



1. Project Data

Project ID P120398	Project Name AF: ARTF-On-Farm Water Management (OFWM)	
Country Afghanistan	Practice Area(Lead) Agriculture and Food	
L/C/TF Number(s) TF-99074	Closing Date (Original) 30-Jun-2014	Total Project Cost (USD) 66,470,490.96
Bank Approval Date 16-Feb-2011	Closing Date (Actual) 31-Dec-2019	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	86,000,000.00	86,000,000.00
Revised Commitment	70,000,000.00	66,470,490.96
Actual	66,508,615.94	66,470,490.96

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2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO) as articulated in the Grant Request Proposal (page 6) was identical to the one stated in the Afghanistan Reconstruction Trust Fund (ARTF) Grant Agreement (page 5) and aimed to :

"improve agricultural productivity in project areas by enhancing the efficiency of water used."



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

The PDO was supported by the following three components:

1. On Farm Water Management (appraisal cost: US\$25.20 million, cost estimate at restructuring: US\$42.60 million, actual cost: US\$43.10 million). This component would support on-farm water management investments in the following project areas; (a) Kabul, (b) Bamyan, (c) Mazar el Sharif (Balkh), (d) Herat, and (e) Jalalabad (Nangarhar). In each area an average of 35 project sites were selected (175 sites in total) consisting of small-scale irrigation schemes or tertiary canals (watercourses) in medium and large-scale irrigation schemes. This component includes three sub-components:

1.1. Establishment and strengthening of irrigation associations (IAs) to enable them assume their role in management and operation & maintenance (O&M) in line with the new Afghan Water Law (1388).

1.2. Improvement of on-farm physical irrigation infrastructure (tertiary networks or watercourses) in schemes which have already been rehabilitated by the Bank-funded Emergency Irrigation Rehabilitation Project (EIRP)-in order to further reduce system water losses and facilitate water distribution.

1.3. Establishment of demonstration Sites for dissemination of improved water saving techniques including high efficiency/pressurized irrigation systems, agronomic water saving measures and optimization of crop water requirements.

2. Institutional strengthening and capacity building of the General Directorate of Irrigation of the Ministry of Agriculture, Irrigation and Livestock (MAIL) (appraisal cost: US\$4.10 million, cost estimate at restructuring: US\$8.20 million, actual cost: US\$5.40 million). The Project will support institutional strengthening and capacity building of MAIL. The component would support three main activities: The first activity consists of a flagship 45-day training program at the Water Management Training Institute (WMTI-Lahore Pakistan) focusing on all aspects of applied on-farm water management. The second activity would involve Training of Trainers (TOT) to about 20 graduates of the 45-day program to develop their capacity to become trainers and transfer knowledge to a larger cadre of MAIL staff on all aspects of on-farm water management. The third activity would be a specialized training on more advanced subjects of on-farm water management. This component would also support the development of a database of irrigation infrastructure in the country to facilitate future investments in water management and agriculture.

3. Project management, coordination and monitoring & evaluation (appraisal cost:US\$6.20 million, cost estimate at restructuring: US\$13.00 million, actual cost: US\$15.10 million). This component would support: project implementation by the project implementation unit PIU in Kabul and in the five areas proposed; project management by the General Directorate for Programs (GDP) on fiduciary (procurement



and financial management) and safeguard aspects; (iii) coordination with other projects, in particular the Irrigation Restoration and Development Project (IRDP) and the Horticulture and Livestock project (HLP), as well as with donors involved in the water resource sector; and (iv) an efficient monitoring & evaluation system.

Revised Components.

Component 1. The 2015 AF increased the total target for rehabilitation to 64,000 ha compared with the original target of 52,500 ha, of which 19,000 ha (100 schemes) had been completed pre-AF. The AF would cover the remaining 75 schemes which were identified pre-AF and for which IAs had already been established, and it would cover other schemes not initially identified pre-AF.

Component 2. The AF added a policy instrument to support the irrigation sub-sector and the overall management of water resources. The inclusion of a policy agenda in Component B was intended to strengthen the inter-ministry collaboration among Ministry of Agriculture, Irrigation, and Livestock, Ministry of Energy and Water, and Ministry of Rural Rehabilitation and Development (ICR, paragraph 22).

