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IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF97579, TF17090, TFA2276

ON

GRANTS

IN THE AMOUNT OF US$29,868,832

TO THE

REPUBLIC OF GHANA

FOR THE

SUSTAINABLE LAND AND WATER MANAGEMENT PROJECT

November 30, 2021

Environment, Natural Resources, and the Blue Economy Global Practice
Africa West and Central Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective May 31, 2021)

Currency Unit =	New Ghanaian Cedi (GHS)
GHS5.77 =	US$1
US$0.17 =	GHS1

FISCAL YEAR

July 1 – June 30

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AF1	Additional Financing 1
AF2	Additional Financing 2
CBA	Cost-Benefit Analysis
CEC	CREMA Executive Committee
COVID-19	Coronavirus Disease 2019
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CREMA	Community Resource Management Area
CRMC	Community Resource Management Committee
CWMT	Community Watershed Management Team
DIME	Development Impact Evaluation
EPA	Environmental Protection Agency
ESIF	Environmental and Social Impact Framework
EX-ACT	Ex-Ante Carbon-Balance Tool
FM	Financial Management
FSD	Forest Services Division of Forestry Commission
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEMP	Ghana Environmental Management Project
GHG	Greenhouse Gas
GIS	Geographic Information System
GLRSSMP	Ghana Landscape Restoration and Small-Scale Mining Project
GoG	Government of Ghana
GRM	Grievance Redress Mechanism
GRR	Gbele Resource Reserve
GSIF	Ghana Strategic Investment Framework for Sustainable Land Management
ICR	Implementation Completion and Results Report
ISR	Implementation Status and Results Report
LUSPA	Land Use and Spatial Planning Authority
M&E	Monitoring and Evaluation
METT	Management Effectiveness Tracking Tool
MESTI	Ministry of Environment, Science, Technology, and Innovation

MLNR	Ministry of Lands and Natural Resources
MoFA	Ministry of Food and Agriculture
MTR	Midterm Review
NDVI	Normalized Difference Vegetation Index
NPV	Net Present Value
NSZ	Northern Savannah Zone
NTFP	Non-Timber Forest Product
PAD	Project Appraisal Document
PCU	Project Coordination Unit
PDO	Project Development Objective
PES	Payment of Environmental Services
RAP	Resettlement Action Plan
SADA	Savannah Accelerated Development Authority
SFM	Sustainable Forest Management
SIP	Strategic Investment Program
SKGK	Sanyiga Kasena Gavara Kara
SLM	Sustainable Land Management
SLWM	Sustainable Land and Water Management
SLWMP	Sustainable Land and Water Management Project
STAR	System for Transparent Allocation of Resources
TCO	Technical Coordination Office
ToC	Theory of Change
UNFCCC	United Nations Framework Convention on Climate Change
VSLA	Village Savings and Loans Association
WD	Wildlife Division

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P098538	Sustainable Land and Water Management
Country	**Financing Instrument**
Ghana	Investment Project Financing
Original EA Category	**Revised EA Category**
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Republic of Ghana	Ministry of Environment, Science, Technology and Innovation (MESTI)

Project Development Objective (PDO)

Original PDO

Project Development Objective is to (a) demonstrate improved sustainable land and water management practices aimed atreducinglanddegradation and enhancing maintenance of biodiversity in selected micro-watersheds, and (b) strengthen spatial planningforidentification of linked watershed investments in the Northern Savannah region of Ghana.

Revised PDO

To expand the area under sustainable land and water management practices in selected watersheds.

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
TF-95451	200,000	200,000	200,000
TF-97579	8,150,000	7,990,042	7,990,042
TF-17090	8,750,000	8,750,000	8,750,000
TF-A2276	12,768,832	12,768,832	12,768,832
Total	**29,868,832**	**29,708,874**	**29,708,874**
Non-World Bank Financing			
Borrower/Recipient	14,300,000	0	0
Local Communities	0	0	0
Bilateral Agencies (unidentified)	0	0	0
Foreign Multilateral Institutions (unidentified)	0	0	0
Non-Government Organization (NGO) of Borrowing Country	0	0	0
Total	**14,300,000**	**0**	**0**
Total Project Cost	**44,168,832**	**29,708,874**	**29,708,874**

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
30-Nov-2010	09-Mar-2010	31-Jan-2014	30-Nov-2020	31-May-2021

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
03-Nov-2014	6.43	Additional Financing
20-May-2016	11.14	Additional Financing
15-Jul-2020	29.56	Change in Results Framework Change in Loan Closing Date(s) Change in Implementation Schedule
02-Feb-2021	29.71	Reallocation between Disbursement Categories

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Highly Satisfactory	Highly Satisfactory	Substantial

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	23-Mar-2011	Satisfactory	Moderately Satisfactory	.29
02	21-Dec-2011	Satisfactory	Moderately Satisfactory	1.61
03	11-Jul-2012	Satisfactory	Satisfactory	2.26
04	28-Apr-2013	Moderately Satisfactory	Moderately Satisfactory	3.22
05	26-Nov-2013	Moderately Satisfactory	Moderately Satisfactory	4.50
06	29-Jun-2014	Moderately Satisfactory	Moderately Satisfactory	6.01
07	26-Nov-2014	Satisfactory	Moderately Satisfactory	6.67
08	31-May-2015	Satisfactory	Moderately Satisfactory	8.65
09	06-Aug-2015	Satisfactory	Moderately Satisfactory	8.65
10	18-Feb-2016	Satisfactory	Moderately Satisfactory	11.32
11	25-Aug-2016	Satisfactory	Moderately Satisfactory	12.39
12	16-Feb-2017	Satisfactory	Moderately Satisfactory	14.02
13	03-Oct-2017	Moderately Satisfactory	Moderately Satisfactory	18.13

14	16-Apr-2018	Moderately Satisfactory	Moderately Satisfactory	20.50
15	13-Jun-2018	Moderately Satisfactory	Moderately Satisfactory	21.45
16	27-Dec-2018	Moderately Satisfactory	Moderately Satisfactory	23.51
17	17-Apr-2019	Moderately Satisfactory	Moderately Satisfactory	24.72
18	19-Dec-2019	Satisfactory	Moderately Satisfactory	27.80
19	03-Jun-2020	Satisfactory	Moderately Satisfactory	29.33
20	17-Dec-2020	Satisfactory	Satisfactory	29.95

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	**80**
Agricultural Extension, Research, and Other Support Activities	34
Public Administration - Agriculture, Fishing & Forestry	20
Other Agriculture, Fishing and Forestry	26
Information and Communications Technologies	**7**
Public Administration - Information and Communications Technologies	2
ICT Services	3
Other Information and Communications Technologies	2
Water, Sanitation and Waste Management	**13**
Public Administration - Water, Sanitation and Waste Management	13

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Private Sector Development	**100**
Jobs	100

Urban and Rural Development	**54**
Rural Development	54
Land Administration and Management	54
Environment and Natural Resource Management	**46**
Renewable Natural Resources Asset Management	11
Biodiversity	11
Water Resource Management	35
Water Institutions, Policies and Reform	35

ADM STAFF

Role	At Approval	At ICR
Vice President:	Obiageli Katryn Ezekwesili	Ousmane Diagana
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N.B.:
1. Under “Financing”, a TerrAfrica grant (TF 95451) amounting to US$200,000, approved on February 22, 2010, was provided to the Government of Ghana (GoG) for support to the establishment of the Ghana National Sustainable Land Management (SLM) Committee.

2. Under “Key Dates” the original grant closing date was February 15, 2016. The datasheet “current date” of November 30, 2020, is reflective of the closing date following the second additional financing and extension of project and is not a true “original closing date.

I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

Country and Sector Context

1. Ghana's rural land generates much of the country's income and employment, directly and indirectly, but is highly vulnerable to degradation. At the time of project appraisal (July 2010), the agriculture sector contributed 38 percent of gross domestic product (GDP), accounting for about 75 percent of the export earnings, and contributing over 90 percent of the food needs of the country. The majority of rural households (63 percent of the total population) directly depended upon land resources for their livelihoods. Agriculture is largely based on smallholder farms characterized by low input and output technologies. At appraisal, about 90 percent of farm holdings were less than 2 ha. Agricultural GDP grew at an average annual rate of 4.5 percent from 1997 to 2008, among the highest rates in Sub-Saharan Africa, and its share of the economy fell only three percentage points. Much of the increased production came from expansion of agricultural land, which combined with traditional swidden and grazing practices, and with rising demands for water, was becoming increasingly unsustainable. H

2. Natural habitats and biodiversity were being lost as part of the broader process of land degradation. The area of intact forest was estimated at 10.9 to 11.8 percent of the original cover and 6.9 percent of the country's total area, and annual deforestation rates averaged 22,000 ha or 1.3 percent. The remaining forest and natural habitat areas were increasingly being degraded by agricultural encroachment, commercial logging, extraction of non-timber forest products (NTFPs), mining, hunting, grazing, and associated burning. The underlying causes involved a complexity of demographic, economic, and policy influences. The immediate drivers included forest industry overcapacity, policy/market failures in the timber sector, population growth in both rural and urban areas, increasing local and international demand for agricultural and forest products, heavy dependence on wood fuel for rural and urban energy; outdated farming methods, and use of fire as a tool in land preparation.

3. Land degradation had a direct economic impact. Soil erosion was estimated to cost around 2 percent and forest degradation about 5 percent of the national GDP (World Bank, DFID, ISSER 2005). In total, this was equivalent to about US$530 million, or more than one-third of Ghana's annual Official Development Assistance. Land degradation directly affected rural households, which directly depend upon land resources for their livelihoods and constituted the most vulnerable part of the population.

4. Land also provides critical environmental services and important biodiversity values. Degradation severely compromised services including nutrient cycling, regulation of hydrological flows, provision of natural resources, and amelioration of climatic extremes and floods. Biodiversity values at risk were considerable; Ghana's vegetation comprises all major West African forest types (from moist evergreen to dry semi-deciduous) containing many unique biological features of conservation importance. Forest, savannah, wetland, and coastal ecosystems provide habitats for at least 2,975 plant species (at least nine of which are endemic), 504 fishes, 728 birds, 225 mammals, and 221 amphibians and reptiles. Around 16 percent of Ghana's land surface is under some form of protection as forest reserves, national parks, and other protected areas including traditional forms of conservation.

5. Climate change was expected to exacerbate land degradation pressures, reducing capacity to buffer further its negative impacts. Initial assessments indicated that Ghana was vulnerable to climate change impacts, particularly the savannah regions. Increased variability in rainfall patterns and temperature rises would have negative impacts on agricultural productivity increase the incidence of droughts and floods and exacerbate desertification (particularly in the northern regions). These would have consequences in terms of increased migration (from north to south and from rural areas to urban centers), vulnerability and fragility.

6. There was and continues to be a visible development gap between northern and southern Ghana, in part due to the greater aridity and environmental fragility of the north. At the time of appraisal, the north was home to 17.2 percent of Ghana's population, including 53.7 percent of Ghanaians living in extreme poverty. The vulnerabilities that afflict the people of northern Ghana are related to climate and geography. The northern region is landlocked and compared to the south is subject to lower rainfall, greater land and soil degradation, and a predisposition to droughts and floods. The region experienced devastating floods in 2007, with less severe but still significant impacts again in 2008 and 2009. These natural events forced agriculture-dependent households to adopt low-risk and low-input strategies, creating a cycle of poverty. Bridging the developmental gap between north and south has been a goal of most post-independence governments, but despite attempts to address the challenge, poverty reduction has not been evenly distributed and the poor therefore continue to be concentrated in the Northern Savannah Zone.

7. **The original financing under the Sustainable Land and Water Management Project (SLWMP) focused on piloting innovative models for grassroots watershed and biodiversity management and providing technical tools and capacity for macro-level planning as a basis for eventual scale-up linked to larger-scale flood and watershed management investments.** The project activities focused on areas of high poverty and vulnerability in the country's Northern Savannah Zone (NSZ), the poorest and least resilient part of the country. The project's first and second additional financings (AF1 and AF2, respectively) focused on scaling up the activities successfully piloted under the original financing and adding elements that expanded on the overall project's technical and geographic scope. This evolution in project implementation[1] had the effect of not only building on successful experience from pilots and an increased knowledge base but also of better adapting and aligning activities to Ghana's evolving priorities.

8. **AF1 financed implementation of project activities on a larger geographic scale and expanded the range of sustainable land and water management (SLWM) interventions to other ecosystems** through scaling up the area under SLWM interventions, extending project activities to two new districts, scaling up biodiversity management in the Western Wildlife Corridor by expanding establishment of Community Resource Management Areas (CREMAs), and adding sustainable forest management (SFM) activities in eight gazetted forest reserves.

[1] The project, beginning with an original grant focused on pilots and demonstration activities, was eventually implemented over 10 years financed through three consecutive Global Environment Facility (GEF) grants under three replenishments (GEF 4, 5, and 6) and an in-kind contribution by the Government of Ghana (GoG) of US$14.3 million. The GEF grants totaled US$29.67 million over three funding tranches as follows:

- 1st Phase (GEF 4): US$8.15 million (original grant, P098538)
- 2nd Phase (GEF 5): US$8.75 million (AF1, P132100)
- 3rd Phase (GEF 6): US$12.77 million (AF2, P157595).

9. **AF2 also financed scaling up of activities to enhance the impact of the project,** including scaling up the area under the SLWM interventions, extending project activities to two new districts in the northern region (now Savannah Region), promoting various components of the agricultural value chain, promoting community riparian vegetation restoration, supporting utilization of NTFPs, and further scaling up biodiversity management in production landscapes in the Western Wildlife Corridor by supporting implementation of management plans in CREMAs and providing targeted support to the Gbele Resource Reserve (GRR).

National, Regional, and Global Priorities

10. **The project was designed within the context of a multisectoral and programmatic approach to addressing land degradation, promoting SLWM, and investing in biodiversity conservation consistent with the Paris Declaration on Aid Effectiveness and as advocated under the TerrAfrica partnership.**[2] The original project financed with the GEF resources was conceived in alignment with the GEF Strategic Investment Program (SIP) for SLWM in Sub-Saharan Africa and was expected to contribute to the SIP's objectives through (a) applying sustainable practices that increase land productivity while securing ecosystem services in selected priority areas and (b) mainstreaming SLWM by linking these to a major regional development planning initiative and developing efficient scale-up approaches.

11. **The original project was designed to contribute to the GEF's Land Degradation and Biodiversity Focal Area objectives, which was expanded to include the Climate Change Focal Area objectives, i**ncluding a focus on resilience in both AF1 and AF2 to support a more holistic and integrated landscape-level project. As more funding became available, each of the AFs were also designed to be in line with significant GEF regional programs that were developed after the initial project. AF1 was part of the Sahel and West Africa Program (SAWAP) in support of the Great Green Wall Initiative, under GEF 5 STAR[3] Allocation and AF2 was part of the Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa - An Integrated Approach Pilot (IAP), under GEF 6 STAR Allocation.

12. **The project was in line with the Country Assistance Strategy (2008–2011)[4]**, drawing in part on the recommendations in the Ghana Country Environmental Analysis (2007), which highlighted the importance of addressing environmental and land degradation due to its negative impact on economic growth. In addition, all tranches of financing—the original and the two AFs through GEF grants—were fully consistent with the Country Partnership Strategy (CPS)[5] of 2013–2016 given that they specifically responded to the priorities under CPS Pillar 1 on natural resources management and environmental governance, which highlighted the costs of environmental and land degradation. In addition, the project's focus on community-driven management of natural resources-based livelihoods was in line with the priorities of Pillar 2 on Improving Competitiveness and Job Creation.

[2] TerrAfrica is an Africa-led and Africa-based regional partnership to enable participating governments of Sub-Saharan Africa ; the international development community; and other global, regional, and national stakeholders to better coordinate efforts to up-scale the financing and mainstreaming of effective and efficient country-driven SLWM. This partnership included 26 countries (including Ghana) and six implementing agencies (International Fund for Agricultural Development, United Nations Environment Programme, United Nations Development Programme, Food and Agricultural Organization [FAO], African Development Bank, and World Bank), through a portfolio of 36 investment projects.
[3] STAR = System for Transparent Allocation of Resources.
[4] Report No. 39822-GH
[5] Report No. 76369-GH.

13. **At the country level, the project's priorities were aligned with Ghana's vision of modernizing its agricultural sector to improve food security in an environmentally sustainable manner with a focus on smallholder farmers, particularly in the most fragile ecosystems.** The project was consistent with the Ghana Strategic Investment Framework (GSIF) for Sustainable Land Management (SLM) (2011–2025), supported through TerrAfrica, which promotes integrated land management and is aligned with the country's National Savannah Biodiversity and Strategic Action Plan and the 2020 Aichi Biodiversity targets. The project activities are also fully consistent with the country's determined adaptation and mitigation actions included in Ghana's Third and Fourth National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015 and 2020, respectively; Ghana Technology Action Plan (dated February 2013); and Ghana's commitments under its Intended Nationally Determined Contributions submitted to the UNFCCC in October 2015.

Theory of Change (Results Chain)

14. **The original financing, like other projects designed at the time, did not include a Theory of Change (ToC).** However, the project design indicates a clear results chain built on (a) establishing needed capacity and knowledge within key government agencies and community bodies and piloting and scaling up sustainable practices and (b) supporting and enabling communities to implement new practices, manage the natural resources they depend upon, and enhance their livelihoods through access to a range of technical and financial tools. The long-term results would contribute to a reduction in land and water degradation, improved biodiversity, and realization of the vision of a diversified and resilient economic zone with significant environmental benefits as envisioned by the GSIF and Ghana's Sustainable Development Initiative for the Northern Savannah.

15. This would be achieved in part through the SLWMP's use of an integrated landscape approach highlighting institutional coordination and enhancing connectivity of ecosystems at the landscape level for greater impacts on the ground. The ToC in figure 1 is based on the premise that integrated SLWM interventions in watershed landscapes through continuous engagement with communities in land management planning and implementation would provide incentives for community participation, including natural resources-based livelihoods. This, in turn, would lead to an improved sense of ownership. Increased ownership and improved capacity lead communities to further adopt and implement sustainable actions that contribute to the efforts toward reduction in landscape degradation and addressing low climate resilience. In the longer term, these interventions are expected to increase diversification of livelihoods, improve resilience, reduce vulnerability to climate shocks, and contribute to the GoG's longer-term objectives of equitable and inclusive growth. Figure 2 shows the expanded scope (geographic and outputs) of the ToC following the two AFs.

