



## 1. Project Data

<b>Project ID</b> P092353	<b>Project Name</b> ET-Irrigation & Drainage SIL (FY07)		
<b>Country</b> Ethiopia	<b>Practice Area(Lead)</b> Water	<b>Additional Financing</b> P125307	
<b>L/C/TF Number(s)</b> IDA-43330,IDA-49760	<b>Closing Date (Original)</b> 31-Oct-2015	<b>Total Project Cost (USD)</b> 105,794,445.60	
<b>Bank Approval Date</b> 21-Jun-2007	<b>Closing Date (Actual)</b> 31-Oct-2017		
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>	
Original Commitment	100,000,000.00	0.00	
Revised Commitment	121,314,499.56	0.00	
Actual	105,794,445.60	0.00	
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## 2. Project Objectives and Components

### a. Objectives

The project development objectives stated in the Financing Agreement (page 5) and Project Appraisal Document (page 10) was:

**“to sustainably increase agricultural output and productivity in the Project Area. “**

The project development objectives were revised on Sep 12th, 2016 as:

**“to improve access to irrigation and drainage services and build farmers' capacity in irrigated agriculture in the Project Area.”**



**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**

12-Sep-2016

**c. Will a split evaluation be undertaken?**

Yes

**d. Components**

The project had four components:

**1. Irrigation Development (Appraisal: US\$75.0 million, Revised: US\$126.3 million, Actual: US\$150.7 million).**

This component aimed to finalize feasibility and detailed design studies and develop irrigation infrastructure for about 20,000 hectares in Megech and Ribb benefiting approximately 12,600 households. The component also aimed to conduct feasibility studies for 80,000 hectares of newly developed irrigated agriculture in selected sites including Anger, Upper Beles, Negesso and Megech, and promote low-cost irrigation technologies in low-lying areas around Lake Tana. Environmental and social assessment of the investments were to be financed under this component. In addition, as the project investment in Ribb area would rely on the construction of the Ribb Dam, financed by the government, the project identified mitigation measures to reduce risks. One of the measures included dropping the Ribb area and expanding the Megech area investments instead.

The restructuring in 2014 after the Mid Term Review (MTR), reduced the scope of the two schemes and eliminated the activity related to groundwater development through low-cost technologies because the priority was to develop surface water systems. The restructuring in 2016 eliminated the implementation of the Environmental and Social Impact Assessments (ESIAs) and the Resettlement Action Plans (RAPs) for the 80,000 ha of new irrigation and the proposed hydraulic infrastructure in the Lake Tana sub-basin because there was neither funding nor time to develop any of this new irrigation before the Credit closed, and the Credit was not financing any other hydraulic infrastructure in the Lake Tana sub-basin.

**2. Agriculture and Market Development (Appraisal: US\$17.0 million, Revised: US\$20.4 million, Actual: US\$6.5 million).**

This component aimed to establish forward and backward linkages between irrigated agriculture and markets so that multiplier effects of irrigation development would be captured by direct and indirect beneficiaries. This was to be achieved through support for the delivery of adaptive research and development (R&D) on improved production systems and technologies, agricultural advisory services and



the improvement of market linkages, development of value chains through matching grants within the project's target Woredas (districts) and Kebeles (sub-districts). Activities under this component were to be implemented by the regional agricultural bureau and complement the interventions of the Rural Capacity Building Project (RCBP) in the relevant project areas.

The Additional Financing in 2011 added soil fertility management and land leveling activities for the newly redistributed irrigated land. The restructuring in 2016 scaled down the activities under Component 2, because there was insufficient time to implement them.

### **3. Irrigation Management (Appraisal: US\$13.3 million, Revised: US\$21.3 million, Actual: US\$20.0 million).**

This component aimed to establish accountable and transparent irrigation management in two ways: (i) strengthening the capacity of Water User Groups to carry out the necessary operation and maintenance (O&M) and cost recovery functions; and (ii) promoting and implementing a greater role for public-private partnerships in irrigation infrastructure management in order to improve the efficiency and operational performance of the sector.

### **4. Project Management (Appraisal: US\$4.7 million, Revised: US\$5.7 million, Actual: US\$6.5 million).**

This component financed project management related activities through the provision of technical assistance, training, auditing, evaluation studies, operating costs, overall project planning, strengthening procurement and financial management capacities, and preparation and implementation of a communications strategy; and the establishment of a monitoring and evaluation (M&E) system and performance-based management information system (MIS).