New Component. **Support for Productivity Enhancement (cost estimate at restructuring: US\$5.90 million, actual cost: US\$2.90 million).** This component was added with the AF in 2015. It was a reframed and scaled-up version of the original sub-component 1.3 (Establishment of demonstration Sites). Supported activities would include: the promotion of laser land leveling (LLL) and high efficiency irrigation systems (HEIS), training and capacity building for IAs and farmers in various agronomic practices and integrated pest management (IPM), demonstration sites to disseminate the range of improved water management and agronomic practices, and establishment of a farmers' information service center.

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

Project Cost. The total project cost was estimated at US\$41 million. This amount was initially revised downwards to US\$25 million in 2013, then upwards to US\$70 million in 2015 after the project received US\$45 million in additional financing (AF). The actual cost reported in the ICR (page 2) was US\$66.51 million.

Financing. The project was financed through a Grant worth US\$41.00 million through the Afghanistan Reconstruction Trust Fund (ARTF). The Project was restructured in May 2013 with a cancellation of US\$16 million revising the Grant from US\$41.00 million to US\$25.00 million. An AF for US\$45.00 million was approved in December 2015, increasing the grant from US\$25.00 million to a total of US\$70.00 million. The actual disbursed amount according to the ICR (page 2) was US\$66.51 million.

Borrower Contribution. The project was fully financed through the ARTF, and no contribution was expected from the borrower.



Dates. The project was approved on February 16, 2011 and became effective one month later on March 16, 2011. The Mid-Term Review (MTR) was conducted on February 6, 2013, about two years after effectiveness. The Grant Request Proposal did not include a specific date for the MTR. The project closed on December 31, 2019 compared to an original closing date on June 30, 2014. The extension was necessary to accommodate scaling-up the project activities after receiving US\$45 million of additional financing. The project was restructured four times, all of which were Level 2 restructuring as follows:

1. On May 1, 2013, when the amount disbursed was US\$6.86 million, in order to change the Results Framework, change components and associated costs, and cancel US\$16 million of the project financing.
2. On May 1, 2014, when the amount disbursed was US\$14.22 million, in order to extend the loan closing date by 18 months, from the original closing of June 30, 2014 to December 31, 2015.
3. On November 8, 2015, when the amount disbursed was US\$25.00 million, in order to extend the loan closing date by four years to December 31, 2019.
4. On 16 December 2015, when the amount disbursed was US\$25.00 million, the project received US\$45.00 million in additional financing, and changes were introduced to the Results Framework and components and associated costs.

3. Relevance of Objectives

Rationale

Context at Appraisal. Over 70% of Afghanistan's population lives in rural areas. The National Risk and Vulnerability Assessment (NRVA) 2007/08 data show that 36% and 6% of households rely on farming and farm wages, respectively, as their main source of income. Irrigated land area used to be 3.2 million ha. However, this decreased to 1.4-1.5 million of which only 10% is being irrigated using properly engineered systems. Further, a third of the irrigated land is not currently cultivated due to water constraints. The project aimed to reduce water loss in tertiary canals and support proper on-farm water management practices, which would contribute to improving agricultural productivity. It is also worth noting that at the time of appraisal the security situation was a major concern in the country.

At appraisal, objectives were in line with the Government's National Agriculture Development Framework (NADF) where Agriculture Production and Productivity was one among three other pillars. Irrigation development was included under the Agriculture Production and Productivity pillar. Objectives were also in line with the the Bank's Interim Strategy Note (ISM, FY09-FY11) for Afghanistan which under Pillar II (promoting growth of the rural economy and improving rural livelihoods) emphasized increasing agricultural productivity and improved social water management as two important components.



At completion, objectives were in line with the Bank's Country Partnership Framework (CPF, FY17-FY20) for Afghanistan. Specifically, under Pillar 2 (Supporting inclusive growth), Objective 2.4 (increased agricultural productivity) where increased agricultural productivity and increased access to irrigation services were emphasized. The ICR did not report on the relevance of objectives with regards to the borrower's priorities at completion.

The statement of objectives was clear, but could have benefited from a reference to the beneficiaries (for example: small holders, poor farmers in project areas). Also, the term "efficiency of water used" could have been more specific for example efficiency of irrigation water at the tertiary canal level. Finally, the statement lacked a connection to higher level objectives, namely, improved household food security and improved rural incomes.

