cotton), charcoal production, and fuelwood collection. These activities, coupled with poor land use planning, suboptimal management, and limited market access, exacerbate the effects of climate change, including more frequent droughts and floods, which threaten food, water, and energy security for vulnerable populations.

3. At appraisal, the Eastern Province (EP) of Zambia was one of the poorest regions, with a 70% poverty rate and nearly half of its 2.4 million residents lacking year-round food access. Despite its rich natural resources, the province faced severe challenges including climate vulnerability, environmental degradation, and weak economic and institutional structures. The predominantly agricultural economy was threatened by climate change, deforestation, and unsustainable land use, driven by the need for arable land and better incomes. The Zambia Integrated Forest Landscape Project (ZIFLP) targeted EP to encourage sustainable practices and climate-smart agriculture, supported by the BioCarbon Fund Initiative for Sustainable Forest Landscapes (BioCF ISFL) since 2015, leveraging the Luangwa watershed to improve livelihoods, conserve forests, enhance carbon stocks, and protect biodiversity.

Theory of Change (Results Chain)

4. A theory of change (ToC) has been reconstructed (see annex 6), based on the project description of the PAD, as the original in the Project Appraisal Document (PAD) did not adequately capture all impact pathways in the project. The purpose of this reconstruction is to show causality within the project. The ToC suggests that the key objectives of the ZIFLP depend on activities that address sectoral challenges to reduce environmental degradation and enhance livelihoods and incomes in the EP. The investments focus on (a) improving landscape management, (b) increasing environmental benefits for targeted rural communities, and (c) increasing economic benefits for targeted rural communities.

Project Development Objectives (PDOs)

5. To improve landscape management and increase environmental and economic benefits for targeted rural communities in the Eastern Province and to improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency.

[1] According to the latest United Nations Framework Convention on Climate Change report Zambia's GHG emissions amounted to 120 $MtCO_2e$ in 2011, marking a 3 percent increase from the 1990 levels.

Key Expected Outcomes and Outcome Indicators

6. The achievement of the PDO was measured using the following indicators:
   (a) Forest area under sustainable management practices (ha)
   (b) Agricultural area under climate-smart agricultural practices (ha)
   (c) Crop yield increase for selected crops (percentage)
   (d) People in targeted communities with increased monetary and non-monetary benefits (percentage share of which women)

Components

7. The project was designed with four components and further supported from the BioCF ISFL and the Global Environment Facility (GEF).

8. **Component 1: Enabling Environment (appraisal total cost US$6.5 million; actual US$6.25 million).** This component included activities to create conditions for efficient implementation of livelihood investments under Component 2 at both national and provincial levels in addition to enabling an Emission Reduction Purchase Agreement (ERPA) to be signed between the Government of the Republic of Zambia (GRZ) and the World Bank.

9. **Subcomponent 1.1: District and local planning.** This subcomponent aimed to strengthen subnational institutions, develop integrated district plans, and support local planning tools. It included coordinating platforms, providing technical assistance for community-based enterprises, and integrating land use planning. It also engaged agribusiness companies to help smallholder farmers integrate into value chains and meet market demand.

10. **Subcomponent 1.2: Emissions reduction framework.** This subcomponent aimed to facilitate Zambia in qualifying for results-based payments and establish the instruments needed for an ERPA. These activities were financed through a BioCF ISFL grant. The subcomponent focused on creating an emissions baseline and benefit-sharing mechanism to boost emissions reduction accounting. It aimed to enhance land use data, develop an accounting road map, and establish a benefit-sharing mechanism. It also sought to strengthen REDD+[2] technical infrastructure, including a measurement, reporting, and verification (MRV) system for agriculture and forest emissions. Additionally, it supported developing the legal framework for REDD+, including forest management policies and safeguards, and a national Safeguards Information System.

11. **Component 2: Livelihood and low-carbon investments (appraisal total cost US$23 million; actual US$21.8 million).** It aimed to improve rural livelihoods, conserve ecosystems, and reduce GHG emissions. The two subcomponents provided for cross-sectoral planning and activities that retained the landscape perspective.

12. **Subcomponent 2.1: Agriculture and forestry management.** It aimed to increase agricultural productivity, enhance agro and forest ecosystem resilience, reduce GHG emissions, and sequester carbon through a landscape approach. The activities included (a) scaling up of CSA practices and integrated soil fertility management (ISFM); (b) community forest management for local communities to improve natural resource management, create income opportunities, and generate carbon benefits—activities included participatory land and resource use planning, wildfire management, and training on sustainable timber and non-timber production; (c) land tenure and resource rights regularization, a precondition for the adoption of improved agriculture and forestry management; (d) enhanced market access for smallholders and private sector engagement; and (e) community grants for livelihood interventions, for example, CSA and small ruminants or poultry, and access to agro-processing.

13. **Subcomponent 2.2: Wildlife management.** This subcomponent aimed to (a) support the National Protected Area System, to strengthen the protected area system and the development of sustainable wildlife-based national tourism; (b)

[2] REDD stands for "Reducing Emissions from Deforestation and forest Degradation." The "+" signifies the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

promote wildlife management practices to help rural communities benefit from nearby wildlife resources while supporting biodiversity conservation; and (c) strengthen management of protected areas, with a focus on Lukusuzi National Park and Luambe National Park in the EP.

14. **Component 3: Project Management (appraisal total cost US$3.15 million; actual US$4.75 million).** It financed activities related to national- and provincial-level project coordination and management, including annual work planning and budgeting, fiduciary aspects, human resource management, safeguards compliance monitoring, monitoring and evaluation (M&E), impact assessment studies, communication strategy, and citizen engagement.

15. **Component 4: Contingent Emergency Response (appraisal total cost US$0; actual US$0).** This zero-budget component included to allow quick response to a potential GRZ request for an eligible crisis.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

Revised PDOs and Outcome Targets

16. The PDO remained unchanged throughout the project lifetime.

Revised PDO Indicators

17. There were no revisions to the PDO indicators.

Revised Components

18. There were no revisions to the components.

Other Changes

19. The project underwent two level 2 restructurings**.** The first restructuring, approved in November 2021, aimed to increase to 100 the percentage of eligible expenditures for all categories and reallocate US$95,000 from the Enabling Environment component to the Project Management component. The second restructuring, approved in July 2022, sought to (a) extend the project closing date by 18 months, from August 31, 2022, to February 29, 2024; (b) reallocate US$1.5 million from the Livelihoods and Low-Carbon Investments component to the Project Management component; (c) reallocate funds between disbursement categories; and (d) update the project disbursement estimates.

Rationale for Changes and Their Implication on the Original Theory of Change

20. The rationale for the first restructuring was to allow the GRZ to disburse the trust funds first and utilize the IDA funds once the trust funds were exhausted and to ensure sufficient funding was available to improve the Project Management component performance.

21. The second restructuring aimed to (a) facilitate the completion of project activities through the project extension including implementation and completion of the Lukusuzi Resettlement Action Plan (RAP, a legacy issue[3]) and provision of livelihood and infrastructure support to the resettled communities and completion of the ERPA; (b) ensure sufficient funding was available for the Project Management component until project closing; (c) reflect actual disbursements of the project; and (d) consider the impact of the extension of the project closing date on future disbursements.

II. OUTCOME

A. RELEVANCE OF PDO

Assessment of Relevance of PDOs and Rating

22. The PDO was deemed highly relevant during the appraisal and this status was maintained throughout the project. The PDO's high relevance stems from its strong alignment with sectoral challenges, government priorities, and strategies

[3] While the relocation of 233 households from the Lukusuzi National Park was not ZIFLP induced and materialized before the effectiveness of the project, it was considered a legacy issue that needed to be addressed by the project.

and the World Bank Country Partnership Framework (CPF) FY13-16 (Report No. 75089-ZM) and FY 19-23 (Report No. 128467-ZM), and the Systematic Country Diagnostic (SCD) 2018 (Report No. 124032-ZM).

23. At appraisal, the project aligned with Zambia's Vision 2030, which aimed for gender-responsive sustainable development and the incorporation of productive natural resource management principles to achieve sustainable socioeconomic progress by 2030. It aligned with the 7th National Development Plan, which promoted economic growth through small-scale agriculture to increase job opportunities and enhance livelihoods, in addition to sustainable land use planning and management in policy formulation. The project was designed to address significant environmental and developmental challenges. It emerged as a response to Zambia's unsustainable agricultural expansion and severe deforestation—estimated at 250,000–300,000 ha annually—predominantly due to the expansion of agriculture, settlement development, and the reliance on firewood for energy. It also aligned with the Zambia Climate Change Response Strategy and responded to the strategic objectives of GEF. The project's relevance was rooted in its holistic approach that integrated land use, environmental sustainability, and socioeconomic development through participatory planning and targeted interventions. The project objectives facilitated the transition from REDD+ readiness to actual implementation to address drivers of deforestation.

24. The project was adeptly tailored to address the intertwined issues of poverty and environmental degradation in the EP by promoting sustainable agricultural and forestry practices to conserve natural resources and improve rural economic conditions. Recognizing forests as vital for the vulnerable, it aimed to reduce poverty [4] through forest conservation and management. The project emphasized the importance of supportive policies and frameworks to enable community-based forest management and enhance local opportunities for shared prosperity.

25. At appraisal, the project was aligned with the World Bank's Zambia CPF for FY13–16, extended to 2017, Objective 1.[5] At project completion, the project remained relevant under the CPF FY19–23 (meeting Objective 1.1 and Objective 1.2[6]) as it continued to respond to agricultural priorities aimed at reducing regional disparities and boosting main livelihoods of the poor, particularly in rural areas. The project's target area aligned with the GRZ's requests for investments in the twangle circles for rural development and growth. Additionally, the project was consistent with the World Bank's Forest Action Plan and Climate Change Action Plan.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

26. The efficacy of the project is assessed as High.

27. The project's efficacy was evaluated by measuring the attainment of the development objectives through the PDO and the intermediate indicators in the Results Framework. It synthesized information from a variety of sources, including the Borrower's Implementation Completion and Results Report (ICR), end-of-project evaluation, impact studies, Aide Memoires, progress reports, and the findings of the World Bank ICR team's missions. To enrich the evaluation, additional data and evidence from analytical works were integrated. Productivity metrics, primarily sourced from the Results Framework, were augmented with district-level agricultural statistics as well as qualitative feedback obtained during the project closure mission.

28. The project demonstrated remarkable success. It overachieved all its four PDO indicator targets and mostly

[4] Formerly one of the World Bank's twin goals 'to reduce poverty and boost shared prosperity'.
[5] Objective 1 "Enhancing agricultural productivity and strengthening household resilience and health in select areas".
[6] Objective 1.1 "Agri-food sector becomes less maize centric, more productive and better connected to domestic and external markets" aimed to support agriculture as the economic motor for rural growth to increase income and employment opportunities and reduce poverty by better connecting to the markets and shifting to more productive technologies. Objective 1.2 "Selected rural communities become more resilient to climate and environmental shocks" prioritized strengthening the resilience of natural, physical, and human capital, by making farmlands, landscapes, and watersheds more resilient, by adopting smart climate policies.

achieved its intermediate indicators (see Table 1 and annex 7). The project aimed to benefit approximately 214,955 individuals, with a goal of 30 percent female participation. Over the course of 6.5 years of implementation, the project reached 224,071 beneficiaries (104 percent achievement) with women making up nearly half (47 percent) of this total. The overachievement of targets is noteworthy, especially given the initial slow progress observed at the Midterm Review (MTR[7]) and the constraints imposed by the COVID-19 pandemic (see Box 8.1 in annex 8). Post MTR, the Project Implementation Unit (PIU) played a key role in accelerating activities, leading to this success.

Table 1. Summary of PDO Indicators by Outcome

Outcome	Intermediate Indicators	Baseline	End Target	Actual	Percentage
Improve landscape management for targeted rural communities in the EP	Forest area under sustainable management practices (ha)	0	66,000	72,840	110.4
Increase environmental benefits for targeted rural communities in EP[8]	Agricultural area under climate-smart agricultural practices (ha)	0	59,000	162,334	275
Increase economic benefits for targeted rural communities in EP	People in targeted communities with increased monetary and non-monetary benefits	0	40,000	162,063	405
	(Percentage share of which women)	0	30	47	157
	Crop yield increase for selected crops (percentage)[9]	0	30	31.3	104
	Maize yield (Tons/ha)	1.60	2.08	2.15	103
Improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency	The Contingent Emergency Response Component was not activated.				

PDO Outcome 1: Improve landscape management for targeted rural communities in the EP

29. The project aimed to enhance landscape management in the EP by expanding the forest area under sustainable forest management and conservation practices, in addition to improving wildlife management. It successfully met its PDO indicator increasing the forest area under sustainable management by 72,840 ha (110.4 percent) of the targeted 66,000 ha and exceeded the goal for its intermediate indicator on Community Forest Management Agreements (CFMAs[10]) with the Forestry Department (FD) by 187 percent, that is, 28 agreements against the target of 15. This was achieved through activities such as the development and implementation of participatory land and resource use planning, the establishment of community forest management groups (CFMGs), creation of alternative incomes (crop diversification, community vegetable gardens, apiculture, and livestock rearing) capacity building, equipment supply, and infrastructure development (offices, storage facilities, nurseries, and greenhouses for agroforestry) (see Box 8.2 in annex 8). The project supported and facilitated stakeholder consultations for the development of forest management plans, which in turn resulted in the revision of these plans in 25 forest reserves, and piloted forest restoration in places such as the Mphomwa Local Forest.[11]

[7] Source: Implementation Status and Results Report (ISR) 9. At MTR, the project had only achieved 22 percent (14,572.00 ha/66,000.00 ha) of the forest area under sustainable management, 41 percent of the area under CSA practices, 0 record on increased monetary and nonmonetary benefits, crop yield increase at 20 percent against the target of 30 percent, and maize yields at 1.6 tons/ha below the 2.08 tons/ha target.
[8] Based on the end-of-project evaluation.
[9] The percentage crop yield increase is calculated based on the weighted average (maize 80 percent and soybean 20 percent) of the correspondent yield increase (tons/ha) for maize and soybeans over the years.
[10] The CFMA for the transfer of legal rights over forests to communities to be complete, the Forests Act, 2015 (Sections 29 onward) requires the community to be recognized by the Director of Forestry following consent of its chief and then enter into a CFMA following the preparation of a management plan for the area of forest.
[11] Mphomwa Local Forest was piloted for community forest management to test and refine a participatory multi-stakeholder engagement process that leads to restoration of protected areas. It has one of the leading CFMGs in the province under chiefdom of Chief Jumbe.

By the end of the project, most of these communities were implementing the forest management plans and had set governance structures for their operationalization.

30. The project empowered communities to combat deforestation through activities such as re/afforestation particularly with indigenous species, management of woodlots of exotic species to control potentially invasive non-native species, and management of fires through community-led fire management planning. It established tree nurseries in four forest areas and the construction of offices and accommodations for forest officers within the same locality. In addition, the project reduced dependence on traditional biomass fuels through the promotion of energy-efficient alternatives such as fuel-efficient cookstoves. A comprehensive outreach campaign educated communities on fuel-efficient cookstoves, leading to the distribution of 156 cookstoves to public institutions, which are major consumers of wood fuel; training 157 individuals in cookstove construction; and other community members in construction of cookstoves which in turned resulted in them cumulatively constructing 4,805 cook stoves for community households, empowering them to adopt more sustainable practices.