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

**Project Cost:** Total project cost at appraisal was estimated at US\$110.0 million, then it was revised to US\$173.6 million with the Additional Financing in 2011, as estimated costs increased substantially after the design was approved. Costs were revised to US\$181.1 million during the restructuring in July 2014 and then to US\$183.7 million during the restructuring in September 2016. Actual costs were slightly higher at US\$183.9million. Please note that total costs were not finalized at the time of the ICR and during this review, as the final audit was yet to be finalized.

**Financing:** The IDA grant (IDA-43330) of US\$100.0 million increased to US\$160.0 million with the IDA Additional Financing grant (IDA-49760) of US\$60.0 million. The total disbursement was US\$129.9 million.

**Borrower Contribution:** It was planned that the Borrower and local communities would provide US\$10.0million, which was revised to US\$13.6 million with the additional financing. The actual contribution was US\$53.8 million.



**Dates:** The project was approved on June 21st, 2007 and effective seven months later, on January 24th, 2008. The original closing date was October 31st, 2015 and the actual closing date was two years later (with the Additional Financing), on October 31st, 2017. The Additional Financing (AF) was approved on June 23rd, 2011 and extended the project closing date for 2 years. The delay was due to delays in detailed engineering designs, the time needed to complete the rebidding process for Megech and Ribb civil works contracts and to mobilize contractors.

**Restructuring:** The project went through three restructurings, and one additional financing. The AF in June 23rd, 2011: (i) included US\$60 million additional financing, after it became clear based on the detailed designs that estimated costs were about eighty percent higher than the estimations of the preliminary designs; (ii) allocated US\$10 million to the Fertilizer Support Project that was approved during the food crisis in 2009; (iii) extended the original closing date for two years; (iv) eliminated the intermediate outcome indicators that were of low relevance or difficult to measure, clarified the wording of some indicators, or incorporated new indicators with targets disaggregated by gender, and the targets for the areas covered with new I&D services were changed from the initial estimate of 20,000 ha gross of irrigation and appurtenant infrastructure to 17,300 ha net, reflecting the detailed designs.

Following the Mid Term Review, the restructuring on July 31st, 2014: (i) revised the project budget from US\$173.6 million to US\$181.1 million and reallocated funds between disbursement categories to account for the changes in project scope; (ii) revised the intermediate outcome targets to reflect the reduction in project scope and the decision in 2012 to split the Ribb scheme into two phases. The restructuring on September 12th, 2016 increased the total project budget from US\$181.1 million to US\$183.7 million due to exchange rate savings and cancellation of the US\$10 million for the food crisis emergency response.

The final restructuring on October 30th, 2017 revised the PDO and designed new intermediate outcome indicators to capture targets that could be achieved during the remaining project period, including length of the main canals constructed, a number of operational training and service centers, and a number of functional O&M systems. Other indicators such as the change in yield, the real value of marketed projects, and the adoption of modern technologies, and irrigation efficiency of the main supply system were dropped because they were not achievable, difficult to verify, and no longer aligned with the revised PDO. The restructuring also allowed the Borrower to use Credit funds for compensating 6,618 project-affected persons (PAPs), including cash payments for livelihoods restoration for 1,486 PAPs, at a total cost of US\$9.68 million.

### 3. Relevance of Objectives

#### Rationale

#### Original Objective:



While the original project development objective was relevant to the country and World Bank strategies at appraisal and closing, they were quite ambitious considering the implementation capacity in the country, as well as the project's scope versus its duration as a single project. In addition, there was the issue of unclear and insufficient linking between particularly productivity aspect and the market linkages presumptions. At the time of project appraisal, agricultural productivity in Ethiopia was low with productivity of major cereal crops was around 990 kg per hectare, and cropping intensity was approximately 0.5, corresponding to one crop every two years. The country's irrigation potential was estimated to be 3.7 million hectares (ha), with actual irrigation development representing only 0.5 percent of this potential and irrigation accounting for only three percent of food production. The government's strategy for achieving the Millennium Development Goals called for a rapid scaling up of existing irrigation plans with an aim to develop irrigation on 717,400 ha, with 381,000 ha serving small scale farmers (ICR page 12-13). Based on the above issues, Ethiopia's Second Poverty Reduction Strategy (2006), namely the "Plan for Accelerated Sustained Development to End Poverty Strategy" aimed to promote market-based agriculture as well as integrated water resources management with an emphasis on irrigation development.

