



Report Number: ICRR0021785

I. Project Data

Project ID	Project Name	
P133133	Sustainable Land Management Project	
Country	Practice Area(Lead)	
Ethiopia	Environment, Natural Resources & the Blue Economy	
L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IDA-53180,TF-15838	07-Apr-2019	96,307,484.73
Bank Approval Date	Closing Date (Actual)	
22-Nov-2013	31-Dec-2018	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	50,000,000.00	40,000,000.00
Revised Commitment	88,519,084.00	38,519,084.00
Actual	84,295,370.93	37,498,454.49

Prepared by	Reviewed by	ICR Review Coordinator	Group
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Project ID	Project Name
P133410	Sustainable Land Management Project (P133410)



L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
		12962000.00
Bank Approval Date	Closing Date (Actual)	
22-Nov-2013		
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	0.00	12,962,000.00
Revised Commitment	0.00	12,962,000.00
Actual	0.00	12,962,000.00

2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO) and Global Environment Objective (GEO), as stated in the Project Appraisal Document (PAD), is "to reduce land degradation and improve land productivity in selected watersheds in targeted regions in Ethiopia."

The project Financing Agreement with Government of Ethiopia has a slightly different formulation of the PDO: "to reduce land degradation and improve land productivity in selected watersheds in targeted Regions of the Recipient's territory." However, the two are considered equivalent as the "Recipient's Territory" is identical to "Ethiopia", the recipient country.

The SLMP-2 Project constitutes the second in a series of planned Sustainable Land Management (SLM) operations in Ethiopia and follows from SLMP-1 implemented from 2008-2013. These objectives are expected to be achieved through the provision of capital investments, technical assistance and capacity building for smallholder farmers in the watersheds and government institutions at national and sub-national levels.

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

Yes

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

No



c. Will a split evaluation be undertaken?

No

d. Components

Component 1: Integrated Watershed and Landscape Management (US\$73.98 million at appraisal and US\$61.8 million at closing). This component supported the participatory process of scaling up and adoption of sustainable land and water management technologies and practices by smallholder farmers and communities in the selected watersheds and woredas. It also supported activities to promote and adopt low-carbon, climate-smart technologies and practices. It contained the following two subcomponent: (a) comprehensive package of demand-driven soil and water management practices implemented on public and communal lands at the watershed scale; and (b) homestead and farmland development, livelihood improvements, and climate-smart agriculture (CSA) activities implemented in individual farmlands in the 135 watersheds supported by the project.

Component 2: Institutional Strengthening, Capacity Development and Knowledge Generation and Management (US\$16.54 million at appraisal and US\$16.54 million at closing). This aimed to strengthen the institutions/stakeholders involved in the sustainable management of natural resources, including national and regional governmental institutions, academia, the private sector, community leaders, and smallholder farmers. This included interventions such as policy revision, capacity building and training, and value chain development to complement the Soil and Water Conservation (SWC) activities under Component 1.

Component 3: Rural Land Administration, Certification and Land Use (US\$11.9 million at appraisal and US\$7.6 million at closing). This aimed to enhance the security of land tenure for smallholder farmers in the project area and the local land use planning in the target watersheds and villages (*kebeles*) supported by the project. The activities include surveys, adjudications, and public awareness campaigns, resulting in provision of second-level landholding certificates to the landholders which include formal registration and spatial data in the form of a parcel maps. This component also supported the creation of participatory land use planning on the territories of kebeles comprising project watersheds.

Component 4: Project Management (US\$4.45 million at appraisal and US\$13.4 million at closing). This component provided support for project coordination and management at national and regional level, monitoring and evaluation (M&E), technical assistance (TA), and procurement of goods and equipment for the national and regional public agencies involved in project implementation.

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

Project Costs: The full cost of the project at appraisal was US\$102.962 million. The actual costs at the time of closing were US\$96.0 million. The amount disbursed was US\$97.26 million. The discrepancy between the amount disbursed (US\$97.26 million) and the actual cost at closing (US\$96.0 million) seems to be the unused advance of US\$1.28 of the loan which will be cancelled by June 30, 2019 (ICR p.56).



Financing: The project was financed through IDA Grant (US\$50 million equivalent), Global Environmental Facility (GEF) (US\$8.33 million) Trust Fund, Least Developed Countries Trust Fund (US\$ 4.629 million), and the Government of Norway (US\$38.519 million) Trust Fund.

Borrower Contribution: The Government of Ethiopia as Recipient committed US\$ 2.0 million to the project at appraisal. The communities also contributed 20.3 million person days (equivalent of US\$ 27.0 million) for implementation of SWC activities in the 135 target watersheds.

Dates: The project was approved on 22 November 2013, and became effective on 07 April, 2014. The midterm review (MTR) was undertaken 13 December 2016. The project's original closing date was 07 April 2019 but actual closing date was 31 December 2018.

The project had two level 2 restructurings after the MTR. The first restructuring was agreed during the December 2016 MTR mission as a response to the significant financing gap from foreign currency exchange rate fluctuations (both in the SDR and the Norwegian kroner). [Note: Although the initial financing gap at the MTR was estimated at \$14 million (ICR p. 11), the final gap seems to be US\$6.69 million - the difference between the amount at approval (US\$102.69 million) and actual amount at closing (US\$96.00 million)]. This restructuring neither changed the objectives nor the components but introduced some new PDO level indicators or refined existing ones. For example, sub-indicators were introduced to provide specific measurement of project progress for communal land and individual farmland treated with sustainable and climate-smart/resilient land management practices under PDO Indicator 1. A new PDO indicator (Indicator 4 "Land area in the targeted micro-watersheds with vegetation increase of at least 4% compared to baseline (ha)") was added to improve measurement of changes in land productivity and land degradation. The ICR (p. 11) also states that this resulted in the reallocation of funds for reinforcing project management and the inclusion of one additional micro-watershed for CSA-related interventions. The second Level 2 restructuring introduced in March 2018 about one year before the planned closing date, only adjusted the target values of the PDO indicators, without any change in the description of indicators or the verification protocols. Given the financing gaps, the second restructuring advanced the closing date and scaled down the project targets. The closing date was therefore brought forward from the original date of April 7, 2019 to December 31, 2018.