31. Local resource management was further strengthened through the transfer of land rights, training of honorary forest officers (HFOs), and CSA practices such as agroforestry. Transfer of land rights totaling 64,944 ha aimed to empower communities with the authority to manage and benefit from their natural resource was achieved. This was complemented by partnership agreements for 7,808 ha within state forest reserves including 642 ha in Lunga Local Forest, 468 ha in Lutembwe Local Forest, and 6,698 ha in Mphomwa Local Forest. Climate-smart practices such as the incorporation of nitrogen-fixing trees, such as *Gliricidia sepium* and *Faidherbia albida* into farming, led to the planting of 5.26 million seedlings.[12] This approach not only assisted in combating soil erosion and flooding but also enhanced soil fertility necessary for increased carbon sequestration. Furthermore, the project involved training 599 HFOs to support the protection and management of forest areas in their respective communities alongside the FD and the Zambia Police Services. The HFO training manual was adopted nationwide, and the HFOs were institutionalized, formally recognizing and empowering them for forestry supervision and continued landscape management.

32. In addition, the promotion of crop diversification, alternative income generation (discussed in subsequent sections), and agricultural intensification over expansion all contributed to reduced deforestation. Performance incentives tied to the management of community forests and benefit-sharing mechanisms that were set up encouraged legal and sustainable use of forest resources. The project developed a benefit-sharing guide to promote the equitable distribution of benefits for continued cooperation beyond the project's lifespan. The project activities led to an increase in forested areas across most of the 14 districts (see land use land cover changes in Figure 8.1 and Figure 8.2 in annex 8), demonstrating a notable improvement in the management and conservation of natural resources. For example, tree coverage in the Malambalala forest area increased from 204.75 ha in 2017 to 215.14 ha in 2022, representing a growth of approximately 4 percent.

33. Given that wildlife resources are an important part of the rural landscape, the project strengthened the management of protected areas. This was achieved through infrastructure development, such as administrative offices, camp houses, guard houses, entry gates, and the upgrading of existing loop roads[13] to facilitate park management and ecotourism. Additionally, the project provided for six water holes, boundary clearing, beaconing, and fencing to curb issues of encroachment and human-wildlife conflict. It also involved the procurement of equipment, including patrol vehicles, global positioning system (GPS) and GPS-tracked phones, tractors, graders, and road compactors to increase the parks footprint for more effective patrols to reduce poaching. Furthermore, a community eco-lodge was set up from the project financing to capitalize on ecotourism in the area. Overall, the project took a holistic approach to landscape management

[12] Borrowers' ICR.
[13] A total of 50 km and 25 km of loop roads in Lukusuzi and Luambe, respectively, were built and upgraded. This allowed for better patrolling and movement for potential ecotourism activities in the parks.

by integrating community engagement, infrastructure development, and environmental conservation.

PDO Outcome 2: Increase environmental benefits for targeted rural communities in the EP

34. The project provided subgrants, built local capacity, and ensured equitable benefit-sharing to reduce environmentally harmful practices and promote sustainable livelihoods. A total of 81 community groups received subgrants worth US$5.3 million, supporting diverse enterprises in agriculture, forestry, and wildlife sectors, such as beekeeping, fish farming, goat rearing, horticulture, poultry, ecotourism, briquette making, avocado farming, agro-processing, and pig production. Almost 308,014 ha were placed under landscape management practice, including 72,840 ha under sustainable management practices benefitting biodiversity. Improved landscape practices included transitioning farmers from mono-cropping to climate-resilient agriculture by introducing CSA techniques and training programs to reduce land degradation. Agricultural extension officers were educated in these methods and passed their knowledge to Lead Farmers (LFs), who then trained follower farmers. Demonstrations, mentorship, workshops, and networking events supported the widespread adoption of practices (61 percent of project beneficiaries[14]) such as mulching, intercropping, and water management among small-scale farmers. Box 8.3 in annex 8 provides examples of some of the success stories from the project activities that resulted in alternative sources of livelihoods, yielding monetary benefits, and reducing dependence on forest resources for incomes.

35. While the PDO did not explicitly refer to preparing Zambia for sale of emission reductions, the groundwork laid for the preparation of ERPA provided a significant environmental benefit. The development of the agreement was an extensive process, involving meticulous technical preparations on crucial elements such as defining emission reduction volumes, reporting periods, unit pricing, and conditions of effectiveness, including legal ownership and benefit-sharing frameworks. The project supported capacity-building workshops to ensure all stakeholders were well prepared and informed about the agreement's requirements. Further, the project also developed the MRV system, essential for collecting and managing data to produce high-quality, measurable, reportable, and verifiable estimates of emissions reductions. The development of the MRV system included a comprehensive review of the MRV framework, capacity building in GHG accounting, and the establishment of a climate change web portal. Additionally, the project completed three critical technical instruments: the Strategic Environmental and Social Assessment Report, the GHG Baseline Report, and the Benefit-Sharing Plan (BSP). All of these laid the foundation for the EP Jurisdictional Sustainable Landscape Project (EP-JSLP) which was approved by the World Bank in May 2024.

36. Despite a delay, the ERPA was signed on June 17, 2024, marking a significant environmental and economic achievement for Zambia, transforming the ZIFLP initiative into the continent's largest carbon farming project, allowing communities to earn carbon credits, and providing both environmental and economic benefits.

PDO Outcome 3: Increase economic benefits for targeted rural communities in the EP

37. The project overachieved its target to increase economic benefits. The target number of beneficiaries with increased monetary and nonmonetary benefits was overachieved (an actual of 162,063 over the 40,000 target). The end line evaluation of the project reveals that 15 percent of the direct project beneficiaries,[15] equating to 33,611 households, experienced an increase in monetary benefits, thereby enhancing their financial livelihoods. The project's impact was not solely financial; a significant 73 percent of the direct project beneficiaries, or 163,572 households, reported nonmonetary benefits. These benefits included improvements in knowledge (for example, CSA and soil fertility), skills, social capital, health, and nutrition, which, while less tangible, are crucial for the overall adoption of technologies, resilience, and future economic opportunities.

38. Economically, the project played a role in reducing the reliance of local communities on environmentally harmful activities such as deforestation for income as well as the expansion of agricultural land into forests. The project facilitated

[14] End line project evaluation report.

[15] Direct project beneficiaries at project closing were 224,071.

the diversification of livelihood options through the provision of subgrants, enabling initiatives such as beekeeping, fish farming, and the rearing of small ruminants (poultry, goats, and sheep) via a pass-on system. The Borrowers' ICR details the project's collaboration with the Ministry of Livestock and Fisheries, which enabled the establishment of pasture, fodder banks, and rangelands. This initiative had a dual purpose: to increase feed production, with farmers establishing 678 ha of pasture and fodder banks using seeds supplied by the project, and to reduce the vulnerability of communities to climate variability and shocks that often affect common property rangelands. Additionally, the project supported communities with a vaccination program to mitigate livestock diseases, benefiting a total of 1,568 farmers with poultry and small ruminants.

39. The project was successful in meeting its PDO indicator 'Agricultural area brought under CSA practices' by bringing 162,334 ha of agricultural land under CSA practices, far exceeding the target of 59,000 ha. It also surpassed its goal of reaching farmers, with 73,052 farmers adopting CSA practices, well above the target of 59,103. These CSA practices included agroforestry with fertilizer-fixing trees, ISFM, water harvesting through mulching, and the establishment of Farmer-Led Irrigation Schemes (FLIS), which led to the diversification into both food and cash crops such as maize and horticultural products. The adoption rate of CSA practices across the province was 61 percent of beneficiaries and was achieved through extension support and capacity building throughout the project's duration as noted in the end line evaluation and mission findings. The Beneficiary Impact Assessment Report (2022) indicated that 81.6 percent of the agricultural households had access to agricultural extension services.

40. The project achieved its PDO indicator of 'Crop yield increase for selected crops (maize and soybean)'. The crop yield increase for these two crops was 31.3 percent compared to the target of 30 percent. Over four seasons (2018–19 to 2021–22), maize yields increased albeit with fluctuations from a baseline of 1.6 MT/ha to a peak of 2.4 MT/ha, which surpassed the target of 2.08 MT/ha. Soy yields were more consistent, starting at 0.9 MT/ha and reaching 1.16 MT/ha by the end of the period, albeit slightly below the target of 1.17 MT/ha. Crop yields from the project areas for both crops were much higher than the provincial average as shown in Figure 1 and Figure 2.

41. The project interventions lead to increased yields (+30 percent) and gross margins (between +20 percent and +70 percent, depending on the crop), while incomes per ha increased by 48 percent. These improvements allow smallholder farmers to increase their home consumption and avoid reducing their intake to save cash. The activities promoted by the project resulted in a return to labor of US$5.1–9.1 per day.[16]

Figure 1. Comparison of Maize Yields between Project Farms and Their Respective Provincial Averages

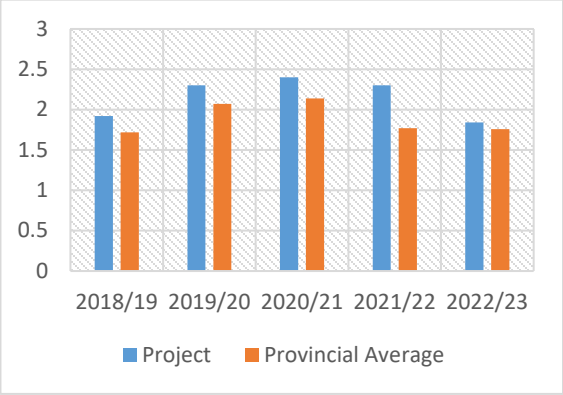
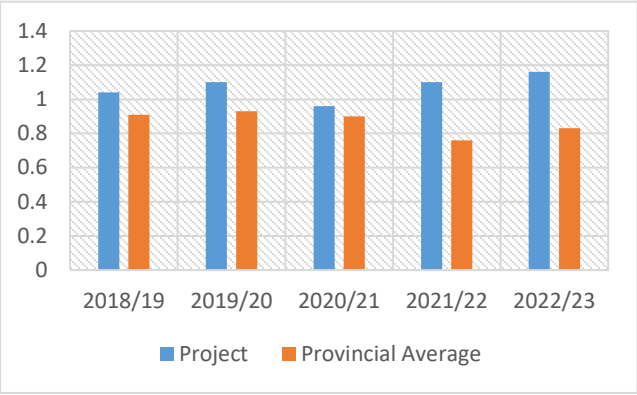


Figure 2. Comparison of Soybean Yields between Project Farms and Their Respective Provincial Averages



Source: Calculations from project yields data and the Ministry of Agriculture's provincial-level data.

[16] This is between 2.5 and 4.6 times the Zambia poverty line, which is US$2 per person per day.

PDO Outcome 4: Improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency

42. There was no crisis that required activation of the Contingent Emergency Response Component.

Justification of Overall Efficacy Rating

43. The project was assessed as **High** as it surpassed most targets, overcoming challenges from the COVID-19 pandemic and initial challenges with coordination and disbursements of project funds and two-tier structure of the PIU at national and provincial levels. Of the four PDO indicators, three where overachieved and one was achieved. There was evidence of strong community participation as demonstrated by the high adoption of CSA technologies, forest management practices, and diversification in livelihoods. The project focused on community ownership and needs, involved women and youth as evidenced by the 47 percent of women targeted, and embedded sustainability through operation manuals and village-level trainings for continued impact post closure. The project fully achieved its objectives and demonstrated strong community impact.

C. EFFICIENCY

Assessment of Efficiency and Rating

44. The project has shown Substantial efficiency based on the ex post economic net present value (ENPV), economic rate of return (ERR), and other economic indicators. The sensitivity analysis shows that these results are robust to changes in valuation assumptions. The project's design and implementation efficiency was evaluated. The ZIFLP implementation structures proved to be largely efficient in executing their designated roles. The strategies for project implementation were generally adhered to, though procurement challenges and the COVID-19 pandemic caused some delays.

45. As in the PAD, a 20-year cash flow model was used to assess the ex-post efficiency of the project investments. Annual cash flows were estimated as the difference between without-project (WOP) and with-project (WP) net benefits for direct beneficiaries (see annex 5 for more details). Efficiency indicators of the financial and economic analysis include the net present value (NPV), the internal rate of return (IRR), and benefit/cost ratio. The financial analysis also looked at the return to labor and gross margin analysis. Financial models were used to simulate the project impact on CSA production, sustainable forest management, and livelihood activities (beekeeping) in the intervention area.

46. Without the project, producers would have continued with unsustainable low-input, low-output, farming systems that cause deforestation and soil degradation. The project promoted improved crop husbandry practices, based on low use of external inputs, and the adoption of improved seeds, better pest and disease control, and the use of lime and manure. The PDO has been met to improve landscape management and increase environmental and economic benefits for targeted rural communities in Zambia's EP. By the end of implementation, the project exceeded its target by 4 percent and 224,071 beneficiaries, of which 47 percent women, were reached with assets and services.

47. The economic analysis of the project is aligned with the Results Framework and is based on (a) the agricultural area under CSA practices; (b) the forest area under sustainable management practices; (c) the acreage of woodlots developed (re/afforestation); (d) the number of households that apply improved beekeeping; and (e) the monetized environmental benefits expected to accrue from reduced GHG emissions and increased carbon sequestration. The sensitivity analysis, which considers key risks such as lower benefits and technology adoption rates and the social discount rate, shows that the economic profitability is robust. The analysis assumes 72,840 ha of forests under sustainable management practices, 115 ha of forest plantations, and 162,334 ha of crops under CSA practices. Without the social value of carbon mitigation, the ex-post ERR of ZIFLP is 26.1 percent and ENPV is estimated to be US$70.5 million. The economic benefit/cost ratio is 3.7. The gross margin increases by 69 percent for maize and 20 percent for soybeans, resulting in an increase of 48 percent per ha (20 percent soybean, 80 percent maize). This confirms the increased economic benefits, as stated in the PDO.

48. Results from the Ex-Ante Carbon-Balance Tool (EX-ACT) analysis show that the project constitutes a sizeable net

carbon sink. Including environmental benefit (social value of carbon mitigation), using the low and high social price of carbon, the ERR varies between 47.8 and 60.0 percent while the ENPV varies between US$188.4 million and US$305.8 million.

49. The ex-ante Economic and Financial Analysis (EFA, 2017) of the PAD concluded that the ERR of the project, without valuation of carbon mitigation, would be 17 percent, compared to an ex-post ERR (2024) of 29 percent. This difference is mainly due to a very large outreach that the project achieved in terms of forest area under sustainable management practices (110 percent of the target) and agricultural area under CSA agricultural practices (275 percent of the target).

