



1. Project Data

Project ID

P098538

Project Name

GH-GEF Sust. Land &Water Mgmt (SIP)

Country

Ghana

Practice Area(Lead)

Environment, Natural Resources & the Blue Economy

L/C/TF Number(s)

TF-17090,TF-95451,TF-97579,TF-A2276

Closing Date (Original)

30-Nov-2020

Total Project Cost (USD)

29,703,589.31

Bank Approval Date

30-Nov-2010

Closing Date (Actual)

31-May-2021

IBRD/IDA (USD)
Grants (USD)

Original Commitment

29,868,832.00

29,868,832.00

Revised Commitment

29,708,874.23

29,708,874.23

Actual

29,708,874.21

29,703,589.31

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2. Project Objectives and Components

a. Objectives

Original Project Development Objective (PDO): Assist the Recipient's efforts to: (i) demonstrate improved sustainable land and water management practices aimed at reducing land degradation and enhancing maintenance of biodiversity in selected micro-watersheds; and (ii) strengthen spatial planning for identification of linked watershed investments in the Northern Savannah region of the Recipient's territory" (Schedule 1, page 4, Grant Agreement dated January 20, 2011). The formulation of the objective was identical to that in the PAD (para 27), except for that the PAD referred to the Recipient's territory as "Ghana."



Revised PDO: Expand the area under sustainable land and water management practices in selected watersheds (Schedule 1, page 4, Grant Agreement for the first Additional Financing dated November 3, 2014).

The Project Objective was revised at the Level-1 restructuring on November 3, 2014. For the purposes of this ICR Review, the Revised Project Objective will be assessed, as described in Section 2.e.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

03-Nov-2014

c. Will a split evaluation be undertaken?

No

d. Components

Component 1: Capacity Building for Integrated Spatial Planning (*Estimate: US\$1.03 million; Actual: US\$0.94 million*) intended 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.

Component 2: Land and Water Management (*Estimate: US\$5.68 million, which was revised to US\$26.12 million; Actual: US\$26.43 million*) intended to expand Sustainable Land and Water Management (SLWM) practices at the micro-watershed level by communities. The component also supported natural resources-based livelihood activities, wildfire management, and water management within agricultural landscapes, in order to reverse land degradation and enhance agricultural productivity and maintenance of biodiversity in watersheds. In addition, the component supported establishment of Community Resource Management Areas (CREMAs) and implementation of their management plans for riparian and other biological corridors. Furthermore, the component supported Sustainable Forest Management (SFM) activities in and around gazetted forest reserves. Changes to the component intended to scale up proven results of pilot activities. The subcomponents under this component were as follows:

Subcomponent 2.1: Systems, Capacity, and Monitoring for SLWM

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 (i) implementation of corridor management plan in the Western Biodiversity Corridor, (ii) support to Gbele Resource Reserve management, and (iii) SFM.

Component 3: Project Management and Coordination (*Estimate: US\$0.74 million, which was revised to US\$2.52 million; Actual: US\$2.14 million*) supported incremental project management and coordination activities, including budgeting and planning, procurement and financial management, capacity building for the Project Coordination Unit (PCU) staff, auditing, and reporting.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost: At appraisal, the original cost estimate was US\$8.15 million (PAD, page vii). During implementation, two additional financings (i.e., US\$8.75 million in 2014 and US\$12.77 million in 2016) led to the revised cost estimate of US\$29.67 million (ICR, page 8). The actual cost was US\$29.51 million (ICR, page 8).

Financing: At appraisal, GEF grant was estimated at US\$8.15 million (PAD, page vii). The actual GEF disbursement was US\$29.51 million (ICR, page 8).

Borrower Contribution: At appraisal, the Borrower's in-kind contribution was estimated at US\$7.80 million (PAD, para 26). The Borrower's actual in-kind contribution was US\$14.3 million (ICR, para 67).

Dates: The project was approved on November 30, 2010.

There were four restructurings: the first (November 3, 2014), the second (May 20, 2016), the third (July 15, 2020), and the fourth (February 2, 2021). Additional financings were made in the first and second restructurings with amounts of US\$8.75 million and US\$12,768,832, as well as extensions of the project closing date for 24.5 months and 33 months, respectively (AF Grant Agreement dated November 3, 2014 and AF Grant Agreement dated June 6, 2016). The PDO and the PDO Outcome indicators were revised at the first restructuring to expand the scope of the project from "demonstrating" to "expanding" the sustainable land and water management practices. The objective on spatial planning in the original PDO was downscaled to an output under Component 1. The third restructuring made revisions in the Results Framework and extended the loan closing dates for 5.5 months. The fourth restructuring reallocated funds between disbursement categories.

The project was closed on May 31, 2021, after three closing date extensions totaling 5 years and 3 months of delay from the original closing date of February 15, 2016.

IEG concurs with the ICR team that a split evaluation is not deemed necessary, as the scope of the project was expanded from piloting to scaling up the SLWM practices through additional financings.