3. Relevance of Objectives

Rationale

Land based economic activities play an important role in the Ethiopian economy. Agriculture in particular is an important source of growth and poverty reduction and accounts for almost 48 percent of GDP and 85 percent of export earnings. Nevertheless, agricultural productivity growth and resilience to climate variability and change are affected by reliance on rainfed smallholder production and chronic degradation of land and water resources. Land degradation has particularly been



a serious challenge in the densely populated highlands but has also increased in the drought-prone semi-arid areas. Land degradation is considered as the major cause of the country's diminishing productive land resources, biodiversity loss, low agricultural productivity, persistent food insecurity, and rural poverty. The minimum annual cost of land degradation in Ethiopia is estimated at the range of 2-3 percent of agricultural GDP (PAD p.2). Some 30,000 ha of productive land is lost annually as a result of soil erosion, representing over 1.5 billion tons of soil that is removed annually by a variety of land degradation processes, while 14 million ha has been seriously eroded, and over 2 million ha is eroded beyond reclamation (PAD p.2).

Considering these development challenges, the PDO for SLMP-2 was well aligned with the priorities of the GoE, the World Bank, and the GEF, both at appraisal and completion. The project was designed to contribute to the achievement of the objectives under Pillar Two (Enhancing Resilience and Reducing Vulnerabilities) of the World Bank Group's Country Partnership Strategy (FY13-16). It was also well aligned with the Biodiversity, Climate Change, and Land Degradation focal area strategies of the Global Environment Facility (GEF).

The PDO remained relevant at completion both in terms of the priorities identified under the new Country Partnership Framework (FY17-21), specifically under Focus Area 2 (Building Resilience and Inclusiveness) which aims to enhance the management of natural resources and climate risks through improved natural resources and forest management, scaling up the GoE's SLM Program, and addressing land tenure through the issuance of land use certificates. It also remained well aligned to the government's ongoing strategies - the Growth and Transformation Plan (GTP-II) and the Climate Resilient Green Economy (CRGE). The project also supports Ethiopia's international commitments under the Bonn Challenge and TerrAfrica, including the commitment to restore 15 million ha of land by 2030.

The ICR does not provide sufficient information to justify its "High" rating for the Relevance of Objectives given the limited explanation of the strategic response the project sought to make to a given development challenge. However, the justification is contained in the PAD which shows clear alignment to the Country Partnership Strategy (FY13-16) and to the subsequent Country Partnership Framework (FY17-21). The tangible contributions of SLMP-2 for meeting the strategic development goals and implementing the World Bank Group's strategy and the national development strategies of the Government of Ethiopia (GoE) were not elaborated in the ICR. Nevertheless, the PAD clarifies the critical importance of addressing land degradation which continues to threaten livelihoods and undermines the potential for sustainable agricultural productivity growth, climate resilience and poverty reduction in Ethiopia. Ethiopia is one of the few countries in Africa which has accorded high priority to the agriculture and natural resources sector and met the CAADP commitment to allocate about 10% of the annual budget to the sector. The continued relevance of SLMP is also reflected in the two recently approved follow-on World Bank-supported projects, the Resilient Landscapes and Livelihoods Project (RLLP) (P163383) and the Climate Action through Landscape Management (CALM) Program for Results (P170384). These operations are expected to consolidate the gains and scale up the successes of SLMP-2. Based on this additional justification, the relevance of Objectives is assessed as High.



Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To reduce land degradation in selected watersheds in targeted regions in Ethiopia

Rationale

Note: The project has undergone two Level 2 restructurings which led to some changes in the PDO indicators and targets. The first restructuring (March 2017) after the MTR, refined some of the indicators while dropping or replacing some of the indicators mainly to address issues with clarity of wording and/or definitions and data collection and aggregation. The second restructuring (August 2018) scaled down the target values for the indicators mainly in response to the reduced financing which also necessitated early project closure. Although the project's scope and/or ambition has decreased through a downward revision of PDO targets, these changes were relatively marginal and were valid mainly because of the reduced financing and the project closed early to limit its management costs. Therefore, IEG will use the adjusted targets for assessing the achievement of objectives and will not apply a split rating.

Outputs

The ICR (Annex 1B) lists several outputs related to this objective (the ICR including Annex 1B was revised based on initial IEG comments and discussions with the TTL and the ICR team. This was mainly to address the discrepancies in the data presented in the Annexes and data used in the narrative text under Section II of the ICR. IEG used the revised ICR shared on 4 September 2019 for this assessment).

1. Land area treated with SLM practices covered 556,776 ha (*of which 65 percent was communal land and 35 percent individual land*).
2. Total land area restored (36,375.3 ha) and reforested/afforested (26,111.8 ha) on both individual and communal land totaling 62,487.1 ha.
3. Uptake of SLM and climate smart agriculture (CSA) on individual farmland: 270,670 farmers applied SWC; 65,536 farmers applied high-value crops interventions; 84,924 farmers applied CSA practices, of which 28.3 percent were female-headed households.



4. 57 percent of targeted micro watersheds had Management and Use Plan (MUP) approved (*partially achieved by 65.5 percent of the target*).
5. 13 percent farm households use cut and-carry practices as a result of project intervention (*93 percent compared to the original and restructured target value*).
6. 2,876 formal community-based institutions, self-help groups and associations established and functional.
7. A total of 81 woredas equipped with information centers on SLM practices.
8. A total of 16 SLM-related strategies, manuals and guidelines were developed.

Outcomes

The project's performance under this objective is first assessed using the project's two PDO indicators: (i) Land area with sustainable landscape management practices dis-aggregated by communal and individual land; and (ii) Total land area of restored or reforested/ afforested on both individual and communal land. Since these indicators did not directly measure the PDO achievement in terms of reducing land degradation, this was further assessed using external impact evaluations provided by the project team.

(i) Land area with sustainable landscape management practices dis-aggregated by communal and individual land

The overall achievement using this indicator is mainly reflected in the 556,776 ha of communal land and individual farmland brought under more sustainable and climate-smart/resilient land management practices in 1,820 micro-watersheds within the targeted 135 critical watersheds (including the 45 watersheds supported under SLMP-1). The ICR indicates that an estimated 740,831 farm households (28 percent female headed) directly benefited from these interventions. Of this, about 360,205 farm households also received land certificates to improve the security of land tenure (ICR p.14).