The World Bank Country Assistance Strategy (FY08-FY11), strategic objective 1 (Fostering economic growth), included increasing productivity of agriculture through investments in irrigation and preparation of value chain analysis (page 26). The World Bank's Country Partnership Framework's (FY18-FY22), focus area 1 (promote structural and economic transformation through increased productivity) noted that agriculture was one of the key drivers of growth and poverty reduction and included improved agricultural productivity and commercialization as one of the objectives (page 28-30). Focus area 2 (building resilience and inclusiveness) was also aligned, seeking to achieve enhanced management of natural resources and emphasized that the recent investments in sustainable land and water management, and small-scale irrigation have improved land quality. The World Bank would continue to support the government in sustaining the gains that have been made (page 33[CDN1]).

#### **Revised Objective:**

The revised PDO became more relevant as it became more streamlined, realistic and linked to project activities[CDN2]. That is the revised PDO dramatically moved towards what the project sought to do in improving irrigation. However, it was done very late during project's implementation.

#### **Rating**

Substantial

### **4. Achievement of Objectives (Efficacy)**

#### **Objective 1 Objective**

The original objective, "to sustainably increase agricultural output and productivity in project areas", is rated Negligible.



## Rationale

According to the theory of change (TOC), the project development objective, to increase agricultural output and productivity in rural areas, would be achieved through three main activities: (i) Developing irrigation that would lead to increased productivity and incomes; (ii) Under Component 2, supporting agricultural intensification and commercialization in the areas served by the new irrigation systems. This support would focus on improving production systems and technologies, strengthening value chains, and facilitating market linkages. (iii) Measures under Component 3 to ensure the sustainability of the new irrigation systems by developing or strengthening water user associations to carry out operations and maintenance (O&M) and cost recovery, as well as the promotion of public private partnerships (PPPs) that presumably will lead to improved irrigation efficiency and operational performance. The higher-level objective of reducing poverty would be obtained through the targeting of small farmers and higher productivity and production outcomes attained through project infrastructure investments. However, these objectives were overly ambitious. Given this limitation, a significantly delayed restructuring in 2016 simplified the PDO to include improvement of irrigation and drainage services and building farmers' capacity on irrigated agriculture, better reflecting what the project was actually doing.

The key expected outcome indicators were: (a) a 40 percent increase in value added per worker; and (b) a 40 percent increase in value added per hectare.

The project did not monitor these indicators; nor the other outcome indicators and intermediate outcome indicators on yields, cropping intensity, value of marketed products. Irrigation efficiency was dropped during the restructuring in 2016, as they were either not achievable or difficult to verify. Thus, with insufficient evidence to justify achievement, the original objective is rated as Negligible.

**Rating**  
Negligible

## **Objective 1 Revision 1** **Revised Objective**

Revised objective was to "improve access to irrigation and drainage services and build farmers' capacity in irrigated agriculture in project areas". First part of the revised PDO, "to improve access to irrigation and drainage" is rated negligible.

## **Revised Rationale**

The changes in the PDO and outcome targets in 2016 were made to align them with results that could be achieved and measured by the closing date. However, due to significant delays in implementation, very few of the activities were completed, and none of the outcome targets were met. The following overview summarizes the project's achievements:



- Provision of new or improved irrigation or drainage infrastructure in the Megech-Seraba Scheme was planned to cover 4,000 ha (revised target), reaching a total of 10,097 beneficiaries. By project closing, only 1,000 ha (25 percent) in the Megech-Seraba Scheme were completed. Also, during the 2016 growing season, only 18.25 ha (0.46 percent of the target) were fully utilized for irrigation in the Megech-Seraba Scheme, benefitting only 28 farmers (0.28 percent of the target). The reasons for such limited use of the I&D services in the Megech-Seraba Scheme Phase 1 were that the provision of irrigation water was delayed and many farmers continued their traditional rain-fed agricultural approach, and higher than average rainfall reduced the farmers' demand for irrigation water. During the 2017 growing season, the lack of a reliable power source for the pumping station continued to be a limiting factor in the provision of irrigation water. A continuous power supply to the Megech pump scheme remained a challenge because the backup power supply generators was delayed due to procurement issues. The project team informed IEG that the provision of the power supply has been resolved and now there is reliable power supply via the national grid.
- The remaining 3,000 ha (Megech Scheme Phase 2 Scheme) still had unfinished canal works, crossing structures, and flood protection emergency works at project closing. The on-farm works were only 14 percent completed.
- Under the Ribb Scheme Phase 1 (3,000 ha), only 44 percent of the main irrigation system was completed at project closing. The intake structures and most of the primary canal was completed but the majority of the canals and drainage channels remained unfinished. The planned completion date for the main system was April 8, 2018, about 5 months after the project closed. The project team subsequently informed IEG that due to higher than average rainfall and localized flooding in 2018, the works have still not been completed and the contract has been extended. The physical works progress now stands at 79 percent and the planned completion date is May 2019.