3. Relevance of Objectives

Rationale



Country and Sector Context: Land degradation directly affected the economy and the rural households in Ghana. Soil erosion was estimated to cost around 2 percent and forest degradation to cost about 5 percent of the national GDP (World Bank, DFID, ISSER, 2005 cited in PAD, para 3). The rural households, which constituted the most vulnerable part of the population, were dependent on land resources for their livelihoods. Several efforts at promoting improved land management practices have been undertaken, starting from the Medium-Term Agricultural Development Plan (MTADP) published in 1990, which provided a framework for the formulation and implementation of a number of projects aimed at promoting sustainable land management. The Forestry Commission has also been active in protecting forest reserves and riverine buffers, but often with limited success. Several barriers prevent a wider adoption of sustainable land management. These include: (i) a weak policy, legislative, and incentive framework; (ii) weak institutional capacity and limited institutional coordination in an area that demanded a high degree of cross-sectoral coordination; (iii) land tenure insecurity and lack of access to markets mitigated against making upfront investments in improved land management; and (iv) lack of private financial incentives related to the public benefits of Sustainable Land and Water Management (SLWM). The conclusions of various analytical works, including the Ghana Country Environmental Analysis (2007), suggested the adoption of a more programmatic and multi-sectoral approach to addressing land degradation and promoting SLWM.

Relevance to Government Strategies: At appraisal, the original PDO was in line with the Ghana Agriculture Sustainable Land Management Strategy and Action Plan (2009-2015). The original PDO was also in line with the National Development Policy Framework (2010-2013) and the Food and Agriculture Sector Development Policy, which included an objective on sustainable management of land and the environment. At project closing, the revised PDO was aligned with the National Climate-Smart Agriculture and Food Security Action Plan of Ghana (2016–2020), which aimed for implementation of climate-smart agriculture practices and operationalization of the National Climate Change Policy (2014) for effective integration of climate change into food and agriculture sector. In addition, the project activities related to biodiversity were in line with the National Biodiversity Strategy and Action Plan (2016), which aimed for maintaining and enhancing biodiversity.

Relevance to the World Bank's Assistance Strategies: At appraisal, the original PDO aligned with the Country Assistance Strategy (CAS) FY08-11, which highlighted the importance of addressing environmental and land degradation because of its negative impact on economic growth (CAS, para iii). Both the original and revised PDOs were in line with the outcome on "improved land and water management" under Pillar 2: "Improving Competitiveness and Job Creation" in the Country Partnership Strategy FY13-16. At project closing, the revised PDO aligned with the advanced draft of Country Partnership Framework (CPF) FY20-26 under consultation, which aims to address development constraints identified in the Systematic Country Diagnostic (SCD) in 2018 (e.g., spatial inequality and vulnerability, and low-quality jobs and opportunity) through activities including strengthening natural resource management, raising agricultural productivity, and broadening skills development (Ghana/World Bank Country Partnership Consultations Presentation, dated September 14, 2020).

Prior Sector Experience: The World Bank has been supporting the Government's land and water management agenda since 1990s. The Natural Resources and Environmental Governance (NREG) Development Policy Operation (DPO) (2008-2010) addressed land degradation policy issues, especially in the forestry and mining sectors. The Agriculture DPO (2008-2010) supported sustainable development of the agricultural sector, including the development of the Agriculture SLWM Strategy and Action Plan. The Land Administration Project (2003-2010) dealt with land tenure and legislative aspects of land use and management. The Community-Based Rural Development Project (2005-2010) and the previous Community-Based Natural Resources Management Project piloted community land use planning and



natural resource management. A grant from Global Facility for Disaster Reduction and Recovery was supporting development of an Integrated Water Resources and Flood Management Plan, in discussion with the National Disaster Management Organization and Water Resources Commission. Technical Assistance provided through Terrafrica Trust Fund was being used to strengthen the analytical underpinnings and coordination of SLWM activities. The Bank was also supporting the Government in the identification of opportunities to support Reduction of Emissions from Deforestation and Degradation via the Forest Carbon Partnership Facility and Forest Investment Program. Water Resources Economic and Sector Work was preparing a note on Water Resources Management in Ghana, in anticipation of a broader sectoral engagement. Building upon the prior and ongoing sector experience, this project aimed to complement the wide SLWM portfolio by: (i) providing technical and financial support for on-the-ground investments and demonstrating and expanding practical models; and (ii) piloting an innovative, market-oriented approach based on rewarding generation of environmental services, in order to establish a more efficient and sustainable mechanism for SLWM adoption.

There was a clear alignment between the project's development objectives and the Government's and the World Bank's strategies at appraisal and at project closing. The original PDO was revised at the first restructuring on November 3, 2014, which resulted in lowering the ambition. The revised PDO to "expand the area under sustainable land and water management practices" was less specific than the original PDO to "demonstrate improved sustainable land and water management practices aimed at reducing land degradation and enhancing maintenance of biodiversity" on the envisioned impacts to people's lives. A shortcoming here was the lack of clarity in the revised PDO formulation around what outcomes would be achieved through expanding the area under SLWM practices; i.e., in what ways this was expected to improve ecosystems and peoples' lives. Focusing on "expanded area under the SLWM practice" alone was not outcome focused and did not help in understanding what development results were expected as a consequence of the project. How the project envisioned to address the development constraints which would have impacts to people's lives (e.g., spatial inequality and vulnerability due to low agricultural productivity, limited access to markets, and natural resources degradation in rural areas) may be longer term targets, but tracking them and identifying them in the PDO and the PDO Outcome indicators would be important aspects of a successful development operation. Hence, while the original and revised PDOs were well aligned with the development strategies of the Government and the World Bank assistance and on this basis the PDO's relevance would be rated high, the output focus of the formulation of the revised PDO and the indicators designed to measure the extent to which the revised PDO was achieved weakened its relevance. Therefore, overall, the relevance of the objective is rated substantial.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