50. Given a cost of US$32.8 million and 224,071 direct beneficiaries, the project cost amounts to US$146 per direct beneficiary. Most beneficiaries represent generally households of at least five persons, and this project cost is considered good. The overall administrative efficiency improved significantly after the MTR.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

51. The overall outcome is rated Satisfactory based on the following reasons:

- The relevance of the PDO is rated as High.
- The project demonstrated high efficacy and achieved a satisfactory outcome rating due to the successful attainment and overachievement of most targets.
- The efficiency rating is Substantial.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Integrated Landscape Management

52. The project paved the road to the first integrated Emission Reduction Program, allowing carbon credits to be generated at the landscape level and not only per sector (forestry and other activities including agriculture). This is a clear milestone for the World Bank, as it is the first project generating carbon outcomes combining multiple policies and sectors at the jurisdictional landscape scale. The project has successfully overcome the challenge of producing the Emission Reduction Program Document (ERPD) including all the carbon accounting elements.

53. In addition, the EP-JSLP, which was generated by the project, is the first carbon operation that combined results-based component (purchase of carbon credits) and investments (for biodiversity effort, forest management by communities and the promotion of CSA practices in farmer communities). This can now be replicated in other jurisdictions in Zambia and will serve as a blueprint for other World Bank operations.

Gender

54. The project prioritized gender mainstreaming, focusing on women's involvement in forestry management and CSA activities for agricultural production. It made a considerable achievement of reaching 47 percent female beneficiaries, 17 percentage points above the intended target, further underscoring its positive impact on inclusive participation. Overall, the project has created a win-win situation, where women benefit from improved economic opportunities, reduced household burdens, and enhanced decision-making power. The knowledge and skills gained from their engagement with the project can also be leveraged for effective implementation and monitoring of forest management initiatives, maximizing the project's impact for both women and the community. Box 8.4 in annex 8 provides an example of the initiatives that led to women's empowerment, albeit highlighting some challenges and lessons for the future.

Institutional Strengthening

55. The project placed a strong emphasis on institutional strengthening and enhancing the capabilities of national, subnational, and community entities. This was achieved through targeted capacity-building initiatives for 36 CFMGs, 599 HFOs, and extension staff and LFs in CSA. The institutionalization of CSA was accomplished by establishing 478 farmer field schools under the project. At the subnational level, the project emphasized capacity building in technical, financial, project

management, and disbursement procedures, with training specifically tailored for district-level staff. Safeguards were also a key component of the training. In total, 35 staff members, including 25 males and 10 females, received training in the fiduciary aspects of the project. Implemented through government departments with coordinated planning and budgeting, the project supported robust institutional coordination and cooperation at the national level, underscored by the PIU's quarterly joint reporting.

Mobilizing Private Sector Financing

56. No private sector funding was mobilized. However, the project collaborated with the private sector to facilitate community grants and establish potential market connections for beneficiaries, which included Community Markets for Conservation (COMACO), Wonta Enterprise, and the Empowering Farmer Foundation.

Poverty Reduction and Shared Prosperity

57. The project's initiatives have shown promising signs of progress toward the twin global objectives (at the time of the project) of shared prosperity and reduced poverty, although a direct causal link to poverty reduction (anticipated over the medium to long term) is yet to be established. Project records indicate positive trends, with 162,334 individuals, especially women, benefiting from livelihood diversification in agriculture. The creation of 21 FLIS benefitted 1,050 households, improving food security and climate resilience. Improved land cover associated with forest regeneration and higher crop yields than provincial averages have been noted, with an EFA confirming the profitability of the project's investments. The project highlighted the importance of strong policy and community frameworks for sustainable forest management, aiming to empower locals and reduce poverty through diverse livelihood activities and potential carbon credit earnings. Enhanced land tenure, biodiversity, and market access for farm products are key co-benefits set to improve life in the EP.

Other Unintended Outcomes and Impacts

58. The project, addressing a legacy issue, funded the resettlement and livelihood restoration of 233 households from Lukusuzi National Park to Kazembe Chiefdom. It provided land, water sources, and support for a cooperative engaging in poultry, oil production, and maize milling. The project also constructed educational and health care facilities, complete with necessary equipment and staff housing, ensuring access to essential services for the community. To alleviate human-wildlife conflicts, the project supported farmers to create wildlife deterrents such as solar fencing, safeguarding crops, and preserving wildlife by minimizing encroachment into their habitats

III. KEY FACTORS AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

59. Overall, the strategy employed for the project preparation focused on aligning the project design with the country's priorities, incorporating lessons learned, and establishing dedicated project management units. During the project's preparation phase, stakeholder engagement was a key element, with consultations taking place at the district, community, and national levels. The use of Participatory Rural Appraisal helped identify the specific needs of the community, ensuring that the project's interventions were well aligned with those needs. This inclusive approach not only paved the way for smoother project implementation but also fostered a sense of community ownership and active local participation in the project's activities.

60. The project design capitalized on insights from past technical assistance and collaborations with other development partners, demonstrating a proactive approach to leveraging existing knowledge. For instance, lessons learned from pilot initiatives such as the COMACO Landscape Management Project, which employed a climate-smart landscape management approach to tackle deforestation, were instrumental in informing the project's design, and engagement of the private sector to establish connections between farmers and markets.

B. KEY FACTORS DURING IMPLEMENTATION

61. The project's regular supervision, monitoring, verification, and audits were crucial, revealing areas needing improvement for more effective execution during the early stages of the project. This led to strengthened fiduciary management and the establishment of performance indicators post MTR.

62. At the MTR, the project was rated Moderately Unsatisfactory for financial management and procurement, as indicated by the ISRs.[17] The original project design included two separate PIUs, which, in hindsight, was not cost-effective. The project was divided between a National Project Unit under the Ministry of National Development Planning,[18] now known as the Ministry of Green Economy and Environment (MGEE), which was overseen by the FD, and a Provincial PIU managed by the EP Provincial Administrator. Both units were accountable to the MGEE. To expedite project implementation, the project bolstered the PIU with the addition of a technical officer and an assistant accountant. Moreover, the project experienced substantial structural changes, most notably the amalgamation of the two PIUs and the decentralization of management to the provincial level. This strategic shift aimed to enhance financial oversight and operational efficiency.

63. The COVID-19 pandemic brought significant interruptions, particularly affecting community engagement activities such as participatory land use planning and the formation of CFMGs. The development of instruments to support the preparation of the ERPA such as the BSP, ERPD, and MRV systems was delayed because the required international consultants were unable to travel as necessary to carry out their assignments. The exit of some consultants during the pandemic restrictions complicated the timely completion of the project activities, in particular delaying the drafting and negotiation of the ERPA. In response to these disruptions, the project adapted by using virtual platforms for meetings that did not require community involvement and conducted smaller community gatherings in compliance with health guidelines. Further, the PIU capacity was expanded to complete the required documents preparation.

64. The project also encountered delays in the contracting of works, particularly the FLIS. The installation of the irrigation system was divided among different contractors, which led to delays when one segment experienced setbacks. However, all FLIS were completed by the end of the project with close World Bank supervision.

65. During the implementation of the project, a significant issue was the protracted contract approval process by the government, which required the Attorney General's sign-off. This step often led to delays of several months for the PIU, disrupting the project timeline and delaying service delivery to communities. The process, which necessitated clearances in the World Bank's Systematic Tracking of Exchanges in Procurement followed by the full government procurement process, was deemed inefficient because of the time-sensitive nature of the project. However, despite the procurement challenges, it is important to note that decentralization of the project PIU to the provincial level led to a more efficient implementation of activities.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

66. The project was designed to foster an enabling environment for natural resource management and significant investments, adopting a comprehensive and integrated implementation strategy. The stability of the project's results chain reflects a well-prepared design. Adequate resources were allocated for surveys, impact assessments, and end line evaluations to guide decision-making, derive lessons, and assess project performance.

67. A monitoring framework and reporting format were established to standardize data collection across all levels, and training was provided to all M&E officers. The project design allowed for the development of M&E tools, including an Excel-

[17] ISRs 9 and 10.

[18] The Ministry of National Development Planning was abolished under the new 2021 government during the project implementation.

based tool and web-based and geotagged systems[19] for real-time monitoring of images and data for each community activity, to ensure timely data collection and consolidation. In addition, the project design included the provision of gender-disaggregated data that would allow the project to monitor and close gender gaps in productivity and access to extension services.

M&E Implementation

68. The M&E system included monitoring project implementation at various levels, such as national, provincial, and community levels, including gender-disaggregated data. The project invested considerable time and resources to build M&E capacity, which was seen in the data quality and reporting. M&E officers were onboarded and provided with training. This allowed for a baseline survey to be successfully conducted at the start of the project.

69. Indicators were updated every six months with operational data, and annual M&E surveys were conducted to meet the reporting requirements. These surveys were conducted by the Zambia Statistics Agency (ZAMSTAT) as part of capacity building embedded in the project. The system tracked progress and performed impact assessments to measure outcomes, which allowed for corrective action when necessary. It resulted in an improvement in the management effectiveness tracking tool (METT) score for Lukusuzi National Park.

70. However, the system design exhibited moderate weaknesses, particularly in the formulation of two intermediate indicators, which necessitated revisions. Although the 'Enabling environment for improved wildlife conservation and community engagement diagnostic tool (index)' was identified as difficult to measure during the MTR, it was not revised during the project's restructuring. Additionally, for the 'Net reduction in deforestation measured as effectiveness index of activities supported by the project', a different monitoring methodology than outlined in the PAD was used during implementation because the one designed at the preparation stage was vague.

71. M&E challenges encountered were due to external factors, notably the COVID-19 pandemic, which affected critical components of effective project monitoring such as stakeholder consultations and field visits. The project did not utilize an independent third party for monitoring tasks when staff were unable to perform field visits. Despite these obstacles, the project successfully continued its M&E assessments once the pandemic was over.

M&E Utilization

72. M&E data were systematically used to guide project management and decision-making. Data from surveys and monitoring reports updated the project's Results Framework during supervision missions and contributed to the MTR report and ICR preparation. These insights were crucial for two project restructurings, including fund reallocation, and were used to update the EFA and verify project objectives at the end of the project.

Justification of Overall Rating of Quality of M&E

73. The overall quality of the M&E is rated as Substantial. The M&E system was sufficient to assess the PDO achievements and to test the causal links in the results chain regardless of the challenges of COVID-19 restrictions and the missed opportunity to revise the intermediate indicator.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

74. The safeguards rating at the close of the project was Satisfactory for all triggered safeguards policies.

75. This rating is justified by the comprehensive Environmental and Social Management Framework (ESMF) that was provided, outlining the necessary measures and guidelines to mitigate potential environmental and social impacts throughout the project lifecycle. The ESMF included effective screening tools, risk assessment procedures, and potential mitigation measures for subproject activities, which guided the preparation of site-specific Environmental and Social

[19] Zambia Integrated Forest Landscape Project (GEF) - P161490 - Sequence No: 06 (English).

Management Plans (ESMPs) ensuring a systematic approach to managing risks.

Environment and Social Compliance

76. The project was classified as Category B (Partial Assessment) and triggered several safeguards, including Environmental Assessment, Pest Management, Forests, Natural Habitats, and Physical Cultural Resources, due to risks from forest landscape management and infrastructure construction. The ESMF provided clear guidelines and procedures for environmental and social screening, planning, review, approval, and implementation. Regular updates to the ESMF ensured it remained effective for the ZIFLP subprojects.

77. The project's focus on capacity building ensured that government staff, contractors, and community members understood and adhered to compliance issues. Despite some initial blind spots in compliance monitoring in contractor adherence and community safety, these issues were resolved through regular M & E.

78. The project's proactive approach to updating its ESMF after three years, considering changing environmental contexts, including the post-COVID period, is commendable. The update in November 2021 and the disclosure on the ZIFLP and Zambia Environmental Management Agency websites reflected the project's dedication to transparency and accessibility. The project's environmental and social safeguards were effectively managed.

79. The project triggered OP/BP 4.12 on Involuntary Resettlement due to a legacy issue related to the Lukusuzi RAP, which was a pending government action to protect Lukusuzi National Park. The policy was activated to ensure proper resettlement of individuals moved from Lukusuzi, maintaining environmental sustainability, and mitigating social impacts. The RAP provided relocated families with land for farming, settlements, and social infrastructure, leading to more secure land tenure and improved livelihoods.

80. Women's rights and well-being were actively safeguarded during project implementation. Gender equality and women's empowerment were promoted by ensuring their participation in decision-making processes and addressing their grievances at the community level. Capacity-building programs, disaggregated by gender, and the establishment of community grievance committees were key initiatives in this regard.

Procurement Compliance

81. The procurement rating at project closure was Satisfactory.

82. A change in government in 2021 introduced new regulations and procedures that aimed to strengthen public procurement and spending. Besides the good intention, these changes resulted in increased levels of approval and longer approval periods for procurement processes. Specifically, the need for tender documents to be reviewed and cleared by the Accountant General and the Zambia Public Procurement Authority contributed to procurement delays, including the suspension of the procurement unit in 2021 housed in the Eastern Province Administration. The COVID-19 pandemic disruptions affected the completion of consultancies due to restrictions on movement and gatherings. However, despite these delays, the PIU managed to procure most goods and services, with only a few cancellations, and adhered to the relevant regulations and guidelines.

Financial Management Compliance

83. At the project's closing, financial management (FM) was rated as Moderately Satisfactory. The FM of the project was conducted in accordance with the relevant provisions. The project maintained a high level of compliance with disbursement and budget performance, achieving a 100 percent disbursement rate and a 96 percent funds utilization rate. Financial reports and audits were submitted on time, with unqualified opinions from the external auditors, indicating no significant issues. The accounting system was upgraded to SAGE Evolution, and capacity building was provided to staff. There are no explicit mentions of compliance problems, and any identified issues seem to have been addressed appropriately. The financial management issues that contributed to the Moderately Satisfactory rating included

overdrawing of grant category, weaknesses in controls over retirements of accounts, and failure to share timely internal audit reports.

C. BANK PERFORMANCE

Quality at Entry

84. The project addressed the critical issues of unsustainable agriculture, land degradation, and deforestation. It adopted a comprehensive approach integrating land use, environmental sustainability, and socioeconomic development through participatory planning and targeted interventions. The project aimed to 'end poverty' and 'boost shared prosperity' by focusing on the poorest province and sustainable landscape management. The project design aligned with government priorities and World Bank strategies, including the SCD and CPF.

85. Despite thorough consultations during the project design, a couple of minor shortcomings were overlooked. Notably, two performance indicators were established but were challenging to measure and remained unadjusted even at project restructuring. Additionally, the original design included two separate PIUs, which, in hindsight, was not cost-effective. This dual structure caused inefficiencies, adversely affecting procurement and financial management processes. The roles and reporting hierarchy between the national and provincial units were ambiguous. These two units, owing to resource constraints, were ultimately consolidated into a single PIU.