Due to very limited progress on outcomes and outputs by project closing, the achievement of the revised objective is rated Negligible.

### **Revised Rating**

Negligible

### **Objective 2**

#### **Objective**

There was no second objective prior to the restructure. The second objective of the revised PDO, was "to build farmers' capacity in irrigated agriculture in project areas", and was rated as Negligible.

#### **Rationale**

#### **Outputs:**



- The project provided capacity building support to Amhara Regional Agricultural Research Institute (ARAR) to conduct, validate, and deliver irrigated agriculture research outputs. ARAR conducted 46 adaptive irrigated agriculture research studies and provided demonstrations in selected commodities.
- 24 irrigation technologies were developed.
- Nine farmer training centers were constructed.
- 4,416 farmers and agriculture extension workers directly benefited from field days, trainings and experience sharing visits.
- Nine animal health posts were established to provide critical veterinary services.
- Matching grants were provided to create 66 micro-enterprises (exceeding the target of 18), These included: 42 cooperative grain stores, four milk production and processing facilities, two oil extraction plants, three shallow well digging service providers, 13 onion and onion seed producers, and two chemical spraying service providers. All of these services were operational by the closing date, and all adopted financial management and accounting systems.
- Only five IWUAs in the Megech-Seraba Scheme were operational (out of the targeted well-functioning 35 schemes), and 12 IWUAs were established in the Ribb Scheme, but they had not become operational due to delays in the completion of irrigation infrastructure. By project closing the management and supervision contract (MSC) had not taken any meaningful steps to transfer knowledge and skills for O&M, and there was no scheme level water management plan informed by a clearly defined cropping pattern and calendar.

**Outcomes:**

There were some positive results under the matching grants scheme to establish micro-enterprises. Nevertheless, while the project provided training to farmers and helped improve the capacity of ARAR, due to delays in receiving irrigation services, none of the 3,000 target project beneficiaries adopted an improved agricultural technology promoted by the project. In addition, the achievements on establishing functioning Integrated Water Resources Management (IWRM) and knowledge transfer on O&M and water management plans were very limited. There was evident activity that took place during the course of the project, but there is no substantive evidence of outcomes against this objective.

**Rating**  
Negligible

**Rationale**

The combined rating under original and revised objective is Negligible.

**Overall Efficacy Rating**  
Negligible

**Primary reason**  
Low achievement



## 5. Efficiency

**Economic and Financial Efficiency:** Using only Component 1 cost and benefits, the project prepared financial and economic analyses four times (at appraisal, during additional financing, during restructuring and at completion), and each time there were changes in scope, changes in the cost assumptions, cropping patterns and intensity. A representative farm model was designed separately for Megech and Ribb irrigation schemes for with and without project scenarios. A cropping pattern was formulated using thirteen new crops for irrigated and rain fed farming and for wet and dry seasons. The discount rate was 12 percent at appraisal, while the ICR used two different discount rates of 10 percent and 6 percent. Benefits were derived from increases in farm income as a result of increases in crop and livestock productivity and production. Unit costs for irrigation differed considerably between the PAD and the ICR level analysis (cost per ha was estimated at US\$ 2,800 per ha, vs. US\$13,709 considering that the schemes would be completed using additional sources). There were significant cost over-runs. Considering that only 18.3 ha was completed as opposed to the target of 7,000 ha, the overall NPV was negative.

Based on the above, Net Present Value (NPV) of the project at completion was US\$-52.2 million using a 10 percent discount rate and US\$-77.2 using a 6 percent discount rate (compared to the appraisal estimate of US\$12.34 million). Using the assumption that the schemes would be completed using additional resources, then the NPV becomes US\$-7.1 (for 10 percent discount rate) and US\$17.7 million (using 6 percent discount rate), also the EIRR becomes 8.4 percent (compared to 15 percent at appraisal).