Using this indicator, about 98 percent of the adjusted targets were achieved considering the new area treated under this project (see table 1, achievements under the original target are shown only for comparison and will not affect the IEG rating). This indicates that using the adjusted targets, the project was very effective in achieving its goal of treating large areas of affected watershed landscapes through improved land management practices.

Table 1: Achievements using Indicator 1 (baseline treated under SLMP-1 was 304,589 ha)

	Original target (including SLMP-1)	Adjusted target (including SLMP-1)	Original target (new area under SLMP-2)	Adjusted target (new area under SLMP-2)
Targets (ha)	910,000	874,281	605,411	569,692
Achieved (ha)	861,364	861,364	556,776	556,776
Percent	94.7	98.5	91.9	97.7



The project's performance under this indicator was however slightly different for communal land (sub-indicator 1a) and farmland (sub-indicator 1b). Using the adjusted targets and for the new area under SLMP-2, the average success on communal land was about 102 percent but about 90 percent for individual farmland (see table 2a and 2b). The reasons for these disparities (and why the baseline was set at zero for individual farmland) were not clarified but seem to reflect some of the underlying challenges in inducing behavioral change for sustained adoption of improved management practices on individual farmland.

Table 2a: Achievements using sub-indicator 1a on communal land (baseline treated under SLMP-1 was 304,589 ha)

	Original target (including SLMP-1)	Adjusted target (including SLMP-1)	Original target (new area under SLMP-2)	Adjusted target (new area under SLMP-2)
Targets (ha)	679,551	657,428	374,962	352,839
Achieved (ha)	665,503	665,503	360,914	360,914
Percent	97.9	101.2	96.3	102.3

Table 2b: Achievements using sub-indicator 1b on individual farmland (baseline treated under SLMP-1 was given as 0 ha)

	Original target (new area under SLMP-2)	Adjusted target (new area under SLMP-2)
Targets (ha)	230,449	216,853
Achieved (ha)	195,861	195,861
Percent	85.0	90.3

(ii) Total land area of restored or reforested/afforested on both individual and communal land

Under this indicator, the project achieved about 87 percent of its adjusted target (see table 3). The output data (Annex 1B) indicates that about 58 percent of this achievement is due to degraded areas restored through gully treatment and area closures, while the remaining 42 percent is due to reforestation and afforestation to increase vegetation cover in affected landscapes. Although these indicators are better in capturing the outcome for reducing land degradation, the ICR did not provide evidence indicating the extent of reduction in land degradation. Some of the values reported were also subsumed in the first PDO indicator.

Table 3: Achievements using Indicator 2 - total land area restored or reforested/afforested (baseline treated under SLMP-1 was 36,194.9 ha)



	Original target (including SLMP-1)	Adjusted target (including SLMP-1)	Original target (new area under SLMP-2)	Adjusted target (new area under SLMP-2)
Targets (ha)	112,238	107,836	76,043	71,641
Achieved (ha)	98,682	98,682	62,487	62,487
Percent	87.9	91.5	82.2	87.2

Summary: These two indicators together show that the project has made substantial progress in terms of expanding the area treated with SLM practices and reforestation or afforestation to help reverse land degradation or restore degraded lands. However, data showing the effectiveness of improved land management and SWC practices supported by SLMP-2 in terms of reducing land degradation (as stated in the PDO) was not provided. The ICR mainly presented installation of physical SWC and biological measures (in tables 4 to 6) and practices expressed in terms of outputs. While the program is now planning an impact evaluation under the follow-on Resilient Landscapes and Livelihoods Project (RLLP), a separate evaluation (using geo-spatial and satellite data) by DEC (World Bank, 2018) of the biophysical impacts of improved land management practices supported by the Tana-Beles Integrated Land and Water Development Project (TBIWRD) indicated that similar project activities reduced land degradation. This evidence suggested that the three types of project-supported investments (SWC structures to limit run-off on farmland, SWC structures on non-cultivated land, agroforestry systems for stabilizing landscapes) significantly improved soil water content and photosynthetic activity and this effect increased over time, indicating that SLM activities if maintained could significantly reduce land degradation.

Therefore, whereas the evidence presented in terms of the actual effectiveness of the SLMP-2 activities in reducing land degradation was limited, the project has made significant progress in treating large areas of communal and individual farmland with improved land management practices, including gully treatments, area closures, agroforestry and afforestation/reforestation activities. The external impact evaluation (by DEC-World Bank) indicated that these interventions are likely to have made significant impacts in reducing land degradation, especially if maintained and sustained over the long term. On this basis, the efficacy of Objective 1 is assessed as Substantial.

Rating
Substantial

OBJECTIVE 2

Objective

To improve land productivity in selected watersheds in targeted regions in Ethiopia

Rationale



Outputs

The ICR lists several outputs in relation to this objective (see Annex 1B).

1. Incremental carbon dioxide equivalent accumulated in the project area was 5,369,151 tCO₂eq.
2. Incremental biomass production in the target micro-watersheds was 8 ton/ha.
3. Increase in vegetation cover in 315,631 ha as measured using satellite data - land area of the targeted micro-watersheds with vegetation increase of at least 4 percent compared to baseline.
3. 1,495,636 land parcels surveyed and mapped for certification, among them 97.4 percent of individual parcels and 2.6 percent of communal parcels.
4. 360,205 households received second level land holding certificates, including 70 percent of women (female heads or joint tenants).
5. 21,277 second level land certificates issued for communal landholdings.
6. 9,661 landless youth were issued a second-level certificate or other legal documentation to use communal landholdings in exchange for restoring land (of which 33 percent of women).
7. 1,908 ha of degraded communal land restored by landless youth who were issued a second level certificate or other legal documentation.
8. 545 participatory land use plans were prepared.
9. 301,354 beneficiaries participated in income-generating activities supported by the project (of which 41 percent were women).
10. 5.6 percent change in dry season base flow within sampled micro-watersheds.
11. 4,600 ha of irrigated areas developed via small-scale irrigation (SSI) schemes, including the following:
12. A total of 10,836 households (20 percent female) benefited from beekeeping and produced 209.7 tons of honey and 11.9 tons of wax.