Quality of Supervision

86. The World Bank team provided close and effective support throughout the project implementation. Given the nature of the activities supported, supervision was jointly managed by the Agriculture and Food and the Environment, Natural Resources and Blue Economy Global Practices, which collaborated seamlessly. At least one Task Team Leader was based in-country for the duration of the project. On a biannual basis, in-person implementation support missions were undertaken throughout the life of the project (except for the virtual missions and follow-up meetings during the COVID-19 pandemic from 2020 to 2021), which kept the project on track and ensured it attained its objectives. Furthermore, during the MTR, the World Bank, jointly with the PIU and the Government, developed and agreed on a 'Project Implementation Progress Improvement Criteria' consisting of 11 key areas of fiduciary, safeguards, and project management to use it as a tracking tool for assessing progress given the project's Moderately Unsatisfactory ratings in these areas at MTR.

87. The project adeptly addressed and responded to evolving internal and external changes in the Zambian landscape, in particular the restrictions placed by COVID-19 and additional fiduciary measures placed by the GRZ, which slowed procurement processes. Despite the overall effectiveness of the World Bank's supervision, certain shortcomings emerged, notably, two intermediate indicators that were not revised at the restructuring

Justification of Overall Rating of Bank Performance

88. Overall World Bank performance is rated Satisfactory. The project team adeptly navigated and adapted to significant changes in Zambia, like the COVID-19 restrictions and the new financial oversight measures by the GRZ, which slowed down the procurement process.

D. RISK TO DEVELOPMENT OUTCOME

89. The persistent threat of climate change in Zambia, along with the reliance of smallholder farmers on rain-fed agriculture, significantly endangers the sustainability of development outcomes. This danger is heightened for farmers who may not be able to generate enough income from their crops or supplementary livelihoods, such as beekeeping. They may increasingly rely on forest resources for timber and non-timber products, undermining efforts to prepare communities for carbon trading.

90. The sustainability of the LF models and the practice of CSA are uncertain without guaranteed financing and oversight. While the already approved EP-JSLP will continue to support CSA, it would be important for the GRZ to ensure

future budget allocation toward CSA given that this is already embedded in the agriculture policy for the country.

V. LESSONS AND RECOMMENDATIONS

91. The consolidation of the management structure from two PIUs to a single Provincial PIU was key to realign the project during the MTR addressing a significant challenge that was impeding efficient decision-making and reporting to the World Bank and government authorities. Additionally, maintaining two separate PIUs proved to be financially inefficient. Based on the project's accelerated progress and improved on-the-ground decision-making after the MTR, it is recommended that future World Bank projects operating only in specific areas of the country consider establishing a PIU within the project's province/locality for effective implementation.

92. The project demonstrated that focused training in CSA and sustainable forest management significantly enhances adoption rates and in turn agricultural productivity and resilience. This was evident through above-average yields in maize and soybean by project beneficiaries compared to provincial averages even during climate shocks, facilitated by tailored education and the LF model. It is important to expand training programs for LFs and extension workers, emphasizing continuous education and support tailored to the local contexts. This will help reduce public expenditure especially on fertilizer which represents the greatest cost for government support to agriculture. It is recommended that introduction of CSA practices be accompanied by appropriate funding, planning, and execution of related training effort.

93. The LF model exemplifies a community-centric approach to agricultural education and CSA practices. It leverages experienced farmers to mentor their peers, fostering trust and collaborative learning. Integrating mentorship programs, workshops, and networking events ensures the knowledge shared remains current and relevant. It is recommended that the Government and cooperating partners continue with mentorship programs that connect new farmers with experienced LFs for ongoing support and knowledge sharing.

94. The project's integration of a people-centric and outcome-oriented approach in landscape restoration, emphasizing collaboration, inclusive planning, secure land tenure, capacity building, and investments, alongside the empowerment of women, is crucial for sustainable forestry development. This approach guarantees that restoration efforts are community-driven, economically viable, and socially inclusive. It is recommended that from design to implementation, attention is paid to ensuring the process is participatory and ensures community ownership that can lead to lasting project outcomes.

95. The project activities coupled with capacity building were necessary to set the building blocks for the EP-JSLP. The ZIFLP demonstrates the complex steps, processes, and investments involved in setting an ERPA. These include developing an MRV system, engaging communities in benefit sharing, integrating existing climate projects, ensuring private sector participation, and establishing legal frameworks and institutional arrangements. Finalizing and signing the CERPA and the Nested ERPA required legal reviews and formal agreements by the respective parties. These steps highlighted the need for collaboration and careful planning. World Bank projects establishing ERPA must prioritize the development of a comprehensive MRV system to ensure accurate measurement and reporting of emissions reductions. This is critical for performance-based rewards and maintaining the integrity of the emission reduction process. It must establish clear legal frameworks and institutional arrangements early, invest in local stakeholder capacity building to enhance engagement and sustainability, and streamline processes for smoother negotiations and improved operational efficiency.

96. The project highlights the importance of inclusive collaboration among diverse stakeholders for large-scale environmental initiatives. It demonstrated the value of buy-in at the subnational and national levels by working with chiefs and district and provincial officers and sharing information at the permanent secretary levels. The project showed effective collaboration across government programs and ministries. For successful ERPAs, it is recommended to engage stakeholders early, secure senior leadership buy-in, and maintain consistent communication to build trust and alignment toward shared goals.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS FRAMEWORK

PDO Indicators by Outcomes

Not Categorized								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Forest area under sustainable management practices (Hectare(Ha))					66,000.00	Feb/2024	72,840.00	Feb/2024
	Comments on achieving targets		Overachieved. Area composed by 7,808 ha of State local forests (under community management) and 65,032 of community forest land area.					
Agricultural area under climate-smart agricultural practices (Hectare(Ha))							162,334.00	Feb/2024
	Comments on achieving targets		Overachieved. Value reported based on end of Project Evaluation calculations.					
People in targeted communities with increased monetary and non-monetary benefits (Number)	0.00	Apr/2017					162,063.00	Feb/2024
	Comments on achieving targets		Overachieved. Value reported based on end of Project Evaluation findings.					
Share of which women (Percentage)					30.00	Aug/2022	47.00	Feb/2018
Crop yield increase for selected crops (Percentage)							31.30	Feb/2024
	Comments on achieving targets		The percentage crop yield increase is calculated based on the weighted average (maize 80% and soybean 20%) of the correspondent yield increase (tons/ha) for maize and soyabeans over the years as follows: Maize: 2018-2019=1.92; 2019-2020=2.3; 2020-2021=2.4; 2021-2022=2.3; and 2022-2023=1.85. Five-years average = 2.15 tons/ha. Soybeans: 2018-2019=1.04; 2019-2020=1.1; 2020-2021=0.96; 2021-2022=1.1; and 2022-2023=1.14. Five-years average = 1.07 tons/ha.					

Maize yeild (Metric tons/year)	1.60	Apr/2017			2.08	Aug/2022	2.15	Feb/2018

Intermediate Indicators by Components

Not Categorized								
Indicator Name	Baseline		Closing Period (Original)		Closing Period (Current)		Actual Achieved at Completion	
	Result	Month/Year	Result	Month/Year	Result	Month/Year	Result	Month/Year
Key instruments to establish the enabling environment for emission reduction payments prepared and adopted (Number)	0.00	Apr/2017					8.00	Feb/2024
	Comments on achieving targets		The four key instruments, namely: 1) the GHG baseline, 2) MRV, 3) benefit sharing plan, and 4) the social and environmental safeguards assessment (SESA) were prepared and adopted. As per the definition, if an instrument was prepared one point was assigned and two points when adopted.					
ERPA agreed and signed by GRZ and Trustee (Yes/No)	No	Apr/2017						
	Comments on achieving targets		At time of project closing the ERPA negotiations were completed, the ERPA was signed on June 17, 2024.					
Net reduction in deforestation measured as effectiveness index of activities supported by project (Hectare(Ha))					24,170.00	Feb/2024	8,745.00	Feb/2024
Direct project beneficiaries (Number)							224,071.00	Feb/2024
Female beneficiaries (Percentage)	0.00	Apr/2017			30.00	Aug/2022		
Area covered by integrated land use plans which were consulted and agreed (Hectare(Ha))					52,000.00	Feb/2024		
	Comments on achieving targets		Overachieved. This accounts for PLUPs in the nine original districts at the time of project design. While this is higher than the project target, it only covers 2% of the entire Eastern Province landscape which is approximately 6,910, 600 ha					
	0.00	Apr/2017			2.00	Feb/2024		

Partnerships between ZIFLP and private sector companies established (Number)	Comments on achieving targets		The project has entered into partnerships with 3 Technical Service Providers(TSPs) who have signed contracts to support the value chain development activities under wildlife, agriculture and forestry.					
Agreements signed between community forest management groups and the Forestry Department (Number)					15.00	Feb/2024	28.00	Feb/2024
	Comments on achieving targets		Overachieved. The number of agreements is higher than target as the area covered by individual Community Forest Areas is lower than envisaged. Hence the project formed more CFMGs to achieve its PDO target # 1 under Sustainable Forest Management.					
Farmers adopting improved agricultural technologies (Number)	0.00	Apr/2017			59,103.00	Feb/2024		
	Comments on achieving targets		Value reported based on the findings of the end of Project Evaluation. This indicator is linked to the PDO indicator on area brought under Climate Smart Agriculture Practices.					
Share of which women (Percentage)					30.00	Aug/2022		
Enabling environment for improved wildlife conservation and community engagement diagnostic tool (index) (Percentage)					65.00	Feb/2024	48.00	Feb/2024
	Comments on achieving targets		The May 2020 mission proposed for the indicator to be reviewed during a broader project restructuring to reflect the impacts of project activities at the protected area level. Unfortunately, however this was not done during the project 2022 restructuring. The Bank team felt that based on the approaching closing date it would have not been reasonable to drop/modify one intermediate indicator and that there is sufficient data collected throughout the project to measure the impact of the activities.					
Management Effectiveness Tracking Tool (METT) score for Lukusuzi National Park (Number)	30.00	Apr/2017						
	Comments on achieving targets		Overachieved.					
Grievances registered related to delivery of project benefits that are actually addressed (Percentage)	0.00	Apr/2017			100.00	Feb/2024		
Percent of satisfactory quarterly project interim unaudited financial and monitoring reports submitted (Percentage)	0.00	Apr/2017			100.00	Feb/2024		

B. KEY OUTPUTS

Objective/Outcome 1: Improve landscape management for targeted rural communities in the Eastern Province	
Outcome Indicators	1. Forest area under sustainable management practices (ha)
Intermediate Results Indicators	1. Net reduction in deforestation measured as effectiveness index of activities supported by project 2. Key instruments to establish the enabling environment for emission reduction payments prepared and adopted 3. ERPA agreed and signed by GRZ and Trustee 4. Area covered by integrated land use plans which were consulted and agreed 5. Agreements signed between community forest management groups and the Forestry Department
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	Outcome 1: 72,840 ha forest area under sustainable management practices (110.4% achieved). Intermediate: 1. 8,745 ha showing net reduction in deforestation measured as effectiveness index out of target of 24,170 ha (36% of the target) 2. 8 key instruments - four key instruments prepared and four key instruments adopted as defined by the indicator (100% achieved) 3. ERPA agreed/negotiated before project closing, and signed on June 17, 2024, i.e. after project closure 4. 145,379 ha out of target of 52,000 ha (280% achieved) of area covered by integrated land use plans 5. 28 agreements signed between community forest management groups and the Forest Department out of target of 15 (187% achieved)
Objective/Outcome 2 Increase environmental benefits for targeted rural communities in the Eastern Province	
Outcome Indicators	1. Agricultural area under climate-smart agricultural practices (ha)
Intermediate Results Indicators	1. Direct project beneficiaries (number) 2. Farmers adopting improved agricultural technologies (share of which women) 3. Enabling environment for improved wildlife conservation and community engagement diagnostic tool (index) 4. Management Effectiveness Tracking Tool (METT) score for Lukusuzi National Park

Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	Outcome 2: 162,334 ha of agricultural area under CSA practices (275% of the initial target). Intermediate: 1. 224, 071 direct beneficiaries reached (104% of the initial target), of which 47% were women 2. 73,052 farmers adopted new technologies, compared to an initial target of 59,103 (124 % achieved) of which 44% were women 3. 48% out of target of 65% (74% achieved) 4. METT score of 62 out of a target of 60 (103% achieved)
Objective Outcome 3: Increase economic benefits for targeted rural communities in the Eastern Province	
Outcome Indicators	1. People in targeted communities with increased monetary and non-monetary benefits (percentage share of which women) 2. Crop yield increase for selected crops (percentage)
Intermediate Results Indicators	1. Partnerships between ZIFLP and private sector companies established
Key Outputs by Component (linked to the achievement of the Objective/Outcome 3)	Outcome 3: (1) 162,063 people in targeted communities with increased monetary and nonmonetary benefits (a 405% achievement) (2) 31.3% crop yield increase for selected crops (104% achieved) Intermediate: 1. 3 partnerships with private sector established (150% achieved)
Objective Outcome 4: Improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency	
Outcome Indicators	NIL
Intermediate Results Indicators	n.a.
Key Outputs by Component (linked to the achievement of the Objective/Outcome 4)	n.a.

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Ademola Braimoh, Hazem Hanbal, Silvia Mauri	Team Leader
Douglas Graham, Neeta Hooda, Iretomiwa Olatunji, Nathalie Johnson, Tuukka Castren	Team Leader
Baison Banda	Financial Management Specialist
A.N.M. Mustafizur Rahman	Procurement Specialist
Eliot Kalinda	Procurement Specialist
Thresa Musongo	Environmental Specialist
Nicholas Meitiaki Soikan	Social Specialist
Kutemba Chilila Kambole	Procurement Team
Dorothea Huberta Maria Hilhorst	Procurement Team
Christopher Mark Ingoe	Team Member
Kudakwashe Dube	Team Member
Mario I. Mendez	Team Member
Mofya Mwanalushi	Team Member
Pierre Olivier Colleye	Team Member
Wisdom Mulenga	Team Member
Marco Van der Linden	Team Member
Ricky Banda	Team Member
Sipiwe Janet Chihame	Team Member
Maiada Mahmoud Abdel Fattah Kassem	Team Member
Elisa Ilibagiza Mugiraneza	Team Member
Ademola Braimoh	Team Member

B. STAFF TIME & COST

Stage of Project Cycle	Staff Time & Cost	
	No. of Staff Weeks	US$ (including travel and consultant costs)
Preparation		
FY17	11.672	103,497.04
FY18	0.000	2,576.17
FY21	1.175	5,444.48
FY22	1.075	4,981.12
Total	13.92	116,498.81
Supervision/ICR		
FY18	19.189	306,037.72
FY19	17.378	200,883.31
FY20	43.696	271,940.81
FY21	55.188	341,796.81
FY22	40.342	232,132.81
FY23	27.462	215,499.92
FY24	27.132	206,041.70
Total	230.39	1,774,333.08

ANNEX 3. PROJECT COST BY COMPONENT

Component	Amount at Approval (US$M)	Actual at Project Closing (US$M)
1. Enabling environment	6.35	6.25
2. Livelihood and low-carbon investments	23.30	21.80
3. Project management	3.15	4.75
4. Contingent emergency response	0.0	0.0

ANNEX 4. THE BIOCARBON FUND INITIATIVE FOR SUSTAINABLE FOREST LANDSCAPES

1. The BioCarbon Fund (BioCF) Initiative for Sustainable Forest Landscapes (ISFL) is a multilateral fund, supported by donor governments and managed by the World Bank that promotes reducing greenhouse gas emissions from the land sector, including efforts to reduce deforestation and forest degradation in developing countries (REDD+), sustainable agriculture, as well as smarter land-use planning, policies and practices. ISFL aims to address the multifaceted challenges of deforestation, land degradation, and unsustainable land use and support policy changes climate-smart land-use approaches and innovative REDD+ techniques applied across agriculture, forestry, and other land-use (AFOLU) sectors.