**Administrative and Operational Efficiency:** There were significant delays in developing infrastructure and operationalizing the irrigation schemes. Even though the project 's original duration of approximately 7.5 years was extended for two more years, this extension was still not sufficient, and only an insignificant portion of the works could be completed at project closing.

### Efficiency Rating

Negligible

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	✓	15.00	72.00 <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

While the original project development objective was relevant to the country and World Bank strategies at appraisal and closing, they were quite ambitious considering the implementation capacity in the country, as well as project's scope versus its duration as a single project. Therefore, relevance of the original objective is rated substantial. The revised objective remained relevant as it became more streamlined, realistic and linked to project activities, however the revision was done very late during project's implementation. The project's, original development objective "to sustainably increase agricultural output and productivity in project areas", is rated Negligible, as the project did not monitor and report on any of the indicators designed to measure the achievement of this objective. The revised objective 1: "to improve access to irrigation and drainage" is rated Negligible, due to significant delays in implementation, very few activities were completed, and none of the outcome targets were met. The second objective, added as part of the revision to the PDO, "to build farmers' capacity in irrigated agriculture in project areas", is also rated Negligible. While there were positive results on the micro-grant schemes, and improvements in the capacity of ARAR, there were significant delays in receiving irrigation services and none of the 3,000 target project beneficiaries adopted an improved agricultural technology promoted by the project. In addition, the achievements on establishing functioning IWRMs and knowledge transfers on O&M and water management plans were very limited. Efficiency of the project is rated Negligible, due to negative NPV at the time of project closing, very high unit costs due to cost over-runs and completing only insignificant portion of the works. The project results did not improve despite the two-year extension. Thus, the original and the revised combined overall outcome is rated Highly Unsatisfactory.

### a. Outcome Rating

Highly Unsatisfactory

## 7. Risk to Development Outcome

The risk to development outcome is significant given the limited progress and threats on O&M.

As mentioned in the Efficacy section, by project closing, only 1,000 ha of water delivery and distribution infrastructure out of the revised target of 4,000 ha were completed, and the pumping station to ensure the sustainable delivery of the water was not functioning. The ICR noted that (para. 87), the remaining 3,000 ha in the Megech scheme and an additional 3,000 ha in the Ribb scheme were expected to be completed by June 2018, based on the government's commitment on the use of budgetary resources. Nevertheless, provision of a sustainable power supply to Megech remained an issue by the end of the project period, threatening full operation of the scheme (4,000 ha) during the 2017/2018 growing season. In addition, there were very low gains in institutional capacity building and technical knowledge transfer due to delays in construction that led to limited deployment of O&M staff. Thus, by the end of the project, the GoE intended to transfer management of the



Megech-Seraba Scheme to the regional government through a dedicated unit within the Abbay River Basin Authority (ARBA), even though the scheme lies outside its mandate.

Regarding the government funded Ribb Dam, the main works were completed but as the government had not completed all of the actions recommended by the dam safety review panel (DSRP), this posed a threat not only to the dam structures but the safety of downstream communities and infrastructure. The project team informed IEG that remedial measures recommended by the DSRP were finalized but impoundment of the dam was delayed by a year to allow for recommended investigation and remedial measures.

## **8. Assessment of Bank Performance**

### **a. Quality-at-Entry**

The rapid project preparation resulted in a weak project design. The project was conceived based on a series of regional meetings as part of the Nile Basin Initiative supported by the Bank. The Eastern Nile Subsidiary Action Program (ENSAP), which includes the countries of Egypt, Ethiopia, and Sudan, sought to initiate a regional, integrated, multi-purpose program through a series of investments, and the Eastern Nile Council of Ministers decided in March 2001 that funding should be sought to advance studies of promising irrigation and drainage sites to the feasibility and design level in October 2004, when ENCOM decided to fast-track the preparation of the I&D project. The project was designed about two years after this decision. However, the project was not ready at the time of appraisal, and it needed to complete the detailed preparation work required for project implementation. Since, past irrigation investments in Ethiopia were on a limited scale and under institutional arrangements different from those intended under this project, past lessons were of limited applicability. Therefore, the project team designed the investment using information from conceptual designs that relied on simple assumptions and cost estimates that were highly unrealistic.