Outcomes

The ICR indicates that vegetation cover, carbon sequestration, and moisture availability were key parameters used to determine the achievements in terms of improved land productivity. These indicators are used as proxies for measuring improvements of ecological functions and agricultural productivity potential throughout the targeted watersheds/landscapes (ICR p. 13).



Following the ICR, this objective will be first assessed in relation to the achievements of the two PDO indicators: (i) Land area in the targeted micro-watersheds with vegetation increase of at least 4% compared to baseline (ha); and (ii) Incremental carbon dioxide equivalent accumulated in the project area (metric tons). This will be further assessed using existing evidence and external impact evaluations on the effectiveness of SLM practices for improving land and farm productivity.

(i) Land area in the targeted micro-watersheds with vegetation increase of at least 4 percent compared to baseline (ha)

Using remote-sensed satellite data, the ICR reports that, compared to the baseline, the vegetation cover has increased by an average of 5.2 percent in the major watersheds treated. The land area in the targeted micro-watersheds with vegetation increase of at least 4 percent compared to baseline reached about 316,000 ha. Using the revised targets, the project achieved about 55 percent of this indicator (see table 4). While this is significant, it also shows the challenges for significantly transforming the vegetation cover in the degraded watersheds through short-term interventions. Increase in vegetation cover is vital for land restoration as well as creating incentives for the smallholder land users especially when such biomass has economic value.

Table 4: Achievement of vegetation increase of at least 4% compared to baseline (ha)

	Original	Adjusted
Targets (ha)	610,000	574,010
Achieved	315,631	315,631
Percent	51.7	55.0

In addition, it is indicated that the average biomass production in the target watersheds increased from 151 tons/ha (in 2013) to 159 tons/ha by the end of the project (2018), which is above the target of 151 tons/ha. The ICR also provides some evidence related to increased moisture availability. The surface water flow measured in 10 representative pilot sites showed that average discharge flow increased by 5.6 percent between 2017 and 2018 (ICR p.13). However, this data over one season does not seem to control for weather related seasonal differences and may not show the actual effect of the interventions. Further, SLMP-2 supported homestead and livelihood development through provision of productive inputs, improved crop and livestock management practices, promotion of CSA practices, development of land use plans and provision of land certificates. The evidence provided shows that Climate Smart Agriculture (CSA) was piloted in 70 selected micro-watersheds located in 30 watersheds where SLM interventions had covered a minimum of 70 percent of the degraded area. The total area covered by CSA and soil fertility management practices on watershed farmland is estimated to have covered 189,543 ha and about 85,000 farm households applied CSA practices (ICR p.49). The associated land productivity (and income) changes for the beneficiaries were not monitored or reported.

(ii) Incremental carbon dioxide equivalent accumulated in the project area (metric tons)

The increased vegetation cover and biomass in the treated watersheds (reported under the previous indicator) is estimated to have led to an incremental carbon sequestration of about 5.4 million metric tons of carbon equivalent. Using the adjusted targets, the project achieved about 64 percent of its target (see table 5). This achievement is significant but seems to have been constrained by the slower progress made in increasing vegetation cover.



Table 5: Achievement of incremental carbon dioxide equivalent accumulated in the project area

	Original	Adjusted
Targets (metric ton)	8,855,167	8,332,712
Achieved	5,369,151	5,369,151
Percent	60.6	64.4

Summary: Even if these indicators do not directly measure agricultural productivity for smallholder farmers and land users, the evidence presented suggests that the resulting vegetation change has contributed substantially to increase biomass production (and hence land productivity). An IFPRI study (2018) evaluating the impacts of the SLMP-1 and SLMP-2 interventions targeting 177 micro-watersheds using a panel survey from 2010 to 2014 showed that the project had no significant impact on value of agricultural production after 4 years of implementation in program kebeles compared with control kebeles regardless of the agro-ecological zone or landscape type. A similar IFPRI study (2014) on SLMP-1 showed that plots with SLM infrastructure that are maintained for at least 7 years have a positive increase in value of production. This indicates that while the satellite data shows that the SLM interventions (e.g. terraces, bunds, check-dams, area closures etc.) have improved ecosystem functions and increased biomass related land productivity, this may not translate into increased farm productivity in the short-term unless complemented by yield-enhancing innovations. Based on these results for increase in biomass production and vegetative cover, the achievement of SLMP-2 in improving "land productivity" is assessed to be Substantial.

Rating
Substantial

OVERALL EFFICACY

Rationale

The efficacy of Objective 1 (reducing land degradation) is substantial. This is shown in terms of the significant results in scaling up improved SLM practices on both communal and individual farmland and the potential outcomes as assessed using the external impact evaluations (DEC-World Bank and IFPRI studies, see below) which showed that the improved practices do significantly contribute to reducing land degradation. The efficacy of Objective 2 (improving land productivity) is also substantial on the grounds that SLM practices have significantly increased biomass production and land productivity in the target watersheds. Nevertheless, the impact evaluations showed that increased agricultural land productivity benefits are



unlikely to be realized from SLM interventions in the short term and may require long-term commitment and maintenance of the infrastructure.

Summary: Despite the weaknesses in the selected outcome indicators in measuring the objectives, these results suggest that SLMP-2 has made significant progress in scaling up SLM interventions in the Ethiopian highlands. The project treated some 556,776 ha with improved soil, water and land management practices covering both communal and individual farmland. In addition, agro-forestry activities and area closures to limit free grazing also led to a 5.2 percent increase in vegetation cover and moisture retention in the targeted watersheds. The project also supported issuance of landholding certificates benefitting some 360,205 farm households, including 9,661 landless youth who received titles in exchange for restoring land. In addition, some 63,830 households benefitted from improved livestock production, while 10,836 households (20 percent female headed) benefitted from beekeeping. While the agricultural productivity and income benefits were not measured, the evidence shows that the objectives for reducing land degradation and improving land productivity (in terms of biomass production and increased vegetation cover) are likely to have been achieved. Existing evidence also showed that long term farm productivity impacts could be positive although the short and medium term economic benefits are important drivers to sustain the incentives for farmers to maintain the SLM infrastructure. Integration of SLM practices with innovations that improve economic productivity of land (e.g. water conservation, irrigation and improved inputs) or diversify incomes (e.g. farm and non-farm) could be considered for nudging farmers to maintain the SLM investments.