2. For this purpose, ISFL has a two-phase approach:

- First, the BioCF ISFL supports grant-based technical assistance activities and capacity-building efforts in jurisdictions. It provides the critical investment finance needed to establish an enabling environment for sustainable land use and develop systems for monitoring, reporting, and verifying greenhouse gas (GHG) emission reductions. In addition, the BioCF directly finances advisory service projects aimed at attracting private sector interest in ISFL jurisdictions, which can benefit farmers and other private sector actors.
- Then, the BioCF Tranche 3 (T3) provides results-based payments for verified reductions in GHG emissions through an Emission Reductions Purchase Agreement (ERPA).

3. The BioCF, in combination with results-based finance from BioCF T3, allows the ISFL programs to use tools and approaches tailored to a country's specific context.

4. The ISFL selected countries based on criteria that ensure that countries are prepared to undertake a complex land use program that will be governed and monitored effectively. It also assessed the global community's commitment to working collectively toward in-country solutions so that countries have the necessary support to achieve results.

5. Zambia was selected as an ISFL Program country in 2015[20] as the EP, based in the Luangwa watershed, provided a unique opportunity for the ISFL to simultaneously have an impact on livelihood improvements, forest conservation and increased forest carbon stocks, and biodiversity conservation through the strengthening of institutions in Zambia, in particular, enhanced planning and coordination at the national, regional, and local levels.

6. The ISFL support was aligned with the broader development agenda of Zambia, known as Vision 2030, which aimed to make Zambia a "prosperous middle-income country by 2030" with guidance from the Sixth National Development Plan. The program was aimed at providing overall guidance on, and a platform for, actions to be undertaken in key sectors such as agriculture, energy, and land use more broadly. The program would focus on the following four major pillars of focus:

- Increased carbon stocks through activities that address local drivers of deforestation, sustainable CSA, and land management
- Poverty reduction by providing alternatives to deforestation-dependent livelihoods
- Institutional strengthening of planning and coordination processes
- Biodiversity conservation as a result of conservation, improved institutional capacity, and better planning

[20] https://www.biocarbonfund-isfl.org/system/files/2023-08/Zambia%20Integrated%20Forest%20Landscape%20Program.pdf.

ANNEX 5. EFFICIENCY ANALYSIS

A. Background

1. Without the project, producers would continue with unsustainable low-input, low-output, farming systems that contribute to deforestation and soil degradation. The Project Development Objective (PDO) was to improve landscape management and increase environmental and economic benefits for targeted rural communities in the Eastern Province (EP) and to improve the Recipient's capacity to respond promptly and effectively to eligible crises and emergencies. At the design stage, an estimated 214,955 persons were expected to benefit from the project's investments, of which at least 30 percent would be female. By the end of implementation, the target was exceeded by 4 percent, and 224,071 beneficiaries, of which 47 percent women, had been reached with assets and services.

2. The total cost of the Zambia Integrated Forest Landscape Project (ZIFLP) amounted to US$32.8 million. The project was financed by the World Bank, through an International Development Agency (IDA) credit of US$17 million, a US$7.75 million grant from the Bio-Carbon Fund Initiative for Sustainable Forest Landscapes (BioCF ISFL),[21] and a US$8.05 million grant from the Global Environment Facility (GEF).

3. The ZIFLP had four components. Component 1: Enabling Environment aimed to create conditions allowing the livelihood investments of Component 2 to be successfully implemented. It also prepares the country for emission reduction purchases. Component 2: Livelihood and Low-Carbon Investment focused on activities that improve rural livelihoods, conserve ecosystems, and reduce Greenhouse Gas Emissions. Sub-component 2.1 "Agriculture and Forestry Management" covered: (i) scaling up of Climate-Smart Agriculture (CSA) practices; (ii) community forestry management; and (iii) land tenure and resource rights regularization. Sub-component 2.2 "Wildlife Management" had three focus areas: (i) support for the National Protected Area System; (ii) Community Management of Wildlife; (iii) Management of Protected Areas. Component 3 "Project Management" provided coordination and M&E. Component 4 "Contingency Emergency Response" was a zero-budget component.

B. Methodology

4. The ex-post economic and financial analysis (EFA) of the ZIFLP that focuses on the range of household and community level investments financed by the project, in the realm of CSA, improved forest management, and the related economic benefits. The methodological approach of this EFA follows that of Gittinger (1982),[22] Belli et al. (2001),[23] and recent World Bank guidelines published on EFA.

5. **Data collection and sources.** This efficiency analysis is based on a broad range of qualitative and quantitative data sources that were made available by the Borrower and the World Bank at the completion stage. The main sources are (a) the Project Appraisal Document (PAD), World Bank, April 13, 2017), (b) the Mid Term Report (MTR) report, (c) the Implementation Status & Results Reports (ISR) and Aide Memoires of the implementation support missions, (d) the Borrower's completion and evaluation reports[24] and related presentations by the Project Implementation Unit (PIU), and (e) impact stories and knowledge products prepared, as well as annual reports.

6. **A cash flow model is used to assess the ex-post efficiency of the project investments.** As in the PAD (2017), annual

[21] The BioCF is a public-private sector initiative managed by the World Bank and supports projects that generate multiple revenue streams, combining financial returns from the sale of emission reductions (that is, carbon credits) with increased local incomes and other indirect benefits from sustainable land management practices.
[22] Gittinger, P. 1982. *Economic Analysis of Agricultural Projects*.
[23] Belli, P., J. R. Anderson, H. N. Barnum, J. A. Dixon, and J-P. Tan (2001). *Economic Analysis of Investment Operations: Analytical Tools and Practical Applications*. WBI Development Studies, World Bank Institute. Washington, DC: World Bank.
[24] MGEE. End Evaluation of Zambia Integrated Forest Landscape Project (ZIFLP). Prepared by Athena Infonomics & Palm Associates Limited. 2024; MGEE. Scaling up Community Forestry Management in Eastern Province. Final Report. February 24, 2024.

cash flows are estimated as the difference between without out project (WOP) and with project (WP) net benefits for direct beneficiaries. The model includes assumptions on yields, prices, capital investments, operational inputs, and labor amounts. The WP models account for the introduction of CSA practices, improved crop husbandry, improved seeds and other inputs, and access to extension services. These are compared to the WOP scenario of traditional farming practices for maize and soybeans. In addition, models were developed for afforestation (woodlot) and improved forest management. As in the PAD, improved beekeeping was maintained as an income-generating activity.

7. The financial models are developed over either a 10 -or 20-year period, depending on the nature of the investment, namely 10 years for the crop production models and 20 years for afforestation, forestry, and beekeeping models. Family labor as well as hired labor are valued at a rural wage rate of ZMW 68.18 (unskilled rural labor). Market prices and WOP yields remain constant. Markets are assumed to be competitive so that they can absorb surpluses produced by households without disturbing prices. Home consumption is valued at the market price. The exchange rate used is ZMW 25 for US$1 (April 2, 2024).

8. **Calibration and aggregation of the financial models.** To calculate the impact of improved crop yields on households, it is assumed, in line with the Results Framework, that 1 ha under CSA practices consists of 80 percent of maize and 20 percent of soybean. Both for crop production and for forestry management, the number of hectares, as reflected in the Results Framework, has been used to aggregate the financial models in the economic analysis. The analysis assumes 72,840 ha of forests under sustainable management practices, 115 ha of forest plantations, and 162,334 ha of crops under CSA practices.

9. **The value of capacity building among direct beneficiaries is captured in the financial models.** The project-funded capacity building and institutional development at all levels have a direct value as they increase the skill level in public sector institutions and enable them to work more efficiently in providing essential and enhanced public good services. These institutional benefits are not quantified in the analysis but are critical to ensure that the other benefits can be realized when it comes to increasing production and productivity with access to extension services, forest management planning, and improved inputs. This will also lead to spillover effects to subsequent works and projects undertaken by the strengthened institutions.

10. **Outreach of the analysis.** The outreach, which is the basis for the aggregation of the economic analysis, is derived from Outcome Indicators 1 and 2 in the Results Framework. Outcome 1 of the project was overachieved with 72,840 ha forest area under sustainable management practices (110.4 percent achieved). Outcome 2 was largely overachieved with 162,334 ha of agricultural area under CSA practices (275 percent of the initial target). Also, the number of direct beneficiaries reached 224,071 (104 percent of the initial target), of which 47 percent women.

11. **Adoption rates.** In line with the end evaluation of the ZIFLP,[25] an adoption rate of 61 percent was applied for farmers adopting new CSA technologies. This is slightly lower than the other projects in the region showing adoption rates of 70–80 percent.[26] It is assumed that beneficiaries gradually adopt improved CSA technology and management systems. Due to the slow start of disbursement of demand-driven subgrants, the adoption of technologies at the farm level was supposed to have taken place only from year 4 onward.

[25] Ministry of Green Economy and Environment. End Evaluation of Zambia Integrated Forest Landscape Project (ZIFLP). Prepared by Athena Infonomics & Palm Associates Limited. 2024

[26] Examples include 74 percent adoption rate in the Uganda-National Agricultural Advisory Services Project and 70–-80 percent adoption rate in the IFAD Rwanda Project for Rural Income through Exports. In the Pro-poor Value Chain Project in the Maputo and Limpopo corridors EFA, an 80 percent adoption rate was assumed in the project area.

Table 5.1. Summary of PDO Indicators by Outcome

Outcome	Intermediate Indicators	Baseline	End Target	Actual	Percentage
Improve landscape management for targeted communities in Eastern Province	Forest area under sustainable management practices (ha)	0	66,000	72,840	110.4
Increase environmental benefits for targeted rural communities in Eastern Province[27]	Agricultural area under climate-smart agricultural practices (ha)	0	59,000	162,334	275
Increase economic benefits for targeted rural communities in Eastern Province	People in targeted communities with increased monetary and non-monetary benefits	0	40,000	162,063	405
	(percentage share of which women)	0	30	47	157
	Crop yield increase for selected crops (percentage)[28]	0	30	31.3	104
	Maize yield (tons/ha)	1.60	2.08	2.15	103

12. **Economic costs.** The financial project costs were converted in economic costs, using a conversion factor of 0.85, to remove all taxes and duties, and as correction for double counting from the subgrants. As some of the project costs, such as capital investments, are integrated in the individual financial models, the total project economic costs have been adjusted to avoid double counting. Consequently, the economic analysis is based on an economic cost of US$27.9 million. As part of the exit strategy, recurrent costs of US$0.56 million per year (2 percent of total economic project costs) are added to ensure continued support for the extension and maintenance of technologies after the project has ended.

13. **Conversion factors.** Financial models have been converted into economic models by applying standard conversion factors (SCFs), namely SCF for imported goods 0.82, Standard Exchange Ratio for exported products 0.94, Shadow Wage Rate Factor 0.6, and SCF for non-tradable goods 1.0. The conversion factors are the same as in the PAD (2017).

14. **Discount rates.** For the economic financial analysis (EFAs), the same discount factors were used as in the PAD. For the economic analysis, the adopted 6 percent discount rate[29] reflects the social opportunity cost of capital in Zambia. Compared to the recent low annual growth in per capita GDP,[30] this may be considered high. The World Development Indicators database shows a slightly negative average Zambian GDP per capita growth rate of −0.15 percent during the implementation period. At the project appraisal stage in 2017, the average GDP per capita growth rate was 1 percent. According to the World Bank guidelines, a 3 percent per capita growth rate translates into a 6 percent discount rate, and per capita growth rates of 1–5 percent yield discount rates of 2–10 percent. Consequently, a sensitivity analysis was undertaken for the social discount rate (2 percent, 6 percent, 12 percent, and 15 percent).

15. The financial analysis is based on a 12 percent discount rate, which reflects the opportunity cost of capital in

[27] Based on the end-of-project evaluation.
[28] The percentage crop yield increase is calculated based on the weighted average (maize 80 percent and soybean 20 percent) of the correspondent yield increase (tons/ha) for maize and soybeans over the years as follows:
Maize: 2018–2019 = 1.92, 2019–2020 = 2.3, 2020–2021 = 2.4, 2021–2022 = 2.3, and 2022–2023 = 1.85. Five-year average = 2.15 tons/ha.
Soybeans: 2018–2019 = 1.04, 2019–2020 = 1.1, 2020–2021 = 0.96, 2021–2022 = 1.1, and 2022–2023 = 0.1.14. Five-year average = 1.07 tons/ha.
[29] In conformity with the World Bank Technical Note on Discounting Cost and Benefits in Economic Analysis.
[30] World Development Indicators Database.

Zambia.[31]

Summary of the Ex-Ante EFA (2017)

16. The ex-ante EFA of the ZIFLP[32] was undertaken at the design stage in 2017. The analysis defines the expected benefit streams of the project as follows: (a) benefits from CSA agriculture, (b) forest-related benefits from selected enterprises—afforestation in a forest reserve and planting of woodlots on communal land, and (c) environmental benefits from reduced GHG emission and increased carbon sequestration valued at the Social Carbon Credit to capture the avoided losses and damages due to reducing GHG emissions.

17. The financial analysis (ex-ante) used crop budgets for WOP and WP scenarios to assess the incremental net benefits of a household cultivating the respective crops on 1 ha land. The WP scenario models account for the introduction of CSA practices. In addition, a model for improved beekeeping was developed. The model assumed an average crop yield increase of about 40 percent in the WP compared to the WOP. The financial analysis concluded that all activities would be profitable, with the financial net present value (FNPV) between US$363 and US$953 per year.

18. For the economic analysis (ex-ante), a total project cost of US$26.71 million was considered after conversion in economic values. Benefits in the analysis stem from the adoption of CSA practices on 47,422 ha and sustainable forest management/woodlots on 13,500 ha as well as the social value of avoided emissions of 888,603 tCO_2e per year, valued at US$30 per tCO_2e. Over a period of 20 years and at a discount rate of 6 percent, this can result in an ENPV of US$282 million and an ERR of 224 percent. If the social value of carbon is excluded, the ENPV is US$25.6 million, and there is an ERR of 17 percent. The sensitivity analysis of the key variables confirmed the robustness of the results.