The project risk assessment ignored the low implementation capacity in the country, therefore sufficient time and resources to build this capacity were not included in implementation arrangements. For example, considering the Government's limited experience, structuring a Management Supervision Contract in a country with low project management capacity and limited experience with private operators in the water resources management sector, the Bank did not ensure that the Government had sufficient time to internalize options and build the necessary capacity for managing complex contracts of this nature. The design was also too optimistic in expecting the construction of civil works to be completed within two to three years in view of the government's limited experience. More time would be needed to address safeguard requirements and social factors under this project, as well as the government funded Ribb Dam project.

The project technical design did not consider that the farmers would be using a new irrigation system for the first time, and that dedicated support to the farmers in transitioning from their traditional rain-fed agricultural practices to the irrigated agriculture would be needed. The original design did not include soil and land management support for the newly irrigated land. This was a later addition.



## **Quality-at-Entry Rating**

Unsatisfactory

### **b. Quality of supervision**

The number of project missions by the bank team were sufficient, i.e. during the project's ten-year implementation period, 21 supervision and support missions were carried out (about every six months). The missions were staffed with the required experts to cover technical reviews of all components, in addition to fiduciary safeguard support, including experts in dam safety. Aide Memoires and Implementation Status Reports noted the emerging issues related to procurement, financial management, institutional capacity, and safeguards. In the course of implementation, four different task teams brought in a range of expertise. The ICR did not report on any issues or concerns caused during transitioning between different task team leaders.

However, there were shortcomings. These were as follows:

- The project development objective and results framework revisions were done very late during project implementation, despite the significant shortcomings with the results framework. Mission conclusions tended to be overly optimistic during the early years and the achievement of the PDO was rated satisfactory, despite bottlenecks. During the 2011 request for AF, there was sufficient evidence that the project was facing serious issues and limitations, as well as cost increases. However, instead of restructuring the project during the time of the AF, the Bank waited another five years before revising the PDO and establishing more realistic targets during the 2016 restructuring when there was only about a year remaining in the project period. Although the project had started to show more progress by then, it was still highly unlikely that the project would meet its targets by the closing date. Thus, the project team discussed with the client another year's extension to complete the physical works for Megech. Although the client was in favor of the extension, the World Bank management refused to extend the project given the ongoing implementation problems.
- Another significant flaw was on the social and environmental safeguards. Bank decision making delayed the allocation of government funds for compensation payments. The project was not in compliance on safeguards throughout most of the implementation period. The outstanding issues by the end of the project posed serious flood risks, dam safety risks, and reputational risks associated with the 6,616 people that were not compensated, lost their livelihoods, lost access to utility services, or were at risk of being encircled by the Ribb reservoir. It was only at the end of the project when the final restructuring allowed the government to use credit funds to compensate these impacted people that some of these risks were mitigated. These issues could have been resolved much earlier during project implementation.



### **Quality of Supervision Rating**

Unsatisfactory

### **Overall Bank Performance Rating**

Unsatisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

M&E responsibility was shared between the National and Regional Project Coordination Office to carry out annual work plans and annual progress and performance reviews, routine monitoring activities, and the maintenance of a systematic project database to facilitate periodic reporting. There were issues with the selection of outcome indicators and intermediate outcome targets, which had to be revised later on during implementation.

### **b. M&E Implementation**

The M&E system could not consolidate, highlight and transmit on time information on the project progress and implementation challenges to relevant decision makers. Therefore, issues were mostly identified during the Bank supervision missions, rather than through adequate M&E processes and procedures. The project could carry out only two of the three planned surveys required, but with delays.

### **c. M&E Utilization**

M&E information was rarely used for addressing any of the bottlenecks, delays, and other challenges arising during project implementation. Despite changes in the outcome and intermediate indicators reflecting greater attention to gender, the data did not lead to any actions that would facilitate women's participation in project benefits.

### **M&E Quality Rating**

Negligible

## **10. Other Issues**



## a. Safeguards

The project was categorized as Category A on environmental and social safeguards triggering seven safeguards: Environment Assessment (OP 4.01), Natural Habitats (OP 4.04), Pest Management (OP 4.09), Physical Cultural Resources (OP 4.11), Involuntary Resettlement, (OP 4.12), Safety of Dams (OP 4.37), and Projects on International Waterways (OP 7.50). A Resettlement Policy Framework (RPF) and a detailed Environmental and Social Impact Assessment were prepared during project preparation.

### **Environmental Safeguards:**

The ICR noted that (para 76) implementation and compliance of environmental safeguards were unsatisfactory due to the poor performance primarily related to OP 4.01 and OP 4.37. The issues in general were: (a) weak commitment of the client to periodically follow up and review implementation progress and take the necessary remedial measures; (b) limited staff capacity in the national and regional project coordination offices; (c) poor coordination at all administrative levels; and (d) poorly performing contractors and international consultants.