Expand the area under sustainable land and water management practices in selected watersheds



Rationale

Theory of Change (TOC): The objective's TOC envisioned that project activities such as providing training and conducting a pre-feasibility study on integrated spatial planning would result in outputs such as mapping and spatial planning exercises undertaken and pre-feasibility studies completed, contributing to outcomes such as **the strengthened capacity on decision-making for water- and land-related investments** across the Northern Savannah Region. The TOC also envisioned that project activities such as providing training on SLWM management to extension staff and communities, developing micro-watershed plans, implementing subprojects with SLWM practices, creating Community Resource Management Areas (CREMA)s, and adopting and implementing CREMA management plans would result in outputs such as community-based SLWM practices adopted and micro-watershed plans implemented, contributing to outcomes such as **the enhanced effectiveness in watershed management**. In addition, the TOC envisioned that project activities such as establishing demonstration plots, forming farmers' groups, establishing rangelands, forming Village Savings and Loans Associations (VSLAs), and providing agricultural facilities and equipment for community livelihoods would result in outputs such as efficient and sustainable agricultural practices expanded, contributing to outcomes such as **the enhanced agricultural productivity of farmers in communities**. Furthermore, the TOC envisioned that project activities such as developing the Payment for Environmental Services (PES) strategy, planting trees, and providing training on Sustainable Forest Management (SFM) would result in outputs such as the PES strategy approved, the reforested area in forest reserves expanded, trees for commercial use adopted in farms, and the SFM capacity strengthened, contributing to outcomes such as **the enhanced SFM practices**. In the long-term, those outcomes above were expected to contribute to reversing land degradation, maintaining biodiversity in watersheds, increased quality job opportunities and improved livelihoods in rural areas.

Critical assumptions included: (i) the Government's support and buy-in for project activities continued; (ii) the willingness of communities to participate in targeted activities was sufficient; and (iii) the implementation of the SLWM technologies resulted in expected improvements in the landscape.

Outputs (ICR, paras 42-56 and Annex 1):

- An Integrated Spatial Development Framework for Northern Savannah zone was developed by the Land Use and Spatial Planning Authority in 2016, meeting the original target. 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. No evidence on the framework's implementation status was provided.
- 10 pre-feasibility studies were conducted for new large-scale multi-purpose water storage investments, meeting the revised target of 10 pre-feasibility studies and quintupling the original target of 2 pre-feasibility studies. The prefeasibility surveys for ten catchments (i.e., Farafara, Jambito, Kamshegu, Nabori, Dajam, Doung Valley, Kulpawn, Kuuyunkuu and Silla) were completed in January 2019 before dam construction.
- 247 communities had Community Watershed Development Plans consistent with the Watershed Development Planning Manual, exceeding the original target of 168 communities (ICR, page 56) and meeting the revised target of 244 communities.



- 344 demonstration plots were established in the target watersheds, exceeding the revised target of 282 demonstration plots and more than quadrupling the original target of 80 demonstration plots.
- 88 targeted CREMA communities adopted management plans according to criteria defined in CREMA agreements, not meeting the revised target of 98 CREMA communities but more than quadrupling the original target of 20 CREMA communities. The revised target was not met due to the lengthy process involved in establishing a CREMA.
- A study on feasibility of sustaining SLWM activities through PES market mechanism was completed in October 2015 by Kwame Nkrumah University of Science and Technology, meeting the original target. The study found that it was feasible to use PES to enhance and sustain the adoption of SLWM technologies by farmers in the three northern regions of Ghana.
- Reforested area within target forest reserves was 1,060 ha, meeting the target of 1,060 ha that was added at the first Additional Financing (AF1).
- Forest area brought under management plans was 72,716 ha, meeting the target of 72,716 ha that was added at AF1.
- Normalized Difference Vegetation Index (NDVI) in target areas increased from the baseline of -0.13 to 0.01, not meeting the target of 0.13 that was added at AF1.
- 340 community governance structures were established, trained and operational, being increased from the baseline of 115 but not meeting the revised target of 347.
 - 6 CREMA Executive Committees were established, trained and operational, being increased from the baseline of 3 and meeting the target of 5 that was added at the second Additional Financing (AF2).
 - 246 Community Watershed Management Teams were established, trained and operational, being increased from the baseline of 72 and meeting the target of 244 that was added at AF2.
 - 88 CREMA Resource Management Committees were established, trained and operational, being increased from the baseline of 40 but not meeting the target of 98 that was added at AF2.
- 821 forest users were trained, exceeding the target of 660 that was added at AF2. The number of female forest users was 262, not meeting the target of 330 that was added at AF2. The low achievement related to female forest users was because forest activities were mainly male dominated, such as firefighting, 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.
- New areas outside protected areas managed as biodiversity-friendly were increased from the baseline of 39,107 ha to the actual of 600,995.71 ha, exceeding the target of 417,299 ha that was added at AF2. This indicator measured the actual sizes of the CREMAs by using GPS devices.