Figure 1. SLWMP ToC at Appraisal (Original Financing)

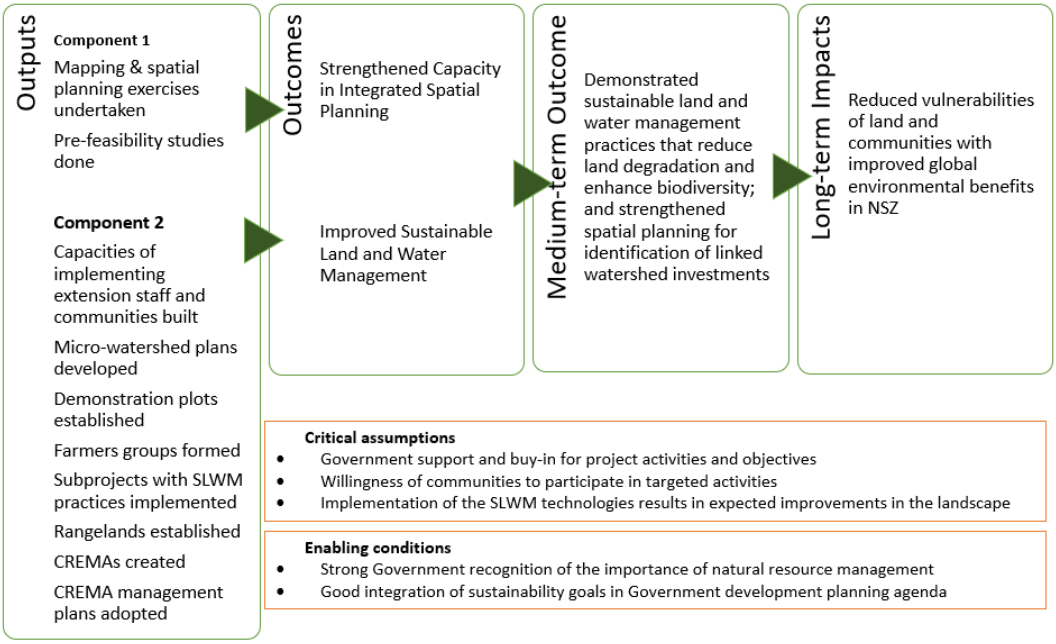
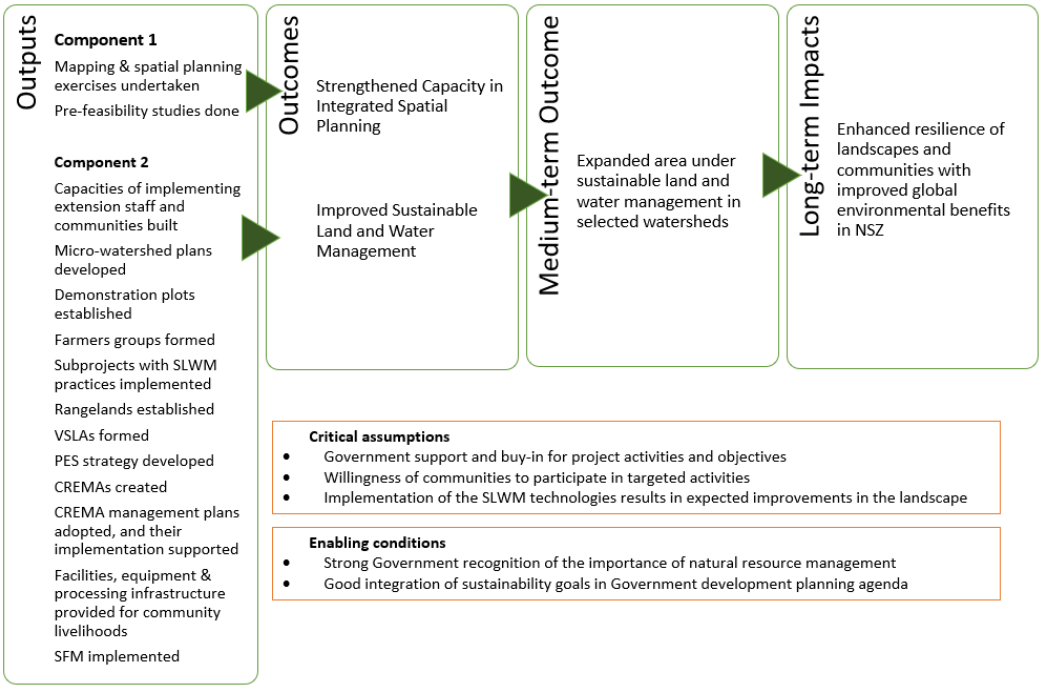


Figure 2. SLWMP ToC at Completion (Original Financing, AF1, and AF2)



Project Development Objectives (PDOs)

16. The original PDO was to (a) demonstrate improved sustainable land and water management practices aimed at reducing land degradation and enhancing maintenance of biodiversity in selected

micro-watersheds; and (b) strengthen spatial planning for identification of linked watershed investments in the Northern Savannah region of Ghana.

Key Expected Outcomes and Outcome Indicators

17. The outcome indicators were as follows:

- Area of land in selected micro-watersheds under new sustainable land and watershed management (SLWM) technologies (ha)
- Management effectiveness according to Management Effectiveness Tracking Tool (METT) score in Gbele Resource Reserve (GRR) and Wuru Kayero and Wahabu Wiasi corridor sites (score, disaggregated)
- Pre-feasibility studies conducted for new large-scale multipurpose water storage investments (number).

Components

18. The project comprised three components.

Component 1: Capacity Building for Integrated Spatial Planning (Estimated Cost US$1.03 million, Actual Cost US$0.94 million)

19. This component aimed to provide integrated spatial planning tools (for mapping, analysis, and monitoring and evaluation [M&E]) to strengthen the capacity of the Savannah Accelerated Development Authority (SADA) to guide and undertake decision-making for water- and land-related investments across the Northern Savannah Region. The outputs of Component 1 were expected to help guide future water investments in Northern Ghana.

Component 2: Land and Water Management (Estimated Cost US$26.12 million, Actual Cost US$26.43 million)

20. This component supported community water and land management at the micro-watershed level, including both management of agricultural land and ecological infrastructure. It also promoted sustainable adoption, implementation, and scaling-up of SLWM practices that required targeted support and incentives that effectively support uptake of SLM practices by communities including payments for planting trees on farms. Additionally, the component included support for natural resources-based livelihood activities and wildfire management in the communities. It supported provision of water management systems within agricultural landscapes to reverse land degradation and enhance agricultural productivity and maintenance of biodiversity in watersheds. A range of SLWM practices were demonstrated under the original project and later scaled up.[6]

[6] SLWM practices: integrated plant nutrient management (combination of use of compost and inorganic fertilizers); cereal-legume crop associations (crop rotation, intercropping, and mixed cropping); establishment of riparian vegetation; agroforestry (inclusion of mahogany, teak, and mango in the cropping system); in-field water harvesting and conservation technologies (earth bunding and mulching); and establishment of fodder banks.

21. The activities on the management of riparian and other biological corridors supported the project intensive processes of establishing CREMAs and implementation of CREMA management plans. The component also included SFM activities in and around gazetted forest reserves aimed at reducing pressures on protected forest estates in Northern Ghana and creating a contiguous management zone of the forests between the GRR and Mole National Park. The subcomponents under this component were as follows:

- **Subcomponent 2.1:** Systems, Capacity, and Monitoring for Sustainable Land and Water Management
- **Subcomponent 2.2:** Implementation of SLWM in Micro-watersheds
- **Subcomponent 2.3:** National Sustainable Land Management and Payment for Environmental Services Monitoring
- **Subcomponent 2.4:** Management of Riparian and Other Biological Corridors [including (a) implementation of corridor management plan in the Western Biodiversity Corridor, (b) support to GRR management, and (c) Sustainable Forest Management (SFM)].

Component 3: Project Management and Coordination (Estimated Cost US$2.52 million, Actual Cost US$2.14 million)

22. This component supported incremental project management and coordination activities, including budgeting and planning, procurement and financial management (FM), capacity building for the Project Coordination Unit (PCU) staff including on World Bank-specific procurement, the costs of annual audits, annual and quarterly progress reports, cost of consultancies, external audits, and production of the Project Completion Report. The Ministry of Environment, Science Technology, and Innovation (MESTI) was responsible for the overall coordination, implementation, reporting, and communication of project activities.

23. **Project implementation was designed to be undertaken** by six sectoral agencies (table 1) to build capacity, take advantage of key agencies' expertise and mandates for specific component implementation, and pilot a multisector coordinated approach to address issues of land and water degradation. These included (a) MESTI, which was the formal implementing agency; (b) Ministry of Food and Agriculture (MoFA); (c) Environmental Protection Agency (EPA); (d) Forest Services Division (FSD); (e) Wildlife Division (WD) of the Forestry Commission; and (f) SADA. SADA was included as a project agency from the start but was unable to perform this role.[7] The FSD was brought in under AF1 to implement SFM activities, added with AF1 and AF2.

Table 1. Roles and Responsibilities of Project Implementing Agencies

Agency	Role
MESTI	Project implementing agency, responsible for the overall coordination, implementation, FM, procurement, M&E, reporting, and communication of project activities
MOFA	• Lead institution in the implementation of the agriculture activities of the project

[7] SADA was chosen to support certain project activities and establish a spatial planning unit. In fact, due to a variety of reasons, including choosing SADA as an implementing agency before it was fully established as a statutory agency, the agency was unable to fully act as an implementing agency or implement the activities it was responsible for. More details are provided in the Efficacy section.

Agency	Role
	• Facilitated the participatory micro-watershed planning and subproject agreements within each project district
EPA	• Coordinated micro-watershed planning exercise, a cross-sectorial activity jointly executed with MoFA • Led national policy monitoring and development of payment for environmental services (PES) strategy under the project • Developed and operationalized the environmental services index and related incentive systems • Hosted a project Technical Coordination Office (TCO) acting as secretariat to the Local Steering Committee and implementing environmental service monitoring activities at its regional EPA office in Bolgatanga, and delivered Geographic Information System (GIS)-based M&E
WD	• Head office and regional office in Bolgatanga coordinated and managed activities in the Western Wildlife Corridor and GRR, and later in the Mole National Park • Bolgatanga office produced CREMA operational plans, budgets, and reports, under supervision of the WD Head Office
FSD (added as a new agency for AF1 and AF2)	• Coordinated and managed activities in gazetted forest reserves through its head office, its regional offices in Bolgatanga, and Wa and its district offices in Lawra, Tumu, and Navorongo • Prepared management plans for gazetted forest reserves, producing operational plans, budgets, and reports
SADA	• Spatial planning and monitoring activities under the project. The role of SADA was to implement spatial planning and monitoring activities under the project.

Table 2. Project Estimated Costs and Actuals by Component and by GEF Financing Phases (US$, millions)

Components	Original Financing	AF1	AF2	Total	Actuals
1. Capacity Building for Integrated Spatial Planning	1.03	0.00	0.00	**1.03**	**0.94**
2. Land and Water Management	5.68	8.31	12.13	**26.12**	**26.43**
3. Project Management and Coordination	1.44	0.44	0.64	**2.52**	**2.14**
Total	**8.15**	**8.75**	**12.77**	**29.67**	**29.51**

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

Revised PDOs and Outcome Targets

24. The original PDO was revised in November 2014, with the approval of AF1, to better reflect the project's changing focus from piloting to scaling up activities demonstrated in the original project. The PDO was also simplified and clarified in accordance with best practice at the time of AF1 to read "to expand the area under sustainable land and water management in selected watersheds." This remained valid under AF2.

Revised PDO Indicators

25. The PDO-level indicators revised at AF1 (and retained for AF2) were as follows:

- PDO Indicator 1: Land area where sustainable land and water management practices have been adopted as a result of the project (ha) - New
- PDO Indicator 2: Land users adopting sustainable land management practices as a result of the project (number) - New
- PDO Indicator 3: Management Effectiveness Tracking Tool score in GRR, Sanyiga Kasena Gavara Kara Corridor Site (CREMA Site 1), Sumboru Bechausa Corridor Site (CREMA Site 2), Moagduri Wuntanluri Kuwesaasi Corridor Site (CREMA Site 3a), Bulsa Yening Corridor Site (CREMA Site 3b), Gbele-Mole corridor sites (score 0–100) - Revised
- PDO Indicator 4: Direct project beneficiaries (number), of which female (percent) - New.

26. **With AF1, the project was restructured to modify PDO-level results indicators** to comply with new requirements for core sector indicators for Biodiversity, Forestry, and Land Management, and Land Administration sectors and to add indicators for newly introduced activities. The targets in the Results Framework were also revised upward to account for scaling-up of activities.

27. Specifically, the Results Framework was modified as follows: (a) one indicator was moved from PDO level to component level, (b) eight new indicators were introduced (of which four were core sector indicators), (c) five indicators were revised (including revisions of target values to reflect scaling-up of project activities), and (d) three indicators were dropped (including two custom indicators that were replaced with core sector indicators).

28. **Under AF2, no changes were made to the PDO indicators.** However, as under AF1, certain targets were revised upwards to reflect and capture the scaling-up of activities. Additional intermediate indicators were introduced to ensure tracking of new activities and meet additional reporting requirements for the GEF-6 Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa Program under which the project AF2 was developed. In addition, a project-appropriate citizen engagement indicator was added to the Results Framework. In total, eight indicators were revised (changes in target values), one indicator was dropped, and five new indicators were added. Changes to the PDO indicators are summarized in Table 3.

Table 3. Changes to PDO and Outcome Indicators

Original PDO	Revised PDO	Rationale/Comments
PDO to (a) demonstrate improved sustainable land and water management practices aimed at reducing land degradation and enhancing maintenance of biodiversity in selected micro watersheds, and (b) strengthen spatial planning for indication of linked watershed investments in the Northern Savannah Region of Ghana	To expand the area under sustainable land and water management practices in selected watersheds (Revised during AF1 and continued for AF2)	The PDO continued to be relevant but was revised to better reflect the project's focus and nature of interventions. Focus for the remainder of the project period shifted away from demonstration of SLWM practices to expansion and adoption of SLWM practices aimed at reducing land degradation and enhancing maintenance of biodiversity in the Kulpawn-Sissili and Red Volta watersheds. The project focused less on spatial planning, with no financing in AF1 or AF2 related to it.
Original PDO Indicators	**Revised/Dropped/New Indicators**	**Rationale**
Area of land in selected micro-watersheds under new sustainable land and watershed management (SLWM) technologies (ha)	Dropped	The indicator was replaced by the mandated core indicator 'Land area where sustainable land and water management practices have been adopted as a result of the project'.
	New - 'Land area where sustainable land and water management practices have been adopted as a result of the project (ha)'	This indicator was added, as noted above. Higher target values reflected increased focus on expanding the area under SLWM. This indicator served as a proxy indicator for land degradation.
	New - Land users adopting sustainable land management practices as a result of the project (number)	This core indicator was added for the Land Management and Administration sector.
Management effectiveness according to METT score in Gbele Resource Reserve and Wuru Kayero and Wahabu Wiasi corridor sites (number).	**Revised** - Management Effectiveness Tracking Tool score in Gbele Resource Reserve and Sanyiga Kasena Gavara Kara (SKGK), Sumboru Bechausa, Moagduri Wun tanluri Kuwesaasi, Bulsa Yening, Wahabu Wiasi, and Gbele-Mole corridor sites (score 0–100)	The indicator was revised to sharpen the wording and to include additional biodiversity corridor sites included with the AFs.
	New - Direct project beneficiaries (number), of which female (percentage)	This was a core indicator.
Pre-feasibility studies conducted for new large-scale multipurpose water storage investments (number)	**Continued**	The indicator has been moved to Component 1 intermediate indicator as spatial planning was not part of the revised PDO under AF1 and AF2 yet is critical to guide future SLWM investments.

Revised Components

29. **Changes to the components were based mainly on scaling up from proven results of demonstration and pilot activities owing to additional funding becoming available, adding in activities needed to respond to the evolving context, and responding to lessons learned from earlier phases.** Focus was on ensuring better sustainability (by supporting postharvest management improvements as part of the value chain work) and further reducing pressures on common pool resources (by providing additional support to nondestructive uses of forests, including through use of NTFPs). The project originally supported the establishment of CREMAs and development of CREMA management plans, and subsequent phases were designed to support implementation of these management plans and establish additional CREMAs. SFM activities supporting forest protection, conservation, and restoration in and around select forest reserves were also introduced in AF1 and AF2 as funding became available.

30. As mentioned above, the scaling up and addition of new activities in AF1 and AF2 necessitated some additional and relevant changes to the Results Framework, including introducing World Bank core sector indicators. Annex 1C summarizes the changes to the intermediate-level indicators.

Other Changes

31. The project significantly increased its targets for beneficiaries and the areas under project intervention, expanding the number of districts and communities covered at each AF. The SLWMP was originally implemented in eight districts in the northern regions of Ghana: Sissala West, Sissala East, and Wa East (Upper West Region); West Mamprussi (then northern region and currently North East Region); and Builsa South, Kassena Nankana West, Talensi Nabdam, and Bawku West (Upper East Region). In 2014, under AF1, the project expanded SLWM implementation in two additional districts, that is, Daffiama-Bussie-Issa (Upper West Region) and Mamprugu Moaduri (then northern region and currently North East Region). In 2016, under AF2, the project expanded the geographical area of its interventions by supporting SLWM implementation in two more districts: West Gonja and Sawla-Tuna-Kalba (both in the Savannah Region). Significantly therefore, at completion, the project supported SLWM implementation in 12 districts in four regions, SFM activities in eight forest reserves, and establishment of six CREMAs in the NSZ of Ghana.

32. **At the time of the midterm review (MTR) in 2014, it was determined that SADA could not be established with the required capacity to undertake activities as planned in the original financing.** This was due to various reasons, including the following: (a) the SLWMP started before SADA's transition as a statutory authority was completed in mid-2013, (b) reporting lines were not clearly established as there were no operational guidelines developed to define the roles and responsibilities of SADA and no clear milestones were developed to track progress on the component's key deliverables and targets, (c) there was high staff turnover and challenges with coordination within executing entities, and (d) procurement activities for the component were finally carried out by MESTI due to the lag in fully establishing SADA.

33. **To address these issues, MESTI, after extensive consultations and clearance from the World Bank, took over the development of the spatial planning framework and the feasibility studies, which were completed in January 2019.** MESTI signed a memorandum of understanding with the then Town and Country Department (now the Land Use and Spatial Planning Authority [LUSPA]) for execution of the spatial planning framework in January 2015. MESTI also contracted a consulting firm (in 2016), to undertake pre-feasibility (reconnaissance) studies for 10 valleys for the development of irrigation systems

and water storage facilities in the Upper West and, the then, Northern Regions. Both assignments were completed successfully.