Environment Assessment (OP 4.01). Critical safeguard issues remained outstanding at the closing of the project. The main issues as reported by the ICR were (para 77) limited proactivity to rehabilitate non-active borrow/quarry areas that posed health, safety, and environmental (HSE) hazards to local communities, as well as to maximize future use of these sites; flood emergency preparedness plans for both schemes and river training works for the Ribb scheme, which were not completed by the closing of the IDA credit; and delays in the construction of an access road and two pedestrian bridges across the main and secondary canals for the partially isolated village (approximately 200 households) at the Ribb Reservoir. The latter posed particularly adverse impacts on vulnerable groups such as children, elderly, pregnant women and disabled individuals.

Safety of Dams (OP 4.37). This policy applied to the GoE-financed Ribb Dam, which was at the feasibility stage during the time of appraisal. An Independent Panel of Experts was contracted to support the review, design, and construction of the dam, and the Dam Safety Review Panel (DSRP) carried out periodic visits and provided detailed recommendations. However, enforcement and implementation of these recommendations proved to be a challenge because the construction of the dam lied outside the purview of MoWIE. Eventually, the Bank and DSRP experts ensured preparation of a series of critical instruments and tools, including an emergency preparedness plan, operation and maintenance plan, dam safety instrumentation plan, and reservoir impoundment plan. However at project closing, several critical dam safety issues remained outstanding. To address these issues, a dedicated committee was formed to follow up on the remedial measures recommended by DSRP before proceeding with plans for reservoir impoundment. Project team informed IEG that after the project closed, remedial measures recommended by DSRP were finalized, but impoundment of the dam was delayed by a year to allow for recommended investigation and remedial measures.

Pest Management (OP 4.09) and Physical Cultural Resources (OP 4.11). Overall compliance with these policies was satisfactory. The Physical Cultural Resources policy measures were addressed as part of a detailed Environmental and Social Impact Assessment, which did not find any critical heritage sites in the project areas.



Projects on International Waterways (OP 7.50). Riparian notifications were sent to all downstream neighbors. The project was regionally identified under the auspices of the Nile Basin Initiative, which helped underpin the feasibility of the project and provide assurance that the levels of water abstracted would not cause noticeable changes in water availability for downstream riparian. Thus, compliance with this OP was rated by the ICR as satisfactory.

The ICR did not report on the compliance with the Natural Habitats (OP 4.04) policy.

### **Social Safeguards:**

Regarding the Resettlement Action Plan, by the end of the project period, 6,618 project affected persons were identified and still needed to be compensated either for temporary loss of access to their land during redistribution and construction, or for permanent relocation due to the construction of the GoE-financed Ribb Dam and Reservoir. The total estimated cost of US\$21.7 million was to cover compensation for temporary or permanent relocation and livelihood restoration. However, the government financed only US\$11.17 million equivalent for resettlement cash compensation. In August 2017, the government requested that the Bank allow an exceptional use of IDA credit proceeds to finance the long delayed cash compensation to the 6,618 people identified in the approved RAPs. On October 31, 2017, the Bank approved US\$9.68 million to be used for compensating the PAPs who had been identified before the Credit closed. In addition, although the livelihood restoration for displaced persons was also the government's obligation, weak institutional capacity limited implementation of the planned activities. A decision was made to compensate the people who resettled from Ribb Reservoir for livelihood restoration in the same way the cash compensation was paid to the eligible people, so that they can adjust to their new urban setting. In February 2017, the GoE requested Bank financing for livelihood restoration activities. Subsequently, it was agreed that the IDA credit would finance the estimated cost of US\$4 million equivalent for resettling 1,486 people affected by the Ribb Dam and Reservoir construction. The project team informed IEG that all compensation payments were completed within the grace period of the project, but there were still outstanding safeguards issues, which were: (i) finalization of flood protection works – ongoing to be completed with construction of Ribb scheme; (ii) access and bridge for partially encircled community at Ribb dam – completion stalled due contractual issues. As of December 2018, a new contractor was on board and a bridge is due to be completed by March 2019; (iii) restoration of non-active burrow sites – 4 out of the 11 burrow/quarry sites are under still under rehabilitation.