C. Institutional Benefits

19. In addition to the institutional and capacity-building benefits directly related to Subcomponent 2.1 (Agriculture and Forestry Management) and Component 3 (Project Management), the ZIFLP achieved significant institutional benefits under Component 1 (Enabling Environment) and Subcomponent 2.2 (Wildlife Management). These benefits are as follows:

20. **Component 1: Enabling Environment.** This component focuses mainly on institutional development, in particular the preparation of the EP-JSLP. The four key instruments for the Emissions Reduction Program were prepared and adopted (8/8, 100 percent achieved),[33] which are (a) Social & Environmental Safeguards Assessment, (b) GHG baseline report, (c) draft Benefit Sharing Plan (BSP), and (d) Monitoring Reporting & Verification (MRV) system.

21. Component 1 sets the foundation for the development of the Ministry of Green Economy and Environment (MGEE) Eastern Province Jurisdictional Sustainable Landscape Project (EP-JSLP) through key preparatory activities, including (a) bottom-up integrated district and sustainable land use planning, (b) development of an Emissions Reduction Purchase Agreement (ERPA) for forestry and agriculture, (c) development of the MRV system for carbon transactions for the ERPA, and (d) preparation of the BSP that will be used to fairly reward eligible beneficiaries for reducing emissions in the EP. Because carbon payments under the EP-JSLP will be shared equitably among all stakeholders, there is a broad incentive to continue promoting community management of natural resources, restoration of degraded areas, and the adoption of conservation-friendly and climate-smart farming models started under the ZIFLP.

22. **Subcomponent 2.2: Wildlife management.** General Management Plans (GMPs) for Lukusuzi National Park, Luambe National Park, and Lumimba Game Management Area were developed and approved for implementation. The GMPs include fire management plans. The Management Effectiveness Tracking Tool (METT) score indicator was achieved.

[31] The Zambian Government (November 2023) has introduced the Sustainable Agriculture Financing Facility credit window, an initiative designed to support and promote sustainable agriculture practices by providing accessible loans to farmers. These loans will be made available through banks at a competitive interest rate of 12 percent.

[32] ZIFLP PAD. Annex 6.

[33] As per the definition, if an instrument was prepared, one point was assigned, and two points were assigned when the instrument was adopted.

D. Financial Analysis

23. This financial analysis looks at the impact of the project on core activities, including maize and soybean production under CSA conditions, improved beekeeping as an income-generating activity, woodlots (afforestation), and forest under sustainable management practices.

Sustainable Forest Management Practices and Afforestation

24. To achieve the results related to sustainable forest management, the project has supported the formation of 36 Community Forest Management Groups (CFMGs), out of which 28 were recognized by the Forest Department (FD) under the MGEE[34] compared to the initial target of 15, bringing 72,840 ha under sustainable forest management. Each CFMG manages on average 2,601 ha of community forests. The CFMGs were supported by the project and the FD to develop and implement community forest management plans (https://ziflp.org.zm/management-of-protected-forest-reserves/) that are consistent with village land use plans and follow the guidelines and specifications established in the Forest Act and its regulations. These plans typically include community forestry enterprises and fire management and prevention. The project is also promoting afforestation or forest restoration activities in communities and through CFMGs.

25. The results of the financial analysis for sustainable forest management are as follows:

26. **Sustainable forest management.** This activity was not included in the ex-ante EFA of the PAD (2017). However, as one of the main outcomes of the project was to bring 72,840 ha of forest under sustainable management, a financial model has been developed. Benefits stem from more organized management of communal forests, which would lead to a 60 percent higher production of firewood and other forest products than before. The financial net present value (FNPV) of sustainable forest management was estimated at US$117.5, with a financial benefit/cost ratio (FBCR) of 1.86 and a return to labor of US$6.1 per day. The interesting aspect of improved forest management is the very low investments by participating households that are required (except for the initial trainings and development of the establishment of the CFMGs). This results in an IRR of 38 percent.

27. **Woodlots (afforestation).** The project supported the development of 115 ha of forest plantations, compared to the initial plan to achieve 10,000 ha of woodlots. The woodlots generally concern individual and communal lands where fast-growing species (for example, *Eucalyptus, Senna*, and *Gliricidia*) were planted. It is estimated that the planting density of 1,600 seedlings per year was used, with a rotation of five years. Benefits from harvests of would take place in years 5, 10, 15, and 20. For 1 ha over 20 years, the FNPV is estimated at US$763.8, with an FBCR of 1.91 and a return to labor of US$9 per day. The IRR is estimated at 24 percent.

28. **Beekeeping.** Beekeeping is an interesting livelihood intervention in all East African countries, as the domestic market for honey is generally good. The PAD (page 104) states that the promotion of beekeeping as an alternative livelihood intervention has a positive impact on household revenues. The WP scenario assumes the adoption of on average five modern beehives, instead of three traditional log hives that are used currently. Modern beehives can be harvested twice per year and allow for a doubling in yields. It is assumed that equipment is shared among community members. Variable costs include the purchase of wax and sugar as well as labor related to the maintenance and inspection of the hives and honey extraction. The model shows that beekeepers could increase their annual net benefits to on average US$254. The FNPV is estimated at US$1,662, FBCR at 2.18, and return to labor at US$9.1 per day. The IRR is estimated at 187 percent.

Table 5.2. Financial Performance of Afforestation, Forest Management, and Beekeeping Models

Activity	Unit	IRR (%)	FNPV @ 12%, (US$)	FBCR	Return to Labor (US$/day)
Improved forest management	ha	38	117.5	1.86	6.1

[34] Situation February 2024.

Activity	Unit	IRR (%)	FNPV @ 12%, (US$)	FBCR	Return to Labor (US$/day)
Woodlot	ha	24	763.8	1.91	9.0
Beekeeping	Household	187	1,662.0	2.18	9.1

Source: Own calculations, based on data collected by the project.

CSA Crop Production Models

29. Benefits of investments in improved access to extension are captured in the CSA crop models. The project made significant investments in extension to promote CSA practices. Interventions under CSA applied an LF approach to introduce (a) CSA practices and Integrated Soil Fertility Management (ISFM), (b) agroforestry, and (c) enhanced market access for smallholders and private sector engagement. To mainstream these technologies, the project trained 338 extension officers, 10,755 LFs, and 107,550 farmers on CSA practices. Also, 478 farmer field schools were established. These CSA practices consist of adopting better crop husbandry practices, improved seeds, improved biofertilization (manure, lime, basal fertilizer, and top dressing), and improved management of pests and diseases.

30. The financial analysis is aligned with the Results Framework indicator for baseline crop yield and achieved yield growth, both for maize and soybeans. The indicators assume a yield increase for maize from 1,600 kg per ha to 2,150 kg per ha, or an increase of 34 percent. For soybean, the yield increase was from 900 kg to 1,600 kg per ha or an increase of 19 percent. These yield increases can be achieved without significant increases in the use of chemical fertilizers. Table 5.3 compares the ex-ante and ex-post yield assumptions. The ex-ante EFA in the PAD overstated the baseline yields and yield growth assumptions (60 percent for maize and 50 percent for soybean).

Table 5.3. Crop Yields of the Ex-Ante and Ex-Post EFA

Crop	EFA Ex-Ante (2017)			EFA Ex-Post (2024)		
	WOP (kg/ha)	WP (kg/ha)	% Increase	WOP (kg/ha)	WP (kg/ha)	% Increase
Maize	2,200	3,520	60	1,600	2,150	34
Soybeans	900	1,350	50	900	1,070	19

31. Table 5.4 summarizes the financial performance of the models, based on a comparison between the WP and WOP situations. This analysis confirms the financial viability of the core investments in CSA crop production that were promoted by the project, which should encourage farmers to continue the application of CSA practices after the initial investments by the project.

32. Maize is the most common food crop in Zambia, and many farmers benefit from the Farm Input Subsidy Program, which provides fertilizer to farmers. It is assumed that fertilizer is applied inefficiently in the WOP scenario leading to an average yield of only 1,600 kg per ha. CSA practices, based on improved crop husbandry, including improved nutrient use, increased manure use, and improved seeds, have resulted in a yield increase of 34 percent. The incremental FNPV is estimated at US$209 per ha, FBCR at 1.30, and a return to labor at US$5.1 per day.

33. Soybean has clear benefits for smallholders, such as improving incomes and diets. Low production quantities are related to agronomic practices, such as late planting and poor disease management as well as low usage of inputs as inoculum. Soybean production also improves soil fertility. The adoption of CSA practices has contributed to a yield increase of 19 percent. The gross margin of the financial WP model amounts to US$437 per ha. The incremental FNPV would be US$144.5 per ha, an FBCR of 1.84, and a return to labor of US$7.1 per day.

Table 5.4. Financial Performance of the Crop Models (Comparison of WOP versus WP)

Model	Unit	IRR (%)	FNPV @ 12%, (US$)	FBCR	Return to Labor (US$/day)
Maize	ha	59	209.2	1.30	5.1
Soybeans	ha	42	144.5	1.84	7.1

Source: Own calculations, based on data collected by the project.

34. **The project interventions lead to increased yields and gross margins while also reducing the share that is consumed at home on emerging smallholder farms.** Subsistence farmers are expected to also increase their home consumption, which has a positive impact on food and nutrition security. Table 5.5 shows the WOP and WP crop gross margins per hectare. The gross margins show a 69 percent increase for maize and a 20 percent increase for soybeans. The increased gross margins allow subsistence farmers to retain more for home consumption. The farmers will not need to reduce their intake to save cash—a typical coping mechanism in the current situation.

Table 5.5. Gross Margins WOP and WP

Crop	EFA Ex Ante (2017)			EFA Ex Post (2024)		
	WOP (US$/ha)	WP (US$/ha)	% Increase	WOP (US$/ha)	WP (US$/ha)	% Increase
Maize	99	253	155	121	205	69
Soybeans	236	297	26	365	437	20

35. Table 5.6 assumes that a household cultivates 1 ha (80 percent maize and 20 percent soybean) with CSA practices. In a WP situation, the gross margin would be US$251 per ha, or a 48 percent increase compared to the WOP situation.

Table 5.6. Impact of the Project on Household Income

Hectare	EFA Ex Ante (2017)			EFA Ex Post (2024)		
	WOP (US$/ha)	WP (US$/ha)	% Increase	WOP (US$/ha)	WP (US$/ha)	% Increase
1 ha (20% soybeans and 80% maize)	126	262	1.07	170	251	48

E. Economic Analysis

Economic Benefits of the Project

36. The project's economic cash flow represents the overall project aggregation of incremental economic costs and benefits. It includes the net incremental benefits of each model in economic terms, converted with SCFs or shadow prices, and multiplied by the number of hectares of crops and forestry, or the number of beekeepers. The economic costs have then been deducted from the overall economic benefit stream to obtain the project's net incremental benefit stream. Conservative assumptions and parameters have been applied, to avoid overestimation of benefits and provide realistic results.

37. The economic analysis of the ZIFLP is based on the following benefit stream: (a) the agricultural area under CSA practices (162,334 ha), (b) the forest area under sustainable management practices (72,840 ha), (c) the development of woodlots (afforestation) on 115 ha, (d) 500 households that apply improved beekeeping (five modern beehives each), and (e) the monetized environmental benefits expected to accrue from reduced GHG emissions and increased carbon sequestration. An adoption rate of 61 percent has been used (End Evaluation of ZIFLP, 2024).

Results of Economic Analysis and Sensitivity Analysis

38. Overall, the economic results of the project are positive, generating an economic net present value (ENPV) (at 6 percent social discount rate) of the net additional benefits of US$70.5 million and an Economic Rate of Return (ERR of 29.1 percent (over a 20-year period), not accounting for environmental externalities (GHG accounting). These economic results are satisfying, given that several other project benefits could not be quantified due to the difficulty of assigning them a monetary value.

Table 5.7. Scenarios for Valuation of Environmental Benefits

Indicators	Results, Excluding Carbon Mitigation
NPV (US$, @6%, 20 years)	70,456,685
ERR (%)	29.09
NPV benefits (US$, @6%, 20 years)	96,582,329
NPV costs (US$, @6%, 20 years)	26,125,644
Benefit/cost ratio	3.7

Sensitivity Analysis

39. The World Bank guidance recommends as good practice to undertake a sensitivity analysis of the social discount rate. Table 5.8 presents the discount rate sensitivity, for 15 percent, 12 percent, 6 percent (base case), 3 percent, and 2 percent. As expected, the ENPV remains very solid under the different scenarios for a social discount rate of 2 percent.

Table 5.8. Sensitivity Analysis of Social Discount Rate

Discount Rate	ENPV (US$, millions)
15 percent	19.4
12 percent	30.1
6 percent	70.5
3 percent	108.3
2 percent	125.2

40. The results of the economic analysis were also tested for sensitivity to variations in benefits and various lags in the realization of benefits. Individually taken, all scenarios show robust results under all hypothetical situations.

Table 5.9. Sensitivity Analysis of Project Benefits

Modelling Scenario	ERR (%)	ENPV (US$, millions)
Base case scenario	29.1	70.5
Benefits +10 percent	31.26	80.1
Benefits +20 percent	33.31	89.8
Benefits −10 percent	26.79	60.8
Benefits −20 percent	24.34	51.1
Benefits −30 percent	21.68	41.5
Benefits delayed 1 year	24.23	60.7
Benefits delayed 2 years	20.67	51.4

ERR, Including Environmental Benefits (Carbon Mitigation)

41. Using the World Bank's guidance note[35] on the shadow price of carbon in economic analysis (2022), the social value of these environmental benefits has also been included in the overall economic results, using the low and high estimate range for the social price of carbon.

42. The carbon balance is defined as the net balance across all GHGs expressed in CO_2 equivalents (CO_2e) that will be emitted or sequestered due to the project (WP), as compared to a business-as-usual scenario (WOP). A 20-year period is being considered. The environmental benefits result from three main investments, namely (a) the agricultural area under CSA practices (162,334 ha), (b) the forest area under sustainable management practices (72,840 ha), and (c) the development of woodlots (afforestation) on 115 ha.

43. The carbon balance was calculated by using EX-ACT, a tool developed by the Food and Agriculture Organization (of the United Nations), to quantify the volume of GHGs mitigated by the project. This allowed to estimate its economic value of this GHG mitigation, which was included in the economic analysis. EX-ACT is a land-based accounting system, estimating CO_2e stock changes (that is, emissions or sinks of CO_2) expressed in equivalent tons of CO_2 per hectare and year. The result shows a marginal carbon emission saving for the project of 7,837,548 tCO_2e over a period of 20 years, equivalent to 391,877 tCO_2e per year.

44. The monetary value of the GHG balance has been estimated and considered as an economic benefit of the project in the EFA. The World Bank's Guidance Note on Shadow Price of Carbon in Economic Analysis (September 2021) recommends projects' economic analysis use a low and high estimate for carbon pricing. In the case of the ZIFLP, carbon prices increase from US$38/$tCO_2e$ in 2018 to US$69/$tCO_2e$ in 2037, with the high estimate of the carbon price increasing from US$77/$tCO_2e$ in 2018 to US$138/$tCO_2e$ in 2037.

45. In the PAD (ex-ante analysis), a carbon price of US$30/$tCO_2e$ was used.[36] The marginal carbon emission savings for the project were estimated at 17,772,061 tCO_2e over a period of 20 years, equivalent to 888,603 tCO_2e per year. The lower marginal carbon emission savings are the results of the much lower afforestation than planned in the original design.