The overall efficacy of SLMP-2 is therefore assessed as substantial, with some shortcomings.

Overall Efficacy Rating

Substantial

5. Efficiency

Project efficiency was assessed using a 25-year cost-benefit model with a financial discount rate of 12% and economic discount rate of 10%. For consistency with the methodology used at appraisal, the scope of the analysis was limited to quantifying incremental net benefits on cultivated land. However, the potential benefit flows from other types of land and beneficiaries are acknowledged and highlighted in the qualitative analysis. The details of the efficiency analysis with the relevant Appendices were missing in the ICR report and were requested and received separately. The analysis was done using multiple assumptions on the expected productivity gains and shadow price of soil and area lost to SWC structures. This was supported by a sensitivity analysis to assess the magnitude of the changes in financial and economic returns.

Under the assumptions made, the estimated financial and economic rates of return were 21% and 23%, respectively. These are comparable to the overall economic rate of return estimated at appraisal which was 24%. While the current analysis includes 91 percent of the targeted watersheds and 100 percent of the costs, the analysis at appraisal included 28 percent of the watersheds and 55 percent of the costs. The economic NPV was estimated at US\$150 million or US\$6 million per year. This indicates that SLMP-



2 has been a viable investment. The analysis indicates that most of the costs accrue from the SLM investments (50%) and land lost to soil and water conservation structures (32%), while the remaining balance is attributed to annual maintenance costs and variable costs for improved fodder production on bunds and through inter-cropping. Most of the benefits accrue from increased productivity (60%) and avoided soil loss (31%) with the remainder attributed to improved fodder production on bunds and through inter-cropping (ICR p. 22).

The sensitivity analysis shows that the results are sensitive to some assumptions but can be quite robust to others. The assumption of 2.1 ETB per ton shadow value of soil affects many of the costs and benefit flows in the analysis; a 1.0 percent decrease in soil value can lead to a 1.3 percent decrease in economic NPV. However, the project remains viable with an economic internal rate of return (EIRR) of 14 percent even if the soil value assumed in the PAD (ETB 0.79 per ton) is used. The assumed productivity gains from adoption of improved SWC practices and the estimated soil loss in the 'without project' situation also affects returns. If the projects fails to achieve any of the 10 percent productivity gains from implementing improved SWC measures, the EIRR will fall to 7 percent and the project would no longer be financially viable. This indicates that long term maintenance of the SLM infrastructure is vital for the project to be economically viable, especially without including the local and global environment benefits (e.g. ecosystem services, climate mitigation and biodiversity conservation which were not quantified).

Implementation efficiency. The ICR highlights aspects of the project design and implementation which contributed to improving the implementation efficiency. While the project was implemented across six regional states (Amhara, Benishangul Gumuz, Gambela, Oromia, Southern Nations Nationalities and People's Region [SNNPR], and Tigray), the project coordination and management was organized both at the national and regional levels. The coordinated, but highly decentralized implementation structure, comprising national, regional, and local government officials, along with the participatory planning process, involving the beneficiary communities in each micro-watershed, contributed to enhancing efficiency (ICR pages 12-13). Project implementation also saved costs by using local and beneficiary labor for the establishment of the biophysical SWC measures and community infrastructure. In addition, the government mobilized its experts at the national, regional, and local levels to provide technical support for the project (ICR pages 21-22). Nevertheless, the actual project management costs at closing appear to be high, representing 13.5 percent of total costs (ICR p. 22). In addition, the project also experienced some procurement-related inefficiencies, including the challenges in the preparation of the CSA field manual, which led to a delayed start and consequent limited coverage of CSA interventions (ICR p.22).

Summary: The project has produced forecast results and seems to be largely economically viable with plausible assumptions made on the costs and benefit flows. However, project management costs at closing were more than 300% of the estimated costs at appraisal and were 35 percent higher than the revised budget after the restructuring (ICR p.58). Although some of the social and environmental benefits (including off-site) from reducing soil erosion and land degradation may not have been fully captured, it is difficult to justify the high costs given the increased costs and difficulties associated with improving and strengthening the weak M&E system. The ICR also noted that the high costs are partly due to the decision to centralize procurement at the federal level for all the six regional states participating in the program. Unless additional evidence and breakdown of the project's management costs, including the share of M&E and the effect of the centralized procurement in increasing the management costs is provided, the project's efficiency is assessed as modest.



Updated Summary:

IEG received feedback from the Implementing Agency providing additional explanations and the breakdown of the project management costs. It was noted that as part of the scaling up of the results from SLMP-1 by expanding coverage from 45 to 135 watersheds, the project management costs were increased from 4.5 percent at appraisal to 10% at MTR. A highly devolved and decentralized approach was followed by "establishing coordination units regional levels, steering and technical platforms at regional and district levels, and coordination and implementation platforms at the community levels". In addition, the cost breakdown indicated that staff costs for technical experts and consultants at the regional levels as well as the costs of workshops related to investments were included under project management. When these costs are accounted for, the project management costs fall to about 9.5 percent of the total costs. Based on these additional evidence provided, the Efficiency rating is adjusted to Substantial. The PPAR will further examine the efficiency analysis of the project.

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	<input type="checkbox"/>	24.00	55.00 <input type="checkbox"/> Not Applicable
ICR Estimate	<input type="checkbox"/>	23.00	100.00 <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 High. The efficacy of Objective 1 (reducing land degradation) and Objective 2 (improving land productivity) were both rated substantial with shortcomings. The overall achievement of objectives is therefore assessed as substantial, despite some weaknesses. The efficiency of SLMP-2 is revised to substantial based on the additional information provided on the composition of the project management costs.