34. **On implementation arrangements,** the only change therefore relates to SADA on component 1, which was picked up and completed by MESTI, and the addition of FSD when sustainable forest management activities in the gazetted forests were included in the subsequent financing phases.

35. **The coronavirus disease (COVID-19) pandemic significantly affected Ghana's economic growth momentum and seriously hampered implementation of all activities.** Due to the lockdown of activities in some parts of the country because of COVID-19, the project implementation period was extended from November 30, 2020, to May 31, 2021, without any changes to project design.

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

36. **The changes made under the two AFs added to the likelihood of achieving the PDO through the emphasis on scaling up successful activities, engaging more stakeholders in more districts and CREMAs, and adding new activities based on a growing understanding of the issues and evolving context with greater focus on integrated landscape management.** The PDO was revised to better reflect the shift in the project's focus and nature of interventions, from piloting and demonstration of SLWM practices to expansion and adoption of SLWM practices aimed at reducing land degradation and enhancing maintenance of biodiversity in the Kulpawn-Sissili and Red Volta watersheds. While the project shifted its focus slightly on spatial planning in the AFs, the overall impact on the results change was minimal as the spatial planning framework and feasibility studies conducted were delivered through MESTI.

II. OUTCOME

A. RELEVANCE OF PDOs

37. **The PDO remains highly relevant regarding the CPS 2013–2016, which was extended to 2018 through the 2016 Performance and Learning Review,[8] and the 2018 Systematic Country Diagnostic.**[9] The project was aligned to CPS Pillar 2 (Improving Competitiveness and Job Creation and contributing to outcome on improved land and water management). While Ghana's newest Country Partnership Framework (2020–2026)[10] is currently under preparation, the PDO continues to be well aligned with the advanced draft CPF that aims to address continued challenges to sustainable landscape management and inclusive growth and focus on, among other things, (a) reducing spatial inequality and vulnerability through strengthening natural resource management for building resilience and (b) improving the quality of and opportunity for jobs through, among other things, raising agricultural productivity and broadening skills development.[11]

38. **The project was well aligned with the GoG's policies, strategies, and programs aimed at addressing land degradation and biodiversity conservation in an inherently fragile ecosystem.** The SLWMP supported the Ghana Agriculture Sustainable Land Management Strategy and Action Plan (2009–

[8] Report No. 105606-GH.
[9] Report No. 132010-GH.
[10] Ghana CPF: 2020–2026 (under preparation).
[11] Ghana/World Bank Country Partnership Consultations Presentation, September 14, 2020.

2015) by building institutional capacity at all levels within the food and agriculture sector, promoting technologies for scaling-up of SLWM practices, building technical capacity at all levels, and establishing an effective incentive system for SLWM.

39. **The National Climate-Smart Agriculture and Food Security Action Plan of Ghana (2016–2020) was prepared to provide the implementation framework for effective development of climate-smart agriculture** and facilitate and operationalize the National Climate Change Policy (2014) for effective integration of climate change into food and agriculture sector development policies and programs. One of the areas under the agriculture and food security focus area is development and promotion of climate-resilient cropping systems.[12]

40. **The project objectives related to biodiversity were fully consistent with the country's ambitions on maintaining and enhancing biodiversity,** according to the National Biodiversity Strategy and Action Plan (2016).

41. **Considering the above, the PDO continues to remain highly relevant.**

Assessment of Relevance of PDOs and Rating

Rating: High

B. ACHIEVEMENT OF PDOs (EFFICACY)

42. **The SLWMP made substantial achievements in meeting the project's objectives.** Overall, the project showed a high level of achievement, meeting or exceeding most of its indicators despite the challenges with implementation of spatial planning activities (under Component 1) due to SADA not being full established at the level required to effectively implement the activities. The phased approach (with new funding availability under AF1 and AF2) to project design and implementation meant that activities and targets around establishing the spatial planning master plan could be revised and activities could be adjusted to actual circumstances during the life of the project, particularly since the funding weight of the SADA-related component activity was small relative to the overall project cost and PDO. As shown in the analysis in the following paragraph, the project yielded significant results and several important lessons learned, particularly regarding inclusive community involvement and support, which were not only helpful in refining the project during implementation but also presented important lessons for future projects in the region.

Analysis of PDO Achievements

43. **As mentioned above, to take advantage of the progress made on the original financing, two restructurings were made to refine and scale up activities as funding became available.** The revised PDO was 'to expand the area under sustainable land and water management in selected watersheds', and the revised indicators mentioned earlier were used to track progress toward the objective. Table 4 summarizes progress on these indicators.

[12] Provision of sustained support in the use of simple agronomic soil and water conservation measures, many of which were promoted under the SLWMP.

Table 4. Progress on Results Framework PDO Indicators AF1 to AF2

PDO Indicators	Unit of Measure	Baseline (2010)	Project End Target	Achievement as of May 31, 2021	% of Target Achieved
Land area where SLWM practices have been adopted as a result of the project	Hectare	0 (2010)	15,000	15,861.85	105.7
Land users adopting SLM practices as a result of the project	Number	0 (2014)	30,000	42,230	140.0
Management Effectiveness according to the Management Effectiveness Tracking Tool score[13] in:	Score 0–100	(2010)			
Gbele Resource Reserve		45	80	79	98.7
Sanyiga Kasena Gavara Kara Site (CREMA site 1)		28	47	51	108.5
- Sissala Kasena Fraah Corridor Site 2 (CREMA Site 2a)		21	30	42	140.0
- BulKawe Corridor Site 2 (CREMA Site 2b)		24	30	54	180.0
Moagduri Wuntanluri Kuwesaasi Corridor Site (CREMA Site 3a)		21	30	50	166.6
Builsa Yening Corridor Site (CREMA Site 3b)		21	30	39	130.0
Chakali Sungmaaluu Corridor Site 4 (CREMA Site 4)		21	30	54	180.0
4 Direct project beneficiaries	Number	0	60,000	63,544	105.9
Of which females	Percent	0	40	56.24	140.6

[13] The reason for the significant overachievement of the METT scores were two-fold: (i) The scoring matrix for assessing the METT scores was refined over the 10 years of the project duration. Therefore, the achievement reflected should be interpreted by taking into account the revised scoring methodology compared to the assessment made at the time of defining the original target; and (ii) At appraisal in 2010, the establishment of CREMAs was a relatively new concept. At the time of completion, the uptake of the package of interventions in the CREMAs surpassed expectations set in the baseline (essentially owing to the strong participatory and consultative nature of community sensitization work that was carried out over the project duration).

44. **The project made excellent progress in meeting or surpassing the targets set out to measure the PDO.** The outputs and outcomes reflected in these achievements reveal on-the-ground success in adopting SLM practices; converting farmers to use new methods of SLWM; improving management of natural resources and biodiversity through establishing CREMAs and the community-level committees that co-manage them; developing and then implementing CREMA management plans; supporting beneficiaries through training, including farmer-to-farmer training programs; and establishing and promoting, particularly for women, access to alternative financing mechanisms in the form of Village Savings and Loans Associations (VSLAs). Much of this work was innovative and the project's aim to adopt a landscape-level approach, along with its community-focused work, was met and can be seen as a model for replication. The project achieved 140 percent of its target for land users adopting SLWM practices (42,230 farmers over the targeted 30,000) owing to the participatory approach used by project and the establishment of 344 demonstrations sites that helped showcase increases in productivity. The concomitant high level of ownership and participation of farmers not only enhanced livelihoods but also helped contribute to mitigating the level of risk to sustainability of outcomes (see Box 1).

Box 1.Testimonial from Beneficiary Farmer Adopting SLWM Practices

Gilbert Bonzung is a project beneficiary in Saggu, a community in the Wa East District of the Upper West Region. Having adopted SLWM practices promoted by the project, he experienced significant increase in crop yields. In 2018, he cultivated 4 acres of maize and harvested 12 bags (1 bag is 100 kg). In 2020, with support from the SLWMP in adopting SLWM practices, he cultivated 1 acre of maize and yielded 17 bags. He sold 15 bags of the maize to pay fees to pursue a degree program in Early Childhood Education at the University of Cape Coast.

45. The following paragraphs provide an analysis[14] of each of the PDO-level indicators and achievements.

(a) Increase in land area where SLWM practices have been adopted
Target: 15,000 ha; Achieved: 15, 861.85 ha

46. The project exceeded its goal of bringing 15,000 ha under SLWM, converting over 15,861.85 ha of land to management with a range of new SLWM technologies. The target was achieved through the committed and joint efforts of the implementing agencies and beneficiary farmers in the NSZ of Ghana. The participatory approach in watershed planning adopted by the project, with intense technical assistance and extension delivery by project staff, stimulated active participation of several communities and farmers to adopt and implement SLWM practices in their fields. A total of 42,230 farmers from 247 rural communities participated in implementing SLWM subprojects. The adoption rate of SLWM technologies increased as the farmers saw for themselves the productive benefits of SLWM (see discussion of Indicator 3 for the additional lands put under farmer-managed natural regeneration and CREMAs). The project established six CREMAs, covering a total area of 600,995 ha. Some testimonials from beneficiaries on the impacts of SLWM practices are documented in the following video link.[15]

(b) Increase in number of land users adopting sustainable land management practices
Target: 30,000; Achieved: 42,230

[14] While recognizing that these were three individual GEF grants approved, the analysis captures the achievement of the three tranches to align with the integrated nature and vision of the project, emphasizing upon the strategic expansion of the project.
[15] *https://youtu.be/_sNqXE_Z_SM* Please note that the video reflects the old targeted 10 administrative regions and not the expanded current 16.

47. Before project implementation, beneficiary farmers were engaged in unsustainable agriculture methods, which was leading to significant degradation of both land and water resources. The project used a participatory and inclusive approach to working with farmers, which allowed for farmers to participate actively in planning and implementation of subprojects. As in other areas of the project, the phased approach also worked well here, with the project establishing 344 demonstration farms where SLWM practices were put into effect. This meant training and education was 'hands on' for farmer beneficiaries who were able to see for themselves that the sustainable approaches not only worked to reduce degradation but actually created productivity benefits as well. A key innovation of the project was the 'field days' held to showcase achievements at the demonstration farms. The field days proved to be highly effective as a way to share results with and generate interest within a large group of farmers, both for those involved with the project and non-project farmers. The project also provided key logistical support (motorbikes and fuel) to the extension agents of MoFA and officers of the WD and FSD, which enabled easier and timely access to farms and farmers.

48. The project piloted the PES as a means to promote adoption of trees (cashew, mango, and mahogany) on farms and its effectiveness was assessed by the impact evaluation team. These payments were found to be successful in inducing and increasing adoption of tree planting, which may yield bigger gains in subsequent years when the trees start producing fruits.[16]

49. **To supplement the work of the extension agents in promoting SLWM, the project adopted a lead farmer approach (farmer-to-farmer extension delivery).** A total of 129 lead farmers were trained, and each lead farmer could in turn provide extension support to 150–200 farmers every year. The number of adoptee farmers increased over the course of the project as more farmers got exposed to SLWM technologies and realized the benefits. One of the most impressive achievements of the project is that, in addition to the project beneficiary farmers, 10,862 non-beneficiary farmers adopted SLWM practices because of extension delivery under the project and because they witnessed improvements in yield with the beneficiary farmers (spillover effect). See Box 2 for a lead farmer testimonial.

Box 2. Lead Farmer Testimonial
Yin Samuel Bantang is a lead farmer in Yameriga community in the Talensi District of the Upper East Region. Bantang has been a lead farmer since 2014, and he has disseminated SLWM technologies to many farmers. The technologies include composting, stone lining, tree planting, planting in rows, and use of A-Frame. He has reached over 1,000 farmers with SLWM technologies, comprising 60 farmers in 2014, 89 in 2015, 147 in 2016, 210 in 2017, 232 in 2018, 237 in 2019, and 266 in 2020.

(c) Improved effectiveness of management of natural ecosystems

Target: (Multiple targets.); Achievement: (See **Error! Reference source not found.**)

50. **Several actions fed into the project's achievement of improved management of natural ecosystems and the METT scores, which reflect on progress toward that end.** One of the most impactful activities was the establishment of CREMAs and the promotion and support of the community-led CREMA management committees. The project supported the improved management of select protected areas

[16] SLWMP Report of short survey by Development Impact Evaluation (DIME): https://documents1.worldbank.org/curated/en/811801624029863427/pdf/Development-Impact-Evaluation-DIME.pdf.

(namely the GRR) and improving the management of biological corridors and off-reserve areas, in part through establishing CREMAs.[17] Extensive achievements in improving natural resource management and establishing CREMAs were seen under the project (see Box 3).

Box 3. Relevance of Increased METT Scores

- Legal status of community level-managed areas.
- Appropriate regulations established for control of land use, hunting, extraction of NTFPs, and so on.
- CREMAs with management plans designed and under implementations, including training and skill enhancement.
- Requirements defined for active management of critical habitats, species, ecological processes, and cultural values are being substantially or fully implemented.
- Local communities directly participate in all relevant decisions relating to management, for example, co-management.
- The WD staff have the capacity/resources to enforce protected area legislation and regulations.

51. **It is also expected that the developed CREMA management plans will offer future opportunities for investments in both human and physical infrastructure** (such as a visitor center, trained tour guides, access roads, and so on). For example, the WD has recently signed a memorandum of understanding with a private operator (Royal Cosy Hills Hotel and Wildlife Safari) to establish a wildlife ranch to promote wildlife safari around the facility, which can be used as a model for replication in the Western Wildlife Corridor. In addition, the dam in Gwollu was dredged with funding from the SLWMP to increase the crocodile population for ecotourism enhancements to the existing attractions such as the Gwollu Slave Defense Wall and the Tomb of the late former president of Ghana (Dr. Hilla Liman).

Box 4. Achievements in Natural Resource Management through CREMA Establishment

- Six CREMAs established with appropriate constitution and by-laws approved by the responsible municipal and district assemblies and gazetted in the assemblies' bulletin in accordance with the Local Government Act, (Act 462) of 1993, including a Certificate of Devolution of Management Authority, creating a biological corridor for elephant migrations between Ghana and Nazinga (Burkina Faso)
- 88 Community Resource Management Committees (CRMCs), six CREMA Executive Committees (CECs), and 246 Community Watershed Management Teams (CWMTs) established for effective governance
- Maps prepared for each of the six established CREMAs indicating location of constituent communities, reserves, rivers, roads, contours, district boundaries, and so on and a composite map showing forest reserves, protected areas, and potential new CREMA sites in the corridor
- A Western Wildlife Corridor Management Plan (2017–2021) prepared for both financial and ecological sustainability, and 88 communities fully empowered to sustainably manage natural resources on their lands
- Trainings for capacity building on leadership, managerial, and technical skills (field ecological monitoring skills, wildfire management, management of human/wildlife conflict, awareness creation on constitution and bylaws, financial independence for sustainable CREMA operations, and so on) provided
- Knowledge exchange through study tours to enable CREMA CECs and CRMCs) to learn best environmental practices of similar ongoing community-based conservation initiatives.

[17] A CREMA is defined as a geographically defined area that includes a number of communities that have agreed to collectively manage their natural resources in a sustainable manner for their mutual benefits.

52. The effectiveness of (a) developing CREMAs, (b) building the capacity of CREMA executives and members, and (c) supporting the development and implementation of planning tools such as maps and composite management plans, is reflected in the increased METT scores for the project's targeted protected areas and wildlife corridors. The high METT scores indicate progress in the targeted CREMAs (see Box 4) and support medium- to long-term objectives of restoration of natural habitat, recruitment of native wildlife species, and the direct and indirect use of the resources by the communities in a sustainable manner to better their living conditions.

(d) Direct project beneficiaries (of which female)

Target: 60,000; Achievement: 63,544 (of which female: Target: 40 percent; Achievement: 56.24 percent)

53. These beneficiaries include SLWM farmers, CREMA members, and fringe communities who benefited from the provision of equipment and technical assistance in SLWM and alternative nature-based livelihoods as well as better control over community resources and higher role in decision-making. Livelihood interventions included beekeeping for honey production; collecting NTFPS, such shea nuts in the GRR to sell at a premium to processors; and post-harvest storage and units, such as shea nut and cassava processing plants. These subprojects and facilities provide alternative sources of income, particularly during the dry season, and it is expected that the beneficiaries will work to maintain them for their well-being. The project provided training and inputs for beekeeping to persons in CREMA communities for commercial production of honey. Between 2017 and 2020, 1,500 beehives and accessories were supplied to 266 individuals, including 11 females, in 32 CREMA communities. The beneficiaries harvested 900 gallons of honey, worth the equivalent of about US$15,000. The WD installed shea nut processing machines in 11 selected CREMA communities to exclusively support women. The 800 female beneficiaries made an income of about US$5,000, from the sale of processed nuts in 2019 and 2020. Again, some 650 women from eight GRR fringe communities, registered as organic shea nut NTFP collectors, collected and sold shea nuts at a premium price to a private company (Savannah Fruit Company). The women generated about US$47,000 in 2019.

54. **The level of substantive involvement of women was a noteworthy project success.** Although the project was not designed to close gender gaps, the project made significant achievements not only in its ability to effectively engage beneficiaries but in its success in engaging significant numbers of female participants. While this is somewhat to be expected in Ghana where many women work as farm laborers, the level of participation of women is impressive and reflects several approaches used by the project to specifically promote the participation of women. The bottom-up engagement of participants at every stage of planning led to integration of gender dimensions in the project interventions. These targeted approaches included specific targeting of women in communication campaigns aimed at mobilizing communities for project implementation, using a participatory approach to the planning of

Box 5. Transformation through VSLAs

The VSLAs were established in over 200 communities with a total membership of over 6,800 women and 2,600 men. The VSLA proved to be a transformational tool for both male and female farmers to access funds to invest in farm development and enhanced production. Farmers showed a willingness to implement some newer technologies in ploughing, bunding, and ridging given their access to savings from the VSLAs. Women in particular benefited from ease of access to financial resources and some women indicated that, due to the savings earned under the VSLA, their husbands have released additional lands for the women to farm, which then yields additional income. This development is a direct result of the improved financial capacity of the women to bear the cost of land preparation and inputs for farming.

subprojects under which women were encouraged to fully participate in discussions, and fully taking into account women's thoughts and opinions on identifying environmental and natural resource challenges and proposing appropriate subprojects that are reflective of specific needs and priorities of women. The focus on women was also reflected in women's strong attendance at community engagement sessions and their adoption of VSLA (see Box 5).