46. Including the carbon mitigation valued at the low carbon price estimate range, the project is expected to generate an NPV of US$188 million and an ERR of 47.8 percent. When using the high market price estimate range for carbon, the project could generate an NPV of US$306 million and an ERR of 60 percent. These scenarios are summarized in Table 5.10.

Table 5.10. Scenarios for Valuation of Environmental Benefits

Indicators	Results Excluding Carbon Mitigation	Results Including Carbon Mitigation, Valued @ Low Price Estimate Range	Results Including Carbon Mitigation, Valued @ High Price Estimate Range
ENPV (US$, @6%, 20 years)	70,456,685	188,357,264	305,776,367
ERR (%)	29.09	47.78	60.03
ENPV benefits (US$, @6%)	96,582,329	214,482,908	331,902,011
ENPV costs (US$, @6%)	26,125,644	26,125,644	26,125,644
Benefit/cost ratio	3.7	8.21	12.70

[35] World Bank's Guidance Note on Shadow Price of Carbon in Economic Analysis (September 2021).

[36] When the EFA was conducted for the PAD, the World Bank Guidelines suggested a social cost of carbon of US$30 per tCO_2e. World Bank. 2014. "Social Value of Carbon in Project Appraisal." Guidance Note to the World Bank Group staff. Washington, DC, World Bank. A later guideline recommends 2018 shadow price of carbon at US$38 per tCO_2e increasing by 2.25 percent each year (World Bank 2017). The guideline also recommends a high price scenario starting at US$77 per tCO_2e. In 2021, the guideline was updated again.

Indicators	Results Excluding Carbon Mitigation	Results Including Carbon Mitigation, Valued @ Low Price Estimate Range	Results Including Carbon Mitigation, Valued @ High Price Estimate Range
Discount rate (%)	6	6	6
Switching value benefits (%)	−73	−88	−92
Switching value costs (%)	270	721	1,170

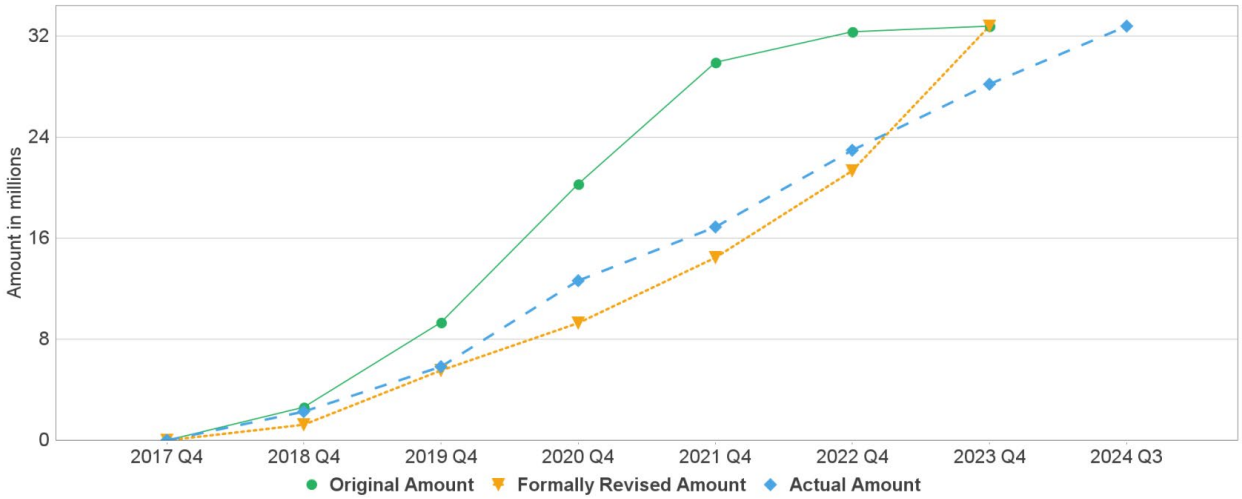
Project Efficiency

47. The ZIFLP's funding strategy, combining resources from the World Bank, GEF, and BioCF ISFL, facilitated a diverse range of interventions from livelihood enhancement to emissions reduction frameworks. Efficient financial management and targeted fund allocation have ensured that project components receive appropriate support, as demonstrated by the significant advancements in district planning and low-carbon investments. The project has maintained financial discipline through systematic tracking, monitoring, and evaluation, ensuring that funds are used effectively to achieve intended outcomes. However, due to slow procurement processes, the project was unable to undertake some of the activities.

Planned versus Actual Project Time Frame

48. The project totally disbursed its three sources of financing. The initial closing date (August 31, 2022) was revised to February 29, 2024, or an extension of 18 months. The delays were due to the time-consuming process of tendering as well as the COVID-19 pandemic. Figure 5.1 presents the original versus actual disbursements.

Figure 5.1. Original versus Actual Disbursements

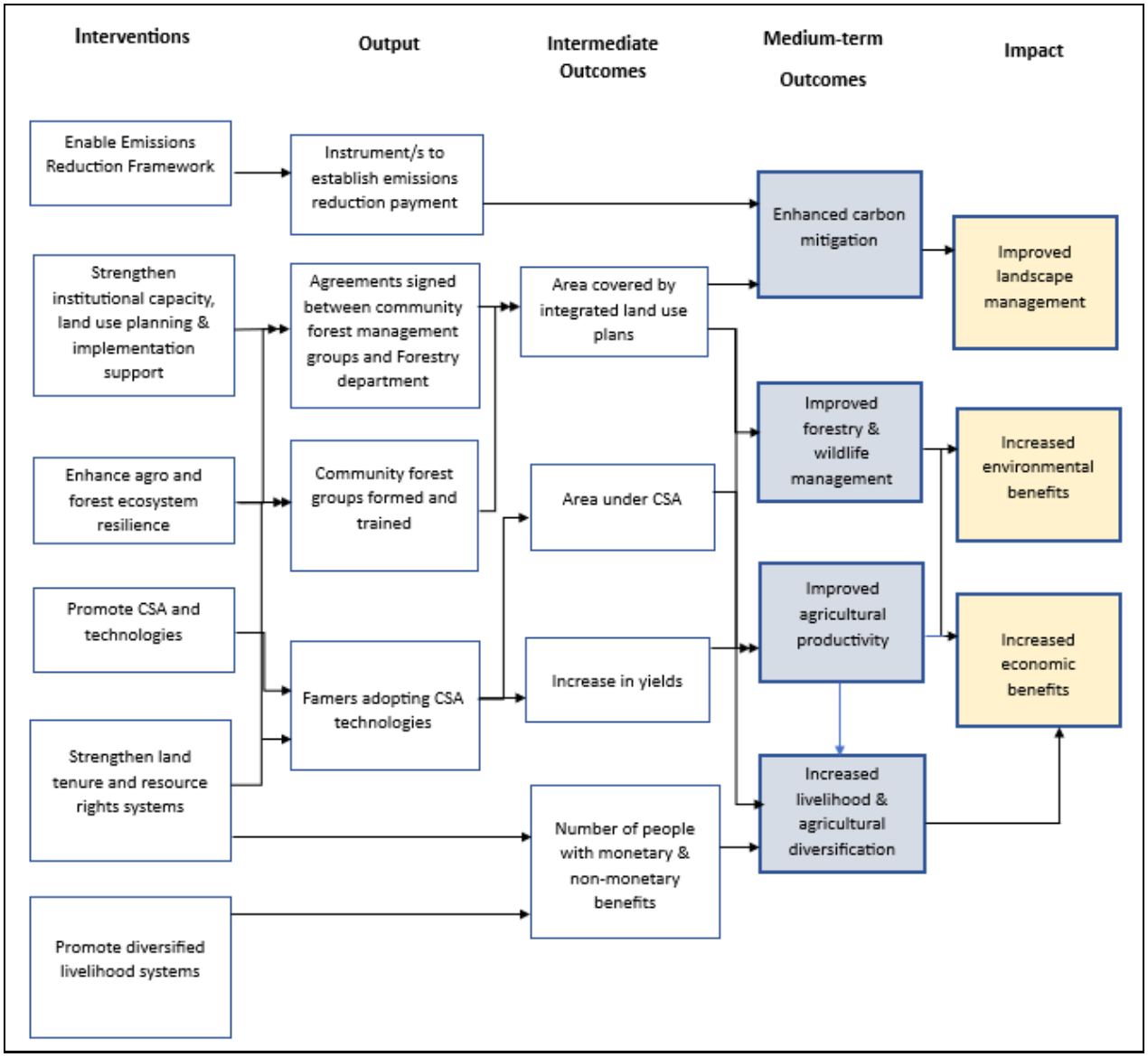


Source: ISR, February 2024.

Cost per Direct Beneficiary

49. Given the project costs of US$32.8 million and 224,071 direct beneficiaries, the project cost per direct beneficiary amounts to US$146. This can be considered as good, as most beneficiaries generally represent households of at least five persons. Also, 73,052 farmers adopted CSA technologies, which is a considerable outreach, given the limited total budget.

ANNEX 6. THEORY OF CHANGE



Key Assumptions at the Project Level

- Communities will participate in forest and wildlife management and land use planning.
- Behavioral change will lead to adoption of land management practices and technologies that conserve biodiversity and allow for productive landscapes.
- Institutions will be strengthened, and knowledge transferred to communities.
- The Government will take ownership for all project activities.

Key Assumptions beyond the Project Control

- Severe climate shocks will not occur during the project's duration.
- The macroeconomic environment will remain stable.

ANNEX 7. ACHIEVEMENT OF INTERMEDIATE RESULTS INDICATORS

Intermediate Results Indicator	Baseline	End Target	Actual	Percentage Achieved
Component 1: Enabling environment (US$6.35 million, all BioCF ISFL)				
Key instruments to establish the enabling environment for emission reduction payments prepared and adopted (number, custom)	0	8.0	8.0	100
ERPA agreed and signed by GRZ and Trustee (yes/no)	No	Yes	Yes[37]	
Net reduction in deforestation measured as effectiveness index of activities supported by project (ha, custom)	0	24,170	8,745	36
Component 2: Livelihood and low-carbon investments (total cost: US$23.30 million: IDA SDR 10.4 million (US$14.1 million equivalent), BioCF ISFL US$1.15 million, and GEF US$8.05 million)				
Direct project beneficiaries (number)	0	214,955	224,071	104
Female beneficiaries (percentage)	0	30	47	157
Area covered by integrated land use plans which were consulted and agreed (ha)	0	52,000	145,379	280
Partnerships between ZIFLP and private sector companies established (number)	0	2	3	150
Agreements signed between community forest management groups (CFMGs) and the Forestry Department (number)	0	15	28	187
Farmers adopting improved agricultural technologies (number)	0	59,103	73,052	124
Share of which women (percentage)		30	44	147
Enabling environment for improved wildlife conservation and community engagement diagnostic tool (index) (percentage)	48	65	48	74
Management Effectiveness Tracking Tool (METT) score for Lukusuzi National Park (number, custom)	30	60	62	103
Component 3. Project management (US$3.15 million)				
Grievances registered related to delivery of project benefits that are actually addressed (percentage, custom)	0	100.0	100.0	100.0
Percent of satisfactory quarterly project interim unaudited financial and monitoring reports submitted (percentage, custom)	0	100.0	100.0	100.0

[37] The ERPA was signed on 17th June 2024, although after the project closure, is considered to have been accomplished.

ANNEX 8. COVID-19 IMPLICATIONS AND SELECTED SAMPLES OF INVESTMENTS

Box 8.1. Implications of COVID-19 on the Project Operations

- Delays in starting of the development of Systems to Manage Data on Land Rights due to work restrictions introduced by the Government.
- Delays in the development of instruments to support the preparation of the Emission Reduction Purchase Agreement (ERPA) such as the Benefit Sharing Plan (BSP), the Emission Reductions Program Document, and Measurement, Reporting and Verification (MRV) systems due to the inability of required international consultants to travel.
- Delays in the implementation of contracts especially for the emissions reduction and the BSP that caused exiting of some international consultants during and post the pandemic which affected the timely completion of project activities.
- Reduced number of people that could be trained due to restrictions on in-person meetings and gatherings.
- Delays in overall implementation of activities caused by PIU members and consultants contracting COVID.

Figure 8.1. Land Cover Restoration in Mphomwa Community Forest

Source: Scaling up community forestry management in the Eastern Province final report (2024).

Figure 8.2. Examples of Land Use Land Cover Changes in CFMG Areas since Project Implementation

Source: Project End Line Evaluation, 2024.

Box 8.2. Infrastructure that Supported Landscape Management in the EP

The infrastructure supporting landscape management in the EP included essential facilities for both conservation and community development. In Luambe and Lukusuzi National Parks, three medium-cost houses, a radio room, and an office as well as four additional houses in Lukusuzi were constructed. The Provincial and Chipata District FD Offices benefitted from a dedicated storage space. At Msupe Plantation, a new office and a residence for the plantation manager were established. It must be noted that some of the newly constructed offices were also used for training and were equipped with educational information for school visits. Furthermore, 61 subgrants were awarded for small infrastructure projects, enabling the storage and small-scale processing of local produce such as grains, oils, and honey, which facilitates community value addition. Additionally, FLIS were developed, complete with two boreholes, four 10,000 L tanks, drip irrigation kits, and fencing for 5 ha. In total, there are 21 of these irrigation sites spread across the EP, enhancing agricultural productivity and sustainability.

Box 8.3. Example of Success Stories of the ZIFLP

1. Smallholder Irrigation System Transforms Community in Nyimba District

Located about 10 km east of Nyimba District in Sindilani Village is a 'green oasis'. Youths grow and sell tomatoes, onions, and various other vegetables. They also grow fruit trees fed by an irrigation system using groundwater.

Nearby communities also have access to clean and safe drinking water from the extended water reticulation system supplied. A few years ago, none of this was here, and none of this was possible. Nyimba like Mambwe District is known in the province as being a 'mini desert'—a very hot and dry area made drier by the inconsistent rains during each year's rainy season, October through March, over the past few decades. With no rivers or streams nearby, it was so difficult for families to grow anything beyond the rain season. Most families and marketers alike have to travel several kilometers away to other communities and at times as far as Lusaka to buy fresh vegetables.

"This is a very helpful project because it's very dry," says Catherine Nyangu, the Chairperson of Works of Our Hands Youth Multipurpose Cooperative, a beneficiary cooperative of the subgrants provided by the ZIFLP. "But with the support of ZIFLP we now do it here and have an opportunity to earn income and enhance our livelihoods."

2. Honeybees Protecting Forestry in Rural EP of Zambia

In Zambia's EP, there is major ongoing deforestation—about 50 ha of forests are cleared per day for food, firewood, and charcoal production. This threatens the existence of forests. Engaging forest agents and local communities at large is key to protecting the environment. Forests are not only the lungs of our planet but also home to the rich biodiversity that allows for the survival of local communities. To enhance the groups' beekeeping business, the project working through the Technical Service Provider, COMACO, has been building capacity in beekeeping. Since making the first harvest and sale of honey, local communities have been discussing the benefits of investing in beekeeping both for household income and protecting the environment. Others have even gone to the extent of approaching the project to increase the hectarage of forest area under community management. Below are some of the quotes from interacting with the communities.