- Smallholder households supported in coping with the effects of climate change were 3,045 households, meeting the target of 3,000 households that was added at AF2.
- Project M&E system was providing required reports and data in a timely manner, meeting the original target

Outcomes (ICR, paras 42-56 and Annex 1):

- Management Effectiveness Tracking Tool (METT) scores of the selected watersheds increased as listed below. The increases in the METT scores indicated that: (i) the community level-managed areas had legal status; (ii) appropriate regulations were in place to control land use and hunting; (iii) the CREMAs had management plans which were being implemented; (iv) there was sufficient information on the critical habitats, species, ecological processes, and cultural values of the protected area to inform planning and decision making; (v) requirements for active management of critical habitats, species, ecological processes and, cultural values were being substantially or fully implemented; (vi) local communities participated directly in all relevant decisions relating to management, e.g. co-management; (vii) the staff of the Wildlife Division had capacity and resources to enforce protected area legislation and regulations; and (viii) that staff training and skills were aligned with the management needs of the protected area.
 - Gbele Resource Reserve's METT score increased from the baseline of 45 to the actual of 79, almost meeting the revised target of 80 and exceeding the original target of 55.
 - Sanyiga Kasena Gavara Kara Corridor Site's METT score increased from the baseline of 28 to the actual of 51, meeting the target of 47 that was added at an AF (ICR, Table 3, page 10).
 - Sissala Kasena Fraah Corridor Site's METT score increased from the baseline of 21 to the actual of 42, exceeding the target of 30 that was added at an AF (ICR, Table 3, page 10).
 - Bulkawe Corridor Site's METT score increased from the baseline of 21 to the actual of 54, exceeding the target of 30 that was added at an AF (ICR, Table 3, page 10).
 - Moagduri Wuntanluri Kuwesaasi Corridor Site's METT score increased from the baseline of 21 to the actual of 50, exceeding the target of 30 that was added at an AF (ICR, Table 3, page 10).
 - Bulsa Yening Corridor Site's METT score increased from the baseline of 21 to the actual of 39, exceeding the target of 30 that was added at an AF (ICR, Table 3, page 10).
 - Chakali Sungmaaluu Corridor Site's METT score increased from the baseline of 21 to the actual of 54, exceeding the target of 30 that was added at an AF (ICR, Table 3, page 10).
- Beneficiaries who felt project investments reflected their needs consisted 92.29 percent of the total beneficiaries, exceeding the target of 70 percent that was added at AF2. A beneficiary satisfaction survey was conducted in 2021. Of a total of 21,493 beneficiaries surveyed, 92.3 percent were satisfied (of which 57 percent were women). Reasons given by women for being satisfied with the project included 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, and improvement in financial position due to VSLA. On the other hand, the number of men who were satisfied with the project fell short of the target. 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. While this indicator was set as an Intermediate Results indicator, improvements in the female beneficiaries' perceptions on household food security and financial position showed positive outcomes.

- Female beneficiaries that felt project investments reflected their needs were 11,267 people (out of the total female beneficiaries of 11,823 people), exceeding the target of 8,540 that was added at AF2.
- Male beneficiaries that felt project investments reflected their needs were 8,570 people (out of the total male beneficiaries of 9,670 people), not meeting the target of 12,810 that was added at AF2.
- Land area of 15,861.85 ha adopted Sustainable Land Management (SLM) practices as a result of project, exceeding the revised target of 15,000 ha and increasing more than ten-fold of the original target of 1,500 ha. 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. Although this indicator was rephrased at AF1 to align with the mandated core indicator (ICR, Table 3, page 10), the land area which adopted SLM practices as a direct result of project activities was not sufficient to measure project outcome.
- Land users of 42,230 people (i.e., farmers) adopted SLM practices as a result of the project, exceeding the target of 30,000 people that was added at AF1. This result was due to the participatory approach of the project making it possible for the farmers to participate actively in the planning and implementation of subprojects. Their participation exposed them to the Sustainable Land and Water Management (SLWM) practices and the associated productivity benefits, including a beneficiary farmer's testimonial for an increase in crop yields (ICR, Box 1, page 15). The project established 344 demonstration farms on which the SLWM practices were implemented for the practical education of farmers. Although this indicator was added with a rationale of being a core indicator (ICR, Table 3, page 10), it showed the number of farmers who participated in the subprojects, which was an output-level achievement.
- Direct project beneficiaries were 63,544 people, meeting the target of 60,000 people that was added at AF1. The ratio of female beneficiaries was 56.24 percent, exceeding the target of 40 percent that was added at AF1. Although this indicator was added with a rationale of being a core indicator (ICR, Table 3, page 10), the number of direct beneficiaries was not sufficient to measure project outcome.

In addition to the outcome defined in the Results Framework, the ICR reported on the following achieved outcomes which did not have any formal targets.

- The PES was piloted based on the PES strategy developed under the project to promote adoption of trees (cashew, mango, and mahogany) on farms (ICR, para 48).
- Impact on income for a median farmer was between 556 and 709 Ghanaian Cedi per year (ICR, para 77). The increase in a median farmer's income was found in Development Impact Evaluation (DIME)'s report on short survey for ICR published in June 2021.