55. **It should be noted that the project conducted a beneficiary satisfaction survey** (sample of 21,493 people) where more than 92 percent of the beneficiaries (of which 52 percent female) reflected satisfaction with project activities (see details in table 5). Testimonials of some of these beneficiaries are available at the following YouTube video link.[18]

Table 5. Result of Beneficiary Satisfaction Survey Conducted in 2021

Total Interviewed	Male Expressing Satisfaction	Female Expressing Satisfaction	Total Expressing Satisfaction	Male Expressing Dissatisfaction	Female Expressing Dissatisfaction	Total Expressing Dissatisfaction
21,493 (including 9,670 men and 11,823 women)	8,570 (88% of males surveyed)	11,267 (95% of females surveyed)	19,837 (92.3% of all surveyed)	1,100 (12% of males surveyed)	556 (5% of females surveyed)	1,656 (7.7% of all surveyed)

56. **A learning workshop, organized by the PCU with key project stakeholders, indicated that there is a high demand for additional and continued support from project-supported interventions among all beneficiaries.** The slightly higher rate of dissatisfaction among the male beneficiaries was due to the inherently higher expectations of support from beneficiaries who have multiple farms, which, in Ghana, traditionally happen to be male members. The project supported inputs on one farm of targeted beneficiaries (within the target community) although some of the male beneficiaries expected this support to be made available on multiple farms they managed. Female beneficiaries who traditionally did not own farms were able to take ownership of farms and leverage project-supported inputs and plough back savings through the VSLA that led to significantly differential impact compared to their baseline before the project, which is reflected in the slightly higher satisfaction ratings.

Assessment of Achievement of PDO (Efficacy)

57. Assessment of achievement of PDO: High

Justification of Overall Efficacy Rating

58. This is justified by the above account of overachievement of targets for all PDO-level indicators.

[18] https://youtu.be/d0u3S7xIKYs.

C. EFFICIENCY

59. The project efficiency is assessed based on two criteria: economic analysis and aspects of design and implementation.

Economic Analysis

60. **At appraisal and at AF1 and AF2 stages, no full economic analysis of the project's investments was conducted.** This was due to the framework approach, where many investments were not known in advance, and the difficulty of estimating the value of ecosystem services, such as watershed services and biodiversity. Specifically, the Project Appraisal Document (PAD) and AF1 paper qualitatively described the expected project benefits and provided net farm returns for specific investments, based on 1991 farm models.[19] At the AF2 stage, the economic analysis provided results of the cost-benefit analysis (CBA) carried out only for certain SLWM practices (for example, maize-soya intercropping). Similar to the above stages, at completion, the wide variety of practices adopted and the lack of data for many of them prevents conducting a full economic analysis at the project level. This section presents the results of a CBA for representative land uses and an estimation of the carbon benefits provided by the project. Annex 4 presents a description of project benefits and a cost-effectiveness analysis of the project.

61. **CBA.** The analysis was conducted for a few current and alternative (SLWM) practices, based on data provided by MoFA. It considered all project costs, including investments, labor, and maintenance costs, and on-site benefits, for example, yields of cashew, maize, and so on. These results, summarized table 6, indicate that these SLWM practices are economically attractive, with net present values (NPVs) ranging between US$2,000 and US$2,800 per ha. These values are considerably underestimated, as they reflect conservative assumptions concerning on-site yields,[20] and do not account for off-site benefits, such as increased water availability due to reduction in sediment yield. Moreover, these activities are also financially attractive, with NPVs in the range of US$2,200 to US$3,000 per hectare. It is important to note that the incentives provided during the first project year covered the up-front investment costs that would otherwise have been a financial burden for the beneficiaries. Along these lines, existing studies in Ghana suggested that use of payments for environmental services for mango cultivation led to higher benefits than those of the unsustainable practices that they replaced (annex 4).

Table 6. NPV of Selected Land Use Practices (US$/ha, 6% discount rate, 20 years)

	Economic	Financial
Previous practice: maize only	920	1,300
SLWM: maize - soybean rotation	2,000	2,200
Previous practice: groundnut only	1,600	2,000
SLWM: cashew - groundnut agroforestry	2,800	3,000
Previous practice: soyabean only	920	1,300
SLWM: cashew - soybean agroforestry	2,400	2,600

Notes: The financial results reflect the Government subsidies to input costs (seeds and fertilizers) for previous practices and the project's support in the first year for the SLWM practices. The economic

[19] The results were based on FAO/World Bank. 1991. *Ghana Land Resource Management Study: Identification Mission.* Report No. 103/91 CP-GHA 28: Volume II. FAO Investment Centre. FAO, Rome. They were updated to inflation for 2010.
[20] 30 percent of potential yields for cashew and 55 percent of potential yields for maize and soybean rotation.

benefits do not account for off-site benefits (for example, reduction of sediment yield) and global benefits (for example, carbon, biodiversity).

62. **A sensitivity analysis indicates that the selected SLWM activities remain attractive** if, after the end of the project, the cashew survival rate remains higher than 60 percent for the cashew-soybean agroforestry; greater than 65 percent for the cashew-groundnut agroforestry; and if the yields of maize-soybean rotation decline by 25 percent. This is consistent with the results of the beneficiaries' survey, which indicated that (a) a large share of beneficiaries (80 percent[21]) are willing to continue these SLWM activities in the future—suggesting high sustainability rates of these practices at the end of the project and (b) cashew was a successful practice, both financially (increasing revenues) and environmentally (resilience to climate).

63. **The project has delivered important global environmental benefits,** including carbon sequestration and reduced emissions from deforestation and forest degradation from better managed and reforested areas, and biodiversity conservation in the project areas as evidenced by the met results targets.

64. **Carbon benefits.** Results of the Ex-Ante Carbon-balance Tool (EX-ACT) applied at completion indicate that the project generates net greenhouse gas (GHG) emissions reductions of about 61.9 million tCO_2e over a 20-year period. This is higher than what was estimated at the AF1 (1 million tCO_2e) and AF2 stages (45 million tCO_2e).[22] The same results suggest that most of the carbon benefits originate from reversing land degradation through adoption of SLWM practices. The economic value of carbon is estimated based on the World Bank (2017)[23] guidance on shadow price of carbon. It provides a value of US$41 per tCO_2 (low scenario) and US$82 per tCO_2 (high scenario) for 2021, with an annual change of 2.25 percent. Accordingly, the PV of carbon benefits provided by the project during 2010–2030 is estimated between US$1.4 billion (low scenario) and US$2.8 billion (high scenario). Table 7 presents the results of a sensitivity analysis to changes in discount rate.

Table 7. Carbon Benefits Derived from the Project during 2010–2030 (US$, billions)

	Base analysis (r = 6%)	Sensitivity Analysis to Discount Rate		
		r = 2%	r = 8%	r = 10%
PV (low scenario)	1.4	2.0	1.1	1.0
PV (high scenario)	2.8	4.1	2.3	2.0

Sources: EX-ACT model application in 2021 for emissions reductions quantities; World Bank (2017) for carbon shadow pricing.

Aspects of Design and Implementation

65. **The project was designed based on a strong participatory approach.** Before implementation, the SLWMP officers visited the selected target areas to raise awareness about the project activities and discuss the challenges and needs of the local communities. Moreover, during implementation, community members, under the leadership of the CWMT, worked with the District Watershed Management Team (DWMT) to identify, design, and implement the subprojects. The fact that a high number of subprojects

[21] MESTI. 2021. *Ghana Sustainable Land and Water Management Project: Lessons Learnt and Best Practices*.
[22] See AF papers for 2014 and 2016. The totals are estimated based on a six-year investment period and a 24-year capitalization period.
[23] World Bank. 2017. *Shadow Price of Carbon in the Economic Analysis*. Guidance Note.

(more than 42,000) were implemented with full consideration of local needs was key to build project ownership among communities and avoid serious rivalries or conflicts throughout the project lifetime.

66. **The team successfully met several challenges during project implementation.** The team encountered several challenges during project implementation: the high turnover of project staff (through transfer or retirement) led to the need for additional time to replace and train new personnel and weak capacity in FM at the beginning of the project led to delays in the dissemination of approved budgets, weak internal controls over project fixed assets, and delays in the quality financial reporting. In spite of these difficulties, the team successfully managed to implement the project activities on time and disburse nearly 100 percent of the allocated funds. Moreover, the strong ability to adapt to the COVID-19 crisis, which occurred at a key moment of its implementation (last project year), was remarkable.

67. **In terms of overall incremental co-financing, the project benefitted from** the GoG's in-kind contribution amounting to US$14.3 million; synergistic collaboration with other ongoing World Bank projects (Forest Investment Project, Ghana Commercial Agriculture Project, and Natural Resources and Environmental Governance Technical Assistance Project) amounting to US$88.4 million; and other donor projects (Northern Rural Growth Program) amounting to US$104 million.

Assessment of Efficiency and Rating

68. Overall, the analysis of the *economic efficiency* showed that relevant SLWM practices were both economically and financially attractive, even under conservative assumptions of expected future benefits. The incentives provided during the first project year were essential to cover a considerable proportion of the upfront investment costs and encourage the future continuation of these activities. However, it is important to note that due to lack of information, the cost-benefit analysis focused only on some of the SLWM practices adopted by the project. The analysis of the *design and implementation aspects* showed that despite several challenges, the team demonstrated outstanding capacity to implement the project activities on time, while mainstreaming the overall project implementation through the GoG systems. For these reasons, the efficiency rating of the project is assessed as **Substantial**.

D. JUSTIFICATION OF OVERALL OUTCOME RATING[24]

69. The project demonstrated its proof of concept in tackling land degradation while supporting livelihoods in the original financing, which successfully led to two AFs. The expanded scope both in terms of geography and activities with limited initial financing from a GEF grant has shown the catalytic potential for these activities to be further scaled up much more. In fact, the Government has, as a result, reaffirmed its commitment to improved landscape management by requesting IDA financing. This has translated into a newly approved Ghana Landscape Restoration and Small-scale Mining Project, which will replicate and scale up much of what has been done under the SLWMP in the NSZ, the transitional zone and the cocoa forest landscape. It can therefore be concluded that the PDO remains highly relevant and with the PDO-level targets having been well overachieved with economies of scale and global benefits, a Highly Satisfactory rating for the overall outcome is well justified.

[24] It should be noted that a split rating is not applicable for this project as per the March 2020 ICR Guidance, which states that "*If the project became overall more ambitious, generally a split rating is not applied regardless of whether project funding increased (say through Additional Financing), decreased (say through cancellation), or remained the same – unless good reasons can be presented as to why a split rating makes sense in a specific case.*"

E. OTHER OUTCOMES AND IMPACTS

Gender

70. **The level of involvement of women was a key achievement of the project and is discussed under the achievement of PDO Indicator 4.** In its efforts to both mainstream gender in all its components and work extensively toward achieving gender equality in the design, implementation, and M&E of the subprojects, the project can be seen as an example of best practice on gender. Men, women, and youth were involved in the meetings held in the communities to introduce the project and get the required buy-in from prospective beneficiaries and continued to engage them meaningfully.

71. **Although women in northern Ghana typically cannot have land allocated to them under the customary tenure system (which allocates land only to men), they were able to gain access to land mainly through their social relations with male members of the family or community.** In such situations, a man (father or husband) who has land would grant the woman (daughter or wife) access to the land for temporary use, such as for farming annual crops and not tree crops. And in most cases where they were allowed to farm, areas were typically of poor quality and low fertility. Given the challenges women had in accessing land, the project facilitated women's access through discussions with community leaders and elders on the need for females to have access to farmlands to participate in the project (as a selection criteria). The project facilitated and increased women's access to farmland, of which one acre was ploughed for crop cultivation, using SLWM practices, and women farmers were also provided with certified seeds and other inputs as well as extension support from agricultural extension agents from MoFA. It was also made clear during the awareness raising meetings that all project incentives were meant for both male and female participants and that there would be no gender-based discrimination. By emphasizing gender equality and the access of women to project benefits, the project was able to train and support significant numbers of women in SLWM practices, thus promoting women's access and the overall objective of achieving greater use of SLWM methods. Women in some of the villages such as Yameriga, Zogg, Tarikom, and Gbere notably indicated the benefits to them from farming for enhanced food security and financial independence.

72. **The income-generating subprojects and VSLAs were also powerful tools for increasing the access of women to both additional income and access to financial resources, both often difficult for women to obtain.** By empowering women financially, the VSLAs contributed to significant improvements in their lives. Women in the communities spoke of the numerous gains they have made because of their membership in the VSLAs. They are now respected and have a voice in decision-making in their homes and communities because they are able to make financial contributions to address challenges. They have some level of financial independence. Women have been able to establish farms without depending on their husbands for money to purchase inputs. With produce from these farms, they are able to feed their families without depending on their husbands. Proceeds from the sale of surplus produce have enabled women to invest in enterprises such as petty trading, purchasing of produce in bulk for sale, and aggregating of shea nuts for processing into shea butter. Additionally, they have supported their husbands in paying their children's school fees and medical bills as well as investing in improvements in their buildings.

Institutional Strengthening

73. The project made significant gains in first establishing a coordinated multisectoral institutional setup and building the capacity of both national- and community-level institutions. The work required in co-implementing the project activities across multiple ministries and agencies not only led to improved outcomes but also strengthened the institutions' abilities to work collaboratively across sectors. There was significant institutional collaboration between MESTI, EPA, MoFA, WD, and FSD in the identification, implementation, and M&E of project activities and subprojects. Overall project coordination is under the leadership of MESTI, while the actual on-the-ground implementation of project activities and subprojects were led by the four implementing agencies. MoFA led the promotion and implementation of SLWM technologies on farmers' farms, the WD supervised the creation of CREMAs, and the FSD oversaw enrichment planting and other activities in and around forest reserves. The EPA provided technical environmental and natural resource support to the project, led riparian restoration activities and piloted the PES concept.

74. **The implementing agencies also collaborated in the management of the project.** The Project Steering Committee, which provided oversight and policy guidance to the project, was headed by the Minister of MESTI with membership comprising, among others, the Ministry of Lands and Natural Resources (MLNR), MoFA, EPA, Forestry Commission, Ministry of Local Government and Rural Development, Ministry of Gender and Social Protection, Ministry of Finance, Water Resources Commission, an environmental nongovernmental organization, LUSPA, and SADA. The National Sustainable Land Management Committee, which was the technical advisory committee to the project, had membership including representatives from the implementing agencies. Participation and trainings of all relevant agency staff in SLWM technologies have led to the mainstreaming of SLWM skills and knowledge within the implementing agencies and have become a significant resource. Also, efforts were made to further train farmer beneficiaries and lead farmers.

75. **Institutional strengthening also took place at the community level** with both CREMA executives and members benefitting from significant training resulting in improved capacity throughout the CREMA system, as elaborated in the earlier section (see Box 4).

Poverty Reduction, Shared Prosperity and Resilience

76. **The project was implemented in the NSZ of Ghana, which is characterized by vulnerability, low climate resilience, and high poverty.** The overall project objective of reducing land and water degradation through enhanced SLWM practices is directly in line with poverty reduction agenda in Ghana where, the vast majority of the rural population is dependent on the health and productivity of farmlands. In addition to placing over 15,000 ha of lands under improved practices and training thousands of farmers in improved practices which lead to increased yields and incomes, the project invested in a range of other activities to reduce poverty and enhance resilience of both people and ecosystems in the project area. These included among other things, investments in the agricultural value chain; investments in subprojects for enhanced livelihoods (for example, shea nut and cassava processing, beekeeping, and other NFTPs); increasing the diversity of smallholder farming systems (through the promotion of mixed cropping-livestock systems and diversification of crops including a focus on root and tuber crops); promoting and establishing of VSLAs for greater access to financial resources for vulnerable groups; enhancing local institutions (through establishment of CWMTs);piloting of an incentive mechanism for the

PES; and improving the availability of and smallholder access to climate information (through awareness and training/demonstration activities and knowledge exchanges).

77. The project introduced a proxy indicator for resilience in AF2 to track household-level support to climate-smart agriculture (in the new 76 communities under AF2) that provided a measure for smallholder households supported in coping with the effects of climate change. In addition, the project impact evaluation (IE) provides the following evidence of improved uptake and contribution of the project to improvements in the farmers' welfare:

- Adoption of SLM practices in target communities was up to 97 percent, compared to about 70 percent in control communities.
- Impact on income for a median farmer was between GHC 556 and GHC 709 per year.

Other Unintended Outcomes[25] and Impacts

78. **Reduced rural-urban migration.** Rates of internal seasonal migration in Ghana—from rural areas to urban (often from north to south)—have been recorded to be as high as 80 percent for certain regions. While the problem is multidimensional, poverty, lack of employment and food insecurity are the main drivers, with recent changes in rainfall patterns due to climate change exacerbating the problem. The households with limited incomes face a recurring challenge to feed their families, leading to such migrations, particularly in the dry season. Interestingly, project activities linked to SLM support and alternative livelihood and economic opportunities (particularly subprojects' support for multi-cropping, dry season gardening, beekeeping, investing in the VSLA, and so on) were reported by several communities (for example, Naaha, Jolinyere, Nanchala, and Saggu) to have reduced the migration trend of men and women (including youth) to the cities. For example, the project provided ploughing for one acre of land for each beneficiary farmer along with certified seeds (Cereals, maize and Sorghum) and legumes (soyabeans, groundnuts, pigeon pea & cowpea)); or beehives to culture and produce honey; or shea nut processing facilities, and so on, as well as technical extension support—all of which were sources of additional income. A case in point are three communities, Nanchala in the Sissala East Municipality and Naaha and Saggu in the Wa East District, that experienced close to a doubling of yields in maize (5.75 Mt to 8.80 Mt), soyabean (3.02 Mt to 4.96 Mt), and cowpea (3.28 Mt to 4.84 Mt). While migration statistics was not a defined indicator within the project's scope, the project's package of support was particularly noted as a strong benefit and also seen to reduce migration in search of, at times, nonexistent jobs in the south of the country.

79. **Improved access to education for shepherd boys.** Cattle and livestock rearing is a major livelihood activity for many households in northern Ghana. In these households, it is normally the responsibility of the young boys to shepherd the animals to the field to graze. What this means is that many school-age boys had to devote school hours to graze and tether the cattle and were therefore unable to attend school full time, missing out on basic educational and development activities. As part of the field visits for monitoring activities in communities such as Jeffissi, Kalaasa, Kunkorgu, Gbantongo-Agoadabot, and Gbango, where the project established rangelands (30 ha each of fenced areas), the situation of the shepherd-boys notably improved in terms of full attendance at school, with animals being safely left to

[25] Unintended outcomes reported are based on discussions and findings during the bi-annual field missions where community voices were heard and noted as anecdotal evidence. These were not planned targets and therefore not tracked in the results framework.

graze in the fenced enclosures and not requiring continued herding over the day. While such observations were noted as positive community voices and case stories, the emerging potential impact is considered significant for any future investment planning.