"Homesteads now appreciate having beehives. The idea has been instrumental in ensuring financial security for many people in this area." **Elina Kota, community beneficiary, Njanji Cooperative.**

"Beekeeping is a great climate-smart option for small-scale farmers and it's not reliant on health soils or rainfall so it is helping to diversify farmers' incomes and enterprises. This project is providing an opportunity for alternative livelihoods, in case you fail in growing maize." **Reverend Alipha Banda, the Chairperson for Njanji Cooperative in Lusangazi.**

"Beekeeping helps people in Lusangazi, the majority being small-scale farmers, to increase their financial security. They have also adopted more sustainable livelihoods, based on the knowledge and skills they have acquired in apiculture. From being consulted on project's road map to setting up apiaries, the beneficiaries have been inspired to think differently about their environment and sustainability." **Geoffrey Mkandawire, the District Forestry Officer for Lusangazi.**

Source: ZIFLP 2023 Semi-annual Report.

Box 8.4. Sinda Women's Village Association

The Sinda Women's Association, supported by the ZIFLP funding, has significantly advanced gender mainstreaming and women's empowerment in forestry management and agricultural activities. Women have gained agency and influence through active involvement in the project design and decision-making processes. This empowerment extends to economic status, as women transition from subsistence to commercial crop cultivation, earning substantial incomes. Access to loans has facilitated entrepreneurial ventures, while the introduction of energy-efficient cookstoves has alleviated time poverty and enhanced control over family finances. Despite challenges like machinery breakdowns, the association has made strides in food security via sunflower production and business operations improvement. Key lessons include the importance of technical support, machinery maintenance, and financial management workshops to ensure sustainable growth and expansion goals achievement. The association's experience highlights the critical role of financial support in women's empowerment. Feedback emphasizes teamwork, capacity building, and market research for initiative success. Encouraging value addition and networking with similar groups can further amplify the association's positive impact on the community, showcasing the transformative power of women's economic independence.

Source: End-of-Project Impact Assessment, 2024.

ANNEX 9. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

Government of the Republic of Zambia (GRZ) Response to the Implementation Completion and Results Report of the Zambia Integrated Forest Landscape Project (ZIFLP)

Introduction

The Government of the Republic of Zambia (GRZ) through the Ministry of Green Economy and Environment (MGEE) established the Zambia Integrated Forest Landscape Project (ZIFLP) to improve landscape management and increase environmental and economic benefits for rural communities in Eastern Province. The project was funded by an IDA Credit, a Global Environmental Facility Grant, and a BioCarbon Fund Grant, totaling approximately $32.8 million. The implementation of the project commenced on 30th January 2018 and closed on 29th February 2024. The project focused on sustainable forest management, climate-smart agriculture, and enhancing the capacity to respond to crises. The project successfully increased forest areas under sustainable management, agricultural areas under climate-smart practices, and provided significant economic benefits to targeted communities.

As one of the requirements for closing the project, the GRZ welcomes the Implementation Completion and Results Report (ICR) and is very grateful for it. The ICR provides an assessment of the degree to which the project achieved its development objectives and outcomes set out in the project documents, project's performance, including compliance with the relevant operational and safeguards policies, prospects for project sustainability, and identifies the lessons learned from the implementation. The GRZ also views the ICR as an integral part of its drive to increase development effectiveness through a continuous process of self-evaluation, lesson learning and application of knowledge sharing. GRZ would, therefore, like to give special thanks and express appreciation to the World Bank Team, Project Implementation Unit and all key project stakeholders for their tireless input and contributions to the drafting of the ICR.

The GRZ Responses to the draft ICR are outlined in the following sections.

GRZ's Responses to Project Context and Development Objectives

Theory of Change (Results Chain): GRZ notes and appreciates the reconstructed Theory of Change (ToC) in the ICR as the original in the Project Appraisal Document (PAD) did not adequately capture all impact pathways in the project. The reconstructed ToC is in line with the project description and shows a causality within the project. The ToC suggests that the key objectives of the ZIFLP depend on activities which address sectoral challenges to reduce environmental degradation and enhance livelihoods and incomes in the EP. The GRZ acknowledges that moving forward with future projects, the Bank and GRZ must developed well thought-out ToC during project appraisal defining the simple causality within the project.

Significant Changes During Implementation: GRZ appreciates the findings of the ICR that during the project implementation, there were no revisions done the Project Development Objective (PDO), Outcome Targets, Indicators and Components. The PDO remained unchanged throughout the project lifetime. The PDO was deemed Highly relevant during the appraisal and maintained this status throughout the project's completion. However, GRZ agrees that the project underwent two level 2 restructurings, with the first restructuring approved in November 2021 and the second one approved in July 2022. The GRZ appreciates and agrees that the restructuring was necessary to extend the project closing date by 18 months, from August 31, 2022, to February 29, 2024, and reallocate project funds from the Livelihoods and Low Carbon Investments component to the Project Management component. This restructuring facilitated the completion of project activities and availability of sufficient funding for Project Management through the project extension period.

GRZ's Responses to Outcome

Relevance of PDO: GRZ notes that the PDO was deemed Highly relevant during the appraisal and maintained this status throughout the project's completion. GRZ agrees with the ICR's suggestion that the PDO's high relevance stemmed from its strong alignment with sectoral challenges, government priorities, and strategies, and World Bank CPF. GRZ appreciates that the project aligned with Zambia's Vision 2030, the 7th and 8th National Development Plans (7&8-NDP) and the 2015 National REDD+ Strategy. GRZ aggress that the ZIFLP was adeptly tailored to address the intertwined issues of poverty and environmental degradation in the EP by promoting sustainable agricultural and forestry practices to conserve natural resources and improve rural economic conditions. Recognizing forests as vital for the vulnerable, it aimed to reduce poverty5 through forest conservation and management. The project emphasized the importance of supportive policies and frameworks to enable community-based forest management and enhance local opportunities for shared prosperity.

Achievement of PDOs (Efficacy): GRZ appreciates that ICR's assessment of achievement of the PDO (efficacy) was high. GRZ notes that the project's efficacy was evaluated by measuring the attainment of four parts of the development objectives through the PDO and the intermediate indicators in the Results Framework. GRZ also notes that overall, the project demonstrated remarkable success as it exceeded all its four PDO indicator targets. GRZ agrees that the overachievement of targets is noteworthy, especially given the initial slow progress observed at the Mid Term Review (MTR7) and the constraints imposed by the COVID-19 pandemic. The project fully achieved its objectives and demonstrated strong community impact.

Efficiency: GRZ appreciates the ICR's assessment of project efficiency and rating as substantial based on the ex-post Economic Net Present Value (ENPV), Economic Rate of Return (ERR) and other economic indicators. The sensitivity analysis shows that these results are robust to changes in valuation assumptions. GRZ agrees with the ICR's assertion that the ZIFLP implementation structures proved to be largely efficient in executing their designated roles. The strategies for project implementation were generally adhered to, though procurement challenges and the COVID-19 pandemic caused some delays.

Mobilizing Private Sector Financing: GRZ notes, and will reflect on, the ICR's finding that no private sector funding was mobilized during the implementation of the ZIFLP. However, the project collaborated with the private sector, as Technical Service Providers (TSP) only, to facilitate community grants and establish potential market connections for beneficiaries, which included Community Markets for Conservation (COMACO), Wonta Enterprise, and the Empowering Farmer Foundation. GRZ has noted the lack of Private Sector financial mobilization in the REDD+ landscape project**.** This raises the need to better tailor private sector engagement strategies. GRZ understands that it will be necessary in future projects to identify and secure the involvement of private sector entities that can work with the project.

GRZ Response to Key Factors that Affected Implementation

GRZ notes that, at the Medium-Term Review (MTR) the project was rated Moderately Unsatisfactory for finance and procurement. The utilization of the project funds was very low. GRZ agrees that the establishment two separate PIUs, one at national level and the other at Provincial level, was not cost-effective and contributed to the initial poor performance of the project. GRZ also agrees that the COVID-19 pandemic brought significant interruptions, particularly affecting community engagement activities such as participatory land use planning and the formation of CFMGs. The development of instruments to support the preparation of the ERPA such as the BSP, ERPD, and MRV systems was delayed because required international consultants were unable to travel as necessary to carry out their assignment.

GRZ appreciates that the substantial structural changes to the project structure, most notably the amalgamation of the two PIUs and the decentralization of management to the provincial level enhanced financial oversight and operational efficiency. In response to COVID-19 disruptions, GRZ appreciates that the project adapted by using virtual platforms for

meetings that did not require community involvement and conducted smaller community gatherings in compliance with health guidelines. Further, the PIU capacity was expanded to complete the required documents preparation.

GRZ sadly notes that the project also encountered delays in the contracting of works, and a significant issue was the protracted contract approval process by the government, which required the Attorney General's sign-off. This step often led to delays of several months for the PIU, disrupting the project timeline and delaying service delivery to communities. The process, which necessitated clearances in the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) and then followed by the full government procurement process, was deemed inefficient for the time-sensitive nature of the project. GRZ agrees that the decentralization of the procurement to the provincial level and use of Bank procurement systems can led to a more efficient implementation of project activities.

GRZ Response, Compliance Issues and Bank Performance

Quality of Monitoring and Evaluation (M&E): Concerning the quality of M&E, the GRZ is pleased to acknowledge that the ICR rated the overall quality of the M&E as Substantial. The GRZ agrees that M&E system was sufficient to assess the PDO achievements and to test the causal links in the results chain regardless of challenges of COVID-19 restrictions and the missed opportunity to revise the intermediate indicator.

Environmental and Social Compliance: The GRZ appreciates that the safeguards rating at the close of the project was satisfactory for all triggered safeguards policies. The GRZ agrees that the rating is justified by the comprehensive Environmental and Social Management Framework (ESMF) that was provided, outlining necessary measures and guidelines to mitigate potential environmental and social impacts throughout the project lifecycle. The ESMF included effective screening tools, risk assessment procedures, and potential mitigation measures for subproject activities, which guided the preparation of site specific environmental and social management plans (ESMPs) ensuring a systematic approach to managing risks. The GRZ will continue to build capacity in the environment and social space of project implementation through a systematic approach of managing environmental and risks and monitor compliance. Environmental and Social Issues including gender and grievance redress will be integrated into project implementation at all levels.

Procurement Compliance: The GRZ agrees with the ICR's procurement rating at project closure as satisfactory. The GRZ appreciates that despite procurement delays caused by the need for tender documents to be reviewed and cleared by the Attorney General, the PIU managed to procure most goods and services, with only a few cancellations and adhered to the relevant regulations and guidelines. GRZ proposes the need delegate the procurement of the goods and services to the PIU and Provincial Procurement Unit in line with the Bank's procurement guidelines for a more efficient implementation of project activities.

Financial Management Compliance: The GRZ notes that at the project's closing the Financial Management was rated as moderately satisfactory. GRZ appreciates that the financial management of the project was conducted in accordance with the relevant provision. The project maintained a high level of compliance with disbursement and budget performance, achieving a 100 percent disbursement rate and a 96 percent funds utilization rate. The GRZ acknowledges that the financial reports and audits were submitted on time, with unqualified opinions from the external auditors, indicating no significant issues. The GRZ agrees that the financial management issues that contributed to the moderately satisfactory rating included overdrawing of grant category, weaknesses in controls over retirements of accounts, and failure to share timely internal audit reports. The GRZ is working on to explore ways that strengthen internal financial controls and timely submission of internal audit reports to the Bank.

Bank Performance: The GRZ acknowledges the overall Bank performance is rated Satisfactory. The GRZ appreciates that the Bank's project team adeptly navigated and adapted to significant changes in Zambia, such as the constraints imposed

by COVID-19 restrictions and the new financial oversight measures by the government. The GRZ agrees that the World Bank team provided close and effective support throughout the project implementation.

GRZ's Response Lessons and Recommendations

Project Management Unit: The GRZ agrees that the establishment of two separate PIUs at the beginning of the project was a huge mistake that proved to be financially inefficient. The GRZ concurs that, based on this experience, it is recommended that future Bank projects operating only in specific areas of the country consider establishing a PIU within the project's province/locality.

CSA and Sustainable Forest Management: The GRZ agrees that the project demonstrated that focused training in CSA and sustainable forest management significantly enhances adoption rates and in turn agricultural productivity and resilience. The GRZ concurs that it is important to expand the CSA and sustainable forest management activities at community level. This will help reduce public expenditure especially on fertilizer which represents the greatest cost for government support to agriculture. The GRZ agrees with the ICR's recommendation that the introduction of CSA practices be accompanied by appropriate funding, planning and execution of related training efforts. The GRZ also agrees with the recommendation that Government and Cooperating Partners continue with mentorship programs that connect new farmers with experienced LFs for ongoing support and knowledge sharing.

People-Centric and Outcome-Oriented Approach: The GRZ appreciates the project's integration of a people-centric and outcome-oriented approach in landscape restoration, emphasizing collaboration, inclusive planning, secure land tenure, capacity building, and investments, alongside the empowerment of women, is crucial for sustainable forestry development. The GRZ agrees with recommendation from design to implementation attention is paid to ensuring the process is participatory and ensures community ownership that can lead to lasting project outcomes.

Development of the Jurisdictional Programme: The GRZ agrees that the project demonstrated the complexity related to the development of a jurisdictional landscape programme. The ZIFLP demonstrated the complex steps, processes and investments involved in setting an ERPA and an MRV system, engaging communities in benefit sharing, integrating legacy private carbon project, and the finalizing and signing the Chiefdom Emissions Reduction Performance Agreement and the Nested Emissions Reduction Performance Agreement. The GRZ concurs with the recommendation that Bank projects establishing ERPA must prioritize the development of a comprehensive MRV system to ensure accurate measurement and reporting of emissions reductions. This is critical for performance-based rewards and maintaining the integrity of the emission reduction process. The GRZ also concurs the need to establish clear legal frameworks and institutional arrangements early, investing in local stakeholder capacity building to enhance engagement and sustainability, and streamline processes for smoother negotiations and improved operational efficiency.

ANNEX 10. SUPPORTING DOCUMENTS

1. World Bank, ZIFLP Project Appraisal Documents
2. World Bank, Restructuring Papers, 2021, 2022
3. World Bank, ZIFLP Implementation Status and Results Reports (ISRs) 1–14
4. World Bank, Zambia Country Partnership Strategy, FY13–16, FY19–23
5. World Bank, Zambia Systematic Country Diagnostic Report
6. ZIFLP Aide Memoires and Midterm Review
7. Ministry of Green Economy, ZIFLP Beneficiary Impact Assessment Surveys 2021, 2022
8. Ministry of Green Economy, Final Implementation Completion and Results Report, March 2024
9. Ministry of Green Economy, Scaling up Community Forest in the Eastern Province (2024)
10. Ministry of Green economy, ZIFLP Annual and Semiannual Reports 2018–2023
11. Athena Infonomics and Palm Associates, End Line Project Evaluation 2024