The ICR noted that (para 75), the performance in social safeguards was unsatisfactory due to prolonged delays in making compensation payments and supporting livelihood restoration for the people in the Ribb reservoir and dam construction site. This poor performance contributed to increasing frustration on the part of the affected communities and rising tension in the project areas. Due to project delays, the participating communities had little incentive to give up their land, and to some extent caused disruption or damage to already installed infrastructure. Thus, throughout much of the project implementation period, the project was not in compliance with OP 4.12 and posed high social risk. It was only after credit closure that the project could be brought into compliance through the use of the credit to cover the costs.



**b. Fiduciary Compliance**

**Financial Management.** Audit reports were submitted with unqualified opinions, and the project team took timely action on report findings and other Bank recommendations. Although the team was proactive in addressing financial management issues, challenges continued throughout the project period. For example, although the World Bank moved to an online withdrawal application submission system to facilitate disbursement, the project continued to face delays in submitting withdrawal applications because the signatories did not sign off in a timely manner. In addition, internal weaknesses were observed mostly in fixed asset management.

**Procurement.** The ICR noted that procurement performance was unsatisfactory (para 69). Many procurement packages and contracts, including the main civil works contracts, remained incomplete by the credit closing date, with little progress in implementing agreed actions. The Project coordination office’s capacity was not sufficiently strengthened to manage multiple complex contracts and other obligations. Requests by the Bank for independent review of some allegations were not followed up to verify the quantities certified for both the Megech-Seraba and Ribb schemes. Moreover, requests for submission of revised, realistic, and resourced schedules for all outstanding contracts were not addressed in a timely manner, thus complicating the orderly closure of the IDA credits. Such delayed actions as well as procurement and contractual issues exposed the government to contractual disputes and claims, some of which required lengthy negotiations between MoWIE, contractors, and consultants. In addition, delays in establishing dispute boards for the civil works and MSC as per the provisions of each contract undermined resolution of claims and disputes. Procurement reviews often identified inconsistencies with World Bank procedures. In one case, mis-procurement was declared after project closure due to the lack of sufficient evidence to justify conducting a transaction without an approved procurement plan, and the awarding of a contract to an ineligible state-owned enterprise dependent on the implementing agency.

**c. Unintended impacts (Positive or Negative)**

No unintended impacts were reported.

**d. Other**

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**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Unsatisfactory	Highly Unsatisfactory	---



Bank Performance	Unsatisfactory	Unsatisfactory	---
Quality of M&E	Modest	Negligible	M&E design, implementation and utilization was extremely weak.
Quality of ICR		Substantial	---

## 12. Lessons

The ICR provided comprehensive lessons. The most relevant ones follow with some modification of language:

- **Reforms that include a transformation from rain fed to irrigated farming as well as the introduction of private operators and Water User Associations require a long term and phased approach implemented through more than one project.** This project experience showed that a single project is not sufficient to introduce large scope irrigation investments and innovations for the first time in a country. Proper phasing of an I&D investment would ideally include infrastructure development and initial development of WUAs in the first phase. The second phase would aim at operationalizing the WUA as well as improving and commercializing agricultural markets and value chains. Innovative technological advancements could be piloted in small areas first to be scaled up in later phases.
- **Ensuring project readiness before approval is one of the key success factors.** Incomplete preparation of the project led to long delays (up to four years) and unreasonable timeframes for meeting project objectives and unrealistic targets. In the future, the Bank should ensure that project designs are based on sound assumptions and detailed engineering designs. Project teams may be able to use a PPF or trust fund to finance these preparation costs well before project implementation.
- **Realistic assessment of the project performance by the Bank during implementation accompanied by course revisions to address all the needs and bottlenecks, is likely to ensure more realistic results.** During the implementation of the project, the Bank teams consistently assigned high ratings despite obvious signs that the project was facing issues that could seriously undermine the project achieving its objectives. Teams need to conduct realistic assessments of project performance and consider either substantial reductions in project scope or even dropping a project when it becomes apparent that project constraints could not be overcome within the original project period and financing.

## 13. Assessment Recommended?

No

## 14. Comments on Quality of ICR

The ICR candidly presented a narrative that supported the ratings and available evidence. The report was concise, followed the guidelines, and was focused on results. The project's theory of change was adequately



presented and helped the reader to understand how the ratings had been reached. The ICR's lessons were clear, very useful and based on evidence outlined in the ICR. The only weakness was there was inconsistency in terms of project costs and disbursements in the report.

**a. Quality of ICR Rating**  
Substantial