- Increased 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) were observed in three communities that received support for SLM practices (ICR, para 78).
- 10,862 non-beneficiary farmers adopted SLWM practices, due to: (i) the enhanced extension services; and (ii) the demonstrated improvements in yield with the beneficiary farmers, indicating the project's spillover effect to non-beneficiaries (ICR, para 49).

Referring to the TOC above, the outcome on the effectiveness in watershed management was over-achieved, as all the target reserve and corridor sites exceeded their targets to improve their METT scores. The female beneficiaries' perception on household food security and financial position improved. The SFM practices were enhanced by piloting the PES. The increases in the income for a median farmer and the crop yields were observed, but the extent to which the increases affected the farmers' livelihoods was not clear. No adequate evidence was provided regarding the outcome on the Government's decision-making capacity for water- and land-related investments by spatial planning, although strengthening such institutional capacity was an essential factor to sustain the development outcome achieved under the project. The missing evidence on the outcome rises some concerns regarding the residual risk to development outcome, as described in Section 7. Overall, the efficacy is rated substantial.

Rating

Substantial

OVERALL EFFICACY

Rationale

As described above, the extent to which the project's objective was achieved is rated substantial because the efficacy of the evidence of the project's outcomes was substantial and based on credible measurement and sources.

Overall Efficacy Rating

Substantial

5. Efficiency

Economic Analysis: At appraisal, the internal rates of return (IRRs) for four improved agricultural land management practices in farms (i.e, Woody Fallow, Fodder Bank, Stone Lines, and Vetiver Bunding) over 20 years were estimated to be 31.5 percent, 18.3 percent, -0.1 percent, and 9.9 percent, respectively (PAD, page 95). The estimated IRRs did not cover a full range of SLWM options. During implementation, a cost-benefit analysis of mango cultivation was conducted by Dean et al. in 2018, which stated that mango cultivation



generated 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 (ICR, page 66). The authors estimated the NPV over 50 years, using a discount rate of 8 percent. At project closing, no economic IRR was provided. The economic Net Present Values (NPVs) were calculated, comparing the previous practices (i.e., maize, groundnut, or soybean only) and the SLWM practices (i.e., maize-soybean rotation, cashew-groundnut agroforestry, and cashew-soybean agroforestry). The economic NPVs ranged between US\$2,000 and US\$2,800 per hectare (ha) in the SLWM practices, increasing from the range of US\$920 to US\$1,600 per ha in the previous practices, with 6 percent discount rate over 20 years (ICR, para 61). The analysis was conducted based on data provided by the Ministry of Food and Agriculture, considering all project costs (e.g., investments, labor, and maintenance costs), and on-site benefits (e.g., yields of cashew and maize).

Financial Analysis: At appraisal, no financial IRR was provided in the PAD. At project closing, no financial IRR was provided. The financial NPVs of selected land use practices ranged between US\$2,200 to US\$3,000 per ha, increasing from the range of US\$1,300 to US\$2,000 in the previous practices, with 6 percent discount rate over 20 years (ICR, para 61). The financial results reflected 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.

Cost-Effectiveness Analysis: At appraisal, for Component 2 on SLWM activities, the unit costs per hectare (ha) for implementing SLWM and establishing CREMAs were calculated as US\$1,500 per ha and US\$15 per ha, respectively (ICR, Table 4.1, page 65). No unit cost for all project components was available, as some of the direct beneficiaries and areas of intervention were not captured. At project closing, for Component 2, both unit costs were lower than estimated, as the actual unit costs were US\$800 per ha and US\$10 per ha, respectively (ICR, Table 4.1, page 65). These actual unit costs were at the same range or lower than the similar natural resources management projects in other countries. For the whole project, the actual unit cost of US\$470 per direct beneficiary was higher than those in Mauritania and Sudan, but lower than that in Mali (ICR, Table 4.1, page 65). The project's actual unit cost of US\$50 per ha of land subject to project intervention were lower than the actual unit costs in similar projects on natural resources management in other West African countries (i.e., Sudan, Ethiopia, and Mauritania) (ICR, Table 4.1, page 65).

Aspects of Design and Implementation that Affected Efficiency: There were some delays in preparation and dissemination of approved budgets and financial reporting in early periods of implementation. The decentralized implementation arrangements with weak capacity on financial management at operational and district levels posed challenges in contract management during implementation, which resulted in the incomplete construction of a shea processing facility and the nonfunctioning of a mechanized borehole at Sori No. 1 community (ICR, para 104). Though the project extension periods totaled 5 years and 3 months, the contract management issues were not addressed until the audit pointed them out at project closing.

The economic and financial IRRs of the SLWM practices were higher than those of the previous practices, based on the economic and financial analysis at project closing. The actual unit costs for the whole project per land area was lower than other similar projects in West Africa. On the other hand, the inadequate implementation arrangements on financial and contract management resulted in the incomplete and low-quality constructions. Overall, the efficiency is rated substantial.