80. **Reduction in weed infestation.** Unsustainable agricultural practices create an excellent environment for destructive weeds, including Striga, a parasitic plant. Once established on a farm, it dominates the land and over time renders the soil infertile as it continues to thrive. Before the SLWMP, Striga infestation was prevalent in communities in the project area and farmers unsuccessfully tried to deal with it through weeding and the use of weedicides. Many farmers indicated that as they implemented SLWM technologies on their farms, particularly maize-soyabean and maize-groundnut rotations, the Striga infestation diminished. Farmers have stated that the Striga infestation was likely a result of monocropping over long periods, which destroyed soil fertility. There is now anecdotal evidence from farmers that the increased soil fertility resulting from the practice of SLWM technologies is causing a significant decline in Striga growth.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

81. **Realistic simple project design**. The project design was effective with clear objectives and clearly defined thematic components set out for transforming practices and framed with a focus on measurable outcomes and outputs. It was also aligned with larger regional programs of action that Ghana was committed to, thus enabling a reasonable level of ambition. Piloting of activities under the original project was an extremely effective design approach as it allowed for both successful activities to be scaled up in later phases (AF1 and AF2) and, also capture emerging gaps and challenges. For example, addressing water access and scarcity challenges through water dugouts, a critical need for communities and livestock, which when adopted helped enhance the overall uptake of SLWM practices at the community level.

82. **Building on baseline activities.** Notably the project benefited from strong baseline action through seed funding from TerrAfrica that supported the preparation of the GSIF (a roadmap for guiding investments to reduce land degradation) and the set-up of the multi-sectorial SLM Committee during the early identification and preparatory phase. The project design also took into account key learnings and experiences from previous WB and donor funded projects including the Northern Savannah Biodiversity project, the Ghana Environmental Management project (GEMP), the Ghana Social Opportunities Project (GSOP) – all of which provided a sound enabling environment and base to build upon.

83. **Level of commitment and stakeholder engagement:** Stakeholder engagement was a particular strength of the project design and the engagement of community members, including women and youth, in the development of subprojects and activities proved to be a successful approach.

84. **Strategic emphasis on implementation arrangements**. The choice of implementing agencies working together, while creating some complexity due to the number of sectoral entities involved, did however allow for these key agencies to both benefit from capacity building and provide their individual expertise. This proved to be a successful approach which allowed for a strong ownership of their specific component level activities, and also joint multisectoral decision-making for collaborative action. However, the choice of SADA as the implementing agency for Component 1 of the original project proved to be a

problematic element of the design for the project's implementation. As mentioned earlier, SADA was not fully formed at the time of project preparation, and it subsequently proved to be too challenging to bring it up to the level necessary for successful implementation of the spatial planning activities in Component 1. This is an important lesson with regard to the level of capacity building possible before start of implementation.

B. KEY FACTORS DURING IMPLEMENTATION

85. **Factors subject to the control of the Government and/or implementing entities.** High-level ministerial commitment from MESTI was shown throughout the life of the project, through four successive ministers. The ministers, through field visits, had the ability to interact directly with project beneficiaries and make field observations on the positive impacts that the project was making in the lives of the rural poor. Also, the ministers ensured, through the PCU, that there was effective implementation and coordination of project activities and subprojects as well as effective accountability with regard to the use of project funds.

86. **The experience of the EPA and MoFA in the implementation of the GEMP and the familiarity of the project communities enabled them to lead the implementation of the project.** Still, the project took time at the start to fully develop all the required guidelines and systems at scale. Turnover of project staff (due to transfers and retirements) posed a challenge to uninterrupted project implementation. With the loss of trained and experienced project staff, the new staff took time to gain familiarity with the project and develop working relationships with the communities and farmers.

87. Excellent coordination of activities between the various agencies implementing the project was ensured through regular engagements, planning, and monitoring both at the district and landscape levels.

88. **Focus on sustainability was inherent to all project interventions.** Community structures were supported and their capacity to manage their common resources was consistently built and staff were trained and equipped with knowledge and tools—all with a view to achieve post-project sustainability.

89. **Factors subject to the control of the World Bank.** The project had weak FM capacity at the initial stages of implementation. The FM risk rating was High due to decentralized nature of disbursements. According to the recent FM review, this was an inherent risk in the project design. However, with support from the Bank, most of these challenges were resolved, and at completion there was marked improvement in the alignment between financial output and physical progress.

90. **Factors outside the control of the Government and/or implementing entities.** The COVID-19 pandemic significantly affected Ghana's economic growth momentum. Due to the lockdown of activities in some parts of the country because of COVID-19, the project implementation period was extended from November 30, 2020, to May 31, 2021.

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

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

M&E Design

91. The M&E system was designed to involve all four levels of implementation—community, district, regional, and national levels. Monitoring at each level was designed to operate as a pilot decentralized system to meet the appropriate information needs for decision-making at various levels. The Results Framework included measurable outcome indicators expected to adequately capture the key results and, also remain aligned with the GEF priorities under which the project was designed. This design was expected to be user friendly and result focused to generate information for tracking project performance, measuring project outcomes against targets, and evaluating impact against the planned objective and remain relevant for the duration of the project. The indicators and targets in the Results Framework were adjusted during the course of the project through the restructurings with additional funds to better capture and monitor the expanded scope of project activities.

M&E Implementation

92. With the decentralized M&E arrangements for the project, MESTI had the overall responsibility for M&E, collating outputs and data from all implementing agencies for a consolidated M&E report as part of the semiannual progress reports. The M&E implementation aspects, including specific monitoring responsibilities, were the following and were conducted in a reasonable manner throughout the project duration, albeit with some delays:

- All implementing agencies were required to keep detailed records of activities, outputs, and expenditures against agreed work plans and follow standard formats, including robust financial monitoring.
- The District Agriculture Units were responsible for collecting primary data on SLWM agreements signed, progress of implementation of agricultural SLWM technologies in the field, and levels of beneficiaries' satisfaction with introduced SLWM technologies.
- CRMC members were responsible for simple community wildlife and natural resource monitoring systems in CREMAs.
- The WD collated information to monitor management effectiveness through the METT tool.
- The FSD undertook assessment and diagnostic studies of community protected areas, sacred groves, and agricultural landscape within the corridor.
- The EPA/TCO were responsible for collation and management of data through its GIS-based M&E system at its head office and GIS Unit at Bolgatanga. At the initial stages of implementation, the project was faced with the challenge of recruiting an M&E officer to operate from the TCO in the EPA regional office in Bolgatanga. An officer in the EPA regional office in the Upper East Region was assigned the role of overseeing M&E operations at the TCO.

- At the district level, the district officers of the implementing agencies worked in collaboration with the community structures established by the project to collect and collate data, using a template designed by the project. The TCO collated data from all the projects districts, analyzed the data, and undertook sample field verification to authenticate the data. The data were then submitted to the EPA GIS Unit to be uploaded into the GIS-based M&E system for the project.

M&E Utilization

93. The project M&E system was used to track progress toward project objectives, assess performance, and inform project restructurings. An impact evaluation for the PES was also conducted with support from the World Bank's Development Impact Measurement Team to inform further use of the tool. At the national level, learning from small challenges within decentralized M&E systems to maintain efficient flow of information country level, the TCO was reorganized into groups to undertake M&E visits to different areas or communities for better division of labor and more extensive reporting coverage. With continuous adjustments and improvements made to the M&E system during the course of the project's implementation period, the project recognized the importance of establishing and strengthening M&E capacity as a core element of future projects. In addition, all required GEF tracking tools at midterm and end of project were provided on time. Overall, given the three phases of project implementation and vast scope of project activities, M&E utilization was sufficient.

Justification of Overall Rating of Quality of M&E

94. As seen above and in project ISRs over the course of 10 years of project implementation, the M&E system as designed, adjusted, and implemented was generally sufficient to assess the achievement of project objectives, with moderate weaknesses and challenges faced in a few areas, which were addressed. M&E assessments were mostly Satisfactory, and thus the overall rating of the Quality of M&E is assessed as Substantial.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

95. **Safeguard compliance.** The project was designed and implemented under the World Bank's safeguards policies and classified as a Category B project that triggered five safeguard policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Pest Management (OP/BP 4.09), and Involuntary Resettlement (OP/BP 4.12). The implementation of project activities and subprojects was aimed at improving the management of land, soil, and water resources and the promotion of good agricultural practices to generate environmental and natural resources benefits. However, the project implemented some interventions that involved physical infrastructure works such as the construction of residential accommodation for the WD staff, shea and gari processing facilities, dugouts, and boreholes—these works required appropriate assessment of the potential environmental and social impacts and development of measures to mitigate them. In compliance with the disclosure requirement of the World Bank, the project disclosed the Environmental Analysis and Management Plan (which used a framework approach) work (on August 31, 2010, and redisclosed in 2016 and on December 26, 2019) and Resettlement Policy Framework (August 31, 2010) documents on the World Bank's website.

The Environmental and Social Impact Framework (ESIF) for the civil works in the GRR and the Resettlement Action Plan (RAP) for Gbele were prepared and disclosed on the EPA's website.[26]

96. The mini strategic forest management plans for the following forest reserves were disclosed at the time of processing AF1 (linked to P132100): Sissili North, Bepona, Chiana Hills, Pudo Hills, Mawbia, Ambalara, Kulpawn Tributaries, and Sissili Central.

Safeguard Instruments and Guidelines

97. All necessary safeguards instruments were developed and disclosed on time. These included the following:

- **Environmental Assessment and Management Plan, 2010.** The plan effectively described the measures that were to be taken to mitigate potential negative impacts of the project on the environment and on local communities. It was redisclosed in 2014 and 2016 at the time of project restructuring.
- **ESIF, support to the GRR, 2017.** The project supported the GRR with facilities including upgraded access tracks, waterholes, water crossings, bird and game viewing platforms, and housing facilities for the WD staff. The ESIF involved the full analysis of the facilities to ensure that they are environmentally and socially sound and consistent with international best practice and in accordance with the regulatory requirements of the World Bank as well as Ghana's environmental laws and other institutional requirements

98. An extremely important element to safeguarding communities and the environment was the project's safeguard guidelines for community and subproject implementers and beneficiaries. The guidelines made available under the SLWMP provided important direction for implementing the project and beneficiaries on how to carry out activities and subprojects in an environmentally and socially sound manner. The EPA undertook a study on the physiochemical and microbial quality of the dugout water systems in the four northern regions of Ghana to ensure the water quality of the dugout wells and ascertain its suitability or non-suitability for other domestic uses. The study concluded that, generally, the water quality was good, albeit with a note of caution on the bacteria overload, thus sensitizing the communities on the safety of potable water. Additionally, the EPA offices in the North East, Savannah, Upper East, and Upper West Regions, in collaboration with the SLWMP TCO and the District Departments of Agriculture in the 12 project districts, undertook awareness creation and sensitization programs on the application of safeguards procedures in project communities. Awareness creation and sensitization were carried out using mobile video vans, radio broadcasts, and community forums.

99. All project activities were screened for environmental and social risks, including all 42,230 subprojects by the TCO.

[26] Source: http://www.epa.gov.gh/epa/publications/ghana-sustainable-land-and-water-management-project.

Resettlement

100. The Government was engaged in resettling the Gbele community (population of 362) located within the GRR before start of the project. The project team supported the Government to address this legacy issue and reputational risk by association through safeguards due diligence. An RAP was prepared and disclosed on time. The RAP successfully guided the WD in the resettlement of the Gbele community. No adverse issues arose during the resettlement process and the new Gbele community was officially inaugurated on November 17, 2020. In compliance with the RAP, the resettlement was successfully completed with Government financing (see Box 6).

Box 6. Successful Resettlement by the GoG

- 27 houses with ancillary facilities with toilets and bath houses and two boreholes drilled and installed for potable water
- 313 ha of agricultural land for affected persons to establish/reestablish farms
- A community-managed dugout for livestock
- A school and a clinic (provided at Dasiima to be shared with the Gbele community)
- A mosque with a capacity of 100 people.

Grievance Redress Mechanism (GRM)

101. **To achieve the objective of the project without any social conflicts, communities/individuals had opportunities to make complaints or express their grievances about the project's safeguards performance to project officers in the field.** According to available records, the TCO handled and resolved eight grievances from project communities. No grievance from a project community or beneficiary went beyond the TCO as these were adequately addressed to the satisfaction of the complainants. In Jeffisi, for example, the issue of 12 rangeland fence posts being destroyed was resolved through sectional meetings led by the TCO with chiefs and community members. As a result, an agreement was reached, and the 12 fence posts were reinstalled by the chief. Similarly, in Kalaasa, part of the rangeland supported by the project was set on fire by members of one of the four communities participating in the project due to grievance related to lack of adequate information sharing by local committees. Timely intervention by the TCO and a series of meetings with the chiefs and subchiefs of the communities led to the setting up of a joint security and monitoring team with engagement of all communities, and future incidents of this nature were averted. No major grievance that could derail implementation was expressed during implementation of the project. A record of grievances and actions taken to address them is presented in annex 4 of the client Implementation Completion and Results Report.

Financial Management

102. The project had weak FM capacity at the initial stages of implementation. FM weaknesses included delays in preparation and dissemination of approved budgets, weak internal controls over project fixed assets, and timeliness and quality of financial reporting. However, with additional training and action plans initiated with the World Bank team, FM did improve over the course of the project's implementation and was rated Moderately Satisfactory in May 2021.

103. **Due to the improvements in FM arrangements, especially around acceptable Statement of Expenditures and Intermediate Financial Reports content and the timely submission of the latter, the overall FM performance rating is Satisfactory.** The World Bank FM team concluded that the existing FM arrangements met the minimum requirement according to the World Bank Policy on Investment Project Financing. The FM risk was maintained as Substantial due to the decentralized nature of disbursements.

This was an inherent risk due to the project design and the increased financing since the original grant, and such a structure required a comprehensive report that effectively linked financial output to physical progress, and this was lacking for the project.

104. **The 19-month SLWMP audited reports for the period ending July 31, 2021, were submitted on August 25, 2021, ahead of the application deadline and were considered acceptable.** The auditors expressed an unqualified opinion on the project financial statements and the management letter did not highlight any major internal control deficiencies that could have an adverse effect on the financial statements. The auditor however noted issues of some delays in the completion of contracts totaling GHC 252,798 for setting up a shea processing facility and the nonfunctioning of a mechanized borehole at Sori No. 1 community. According to the grant agreement, project activities (except the financial audit) that are not completed by the closing date of May 31, 2021, are considered ineligible. In consultation with MESTI, requisite information was received, and the issue was resolved.[27]

Procurement

105. Procurement performance was generally satisfactory throughout the project. Despite a high level of coordination on procurement that was required for a multi-agency project of this nature and the project having to transition from PROCYS[28] to STEP[29], the Project Implementation Unit adequately complied with changes over the project duration to maintain a functional system. Procurement was mainstreamed into MESTI and allowed MESTI to procure goods and services on behalf of the other implementing agencies, which significantly improved efficiency. The World Bank procurement team provided guidance during the transition to iron out early difficulties and one additional procurement staff at MESTI were hired and trained based on the guidance.

C. BANK PERFORMANCE

Quality at Entry

106. This project had a wide range of activities under implementation over the project duration. The SLWMP was strategically relevant at the time of entry and technically sound. Poverty, gender, resilience, environmental, and social development aspects were carefully considered during project preparation, which yielded positive benefits during implementation. The decentralized implementation of the project, although seemingly complex, was the desired approach to address the multisectoral issues around land management that also dovetailed with the institutional mandates. Project M&E could have benefited from specific follow-up on the links between disbursements and physical progress, given the multi-agency implementation structure and need to aggregate information. A key issue that affected project performance for Component 1 activities was the choice of SADA as an implementing agency when it was not fully established. However, it should be noted that this was done in good faith as SADA was at the time being established as an agency with an overall mandate for the NSZ and thus, a crucial agency for project implementation.

[27] According to the records shared by MESTI and confirmed by the Ghana Audit Service, 88 percent of the works were completed by the project closing date. The balance 12 percent of contract amount (US$5300 equivalent) has been confirmed to be borne by the GoG and is being refunded to the World Bank.
[28] PROCYS = Procurement Cycle Tracking System.
[29] STEP = Systematic Tracking of Exchanges in Procurement.

Quality of Supervision

107. The quality of supervision was satisfactory throughout the project. Supervision missions were conducted regularly and on time. The review of documents, provision of 'no objections', comments on semiannual and annual reports and so on were also completed within the expected time frames, causing little to no delays for the project. During implementation, the World Bank team provided strategic guidance at key points and worked on the development of the original project and AF designs and restructuring in a collaborative manner with the Government. In addition, the World Bank team was proactive in introducing changes to the project design to reflect the lessons learned and emerging trends. At the same time, the World Bank team supported the GoG in mobilizing two rounds of AF in grant resources.

108. **The MTR of the project, conducted in January 2014, provided substantial lessons learned for improving project performance leading to the formulation and approval of AF1.** During supervision missions, the World Bank team worked effectively and collaboratively with the project team in identifying opportunities and implementation challenges and in developing innovative ways of dealing with both. Key interventions of the World Bank team included (a) providing advice on how best to streamline project activities, subprojects, and processes in the field; (b) providing technical assistance on the PES, procurement, FM, audits, M&E, and safeguards; and (c) bringing in advise and information on new approaches (PES and Impact Evaluation) and new technologies.

109. The final missions of the project were held remotely due to COVID-19-related travel restrictions; however, the project team did experiment with use of the remote supervision tools such as satellite imageries, being the first project in the Ghana portfolio to do so. The SLWMP was also one of the first projects in Ghana to undertake a robust impact evaluation.

Justification of Overall Rating of Bank Performance

110. Based on the quality at entry and supervision, the overall World Bank performance is assessed as Highly Satisfactory.

D. RISK TO DEVELOPMENT OUTCOME

111. The project incorporated relevant key elements for safeguarding development outcomes such as a participatory approach with early engagement of stakeholders and project beneficiaries; strengthening level of ownership within communities through subprojects' implementation supported by trainings, technical guidance, and input support for SLWM activities; alternative income-generating livelihood activities; and establishing of the CREMAs and their community-level management. The large number of farmers (even those not receiving direct benefits from the project) who adopted SLWM activities illustrates that the SLWM interventions have been well received and are showing benefits for participants that should help maintain their use. In addition, the level of training received by farmers of all groups (women, youth, and men); its real-life application; and the number of farmer-trainers means that real knowledge and capacity have been built in project communities, helping sustain outcomes. At the agency level, as activities are supervised and monitored by institutional staff, it mitigates the risk of loss of capacity after project closure.