Thus the overall outcome rating for the project is accordingly revised to Satisfactory.

a. **Outcome Rating**

Satisfactory

7. Risk to Development Outcome

The PAD identified several sources of risk that could affect development outcomes, some of which can be relevant for continuation of the achievements of the operation's development outcome after completion. The ICR however notes that the project did not conduct systematic and regular assessments of risks although relevant mitigation measures for pre-identified risks were adequately taken into consideration. For example, the ICR indicates that emerging risks such as the security situation in certain project areas were appropriately reflected in revisions to project implementation plans (ICR p. 33).

The project also faced capacity constraints at all levels of implementation, governance and stakeholders, which could affect the sustainability or ultimate achievement of the project's development outcomes. Building on SLMP-1, SLMP-2 has expanded rapidly covering wide geographical areas and six regional states and has introduced SLM practices in diverse socio-ecological environments. In addition to local capacity and governance, one of the main factors that will determine the long term sustainability of the interventions is the stakeholder risk related to the participation, motivation, adoption and maintenance of the SLM practices by the smallholder farmers, land users and the communities in the different regions.

In terms of the risk mitigation measures, the ICR notes that beneficiary participation and engagement as well as adoption of SLM practices by beneficiaries has been high. The SLM interventions to reduce land degradation were implemented by beneficiary communities themselves, suggesting that if the practices are attractive to the land users and the communities, watershed rehabilitation practices can be maintained and expanded with limited external support, provided that the local support structures developed by SLMP-2 are not discontinued. The decisions made by communities to enact bylaws to enforce certain practices such as area closures and grazing bans are mentioned as evidence of the acceptance and adoption of key SLM practices by the community and land users (ICR p.33). The ICR also presents evidence that SLMP-2 has been effective in sensitizing and educating the local communities, including second level land certification to improve land tenure security, capacity development and participatory local land use plans at the Kebele and micro-watershed level (ICR p. 18-19).

However, there is no systematic evidence to support the ICR's claim that "the support provided by the project to enhance utilization of natural resources and increase farm productivity in stabilized areas has resulted in tangible livelihood improvements, which provide the most compelling incentive for beneficiary communities to sustain their commitment to a holistic approach to watershed management" (ICR p.33). Given that productivity improvements from SLM interventions are likely to be delayed and may require more time for the structures to stabilize and improve moisture retention and soil quality, additional effort is needed to support the farmers and communities to maintain the structures. The ICR however notes some measures including the promotion of SLM-oriented governance structures, such as Watershed User Associations; development of incentives to establish livestock production systems that incorporate SLMP-2 practices (area closures, cut-and-carry, forage



production in gullies and CSA rotations, and so on); and reduction of overgrazing in fragile communal areas (ICR p. 33). The World Bank has also approved succeeding projects (RLLP and CALM operations) which could be instrumental in addressing these risks and ensuring the long-term impact and sustainability of project outcomes.

Summary: Despite the improved security of land tenure, the residual risk to development outcomes resulting from lack of strong economic incentives for the smallholder farmers for continued maintenance of the SLM infrastructure introduced through the project is substantial.

8. Assessment of Bank Performance

a. Quality-at-Entry

SLMP-2 was developed based on the implementation and scaling up approach which was tried during the first phase under SLMP-1. Nevertheless, the assumptions in terms of the SLMP-1 coverage and degree of actual intervention in individual watersheds were not fully validated. This led to the development of a graduation approach which did not adequately incorporate the need to achieve full stabilization of degraded areas and the importance of engaging systemic elements of the country's public support system (mainly extension) to ensure continuity and sustainability of project interventions (ICR p.32). The approach for scaling up was very ambitious. The project area increased more than three-fold (from 45 under SLMP-1 to 135 watersheds under SLMP-2). The project scope was also expanded substantially by incorporating a new sub-component to support adoption of CSA. The CSA practices were supported through a pilot initiative implemented in 70 selected micro-watersheds located in 30 watersheds (ICR p.17). While there is value in being ambitious and in supporting components for enhancing climate adaptation and resilience, climate-smart practices that reduce degradation, increase productivity and enhance resilience as well as reduce carbon emissions under different farming systems and levels of land degradation were not fully identified for scaling up through SLMP-2 as was intended in the PAD. When SLM practices do not increase yields or provide more immediate economic benefits, poor rural farmers are unlikely to adopt such CSA practices. Given the limited experience and institutional capacity for mainstreaming CSA in the country, more piloting, demonstration and capacity development will be key for scaling up CSA.

Another shortcoming at entry was the design of the M&E system which did not adequately incorporate the project's expanded scope and failed to establish appropriate links between the borrower's planning and budgeting requirements and the information required to monitor progress of the indicators included in the Results Framework (ICR



p.32). Nevertheless, all fiduciary- and safeguard-related elements of project preparation were adequately addressed and the design included important partnerships with other international partners such as Norway and Germany.

Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

Although the Bank's environment portfolio in Ethiopia has grown substantially in recent years, the task team leader for the project was based in country. This has provided opportunities for regular and timely interaction with the Project Coordination Unit (PCU), implementing agencies and stakeholders to address operational issues. The World Bank staff from the country office have undertaken multiple technical field missions to supervise specific project activities or locations. Each implementation support mission by the locally based Bank staff included field visits and workshops with national and regional agencies responsible for project implementation. The ICR notes that this has led to effective collaboration between the World Bank team and the PCU (including the regional project implementation units) and improved the support for implementing the World Bank's recommendations. The World Bank's support to the project was further enhanced by the recruitment of a team of specialists, financed by Norway through a Bank-executed Trust Fund, to provide technical assistance to the client.

The Bank has also undertaken a total of 11 supervision missions as part of the joint implementation support which were regularly organized on a semiannual basis. Following these missions, comprehensive and informative Aide Memoires and ISRs were produced on time (ICR p.33). The composition of the supervision team reflected the technical and fiduciary requirements of the project, with locally based specialists from financial management, procurement, and safeguards participating in all missions.

The World Bank's oversight of project progress was pivotal in addressing some of the early shortcomings during project design and entry. The Bank led the process for improving the M&E system of the project, including the recruitment of a specialized consultancy and the preparation and processing of a comprehensive restructuring of the Results Framework. However, availability and dedication of key World Bank resources to supervision tasks was affected partly due to design of the successor projects and the high number of ongoing operations within the environment portfolio in Ethiopia.