Based on the above-mentioned assessment, Relevance of Objectives is rated Substantial.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To improve agricultural productivity in project areas by enhancing the efficiency of water used.

Rationale

Theory of Change (ToC). To address irrigation inefficiencies at the tertiary canal level, the project would provide technical assistance and investments for the rehabilitation of tertiary canal infrastructure. This would be complemented with supporting irrigation associations to manage the rehabilitated system. These activities were expected to result in increasing the area with improved irrigation combined with better management. The project would also provide demonstration sites for improved agricultural practices which would be complemented with extension activities. These activities would improve farmers' access to technologies for better water efficiency at the farm level. The project would also support capacity building activities to improve institutional capacity and sustain the project's achievements. All these activities combined were expected to enhance efficiency of the water used through increased conveyance speed and reduction of water losses. This would result in improved agricultural productivity. Longer term impacts include improved household food security and increased rural incomes.



The achievement of the PDO was underpinned by five assumptions: selected sites have water available with functioning secondary and primary canals, farmers are willing to form irrigation associations and share part of the cost, successful maintenance of the rehabilitated infrastructure, farmers adopt relevant technologies and practices, and favorable climate conditions and manageable pests during the production season. This Review would also emphasize that the security situation was a major factor that impacted implementation.

Overall, the ToC included activities that were directly linked to the PDO and the stated assumptions were logical.

Outputs

The outputs below were reported by the ICR (Annex 1) and targets are stated where available:

Improved agricultural productivity

- 743 km of watercourse was rehabilitated compared to an original target of 138 km (target exceeded by 438%).
- 648 irrigation associations were established and strengthened compared to an original target of 325 (target exceeded by 99%).
- 3,938 farmers received training/demos of on-farm water-saving techniques (original target: 4000, almost achieved).
- 408 ha of irrigation demonstration sites established including land leveling and advanced irrigation technology (original target: 120 ha, exceeded).
- 6 farmers' information centers built and operational (original target: 5, exceeded).
- 1,937 annual on-farm job created (original target: 592, exceeded).
- By 2019, the project had reached 382,700 beneficiaries (of which 187,500 women), well above (219%) the target of 120,000 beneficiaries (of which 60,000 women) (ICR, paragraph 33).

Enhancing the efficiency of water used

- Conveyance efficiency reached 80% compared to a baseline of 40% and an original target of 60% and a revised target of 65% (target exceeded).
- Conveyance duration was decreased by 64% compared to an original target of 40% and a revised target of 65% (almost achieved).
- Time to divert water to farmers' fields was decreased by 65% compared to an original target of 70% and a revised target of 65% (target achieved).
- 350 Ministry of Agriculture, Irrigation, and Livestock staff received training in water management and irrigated agriculture (target: 50, exceeded by 600%).
- Draft Law on Irrigation and Drainage was prepared and approved (target achieved).
- 4 staff were recruited to the Capacity Building for Results Facility based in the Irrigation Department (target: 46, not achieved).

Outcome



Assessing the outcome of this project is challenging because according to the ICR (paragraph 26) the reliability of the Results Framework is limited for three main reasons: "First, several of the defined indicators, baseline values, and set targets were kept vague or inconsistent after appraisal. Second, the reported periodic achievements were inconsistent across various sources and their data sources unclear. Third, the analysis of outcomes in the RF does not allow for a strong case for attribution." Due to the shortcomings of the RF, the ICR relied on a reanalysis of impacts that used more reliable baseline data collected in 2013. The reanalysis included control schemes as a counterfactual and estimated impacts by Grant closing in 2019."

Impact of the project activities on improving water efficiency. According to the ICR (Annex 1) as a result of the rehabilitation of tertiary canals, conveyance efficiency reached 80% compared to a baseline of 40% and an original target of 60% and a revised target of 65% (target exceeded). Also, conveyance duration was decreased by 64% compared to an original target of 40% and a revised target of 65% (almost achieved). Time to divert water to farmers' fields was decreased by 65% compared to an original target of 70% and a revised target of 65% (target achieved). While these results were encouraging, the ICR (paragraph 32) noted that "it is unclear how and when these indicators were evaluated", which cast doubt on the reliability and accuracy of the reported results. That said, the ICR (paragraph 32) confirmed that the key output of rehabilitating watercourses reached 743 km exceeding the 138 km target (about 400%). That said, an over-achievement of the target by 400% does raise questions about the reliability and accuracy of the reported results and/or about the realism and level of ambition of the target.