112. **The landscape approach used by the project also helped limit risk to development outcomes as it considered the real-life complexity of applying SLWM technologies in the field.** The holistic approach also considered, in later phases of the project, an exploration of the value chain to try to enhance access to markets, while financial viability for the future was somewhat safeguarded through the formulation and training provided for using the VSLAs.

113. **The risk to outcomes would also be mitigated by the Ghana Landscape Restoration and Small-Scale Mining Project (GLRSSMP), approved on August 30, 2021,** with a blend of funding streams from IDA (US$75 million), the PROGREEN Trust Fund (US$15 million), the GEF (US$12.76 million), and the Extractives Global Programmatic Support (EGPS) Trust Fund (US$0.6 million). Like the SLWMP, the GLRSSMP has been designed as a multisectoral and multi-agency project with oversight responsibility by the EPA and MLNR and will be implemented by nine agencies. It is expected that the GLRSSMP will not only sustain SLM practices in the NSZ but also scale-up community led SLWM practices with lessons learned from the SLWMP to the transitional and forest zones. With the cocoa landscapes, the SLWMP will thus provide information by way of lessons learned and best practices to increase effectiveness and efficiency of GLRSSMP implementation. Equally, the GLRSSMP will provide the means of sustaining SLM technologies and practices to consolidate and deepen the results of the SLWMP in the NSZ and cocoa forest landscapes of Ghana.

V. LESSONS AND RECOMMENDATIONS

114. **Comprehensive package of interventions (technical, financial incentives combined with biophysical investments) can lead to higher uptake and successful adoption of SLWM practices by communities.** The project supported a package of interventions that transcended from local land use and community watershed management planning, to input support in the form of seedlings, trainings, education on the appropriate practices through extension agents, to incentives for planting trees on farms through a simple PES and access to finance through VSLAs. In addition, based on the high demand from communities targeted support was also provided to: (a) address the crop value chains (*e.g.* market access, value addition), through post-harvest and marketing for commodities such as Shea and cassava milling, and (b) promotion of rangeland management (rangelands in Ghana are valued considerably as they provide scarce fodder for and protection to livestock during the harsh dry season). This resulted in impressive outcomes with regard to converting farmers to adopt SLWM technologies with increased yields of food crops leading to improved livelihoods; households become more food-secure where they can supply products to the markets.

- **Recommendation.** Future projects should use an approach that brings together a suite of incentives (menu of options) and support that can comprehensively introduce, deliver and help transition to–SLWM and other technologies, especially in communities where traditional practices have been in use for generations. Notably, also consideration of all aspects from production to marketing is critical during project design. Cooperative marketing, and other effective means that could increase the marketability of commodities need to be supported to ensure that the adoption of practices and increased productivity translates into increased incomes. Ad-hoc support with singular focus (*e.g.* technical or financial or biophysical inputs only) is likely to be less effective.

115. **Engaging communities in a continuous, demand-based participatory planning and decision-making process is a must for building trust and ownership successfully. This also enhances the potential for sustainability of investments.** Level of participation of communities in the design and implementation of the project activities was exceptional and yielded excellent results in terms of ownership and adoption of SLWM practices, enhancing the potential for sustainability. Local level community watershed management planning exercises brought community members together in a facilitated exercise to identify areas of community land that are most suited for protection and production while at the same time bringing out the benefits of watershed protection and wildfire prevention for increased productivity of landscapes. For example, the project through an extensive demand driven consultative process supported the: (a) enhancement of community cohesion and benefits through activities under the CREMA management plans, such as, concerted efforts in reducing encroachment in the national parks and sustainable harvesting of NTFPs in designated zones of protected areas; (b) enhancement of community livelihoods, particularly in the CREMA communities that, as an incentive for improved patrolling and monitoring of these biodiversity landscapes, received support for income-generating activities such as beekeeping, gari processing etc.; and (c) establishment of water holes at the fringes of the GRR, which brought the communities together to address communal needs and helped reduce pressure from livestock on the protected reserve.

- **Recommendation.** A high level of participation and engagement that is embedded in recognition of communities' needs and readiness is a prerequisite for the successful adoption of a multitude of SLM activities, should be maintained in future programming and design of similar projects. Even though the engagement process can be slow and tedious in the beginning, it should be sustained. Projects should seek to identify and support the existing community-based and community-led organizations to enhance local management of natural resources and buy-in of project beneficiaries. Further efforts to hear and consider the voices and opinions of youth, often unheard in traditional communities when elders are present, could potentially further enhance project results.

116. **Proactive engagement of women in SLM planning and decision-making and gender sensitive targeted interventions enhances overall project performance and achievement of results.** In Ghana, women have traditionally been marginalized on land use related decisions given the customary land tenure, but they maintain a strong willingness and enthusiasm for uptake of opportunities. In this project too, women were quick to accept innovation once they were convinced of its benefits. In the project, this was seen with female charcoal producers and farmers who more quickly adopted changes in production methods or dropped unsustainable practices. Likewise, there was a strong uptake of support for financial sustainability through the VSLA model, which allows primarily women to generate a financial pool to support livelihoods and children's education and procure inputs (for example, seedlings) to expand SLWM practices on larger areas.

- **Recommendation.** Future projects should continue to actively involve women in both design and implementation of interventions. Significantly, financial literacy and access to financial resources along with understanding and addressing cultural or administrative barriers to women's involvement are critical to emphasize upon. Targeted women-centered interventions and investments such as the establishment of shea butter and cassava processing facilities, formation of VSLAs enhanced women's participation, and focused education and awareness should be considered at the outset.

117. **Bringing together and mainstreaming government staff with sound technical skills and leadership qualities is key to addressing multi-sectorial landscape issues and engaging with a diverse stakeholder group.** Project implementation was executed and led through mainstreamed technically skilled staff in key agencies at the national and district levels rather than consultants hired for the project duration. Key government staff was retained for the ten-year duration of the project, with technical support from consultants as needed. This made allowance for higher level of commitment, needed networking within the agencies, consolidation of gains and, deepening of project results. In addition, the programmatic nature of the project (*i.e.* three subsequent tranches of funding under a single project) enabled additional agencies to join the PIU in supporting the new areas of intervention.

- ***Recommendation.*** Visible results and transformations for integrated landscape management can happen only with long-term commitment, joint action and engagement of key sectorial government staff. While quick results are often desired by donors, the longer, phased approach of the SLWMP should be considered in future for similar projects as a programmatic approach for reversing land degradation is now well recognized. A longer implementation period allows for a more realistic application of the landscape approach, activities to be adapted to the changing programmatic and physical environment, scaling up of successful activities, the addition of key activities to address strategic gaps, and the results to be seen on the application of new SLWM and income-generating activities.

118. **Trust Funds are catalytic and offer great value for piloting and demonstrating innovations.** The project was supported through three phases of GEF grants in a programmatic manner. Although the total funding envelope was approximately US$29 million over a duration of 10 years, albeit small, it provided the needed opportunity and added great value in setting the stage and supporting foundational interventions for later scale up. The GEF invested in both difficult and critical issues for which clients typically will not borrow unless there is evidence of translation of concepts to practice and successful implementation. The GEF trust fund financing in this case helped to establish the proof of concept (through piloting activities and expansion of target areas), and to significantly bridge the gap for leveraging larger lending by the Government of Ghana.

- ***Recommendation.*** Large scale programmatic efforts in landscape restoration should consider a consolidated financing approach including Trust Fund support, both for early foundational piloting/demonstration efforts and, in combination with Bank's lending for larger scale up. The World Bank portfolio should not shy away from TF supported project just because the funding envelope is small as groundbreaking research and innovation comes through these mechanisms and TFs often have the needed flexibility to support small and local innovations.

119. **Good design and implementation principles for risk management are critical for delivery of component level interventions.** The project placed emphasis on the safeguard risks management with continuous monitoring, adjustments and refinements to any emerging shortcomings or needs as they related to environmental and social safeguards. In particular, for subprojects, the timely availability of guidelines and an early and effective GRM provided important directions for project stakeholders and beneficiaries. It enabled farmers to carry out activities and subprojects in an environmentally and socially sound manner through basic safeguard diligence and continuous user-friendly communications. The GRM, was designed in line with traditional systems and lines of engagement to ensure a cooperative and collaborative relationship. Despite the Government led

resettlement near one of the project target area, the project was implemented without any serious grievances reflecting the respect and care involved in working with communities.

- ***Recommendation.*** Going forward, concerted attention should continue to be given to the quality and timeliness of safeguards guidelines with strong emphasis on early community sensitization and engagement. Projects should consider and ensure needed adjustments to the safeguard instruments and actions to enable effective management of project risks.

120. **Flexible and adaptive project design to capture emerging environment trends, national priorities and community needs, is a strong approach for multisectoral landscape investments.** The project truly benefited from its phased scale-up approach through the three successive tranches of financing. The simple design of the project component structure with embedded knowledge management elements allowed the opportunity and flexibility at each AF for critical adjustments and restructuring to improve decisions and practices by learning from outcomes of the previous actions. For example, after the first few years of implementation the relevance and interconnectedness of climate adaptation and resilience became evident, and the project introduced activities to ensure alignment with both the emerging climate agenda and GoG's NDC commitments.

- ***Recommendation.*** Multisectoral projects should embed flexibility in the project through maintaining simplicity in project design, selection of actions with higher potential for scale up and ensuring knowledge components to capture the emerging regional and global trends as relevant for the projects.

121.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Improved sustainable land and water management practices

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Land area where sustainable land mgt. practices were adopted as a result of proj	Hectare(Ha)	0.00 20-Jan-2011	1500.00 15-Feb-2016	15,000.00 20-May-2016	15,861.85 31-May-2021

Comments (achievements against targets):
For the original grant, the project achieved the full target of assuring 1,500 hectares of land area in selected watersheds under SLWM technologies, thus demonstrating significant achievement. For AF1 and AF2, the project implementing agencies worked together with beneficiary farmers to bring more land under SLWM. 15,861.85 ha of land has been put under various SLWM technologies in the agricultural landscape in the Northern Savannah Zone of Ghana as a result of the project. The participatory approach in watershed planning adopted by the project engendered the active participation of a number of communities and farmers. Also, the intensity of technical assistance and extension delivery by project staff enabled large number of farmers to adopt and implement SLWM practices in their fields.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

Land users adopting sustainable land mgt. practices as a result of the project	Number	0.00 20-Jan-2011	0.00 15-Feb-2016	30,000.00 20-May-2016	42,230.00 31-May-2021

Comments (achievements against targets):
42,230 farmers from 247 rural communities participated in implementing SLWM subprojects. This large number of farmers adopted the SLWM practices (42,230 against a target of 30,000) as a result of the participatory approach of the project making it possible for them to participate actively in the planning and implementation of subprojects. Their participation exposed them to the SLWM practices and the associated productivity benefits. The project established a number of demonstration farms (344) on which the SLWM practices were implemented for the practical education of farmers.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Management Effectiveness Tracking Tool score: Gbele Resource Reserve and Sanyiga Kasena Gavara Kara (SKGK), Moagduri Wuntanluri Kuwesaasi, Bulsa Yening, Wahabu Wiasi, and Gbele-Mole corridor sites	Number	0.00 01-Jul-2010	0.00 15-Feb-2016	0.00 20-May-2016	0.00 31-May-2021
Gbele Resource Reserve	Number	45.00	55.00	80.00	79.00
Sanyiga Kasena Gavara Kara	Number	28.00	0.00	47.00	51.00

Corridor Site (CREMA Site 1)					
Sissala Kasena Fraah Corridor Site (CREMA Site 2a)	Number	21.00	0.00	30.00	42.00
Bulkawe Corridor Site (CREMA Site 2b)	Number	21.00	0.00	30.00	54.00
Moagduri Wuntanluri Kuwesaasi Corridor Site (CREMA Site 3a)	Number	21.00	0.00	30.00	50.00
Bulsa Yening Corridor Site (CREMA Site 3b)	Number	21.00	0.00	30.00	39.00
Chakali Sungmaaluu Corridor (CREMA Site 4)	Number	21.00	0.00	30.00	54.00

Comments (achievements against targets):

The project, under the leadership of the Wildlife Division (WD), implemented a number of measures and activities aimed at improving the management of Protected Areas (Gbele Resource Reserve and Mole National Park) and the management of biological corridors and off-reserve areas, including via the establishment of CREMAs. The scores achieved on the METT tool were a result of the management of the six CREMAs established by the project. The scores indicate, among others that:

- The community level-managed areas have legal status
- There are appropriate regulations in place to control land use and hunting
- The CREMAs have management plans which are being implemented
- There is sufficient information on the critical habitats, species, ecological processes and cultural values of the protected area for most key areas of planning and decision making
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
- The staff of WD have capacity/resources to enforce protected area legislation and regulations, and
- Staff training and skills are aligned with the management needs of the protected area.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	0.00 20-Jan-2011	0.00 15-Feb-2016	60,000.00 20-May-2016	63,544.00 31-May-2021
Female beneficiaries	Percentage	0.00	0.00	40.00	56.24

Comments (achievements against targets):
The participation of more women than men in the project started with the sensitization and mobilization of communities for project implementation. Women dominated attendance at most of the initial community engagement sessions. The participatory approach to the planning of subprojects

encouraged women to participate fully in discussions at the community level to identify environmental and natural resource challenges and to propose appropriate subprojects to address the challenges. The project gave equal opportunity to men and women to be trained in and to implement SLWM practices on their farms. The participation of females was more pronounced in the implementation of SLWM practices on farmlands relative to their participation in forestry activities. 20,856 women who had access to land implemented the SLWM practices in the course of cultivating crops on their farms. On the other hand, female participation in the forestry sector was limited to raising seedlings on the nurseries.

The project documented the SLWMP Beneficiary Impact on https://youtu.be/_sNqXE_Z_SM and the Beneficiary Satisfaction Survey on https://youtu.be/d0u3S7xIKYs.

A.2 Intermediate Results Indicators

Component: Component 1: Capacity Building for Integrated Spatial Planning

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Integrated spatial development framework produced for Northern Savannah zone	Text	No 01-Nov-2010	Yes 15-Feb-2016	Yes 20-May-2016	Yes 31-May-2021

Comments (achievements against targets):
An Integrated Spatial Development Framework (SDF) for Northern Savannah Zone was developed by the Land Use and Spatial Planning Authority in 2016. The Framework was developed to provide a strategic vision for the spatial and economic development of Northern Savannah Ecological Zone with the aim to achieving massive economic transformation and securing better lives through efficient settlements and quality environment. The Framework provides a holistic and detailed analysis of the current socio-economic situation within the Northern Savannah Ecological Zone and proposes solutions aimed at addressing the issues so identified. It is anticipated that the SDF will provide the requisite guidance and information for investments and the preparation of other levels of plans by Ministries, Departments and Agencies (MDAs), Regional Coordinating Councils (RCCs) and Metropolitan, Municipal and District Assemblies (MMDAs), especially within the zone.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Pre-feasibility studies conducted for new large-scale multi-purpose water storage investments	Number	0.00 30-Jul-2010	2.00 15-Feb-2016	10.00 30-Nov-2020	10.00 31-May-2021

Comments (achievements against targets):
After the takeover of this component by MESTI, implementation of this activity was reviewed, and it was identified that the resources allocated were inadequate for its completion. It was therefore agreed with the Bank that instead of undertaking these two large-scale pre-feasibility studies, ten reconnaissance/prefeasibility surveys for water storage and land related investments would be undertaken. The study, completed in January 2019, recommended that a feasibility study be carried out in the ten recommended catchments (Farafara, Jambito, Kamshegu, Nabori, Dajam, Doung Valley, Kulpawn, Kuuyunkuu and Silla) before dam construction. The Jambito catchment should be considered for a multipurpose dam with power input to the national grid with that at Kulpawn and Dajam as multipurpose dams with power for surrounding communities. Schemes at Silla, Kuuyunkuu, Doung Valley, Farafara, Nabori and Kamshegu may be suitable for dry season irrigation at different scales. The key stakeholders of the multipurpose dam facility must be involved at every stage of the construction to make them fully appreciate and utilize the dam, including a sensitization exercise to educate the community members.