Efficiency Rating

Substantial



a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The relevance of objectives is rated substantial, as the objectives was in line with the strategies of the government and the Bank assistance but not pitched at the outcome-level. The efficacy is rated substantial, as one of the two outcomes was overachieved, while the other outcome had weak evidence on achievements. The efficiency is rated substantial, as the SLWM practices were economically and financially attractive and the use of project funds was generally cost-effective. Overall, the outcome is rated satisfactory.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

The two risks to development outcome that were described in Section IV. D. in the ICR (paras 111-113) are presented below.

- **Technical Risk:** There was a potential risk of loss of technical capacity after project closure. To mitigate the risk, the project engaged the community from early implementation through participatory decision-making processes and alternative income-generating livelihood activities, which resulted in the establishment of the Community Resource Management Areas. At the agency level, activities were supervised and monitored by institutional staff to transfer technical capacity.
- **Financial Risk:** There was a potential risk of financial viability of the continuation of the SLWM practices in the field. To mitigate the risk, the project enhanced people's access to markets by establishing a value chain and Village Savings and Loans Associations. On the other hand, the insufficient evidence for the outcome on the Government's decision-making capacity for water- and land-related investments is a risk to the financial sustainability of SLWM practices.

In addition to the risks described above, the following potential risks to development outcome are found in the ICR.

- **Risk related to Exposure to Natural Disasters:** Considering that the project focused on the country's Northern Savannah Zone which had high poverty and vulnerability to climate change (ICR,



para 6), there might be a potential risk that natural disasters in the future including droughts and floods could negatively affect the increase in agricultural productivity that were observed at project closing. To mitigate the risk, the project aimed to enhance resilience of both people and ecosystems in the project area by investing in the development of agricultural value chain and the diversification of smallholder farming systems and livelihoods, as well as providing training to smallholder farmers to access climate information (ICR, para 76).

- **Social Risk:** Considering that cultural or administrative barriers to women's involvement in SLM in planning and decision making (ICR, para 116) generally take time to be resolved on the ground, there might be a potential risk that the active participation of female farmers to the SLM activities could gradually fade away after the end of the project. To mitigate the risk, a follow-on project, which adopted a participatory landscape management approach, was started in the Northern Savannah Zone of the country, i.e., Ghana Landscape Restoration and Small-Scale Mining Project (P171933).

8. Assessment of Bank Performance

a. Quality-at-Entry

The strategic relevance of the project at entry was generally adequate, as described in Section 3. Considerations on poverty, gender, resilience, environmental, and social development aspects during project preparation were sufficient. The project adopted a decentralized approach to address the multi-sectoral issues around land management. On the other hand, the implementation arrangements to ensure the efficient functioning of the decentralized approach were not fully adequate. There were multiple sectoral agencies assigned as implementing agencies. Two implementing agencies, the Environmental Protection Agency and the Ministry of Food and Agriculture, were expected to play leading roles with their experience in the previous project and their familiarity with the project communities. However, the experienced and trained staff in those institutions left their positions due to transfers and retirements, resulting in initial delays in implementation as the new staff took time to gain familiarity with the project and develop working relationships with the communities and farmers (ICR, para 86). In addition, the project selected Savannah Accelerated Development Authority (SADA) as an implementing agency of Component 1 even though the SADA was still under establishment at the preparation stage. It negatively affected implementation of the spatial planning activities in Component 1 (ICR, para 84). The project's design on financial management did not adequately address the inherent financial management risk in the decentralized disbursements (ICR, para 89). The Results Framework was not thoroughly designed to capture all the intended outcomes, as described in Section 9.a. Overall, the project design was mostly adequate with only minor shortcomings in the design, the implementation arrangements, the financial management, and the Results Framework. Thus, the quality at entry is rated satisfactory.

Quality-at-Entry Rating
Satisfactory

b. Quality of supervision



Supervision inputs and processes were adequate in general, as the World Bank team provided technical advice on technical, fiduciary, and safeguards aspects during supervision missions that were conducted regularly and on time. In the final missions of the project that were held remotely due to COVID-19-related travel restrictions, the project team used satellite imageries as supervision tools for the first time in the World Bank's projects in Ghana. The World Bank team supported the project to improve financial management by providing additional training and action plans. The Mid-Term Review published in January 2014 generated lessons to improve project performance, which led to the formulation and approval of the first Additional Financing (AF). The World Bank team further supported the Government in mobilizing resources through the second AF. The two AFs expanded the project target in terms of geography and ecosystems. The transition arrangements after the project closed were adequate, as the mitigation measures for the technical and financial risks were implemented, as described in Section 7. In addition, Ghana Landscape Restoration and Small-scale Mining Project (P171933) was approved in FY2022 to further scale up the landscape management approach. While the weaknesses in the design of the Results Framework were partially rectified during restructurings, some weaknesses persisted, as described in Section 9.b. the multi-agency implementation structure and insufficient capacities for financial and contract management posed challenges such as the unclear links between disbursements and physical progress throughout implementation (ICR, para 106), resulting in the few low-quality constructions at project closing, as described in Section 5. Overall, the supervision was generally adequate with only minor shortcomings on the M&E and fiduciary management. Thus, the quality of supervision is rated satisfactory.