Total irrigated hectares reached 75,787 ha by 2019 which exceeded the target of 6 despite moderate shortcomings owing to questions about the quality of output and outcome data. 4,000 ha (by 18%). Water productivity increased by 17% compared to an ICR target of 20% and an appraisal target of 29%. The ICR (paragraph 31) explained that the target for water productivity was revised downwards to accommodate "adjustments to the baseline and end line values to make an accurate comparison."

Impact of the project on increasing agricultural productivity in project areas. Increasing agricultural productivity was expected to result mainly from improving water use efficiency. According to the ICR reanalysis, in 2019 wheat yield reached 3.44 tons per ha (t/ha) for the treatment group compared to 2.63 tons per ha for the control. Meanwhile yield at baseline in 2013 was recorded at 2.27 tons per ha for the treatment group and 2.08 tons per ha for the control. Using Difference-in-differences with the control group, the estimated impact of the project was 0.65 t/ha or 34% (relative to baseline for control group). These results are comparable to similar results cited in the ICR (Table 3) where the project impact evaluation report estimated the impact of the project at 0.50 t/ha or 18% (relative to baseline), and to the Geospatial Impact Evaluation by the College of William & Mary estimated the impact at 0.95 t/ha or 19% (relative to median). While the impact on wheat gain was positive, there was a lack of data on other crop yields or income gains through crop conversion (ICR, paragraph 30).

Based on the above-mentioned assessment, it is plausible to assume that improved water use efficiency directly contributed to improvements in agricultural productivity as measured by wheat yield in the project areas. That said, the targets on policy engagement and coordination were "either unachieved (such as the intermediate results indicator on the Capacity Building for Results Facility (CBR)-based staff recruited) or its achievement unclear given the lack of IRIs for other goals under policy engagement (ICR, paragraph 34)."

Overall, the efficacy of achieving the PDO is rated Substantial based on the ICR reanalysis, but with moderate shortcomings related to questions about the quality of output and outcome data.



Rating
Substantial

OVERALL EFFICACY

Rationale

The ICR reanalysis showed that wheat yields increased by 34% in project areas compared to control areas. It is plausible to assume that this increment was mainly a result of improved water conveyance from the rehabilitation of irrigation canals in the project areas. Therefore, the overall Efficacy is rated substantial despite some shortcomings, particularly concerning questions about the quality of the results data generated by a poor M&E system (see Section 9a,b).

Overall Efficacy Rating

Substantial

5. Efficiency

Economic and Financial Efficiency

ex ante

- The Grant Request Proposal included a cost-benefit analysis (CBA) that used wheat as an example. The CBA estimated that based on a 15% increase in wheat yields, an internal rate of return (IRR) would be 67% at the farm level and 34% at the project level.
- Wheat was used in the CBA because it was the dominant crop in the country and statistics were available compared to other crops where data was not available.
- Sensitivity analysis showed that with yield increases of 25% the IRRs would jump above 150% for the farm level and 70% for the project level. If the investment costs would be 25% higher than projected, the financial returns to the project would remain attractive, respectively 45% at the farm level and 25% at the project level.

ex post

- The ex-post efficiency analysis at project completion used a two-scenario cost-benefit analysis (CBA). First, a conservative scenario that accounted for costs across all components, the Economic Net Present Value (ENPV) was \$51.8 million and the Economic Rate of Return (ERR) was 20.7%. Second, a less conservative scenario that accounted for costs under component 1 only, estimated that economic net



present value (ENPV) was \$56.9 million and the economic rate of return (ERR) was 21.9%. The CBA was conducted over a 20-year period, with a discount rate of 12%.