Component: Component 2: Land and Water Management

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Communities with Community Watershed Development Plans consistent with the	Number	0.00 30-Jul-2010	0.00 15-Feb-2016	244.00 20-May-2016	247.00 31-May-2021

Watershed Development Planning Manual					

Comments (achievements against targets):
The participatory approach adopted by the project, involving community sensitization and mobilization, made it possible for several communities to participate in the implementation of the project. As communities became aware of the agricultural productivity benefits of SLWM, many came on board. As the DWMCs worked with the communities in developing the CWDP, their effectiveness in using the manual increased and therefore they had the capacity to work with more communities in preparing plans.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Demonstration plots established in the target watersheds	Number	0.00 30-Jul-2010	80.00 15-Feb-2016	282.00 20-May-2016	344.00 31-May-2021

Comments (achievements against targets):
Demonstration plots (size of one acre) were one of the vehicles for extension delivery to the beneficiary farmers. A total of 35,866 persons participated in the farm field days organized to showcase the technologies and outcomes of the demonstrations. Additional demonstration plots were established while the crop rotation demonstrations (e.g. maize-groundnut and maize-soyabean rotation) had to be done twice to complete the cycle and better showcase the yields of each crop in the rotation hence the increase in the number achieved at end of project. These were done within the allocated budget.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Targeted CREMA	Number	0.00	20.00	98.00	88.00

communities adopting management plans according to criteria defined in CREMA agreements		30-Jul-2010	15-Feb-2016	20-May-2016	31-May-2021

Comments (achievements against targets):
The results achieved fell short of the target largely due to the lengthy process involved in establishing a CREMA. The undue long time period involved in the completion of the CREMA process, which involved community entry and sensitization, identification and demarcation of the area, discussions with communities to set aside the area, and setting up management and governance arrangements. The process was further prolonged due to the hesitancy on the part of communities to give consent to the establishment of CREMA. Furthermore, time was spent in organizing and sensitizing the various ethnic groups in the CREMA areas for harmonious co-existence.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
A study on feasibility of sustaining SLWM activities through PES market mechanism	Text	No 30-Jul-2010	Yes 15-Feb-2016	Yes 20-May-2016	Yes 31-May-2021

Comments (achievements against targets):
The study was completed in October 2015 by the Faculty of Agriculture, College of Agriculture and Natural Resources, KNUST. The study assessed the feasibility of sustaining SLWM practices through PES market mechanisms in the three northern regions of Ghana. The study found that it is feasible to use PES to enhance and sustain the adoption of SLWM technologies by farmers in the study area, relative to the over reliance on the traditional cropping systems/practices where benefits of environmental services are barely considered. Adoption of SLWM practices can provide valuable local and global environmental service, including carbon sequestration, watershed protection and biodiversity conservation.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area reforested [within target forest reserves]	Hectare(Ha)	0.00 20-Jan-2011	0.00 15-Feb-2016	1,060.00 20-May-2016	1,060.00 31-May-2021

Comments (achievements against targets):
The Sustainable Forest Management sub-component was brought on board during the Additional Financing 1 and 2. The activity was completed and target achieved. Enrichment planting and establishment of green fire breaks were implemented within two forest reserves namely Kulpawn and Ambalara forest reserves in the Upper West Region. Fringe communities of the forest reserves were engaged to raise the required number of seedlings of tree species (Cassia, Mahogany, Eucalyptus, Albezia) for the establishment of green fire breaks and enrichment planting. This strengthened the collaborative forest management between FSD and the communities.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Forest area brought under management plans	Hectare(Ha)	0.00 20-Jan-2011	0.00 15-Feb-2016	72,716.00 20-May-2016	72,716.00 31-May-2021

Comments (achievements against targets):
Management plans were developed for eight forest reserves (Mawbia, Pudo Hills, Sissili North, Sissili cetral, Chiana Hills, Bepona, Kulpawn tributaries, Ambalara), with a total area of 72,716 ha. The management plans provided the framework for the effective management of eight forest reserves. The project implemented two of the management plans and the FSD implemented the remaining six as part of their mainstream activities.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at

				Target	Completion
Normalized Difference Vegetation Index (NDVI) in target areas	Number	-0.13 02-Jun-2014	0.00 15-Feb-2016	0.13 20-May-2016	0.01 31-May-2021

Comments (achievements against targets):
The project intervention contributed to the improvement of vegetal cover in the project area. NDVI gives an indication of how green the landscape is or the intensity of vegetal cover within the project area. At the mid-term, the NDVI values ranged from -0.023 to 0.081 and during project completion, it ranged from -0.01 to 0.093 and these shows significant improvement in vegetal cover or greenness during both the dry and wet seasons.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Community governance structures established, trained and operational	Number	115.00 26-Jan-2016	0.00 15-Feb-2016	347.00 20-May-2016	340.00 31-May-2021
- CREMA Executive Committees	Number	3.00 26-Jan-2016	0.00 15-Feb-2016	5.00 20-May-2016	6.00 31-May-2021
-Community Watershed Management Teams	Number	72.00 26-Jan-2016	0.00 15-Feb-2016	244.00 20-May-2016	246.00 31-May-2021
- CREMA Resource Management Committees	Number	40.00 26-Jan-2016	0.00 15-Feb-2016	98.00 20-May-2016	88.00 31-May-2021

Comments (achievements against targets):
Governance structures were established to support effective project implementation through community level committees and teams.

• The originally planned five CREMAs were reorganized into 13 CREMAs to accommodate the ethnic and traditional allegiances. Out of the 13 planned CREMAs, six were established by project.

• Each of the 247 beneficiary communities formed a CWMC and developed a CWM plan. However, one community could not implement subprojects because the members were tenant farmers and so did not have permanent access to land to allow them to grow trees. The CWMC therefore became non-operational[1].

• The total number of CREMA communities is 88 and each has a committee. The shortfall in the number of CRMCs was as a result of the shortfall in the number of communities that participated in the CREMA formation due to the reorganization of the CREMAs.

[1] Indigenes of communities have permanent access to land and so can undertake long-term investments such as tree planting on the land. Unlike the indigenes, tenant farmers have temporary access to land, mainly to cultivate crops under rented arrangements. Because their access to the land is temporary, they are not allowed to plant trees as that could allow them to stay on the land for long periods of time.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Forest users trained	Number	0.00 15-Feb-2016	0.00 15-Feb-2016	660.00 20-May-2016	821.00 31-May-2021
Forest users trained - Female	Number	0.00 15-Feb-2016	0.00 15-Feb-2016	330.00 20-May-2016	262.00 31-May-2021

Comments (achievements against targets):
The activity was planned to end in 2018 and target was over achieved. The increase in the number of forest users trained was as a result of increased collaborative forest management activities between FSD and the communities. The number of female forest users trained was 262 in 2018. This is because forest activities are mainly male dominated, such as fire-fighting, enrichment planting and clearing of fire breaks. The women were mostly trained in the establishment of nurseries to raise tree seedlings for enrichment planting and green fire breaks in the forest reserves.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Beneficiaries that feel project investments reflected their needs (percentage)	Percentage	0.00 15-Feb-2016	0.00 15-Feb-2016	70.00 20-May-2016	92.29 31-May-2021
Beneficiaries that feel project inv. reflected their needs - female (number)	Number	0.00	0.00	8,540.00	11,267.00
Total beneficiaries - female (number)	Number	0.00	0.00	12,200.00	11,823.00
Total beneficiaries - male (number)	Number	0.00	0.00	18,300.00	9,670.00
Beneficiaries that feel project inv. reflected their needs - male (number)	Number	0.00	0.00	12,810.00	8,570.00

Comments (achievements against targets):

Project beneficiaries indicated that project activities and subprojects addressed their needs, including access to inputs, food security and income. Of a total of 21,493 beneficiaries surveyed, 92.3% were satisfied (of which ~57% were women).

- Reasons given by women for being satisfied with the project include provision of improved planting materials, the opportunity to cultivate crops they can call their own (in effect they had their own farms), knowledge of good land management practices, improvements in household food security which is the main concern of females because they are responsible for providing meals to the family, improvement in financial position due to VSLA. The number of female beneficiaries was higher than planned by the project so more female respondents participated in the survey.
- The number of men who were satisfied with the project fell short of the target. Reasons given for their satisfaction include provision of inputs and extension services by the project, knowledge of good land and water management practices, improvements in household income resulting in less demand from women. Reasons given for the dissatisfaction include the short duration of the support received, and the laborious and time consuming nature of some of the technologies like compost making.
- The total number of female beneficiaries were more than the number planned for under AF1 and AF2 due to the expansion of the project into more communities. Women participants were in the majority in many communities.

- The target for total male beneficiaries under AF1 and AF2 was almost achieved. As the benefits of the project became known to the people, more men sought to participate in it.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
New areas outside protected areas managed as biodiversity-friendly (ha)	Number	39,107.00 15-Feb-2016	0.00 15-Feb-2016	417,299.00 20-May-2016	600,995.71 31-May-2021

Comments (achievements against targets):

The six CREMAs established by the project covers an area of 600,995.71 ha. The target area of the CREMAs were estimated whereas the actual sizes of the CREMAs were assessed using GPS devices. This led to the capture of the actual functional areas covered by the CREMAs, including the communities.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Smallholder households supported in coping with the effects of climate change [in 76 communities under AF2]	Number	0.00 26-Jan-2016	0.00 15-Feb-2016	3,000.00 20-May-2016	3,045.00 31-May-2021

Comments (achievements against targets):
The target was achieved. The implementation of SLWM technologies, the establishment of shea butter processing facilities and cassava processing facilities, as well as the construction of dugouts in seven communities and boreholes in three communities were all geared towards coping with climate change.

Component: Component 3: Project Management and Coordination

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Project M&E system providing required reports and data in a timely manner	Text	No 20-Jan-2011	Yes 15-Feb-2016	Yes 20-May-2016	Yes 31-May-2021

Comments (achievements against targets):

The project secretariat submitted Semi-annual progress reports, Annual reports, and Quarterly Financial reports to the WB. The following reports were submitted by the PCU:

- Semi-annual reports
- Annual reports
- Unaudited interim financial reports
- Audited financial reports

There were delays in delivery of some of the reports from the IAs. The initial challenge was that the M&E system was not firmly established. However, as this was resolved, all required reports were prepared and submitted.

B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Expanded area under improved sustainable land and water management in selected watersheds	
Outcome Indicators	1. Land area where sustainable land management practices were adopted as a result of project 2. Land users adopting sustainable land management practices as a result of the project 3. Management Effectiveness Tracking Tool score: Gbele Resource Reserve and Sanyiga Kasena Gavara Kara (SKGK), Moagduri Wuntanluri Kuwesaasi, Bulsa Yening, Wahabu Wiasi, and Gbele-Mole corridor sites 4. Direct project beneficiaries, of which female
Intermediate Results Indicators	Component 1: Capacity Building for Integrated Spatial Planning 1. Integrated spatial development framework produced for Northern Savannah zone 2. Pre-feasibility studies conducted for new large-scale multi-purpose water storage investments Component 2: Land and Water Management 3. Communities with Community Watershed Development Plans consistent with the Watershed Development Planning Manual 4. Demonstration plots established in the target watersheds 5. Targeted CREMA communities adopting management plans according to criteria defined in CREMA agreements 6. A study on feasibility of sustaining SLWM activities through PES market mechanism 7. Area reforested (within target forest reserves) 8. Forest area brought under management plans 9. Normalized Difference Vegetation Index (NDVI) in target areas 10. Community governance structures established, trained and operational 11. Forest users trained 12. Beneficiaries that feel project investments reflected their needs 13. New areas outside protected areas managed as biodiversity-friendly 14. Smallholder households supported in coping with the effects of climate change (in 76 communities under AF2)

	Component 3: Project Management and Coordination 15. Project M&E system providing required reports and data in a timely manner
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	Component 1: Capacity Building for Integrated Spatial Planning 1. An Integrated Spatial Development Framework (SDF) for Northern Savannah Zone was developed by the Land Use and Spatial Planning Authority in 2016. 2. Instead of 2 large-scale pre-feasibility studies, 10 reconnaissance/pre-feasibility surveys for water storage and land related investments were undertaken. Component 2: Land and Water Management 3. 247 communities developed with Community Watershed Development Plans consistent with the Watershed Development Planning Manual, exceeding the target of 244 communities. 4. 344 demonstration plots were established in the target watersheds, exceeding the target of 282 plots. 5. 88 CREMA communities adopted management plans according to criteria defined in CREMA agreements, short of the target of 98. 6. A study on feasibility of sustaining SLWM activities through PES market mechanisms was completed in October 2015. 7. 1,060 hectares area was reforested (within target forest reserves), achieving the exact target. 8. 72,716 hectares forest area was brought under management plans, achieving the exact target. 9. Normalized Difference Vegetation Index (NDVI) in target areas ranged from –0.01 to 0.093, showing significant improvement in vegetal cover or greenness during both the dry and wet seasons. 10. 340 community governance structures were established, trained, and operational, falling slightly short of the target of 347. 11. 821 forest users were trained, exceeding the overall target of 660 users. Of this, 262 female forest users were trained, falling short of the target of 330 users. 12. Of a total of 21,493 beneficiaries surveyed, 92.3% were satisfied (of which 55% were women). 13. 600,996 hectares of new areas outside protected areas were managed as biodiversity-friendly, exceeding the target of 417,299 ha. 14. 3,045 smallholder households were supported in coping with the effects of climate change (in 76 communities under AF2), exceeding the target of 3,000.

	Component 3: Project Management and Coordination 15. Project secretariat submitted required reports and data to the World Bank, albeit with some delays.

C. CHANGES TO THE INTERMEDIATE INDICATORS IN THE RESULTS FRAMEWORK

Original Intermediate Indicators and Summary of Changes during AF1 and AF2 restructurings[30]

Original Intermediate Results Indicators	All Changes	Rationale for Change
Component 1: Capacity Building for Integrated Spatial Planning		
Integrated spatial master plan produced for Northern Savannah zone (text)	*Revised at AF1, Continued at AF2* - **1.1 Integrated spatial development framework produced for Northern Savannah zone (yes/no)**	This indicator was revised at AF1 to reflect the need for production of a development framework, rather than a master plan. Further, the unit of measure was changed from 'text' to 'yes/no'. IR 1.1 continued during AF2 but no additional funding was provided.
Pre-feasibility studies conducted for new large-scale multipurpose water storage investments (Number)	*Moved from PDO level to IR level at AF1, Continued at AF2* - **1.2 Pre-feasibility studies conducted for new large-scale multipurpose water storage investments (Number)**	This indicator was moved from PDO level to component level during AF1 and continued during AF2. No additional funding was provided.
Integrated sub-basin plans developed (number)	*Dropped during AF1*	The indicator was dropped as the corresponding activities would not be implemented due to time and funding constraints.
Component 2: Land and Water Management		
Villages covered by agreed Community Land Use Plans (number)	*Revised at AF1, Continued at AF2 with change in target values* - **2.1 Communities with Community Watershed Development Plans consistent with the Watershed Development Planning Manual (number)**	The indicator was revised to better reflect the related project activity, that is, the development of Community Watershed Development Plans, instead of Community Land Use Plans. The element of quality assurance of the process, which is embedded in the institutional setup for the watershed management planning, was added, by the measurement linked to the Plans' consistency with the adopted manual. The target was revised upward, to reflect scaling-up of activities with AF. At AF2, the end-of-project target value was revised upward to reflect scale-up of activities (additional 76 communities).
Demonstration plots established in the project area (number)	*Revised at AF1, Continued at AF2* - **2.2 Demonstration plots established in target watersheds (number)**	The indicator was revised to specify the location of demonstration plots. The target was revised upward to reflect scaling-up of activities under AF. The end-of-project target value was revised upward to reflect scale-up of activities under AF (additional 152 demonstration plots under AF)
Farmers benefitting from improved land management in accordance with agreements [direct	*Dropped during AF1*	This indicator was dropped to (a) correct the ambiguity on the direct project beneficiaries (number), of which female (percentage) project beneficiaries indicator as in reality, the indicator has a wider scope than just the farmers

[30] The leftmost column shows the original intermediate results indicators. The middle column shows all changes and the new numbering 1.1 through 3.1 matching the final intermediate results indicators at completion. The rightmost column records the explanation for the changes as available in the project papers and client ICR.

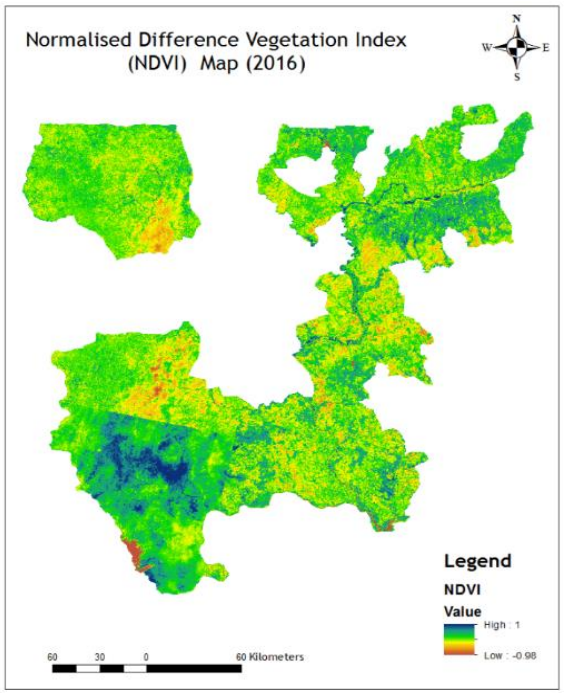
Original Intermediate Results Indicators	All Changes	Rationale for Change
project beneficiaries] (number), of which female (percentage)		benefitting from improved land management in accordance with agreements) and (b) commence use of the newly added Core Indicator on 'land users adopting sustainable land management practices as a result of the project', which, in essence, measures the same project outcome, at the PDO level.
Targeted CREMA communities implementing management activities according to criteria defined in CREMA plans (number)	*Revised at AF1, Continued at AF2* - **2.3 Targeted CREMA communities adopting management plans according to criteria defined in CREMA agreements**	This revision took account of the lengthy process of CREMA creation that may preclude actual implementation of management activities within the project lifetime. Under AF2, 98 communities would continue to benefit.
Feasibility study on financial contribution of environmental services markets to implementation costs of SLWM conducted (text)	*Revised at AF1, Continued at AF2* - **2.4 A study on feasibility of sustaining SLWM activities through PES market mechanism (yes/no)**	The formulation of the indicator was reworded for clarity. The unit of measure was changed from 'text' to 'yes/no'. No additional funding was provided through AF2.
	Added at AF1, Continued at AF2 - **2.5 Area reforested [within target forest reserves] (ha)**	This new indicator was added to measure the outputs of the new SFM activities, introduced with the AF. The indicator aimed to measure outputs of the enrichment planting activities. There was a change in target values during AF2. The project adopted different spacing for reforestation planting; thus, the target increased from 600 ha to 800 ha for activities under AF1; in addition, the project-supported (under AF1 and AF2) additional planting of a total area of 240 ha in a forest reserve buffer zone is included in the end-of-project target (20 ha under AF1 and 220 ha under AF2).
	Added at AF1, Dropped at AF2 - Carbon stored in forest ecosystems and emissions avoided from deforestation and forest degradation	This indicator was introduced to track outputs of the GEF investments under the climate change and SFM focal area. Given that later, GHG accounting was mandatory and, as such, ex ante estimates are already reported in the Project Paper, making this Results Framework indicator redundant.
	Added at AF1, Continued at AF2 - **2.6 Forest area brought under management plans (ha)**	This new Core Indicator for the forestry sector was added to capture the outputs of the new SFM activities in the eight target forest reserves, introduced in the AF. Change in target values was corrected during AF2. No additional area at AF2.
	Added at AF1, Continued at AF2 - **2.7 Normalized Difference**	Use of NDVI was new in Ghana—this indicator was introduced to measure changes in