Quality of Supervision Rating

Satisfactory



Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The ICR indicates that the M&E system of SLMP-2 was designed using the format that was used by SLMP-1. Although the PDO remained largely unchanged (SLMP-1: to reduce land degradation in agricultural landscapes and improve the agricultural productivity of small holder farmers in selected watersheds; and SLMP-2: to reduce land degradation and improve land productivity in selected watersheds in targeted regions in Ethiopia), SLMP-2 did not include indicators directly measuring land productivity. The first sub-objective (reduce land degradation) was measured using two indicators (i. Land area with sustainable landscape management practices; and ii. Total land area of restored or reforested/ afforested). These indicators do not directly measure changes in land degradation resulting from investments in SLM. The first indicator was used as an intermediate outcome indicator under SLMP-1. The second sub-objective (improve land productivity) was measured using two outcome indicators (i. Incremental carbon dioxide equivalent accumulated; and ii. Vegetation increase in the target watershed). While increase in biomass related land productivity is relevant, the indicator for measuring agricultural productivity (used in SLMP-1) was dropped although this will be key in terms of creating economic incentives for smallholder farmers to invest in and maintain the improved practices for SLM. An assessment conducted post-MTR by a team of M&E specialists of the World Bank found that more than half of the original indicators (14 out of 21) did not meet one or more of the World Bank's SMART criteria (ICR p.27).

The ICR also notes that in the design of the results framework for SLMP-2, the lessons learned from SLMP-1 and the significant increase in project scope and complexity were not fully taken into consideration (ICR p. 26). The project M&E design and the Results Framework had significant shortcomings. This made it difficult to operationalize the framework and implement the M&E system. The Results Framework in the PAD did not include a baseline value for two of the three PDO indicators. The missing baseline data was expected to be supplied by a survey carried out in a baseline study in Year 1 of project implementation. Nevertheless, the baseline values were only made available as part of the post-MTR restructuring because of the delays in contracting a consultant (which was only contracted in Year 3 of the project) (ICR p. 27).

b. M&E Implementation

The M&E design challenges affected its implementation. Changes made to the Results Framework as part of the first restructuring tried to align the indicators with the revised results matrix of the broader SLM program developed after SLMP-2 approval. While this helped improve harmonization across donor-financed projects and provided the missing baseline and target values, additional challenges made it difficult to operationalize the M&E system. Several efforts were



jointly made during implementation to address these difficulties encountered for monitoring project implementation and for generating data appropriate to measure progress on the Results Framework indicators. This necessitated an agreement with other SLM partners to develop a ‘Harmonized Results Framework’, recruitment of an M&E specialist in each of the six regions, preparation of a ‘below woreda’ operational manual for data collection and reporting (ICR p.27) and development of a web-based system, the Planning and Reporting Tool (PRT) aimed at improving the management of information at all levels (community, woreda, regional, and federal).

Nevertheless, the PRT did not contain data on crop yields, biomass, certification, technology adoption rates, and carbon sequestration, all of which were required for the Results Framework. While subsequent efforts were made to update the Results Framework, indicator definitions and data collection tools, the proposed changes were not captured in an updated M&E plan. This lack of uniform documentation as well as a lack of a central organized online storehouse (server location) for M&E materials and data resulted in a lack of clarity for stakeholders on the operationalization of the SLMP-2 M&E system (ICR p.27).

Several efforts were made to improve project monitoring (2016 and 2017) and the SLMP-2 Results Framework was revised to align the indicators with a revised results matrix of the broader SLM government program. Actual implementation of the revised Results Framework and M&E system was further constrained by lack of clarity in the responsibilities and methodologies for data collection and capacity limitations of the partners. While “significant progress has been made in improving the overall M&E system, more work is needed to ensure consistent and satisfactory implementation” (ISR May 2017).

c. M&E Utilization

The M&E system was not fully implemented to track the progress of the outcome indicators set out in the Results Framework and for monitoring annual targets set by the Ministry of Agriculture to support project planning, implementation and management. However, the ICR mentions that M&E data was used for managerial decision-making, regional performance assessments and overall reporting. Although there is very limited evidence that M&E data has been used for improving project performance, data related to project planning, budgeting, and reporting have been regularly collected from the 1,800 micro-watersheds and consolidated by the Ministry of Agriculture for the purposes of the annual work plan and budgets.

M&E Quality Rating

Modest

10. Other Issues



a. Safeguards

The project was classified as Category B and triggered the following safeguards policies:

- Environmental Assessment (OP/BP 4.01)
 - Natural Habitats (OP/BP 4.04)
 - Forests (OP/BP 4.36)
 - Pest Management (OP/BP 4.09)
 - Indigenous Peoples (OP/BP 4.10)
 - Cultural Resources (OP/BP 4.11)
 - Involuntary Resettlement (OP) (BP 4.12)
 - Safety of Dams (OP/BP 4.37)
- • Physical

The ICR indicates that the project complied with all the safeguards policies. Overall compliance with safeguards policies was rated by the Bank as Satisfactory or Moderately Satisfactory throughout the project.

An Environmental and Social Management Framework (ESMF) including integrated pest management approaches was prepared and disclosed on September 4, 2013. The Indigenous Peoples Plan was prepared and disclosed on August 18, 2013, as screening in five regions in Ethiopia found that a majority of the population met the criteria detailed in the OP/BP 4.10.

The Resettlement Policy Framework (RPF) was prepared and disclosed on August 28, 2013, as OP/BP 4.12 was triggered regarding the acquisition of land for the activities of 'Integrated Watershed and Landscape Management' component. The RPF aimed to mitigate any potential social impacts resulting from eventual involuntarily restrictions of access to natural resources (for example, community lands and protected areas), small-scale irrigation sub-projects, and land acquisition. It is indicated that some farmers in all six regions voluntarily donated small parcels of land (in all cases less than 10 percent of the specific landholding) mainly for the construction of canals, hand-dug wells, access roads, spring utilization, and community ponds.

The project also established a grievance redress mechanism (GRM) to solve unforeseen issues during project implementation at levels ranging from the watershed to federal levels with established grievance redress guidelines. The ICR states that during the life of the project, a total of 637 cases were satisfactorily resolved (ICR p. 29).