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The M&E design and arrangements were embedded institutionally at community, district, regional, and national levels to pilot decentralized monitoring and use of M&E data for decision-making. The Ministry of Environment, Science, Technology, and Innovation (MESTI) provided oversight of M&E data collection from various agencies and produced consolidated M&E reports that were included in the semiannual progress reports. On the other hand, the project's theory of change was not sound and not well reflected in the Results Framework. The Results Framework was not thoroughly designed to capture all the intended outcomes. Three out of the four PDO Outcome indicators (i.e., the land area and the land users that adopted sustainable land management practices, and direct beneficiaries) focused on output-level achievements and did not provide evidence on outcomes (e.g., what changes were brought to the ecosystems and farmers' behaviors and livelihoods).



b. M&E Implementation

The indicators in the Results Framework were provided with the baseline data, measured, and reported. Some weaknesses in the M&E design regarding the inadequate PDO Outcome indicators were compensated by conducting robust end-line surveys to a certain extent. For example, the project's beneficiary satisfaction survey and the DIME's survey at project closing provided outcome-level evidence on some of the project's key achievements. The methodology taken by the DIME's survey (page 5) to ask farmers to report on the number of trees alive on their land at the time of survey did not thoroughly differentiate the trees planted under the project and the trees planted independently by farmers. However, the DIME's survey provided an important source for data triangulation to assess outcome at project closing. The agencies responsible for M&E collected the M&E data based on their expertise and mandates. The Results Framework was updated in line with the expansion of the project scopes at Additional Financings, by modifying the indicator formulations, changing the targets, and adding and dropping indicators. On the other hand, some weaknesses in the design of the Results Framework persisted after restructurings, such as the missing outcome indicator to measure the outcome on the enhanced agricultural productivity of farmers in communities.

c. M&E Utilization

The M&E findings were communicated to the various stakeholders and informed the decision making for restructurings and additional financings that expanded the project scope. The findings regarding the effectiveness of the PES in the DIME's survey were envisioned to inform further use of the tool in other occasions. The lessons from small challenges within the decentralized M&E systems were used to revise the M&E structure; for example, the Technical Coordination Office was reorganized into groups to undertake M&E visits to expand the reporting coverage with the available human resources (ICR, para 93). The M&E capacity strengthened under the project was expected to influence subsequent projects.

Some minor weaknesses in the M&E design regarding the lack of focus on outcome-level evidence were addressed during implementation with the robust end-line surveys, which resulted in sufficient M&E utilization. Overall, the M&E quality is rated high.

M&E Quality Rating

High

10. Other Issues

a. Safeguards

Environmental Safeguards: The project was classified Category B and triggered the following policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), and Pest Management (OP/BP 4.09). In compliance with the requirement of the World Bank, the project disclosed the Environmental Assessment and Management Plan on August 31, 2010, and redisclosed in 2016 and on December 26, 2019. The Environmental and Social Impact Framework (ESIF) for the civil works in the Gbele Resource Reserve (GRR) was prepared and disclosed in 2017. The mini strategic forest management plans for the eight forest reserves listed in the ICR (para 96) were disclosed at the time of processing the first additional financing in 2014. The project developed safeguard guidelines for community



and subproject implementers and beneficiaries, which provided important direction for how to carry out activities in an environmentally and socially sound manner. A study on the physiochemical and microbial quality of the dugout water systems in the four northern regions of Ghana were conducted. The study confirmed that the water quality was good in general, but provided a caution on the bacteria overload, thus sensitizing the communities on the safety of potable water. In addition, awareness creation and sensitization programs on the application of safeguards procedures in project communities were conducted. All project activities, including all 42,230 subprojects, were screened for environmental and social risks.

Social Safeguards: The project triggered the policy for Involuntary Resettlement (OP/BP 4.12). The project disclosed the Resettlement Policy Framework on August 31, 2010. The Resettlement Action Plan (RAP) for Gbele was prepared and disclosed. Prior to the project, the Government was engaged in resettling the Gbele community with the population of 362 within the GRR (ICR, para 100). This legacy issue was resolved with the project's support, as the RAP guided the Wildlife Division in completing the resettlement. No adverse issues arose during the resettlement process. The new Gbele community was officially inaugurated on November 17, 2020. Financing for the resettlement was provided by the Government, in compliance with the RAP.

Grievance Redress Mechanism: The communities and 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 Technical Coordination Office (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. No major grievance that could derail implementation was expressed during implementation of the project.

b. Fiduciary Compliance

Financial Management: The project's financial management capacity was weak at the initial stages of implementation, which negatively affected timeliness and quality of dissemination of approved budgets, internal controls over project fixed assets, and financial reporting. The financial management capacity was strengthened by provision of additional training and action plans. The arrangements on financial management were improved, resulting in improvements in timeliness and quality of financial reports. On the other hand, the financial management risk inherent to the decentralized nature of disbursements persisted throughout the project, as the project lacked a mechanism to comprehensively monitor and report the links between financial expenditures and physical progress (ICR, para 103). The audit reports for the period ending July 31, 2021, were submitted in a timely manner. The management letter did not highlight any major internal control deficiencies that could have an adverse effect on the financial statements. The auditors expressed an unqualified opinion on the project's financial statements, but noted the delays in the completion of contracts totaling 252,798 Ghanaian Cedi for setting up a shea processing facility and the nonfunctioning of a mechanized borehole at Sori No. 1 community (ICR, para 104). According to the records shared by the Ministry of Environment, Science, Technology, and Innovation (MESTI) and confirmed by the Ghana Audit Service, 88 percent of the works were completed by the project closing date. The remaining 12 percent of contract amount (US\$5,300 equivalent) was confirmed to be borne by the Government and was being refunded to the World Bank (ICR, Footnote 27, page 32).