- The quantified benefits focused on agricultural production gains (and reductions in cost of production) which resulted from higher crop yields and more land coming under cultivation (including an increase in irrigated area). These benefits resulted from activities, outputs, and outcomes in component 1. Other benefits from components 2 and 3 were excluded.
- A sensitivity analysis showed that under a relatively conservative scenario a decrease in benefits of 10% resulted in an ERR of 19.4%, whereas under a less conservative scenario, the same decrease resulted in an ERR of 20.4%.
- According to the ICR (paragraph 38) the project's ERR was comparable to other projects in Afghanistan, for example, "the ex-ante ERR for irrigation under the National Solidarity Program III (NSP III) was 22%."
- While the ERR of 20.7% at completion was higher than the opportunity cost of capital, it was lower than the ERR of 28% estimated at the Additional Financing (AF) in 2015. The annual average cost per ha (the sum of costs for Components 1 and 3) decreased from US\$919 between 2013-2015 to \$553 between 2017-2019. However, the increase in time and finance was disproportionately higher than the increase in scale granted at AF. Financing increased by 70% (from US\$41 million to US\$70 million while scale increased by only 22% (from 52,500 ha to 64,000 ha). The ICR (paragraph 39) attributed this increase in cost to the deteriorating security situation and the fragile context of the country.
- According to the ICR (paragraph 96) "the ex post results and AF results are not comparable with the EFA results at either appraisal or restructuring due to substantial differences in methodology."

Administrative and Institutional Efficiency

The project closing date was extended twice to a total of 5.5 years. This extension was necessary to accommodate the scale-up of project activities following the Additional Financing. The project experienced significant delays in rehabilitation activities, which would result in delays in materializing project benefits. There were also delays in collecting M&E data. The lack of M&E data could potentially impact management decisions and contribute to implementation delays. There were also implementation delays that stemmed from the lack of access to rural areas in the country (ICR, paragraph 64). While component 3 (project management) was the only component to exceed its spending with 23.5% of total disbursements, it was "lower than administrative costs for other projects in this FCV context (ICR, paragraph 40)."

Overall Efficiency is rated Substantial despite some weaknesses at the administrative level. This rating reflects a relatively high ex post ERR compared to the opportunity cost of capital, and the achievement of most targets within budget. That said, this Review raises concern on the quality of data, particularly for benefits, used for the ex post EFA given the poor M&E of the project (See detailed concerns raised about data quality in Sections 4 and 9).

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	✓	34.00	0 <input checked="" type="checkbox"/> Not Applicable
ICR Estimate	✓	20.70	0 <input checked="" type="checkbox"/> Not Applicable

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

6. Outcome

Relevance of Objectives was rated Substantial. Overall Efficacy was rated Substantial despite some questions raised about the quality of the M&E data on results. The ICR reanalysis showed that wheat yields increased by 34% in project areas compared to control areas. This increment was mainly a result of improved water conveyance from the rehabilitation of irrigation canals in the project areas. Efficiency was rated Substantial despite some weaknesses at the administrative level and the same questions regarding data quality that pertain to Efficacy.

Overall, despite frustrating limitations in the quality of data, the Outcome rating is Satisfactory.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

The ICR (paragraphs 77 & 78) discussed three main risks that could potentially impact the development outcome:

1. Political risk and weak government ownership of project activities. The project staff failed to integrate into the Ministry of Agriculture, Irrigation, and Livestock/Irrigation Department. This raises concern whether the project interventions can be sustained and scaled up. Also, there are concerns regarding the intra- and inter-ministry coordination. Lack of coordination could negatively impact productivity if complementary investments in agricultural productivity and sustainability of water availability were to be affected in project areas. Finally, the policy reforms supported by the project are important to sustain the outcomes by creating strong and accountable institutions.

2. Security. The deteriorating security situation in the country could undermine the achievements of the project as the rehabilitated works would fall into neglect and irrigation associations might cease to exist.



Functional irrigation associations are critical to overlook operation and maintenance of the rehabilitated works.