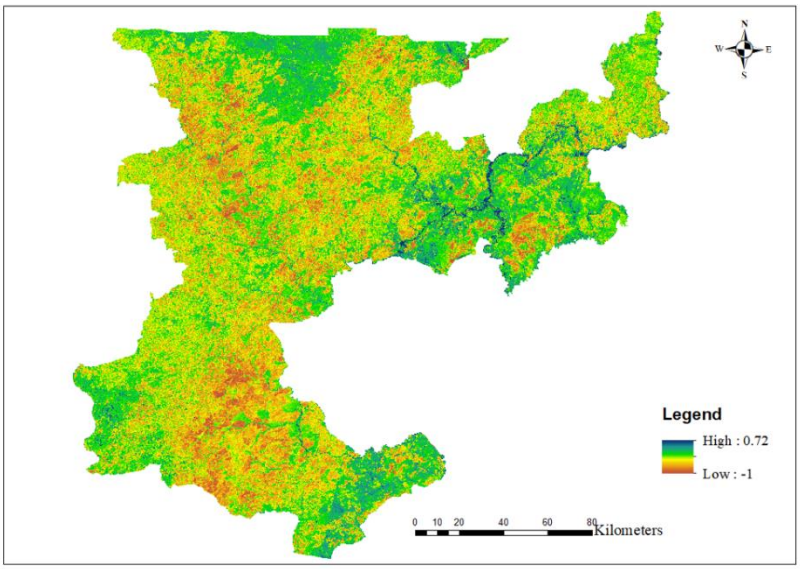
Original Intermediate Results Indicators	All Changes	Rationale for Change
	Vegetation Index (NDVI) in target areas	vegetation cover and help project agencies build capacity for its use. Baseline and target values would be established by a study conducted before project effectiveness. No change under AF2.
	Added at AF2 - **2.8 Community governance structures established, trained and operational (number)** • CREMA Executive Committees • Community Watershed Teams • CREMA Resource Management Committees (numbers of each)	This new indicator at AF2 reflected focus in support of the Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa Program on establishment of strong functioning local institutions in (a) agricultural landscapes (CWMT, a total of 244 by the end-of-project, including additional 76 under AF2) and (b) wildlife corridor (CRMC, a total of 98 by end-of-project, all under original and AF1 financing) and CECs, a total of 5 by end-of-project)
	Added at AF2 - **2.9 Forest users trained (number)** • Forest users trained - Female (number)	An applicable core sector indicator for forestry, added with introduction of relevant activities under AF2 and disaggregated by gender, also reflects focus on providing forest users with better skills on sustainable use of resources (660 users targeted under AF2).
	Added at AF2 - **2.10 Beneficiaries that feel project investments reflected their needs (percentage)** - breakdown by • Beneficiaries that feel project investments reflected their needs - female • Beneficiaries that feel project investments reflected their needs - male • Total beneficiaries - female • Total beneficiaries - male (number for each)	Introduced as a citizen engagement indicator; a sample survey in random communities for determining the end-of-project target value achievement will be included as part of the project Impact Evaluation midline survey (for MTR results) and end line survey (for EOP results). This indicator also expected to capture interventions that are not measured by a specific indicator in the Results Framework (for example, value chains activities).
	Added at AF2 - **2.11. New areas outside protected areas managed as biodiversity friendly (number)**	A core sector indicator for biodiversity, introduced to measure the impact of CREMA work supported by the project; end-of-project target includes total areas of the 5 target CREMAs (417,299 ha).
	Added at AF2 - **2.12 Smallholder households supported in coping with the effects of climate change [in 76 communities covered under AF2] (number)**	Introduced to measure household-level support to climate-smart agriculture; also accepted as a proxy indicator for measuring resilience (according to the International Fund for Agricultural Development guidelines on measuring resilience).
Component 3: Project Management and Coordination		

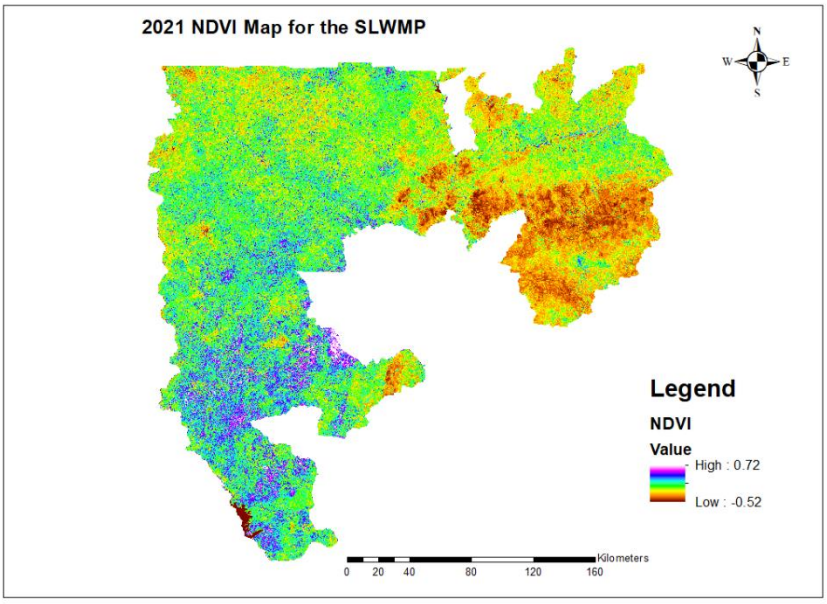
Original Intermediate Results Indicators	All Changes	Rationale for Change
Project M&E system providing required reports and data in a timely manner (text)	*Revised at AF1, Continued at AF2* - **3.1 Project M&E system providing required reports and data in a timely manner (yes/no)**	Unit of measurement revised from 'text' to 'yes/no'.

D. NDVI MAPS SHOWING CHANGES IN VEGETATION COVER IN PROJECT TARGET AREA

Figure 1,2&3. NDVI map for SLWMP area for 2016 (Left), 2019 (Right), 2021 (Bottom) based on Landsat 8 image







NDVI map in Figure 1 is broadly consistent with the 2016 land use map. There is more vegetation in the project site than non-vegetated areas.

NDVI is a measure the level of greenness in the landscape. The NDVI values ranges from a minimum of -0.98 to a maximum of 1 and a mean of 0.1 with a standard deviation of 0.03. High NDVI values mean high vegetation. Built up/bare surfaces and waterbody have negative NDVI values.

The current NDVI map (2021) depicts consistent results with the 2016 land-use map. There is more vegetation in the project site than non-vegetated areas. The NDVI values range from a minimum of -1 to a maximum of 0.72 and a mean of 0.065.

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Supervision/ICR	
Neeta Hooda, Gayatri Kanungo	Task Team Leader(s)
Anas Abba KyariKyari, Patrick Kwadwo Ansah	Procurement Specialist(s)
Robert Wallace DeGraft-Hanson	Financial Management Specialist
Esinam Julia Nduom	Financial Management Specialist
Stefano P. Pagiola	Team Member
Lydia Sam	Procurement Team
Jayne Angela Kwengwere	Team Member
Charity Boafo-Portuphy	Team Member
Lesya Verheijen	Team Member
Paul J. Christian	Team Member
Yasmina Oodally	Team Member
Maclean Asamani Oyeh	Team Member
Justice Odoiquaye Odoi	Environmental Specialist
Sarah Antwi Boasiako	Social Specialist
George Amoasah	Environmental Specialist
Divya Kapoor	Main ICR Author (Consultant)
Ellen Tynan	Consultant

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY06	9.640	40,897.14

FY07	8.713	47,758.83
FY08	10.962	60,564.18
FY09	12.593	44,533.25
FY10	22.040	123,289.39
FY11	7.282	29,145.66
Total	**71.23**	**346,188.45**
Supervision/ICR		
FY11	6.048	32,358.81
FY12	9.623	39,061.74
FY13	15.286	116,383.04
FY14	8.451	47,952.45
FY15	9.512	69,581.56
FY16	7.525	59,212.43
FY17	1.200	21,620.21
FY18	17.042	187,102.34
FY19	39.540	319,456.93
FY20	18.538	131,250.99
Total	**132.77**	**1,023,980.50**

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US$, millions)	Actual at Project Closing (US$, millions)	Percentage of Approval (%)
Capacity Building for Integrated Spatial Planning	1.03	0.94	91
Land and Water Management	26.12	26.43	101
Project Management and Coordination	2.52	2.14	85
Total	**29.67**	**29.51**	99

ANNEX 4. EFFICIENCY ANALYSIS

1. This annex provides a description of the project benefits; a cost-effectiveness analysis of the main project activities; and an illustrative example of CBA of mango cultivation, which benefitted from the PES program adopted by the project.

2. **Project benefits.** The project generated several types of benefits, including the following:

- **Local benefits.** Increased yields due to adoption of SLWM practices (for example, from 0.6 t per ha of maize to 2.4 t per ha in Sawla-Tuna-Kalba District[31]), which translated to improved household food security and enhanced welfare (for example, affordability to cover children's education and health expenses).

- **National benefits.** Improved watershed services, such as water supply, through the reduction of sediment yield due to adoption of conservation practices (for example, about 90 percent sediment load reduction due to bunding on crop farms).[32]

- **Global benefits.** Biodiversity conservation, through the improved management of the GRR and Mole National Park, biological corridors, and off-reserve areas; carbon sequestration, enrichment planting of trees in forest reserves and under the PES scheme; and reduced land degradation trends, for example, by establishing green fire belts in the Kulpawn and Ambalara forest reserves.

3. **Cost-effectiveness analysis.** Overall, the project disbursed about US$29.7 million of the GEF allocation—nearly 100 percent—for building capacity for spatial planning, implementing SLWM practices, and managing riparian and biological corridors. This corresponds to a unit cost of US$470 per beneficiary, or US$50 per ha of land subject to project interventions[33]—the latter estimate being lower than unit costs in other West African countries (table 4.1). Moreover, the project disbursed US$12.5 million[34] to introduce SLWM practices on about 15,860 ha. This gives a unit cost of about US$800 per ha, which is below the one estimated for appraisal, and in the same range of costs found for other countries. Similarly, the cost of establishing CREMAs is at the lower bound of that found for establishing similar community-managed areas in other countries. Overall, the analysis indicates that the use of GEF funds was cost-effective.

[31] MESTI. 2021. *Implementation Completion and Results Report. SLWMP*.
[32] MESTI. 2015. *Feasibility of Sustaining SLWM Activities through PES Market Mechanism*. Technical Report. page 24.
[33] Estimated based on a total area of 617,917 ha, which comprises the land under SLWM practices (15,862 ha); the surface of established CREMAs (600,995 ha); and the reforested areas in target forest reserves (1,060 ha) (see annex 1).
[34] The estimate refers only to Subcomponent 2.2. Implementation of SLWM in micro-watersheds (based on MESTI 2021).

Table 4.1. Results of Cost-Effectiveness Analysis

	Unit Cost [35]		
	Current Project at Appraisal	**Current Project at Completion**	**Other Projects**
All project Unit cost (US$/direct beneficiary)	n.a.[a]	470	30 in Mauritania, 180 in Sudan, and 1,100 in Mali
Unit cost (US$/ha)	n.a.[b]	50	70 in Sudan, 160 in Ethiopia, and 1,600 in Mauritania
Component 2 Cost of implementing SLWM (US$/ha)	1,500	800	110 in Ethiopia, 700 in Mauritania, and 2,000 in Mali
Cost of establishing CREMAs (US$/ha)	15	10	14 in Indonesia and 25 in Mauritania

Note: The unit estimates for SLWM and CREMAs represent establishment costs only. n.a. = not available, because a. at appraisal, the indicator was 'farmers benefitting from improved land management,' which did not capture all project beneficiaries. b. some areas of intervention (for example, CREMA) were not measured at appraisal.

4. It should be noted that, because the GEF funding is a grant, it does not represent an economic cost to Ghana. Hence, a cost-effectiveness analysis from the national perspective can be conducted in relation to the total costs supported by the country, that is, US$14.3 million (in kind), which corresponds to an average of US$225 per beneficiary. Moreover, the GoG's support to the adoption of SLWM practices, estimated at US$6 million,[36] generated a unit cost of about US$380 per ha of SLWM area. Both values are well within the range found for other countries, as shown in table 4.1. Therefore, the analysis shows that the overall project was cost-effective also from the national perspective.

5. **CBA of mango cultivation.** The project piloted a PES mechanism to encourage planting of trees (mango, cashew, mahogany, and so on). The mechanism supported the farmers by providing trees (40 saplings per farmer), wire mesh (to protect saplings), and payments conditional to the survival rates of trees. At the end of the project, the PES supported about 2,200 farmers planting trees on nearly 1,000 ha.[37]In addition, each group of farmers was provided with a mule and cart to aid in carrying water to the trees.

6. An impact evaluation study (DIME 2020[38] showed that the PES resulted in substantial increase in tree planting among participating communities: about 83 percent of farmers offered PES-planted trees by 2017, compared to only 28 percent of farmers in a control group of non-participating communities. The PES was also found to increase survival rates by encouraging better watering of trees during the dry season.

[35] Sources: Current project, PAD for the second column. Current project, borrower completion report, for the third column. Estimates for other projects are based on the Ethiopia Sustainable Land Management Project (P133133), ICR; Mali Natural Resources Management in a Changing Climate Project (P145799), ICR; Mauritania Sustainable Landscape Management Project (P144183), ICR; Sudan Sustainable Natural Resources Management (P129156), ISR of December 2020; and Indonesia Promoting Sustainable Community Base Natural Resource Management and Institutional Development Project (P144269), PAD.
[36] By applying a similar ratio between the GEF contribution to the SLWM Subcomponent 2.2 to the total GEF disbursements.
[37] GoG. 2021. SLWMP. *Implementation Completion and Results Report*. page 23.
[38] DIME. 2020. The Sustainable Land and Water Management Project (SLWMP).

7. A CBA carried out by Dean et al. (2018)[39] found that mango cultivation generates economic net benefits (US$3,800 per ha) and financial net benefits (US$3,900 per ha) that are substantially higher than those of alternative land uses, such as maize, groundnut, and rice. Moreover, the analysis pointed out that without the PES, it would be difficult for farmers to transition to mango farming due to the limited agricultural revenue as trees mature (four years) and a lack of access to saplings. The authors concluded that the PES helped solve this problem by providing free saplings and paying farmers up to US$100 per ha, contingent on 75 percent of trees surviving after one year.

[39] Dean, W., C. Edelman, K. Pepp, and S. Xu. 2018. *Cost-Benefit Analysis of a Payment for Ecosystem Services Program in Northern Ghana*. The authors estimate the NPV over 50 years, using a discount rate of 8 percent. The estimation of the net economic benefits considers the difference between the mango benefits and the cost of cultivation, harvesting, and other opportunity costs. The value of the net financial benefits includes the amount of PES benefitting the farmer who participates in the program.

ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

Comm*ents received from GOG:*
Please find attached our general feedback in track changes for your consideration.

Besides, the Government of Ghana represented by the Ministry of Environment, Science, Technology, and Innovation (MESTI) and the various Implementing Agencies (IAs) have studied the draft Implementation Completion Report (ICR) of the Sustainable Land and Water Management Project (SLWMP) and provide the following comments for your kind consideration.

We wish to indicate that except for the last sentence of paragraph (88), the findings, lessons and conclusions of the draft report largely provided a fair, accurate and comprehensive assessment of the results of the implementation of the Project.

Specifically, on the last part of paragraph (88) which suggests that the **Project implementation could not link the financial outputs to the physical progress of the project implementation on the ground,** is not accurate and fair account of the project implementation results as even provided in subsequent sections of the report. This assessment in the said paragraph contradicts large aspects of the findings of the report on the successes of the Project.

It may be recalled that the initial inception Financial Management (FM) capacity challenges of the Project implementation particularly at the operational and district levels was identified in the early stages of the Project implementation and was well documented.

With the support of the Bank, most of the challenges were resolved as working in progress in the original grant and were fine-tuned during AF1 and AF2. The Project was able to rectify most of FM capacity challenges and in the end delivered value for money physical progress on the ground in the project areas and in some instances the adjoining communities and their fringing areas.

This foregoing situation enabled the Project to chalk the successes which are well documented in the report.

In addition to the foregoing, in Annex (4), paragraph (3) of the draft report where the project cost effectiveness is analyzed, it is indicated that apart from the benefits that accrued from the Project, it was also found that the Project was cost-effective by the Bank own standards and compared favourably to other countries like Mali, Mauritania, Sudan, Ethiopia and Indonesia, where similar projects have been implemented.

Based on the foregoing, we would kingly appreciate paragraph (88) is revised to particularly give a true reflection of the FM capacity challenges of the Project and how it was resolved and enabled the Project to be implemented effectively and efficiently.

We also wish to acknowledge the fact that as implementers of the Project, one of the key lessons is that such projects **should take into consideration the full value chain of the design of the project activities to include post-harvest losses and facilitating access to markets as means to enhance the benefits of the project to the beneficiaries and sustain the project impacts on the landscape.**

Tackling post-harvest losses in terms providing storage facilities as well as other preservation techniques and enhancing access to market for the project beneficiaries would have provided food security, enhance the values of the various crops, improve upon the eco-tourism potentials in the CREMA areas etc. and thereby sustain the gains and impacts of the project on the landscape."

ANNEX 6. PICTURES AND SUPPORTING DOCUMENTS

Project Implementation Pictures (Source: GoG)

LANDSCAPE RESTORATION THROUGH TREE GROWING

Experimenting and adopting SLM Options

Fodder bank: Pigeon pea

Harvested fodder bank for dry season feeding of livestock

Rangeland management (Before and after)

Experimenting and adopting SLM Options

Earth Bunding and Stonelining

BOUNDARY CLEARING

Extension services

Extension services have proven to be very useful for adoption of SLM…….. E.g. Fire management: Training of fire volunteer squads for the management of fires within Forest Reserves, CREMA communities (reduction in incidence of wildfire within project areas)

Farmer to farmer learning.

Demonstrations …..
Learning to make compost pits……

Farmer to farmer learning.

Demonstrations …..
Use of A-frame for contours

Livelihood Enhancement Activities

Bee Keeping for Honey production

Shea nut processing….

Payment of Environmental Services (PES)

Piloting and Experimenting with incentives to support sustainable restoration……

Gender Responsiveness

Organic Shea picking – at the fringe areas in Gbele Reserve.

Supporting Documents/Videos

Ghana: Resourceful Communities Transforming Landscapes and Livelihoods: *https://www.youtube.com/watch?v=4zLtszRi1pQ&t=5s*

End of Project Learning Workshop: *https://www.youtube.com/watch?v=3kViRqUTA8w*

SLWMP Ghana: *https://www.youtube.com/watch?v=DU9SpNvKA74*

SLWMP Beneficiary Impact: *https://youtu.be/_sNqXE_Z_SM*

Beneficiary Satisfaction Survey: *https://youtu.be/d0u3S7xIKYs*

Resource Communities Transforming Landscape and Livelihoods: *Presentation-WB_5-Ghana-SLWMp-Jan-2018.pdf*

Ghana: Expanded Sustainable Land and Water Management to Benefit Farmers: *https://www.worldbank.org/en/news/press-release/2016/05/20/ghana-expanded-sustainable-land-and-water-management-to-benefit-farmers*

Sustainable Land, Water Management Project in Northern Ghana progressing significantly: *https://www.ghanaiantimes.com.gh/sustainable-land-water-management-project-in-northern-ghana-progressing-significantly/*

Sustainable Land and Water Management Project: *https://www.slideshare.net/inbar_sm/sustainable-land-and-water-management-project*

Interview of District Government Officials on SLWMP: https://youtu.be/pmzJduuHU8k

Minister's speech in the field: *https://onedrive.live.com/?authkey=%21AOk0qrAOcuHpfUg&cid=2574DC768C74CA73&id=2574DC768C74CA73%216183&parId=2574DC768C74CA73%21778&o=OneUp*