A comprehensive gender analysis of the project was conducted, and appropriate mainstreaming guidelines were prepared. Gender awareness training and capacity-building activities were implemented at different levels.

b. Fiduciary Compliance



The project's overall financial management has shown improvement over the project life, which enabled reasonable assurance that reports produced by the systems could be relied upon to monitor financial performance and use of funds. This was evidenced by the annual external audit reports of the project which were consistently clean (unqualified opinion) except for the July 7, 2018, report, which contained observations that were satisfactorily addressed. Based on experience from SLMP-1, financial management-related improvements were implemented.

In addition, all parties involved in the project implementation, at all levels, discharged their duties and responsibilities according to the lines of accountability defined in the PAD and Operational Manual. Procurement decisions were decentralized under four levels—federal, regional, woreda, and kebele. This improved administrative efficiency and reduced transport costs and avoided delays in distribution. The appointment of regional accountants as 'mobile accountants' in regions where significant number of project watersheds exist, helped improve financial reporting at decentralized levels, while assigning a project internal auditor at the federal level helped address internal control weaknesses.

There is some discrepancy between the amount disbursed (US\$97.26 million) and the actual cost at closing (US\$96.0 million) which the ICR notes is due to the unused advance of US\$1.28 of the loan which is indicated to be cancelled by June 30, 2019 (ICR p.56).

c. Unintended impacts (Positive or Negative)

Potential biodiversity conservation and other global environmental benefits through reforestation and rehabilitation of degraded lands.

Reducing women's workload and reduced indoor air pollution through provision of improved fuel-saving cook stoves to 63,128 families.

Improvements in local institutional capacity (including woreda level) for improved land use planning and management.

d. Other

OP 7.50 on International Waterways was not triggered, but the ICR indicates there were no issues related to OP 7.50 during implementation and no complaints from riparian countries were received (ICR p.30).



11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Satisfactory	Moderately Satisfactory	Design issues affecting quality at entry and M&E
Quality of M&E	Substantial	Modest	
Quality of ICR	---	Modest	

12. Lessons

Largely based on the lessons identified in the ICR, IEG draws the following four lessons for the future.

Long term maintenance of SLM interventions is likely to be necessary to attain significant agricultural productivity gains. The experience from SLMP-2 shows the need to provide reasonable time to achieve regeneration of land and stabilization of ecological functions in degraded areas, as well as a mechanism and supporting elements to allow watersheds to graduate from project-based assistance and continue sustainable management of restored landscapes.

Sustaining the benefits from SLM investments would require strengthening of capacity and institutions for improved watershed management at the local level. SLMP-2 has supported local capacity development through technical assistance for SLM and participatory land use planning at the Kebele level. The communities were also able to develop local norms for area closures, cut-and-carry systems and restricting free grazing of pastures on communal land. For continued maintenance of the SLM structures, SLMP-2 is preparing the intervened watersheds for graduation through (a) building local government capacity to design and manage SLM plans and interventions, (b) strengthening community incentives for investment in, and maintenance of, SLM through land certification, and (c) improving returns to sustainable productive activities by promoting CSA and forging connections to value chains.

The decentralized implementation and decision making process for SLM requires well-designed M&E system. The SLMP-2 experience shows that careful thought must be given to the M&E system, including the Results Framework, theory of change, and key learning questions to be addressed—ensuring that this system will be focused on results-based measurements instead of activity-based M&E. In addition to identifying relevant indicators, an effective M&E system would require detailed indicator protocols to provide clear procedures (including frequencies) for indicator data collection. The M&E system also needs to include clearly defined plans for baseline data collection, results monitoring, evaluation and learning efforts.

Design of participatory watershed management approaches involving individual land users and communities requires complementary technical interventions and management practices. More specifically, the SLMP-2 experience shows that :(i) Area closures to limit free grazing for addressing land degradation require complementary interventions



for fodder production to reduce potential trade-offs in livestock production practices; (ii) SLM initiatives need to take into consideration the livestock population in the micro-watershed in relation to the carrying capacity of the area; (iii) capacity building of the extension systems to support implementation and future management of biophysical structures; and (iv) adoption of climate smart SLM would require options that improve income and livelihoods, including links to value chains that reinforce incentives for the maintenance of SLM investments.

13. Assessment Recommended?

Yes

Please Explain

This is the second in a series of SLM investments in one of the most vulnerable countries facing serious risks from resource degradation and climate change. Additional evidence and beneficiary perspectives are needed on the outcomes (reducing degradation and improving productivity). In addition, the maintenance of the improved structures and practices introduced through the projects is critical for sustaining the project impacts and has been a chronic problem for sustainable land management in the country. Social protection approaches are likely to be required in situations where individual farmers and communities lack the underlying incentives (example, when the investments have not generated productivity gains to smallholder farmers) to improve and maintain the structural measures for SLM introduced through the two phases. SLMP-2, similar to its predecessor also implemented innovative second level land certification to improve tenure security which needs to be assessed. The potential for learning about what works and what does not work to induce and sustain improved practices for sustainable land management is substantial. A PPAR could also look into the high project management costs and assess the extent to which this has affected the project's overall cost effectiveness in producing the results.

14. Comments on Quality of ICR

The ICR was submitted with inconsistent data presented in Annex 1A and Annex 2B. The narrative presenting project efficacy deviated from the outputs and outcome indicator values presented in Annex 1B. In addition, Annex 4 (Efficiency Analysis) did not contain some important Appendices mentioned in the Annex and relevant for the IEG review. The ICR team provided the missing Appendices which helped in assessing efficiency. The ICR also lacked data and evidence on the effectiveness of improved practices for reducing land degradation and improving land productivity (perhaps a reflection of the underlying weaknesses in the original M&E design). There also remains discrepancies in the data presented regarding the number of household



beneficiaries and the number of adopters of different SLM practices as well as the actual financing gaps resulting from the exchange rate losses. However, the ICR was candid in presenting the shortcomings on M&E and the Results Framework and the ICR team responded to several written questions from the evaluator.

a. Quality of ICR Rating

Modest