Procurement: During the preparation, the project recognized potential challenges such as the needs for a close coordination on procurement among the multi-sector implementing agencies and a transition from



the previous procurement system to the new one of the World Bank. At appraisal, the MESTI was mainly responsible for the project's procurement, except for that under Component 2 where the Ministry of Food and Agriculture (MoFA) was responsible for procurement (PAD, para 13). During implementation, all the procurement responsibilities were moved to the MESTI and one additional procurement staff was hired and trained at MESTI, which improved procurement efficiency (ICR, para 105).

c. Unintended impacts (Positive or Negative)

Several communities reported that the project activities (e.g., support for multi-cropping, dry season gardening, beekeeping, investing in the VSLA) contributed to reducing rural-urban migration in search of job opportunities (ICR, para 78). Reduced weed infestation (e.g., Striga) was observed by many farmers who implemented crop rotations (ICR, para 80). Improved access to education for shepherd boys was observed in some communities where the project established rangelands (i.e., 30 ha each of fenced areas) (ICR, para 79).

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Satisfactory	The outcome is rated satisfactory, as there were minor shortcomings in the operation's achievement of its objectives, in its efficiency, and in its relevance.
Bank Performance	Highly Satisfactory	Satisfactory	The Bank performance is rated satisfactory, as the implementation arrangements and supervision on fiduciary management posed minor shortcomings that negatively affected timeliness and quality of delivery of outputs.
Quality of M&E	Substantial	High	Some minor weaknesses in the M&E design regarding the lack of focus on outcome-level evidence were addressed during implementation with the robust end-line surveys, which resulted in sufficient M&E utilization.



Overall, the M&E quality is rated high.

Quality of ICR

Substantial

12. Lessons

The ICR (para 114-120) provided seven lessons. Some of them are summarized below because they may provide lessons of interests for other Sustainable Land and Water Management (SLWM) projects.

Financial incentives combined with technical assistance and biophysical investments can lead to higher adoption of SLWM practices by communities. The project supported a package of interventions to provide comprehensive support for adoption of SLWM practices, including provisions of seedlings, training, and agricultural extension services, together with provisions of incentives for planting trees on farms through the Payment of Environmental Services (PES) and access to finance through Village Savings and Loans Associations (VSLA). According to the Development Impact Evaluation's survey (page 9), an adoption of the SLM practices in 2020 was higher for the sample farmers who participated in the project's SLM activities and the PES pilots in 2016-2017 than for the farmers who did not participate in any of them.

Recognition of communities' needs and readiness through consultations can lead to a high level of their participation and commitment. Through an extensive demand driven consultative process, the project supported the: (i) enhancement of community cohesion and benefits through activities in the management plans of Community Resource Management Areas; (ii) enhancement of community livelihoods by providing an incentive for improved patrolling and monitoring of the biodiversity landscapes; and (iii) establishment of water holes at the fringes of the Gbele Resource Reserve to address communal needs and helped reduce pressure from livestock on the protected reserve.

Proactive engagement of women in SLM planning and decision-making and gender sensitive targeted interventions can enhance overall project performance and achievement of results. The customary tenure system in northern Ghana allocates lands to only men, limiting women's access to lands (ICR, para 71). The project addressed the cultural and administrative barriers to women's participation through discussions with community leaders and elders (ICR, para 71). As a result, female charcoal producers and farmers who participated in the project accelerated achievements of results by more quickly adopting changes in production methods or dropping unsustainable practices. The VSLA model established by the project also supported female farmers to fund livelihoods diversification activities, children's education, and agricultural inputs (e.g., seedlings) to expand SLWM practices on larger areas.

Trust Funds can offer great value for piloting and demonstrating innovations. The project was supported through three phases of grants from the GEF Trust Funds in a programmatic manner, which financed approximately US\$29 million over a duration of 10 years. While the total grants for the project was comparatively small among the World Bank's operations, the GEF Trust Fund's financing induced a critical change in terms of investing in challenging issues for which clients typically would not borrow unless there was evidence of translation of concepts to practice and successful implementation. With the sequence of grants from the GEF Trust Fund, the project was successful in piloting activities and expanding target areas, which resulted in leveraging larger lending by the Government of Ghana for follow-on projects such as Ghana Landscape Restoration and Small-Scale Mining Project (P171933).



13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR provides a detailed overview of the project. The report is concisely presented in line with the guidelines. The report attempts to triangulate data to reach conclusions where other data is available. There is a reference to the project's theory of change. The ICR's lessons are clear and based on evidence outlined in the ICR. It is relatively candid in describing risks and challenges that the project faced and how these were addressed. On the other hand, the internal consistency was weak, as some evidence in the section on key factors that affected implementation and outcome were not thoroughly discussed to assess the quality of Bank performance. Overall, the quality of ICR is rated substantial.

a. Quality of ICR Rating

Substantial