3. Climate risk and COVID-19. The worsening climate risks and the recent COVID-19 pandemic pose a serious challenge to sustaining the progress made on productivity, food production, and food security.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project aimed to develop tertiary canals (watercourses) in medium and large scale projects which had their main infrastructure rehabilitated under the Bank-funded Emergency Irrigation Rehabilitation Project (EIRP). This would maximize returns of these irrigation investments as there is need to rehabilitate tertiary canals taking water to the farms and improve on-farm water management. The project design benefited from the experience of other irrigation projects in Afghanistan, namely the Bank-funded Emergency Irrigation Rehabilitation Project (EIRP) for lessons on improvement of physical irrigation infrastructure and the National Solidarity Program (NSP) for lessons on social mobilization and institution building. The project also benefited from a simple design that featured the rehabilitation of tertiary canals combined with capacity building to develop irrigation associations to manage the system. Design also supported approaches to improve on-farm water management through demonstrations and farmers training. That said, design could have benefited from more details on the training activities under the second component. Design also suffered from a disconnect between the broad scale of the project objective and the pilot nature of the project (ICR, paragraph 49).

Five main risks were identified at the preparation stage, with an overall rating of Substantial. Notable risks identified included: the absence of experience on the project-supported activities which were new to the country, low overall capacity of ID/MAIL, and high capacity needs for coordination. The Grant Preparation Proposal included relevant risk mitigation measures. However, the ICR did not discuss which risk(s) materialized and whether the recommended mitigation measure(s) worked. M&E design was adequate, but there were minor shortcomings (see section 9 for more details).

Overall Quality at Entry is rated Moderately Satisfactory. This rating reflects moderate design shortcomings including a notable disconnect between the scale of the objective and the pilot nature of the project envisioned at the design stage.

Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

The project was implemented under a worsening security situation and considerable implementation challenges (ICR, paragraph 64). The Bank conducted the last mission with field visits in September 2013. By July 2014, field visits were cancelled due to security concerns, and project supervision relied on non-



PIU Third-Party Monitoring (TPM). According to the ICR (paragraph 75) the "Bank was proactive in supporting necessary and timely adjustments to the project candid and clear in reporting on project performance, and diligent in monitoring fiduciary and safeguard compliance." However, the Bank supervision suffered from moderate shortcomings, most notable was the lack of oversight over M&E implementation (see section 9 b for more details). While a policy agenda was added under component 2 in the 2015 AF, it did not support the PDO, and lacked relevant indicators to track outputs and outcomes (ICR, paragraph 75). Finally, there were poor transition arrangements (such as the failure to integrate the project staff in MAIL/ID) which is a concern for sustainability. That said, the ICR (paragraph 75) noted that this was beyond the control of the Bank.

Quality of Supervision is rated Moderately Satisfactory. This rating reflects moderate supervision shortcomings, most notable was the lack of oversight over M&E implementation.

Bank Performance is rated Moderately Satisfactory which reflects moderate shortcomings for both the Quality at Entry and the Quality of Supervision.

Quality of Supervision Rating

Moderately Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The Grant Proposal Agreement (GPA) did not include a Theory of Change (ToC) as it was not mandated at appraisal. Nonetheless, the ICR (page 6) included one which reflected the relation between the planned project activities, outputs, outcomes and long-term impacts. The PDO was to be assessed through three project outcome indicators: land productivity of wheat and other crops, water productivity of wheat and other crops and the increase in irrigated area. The ICR (paragraph 7) correctly pointed out that the achievement of the first outcome was dependent on achieving the second outcome since water availability and water losses were the main constraints to improving productivity. While these indicators were relevant and directly linked to the PDO, "the source for baseline values was sometimes unclear, such as for land and water productivity (ICR, paragraph 65)." Also, set targets were inconsistent after appraisal. Also, assessing water productivity is complex and proved to be challenging in Afghanistan. The RF included ten intermediate outcome indicators to assess the achievement of the different activities supported by the project. These intermediate outcome indicators were relevant, measurable and linked to the stated activities. A notable shortcoming was the lack of an intermediate outcome indicator to measure adoption of new technologies promoted by the project. The ICR (paragraph 65) reported that the project implementation plan "did not detail sampling, data collection, or analysis methods, but it specified involvement of an external M&E agency in collecting baseline, midterm, and end-line data."



While M&E design was adequate, it was undermined by the questionable baseline data.

b. M&E Implementation

Implementation benefited from a Management Information System (MIS) that tracked outputs and gauged implementation progress. The baseline survey was only completed in May 2013 by an external M&E agency. The measurement, reporting, and evaluation of outcomes was poor. According to the ICR (paragraph 67) "follow-up data was collected in-house where capacity was weak, thereby putting into question the soundness of the data collection and analysis methodologies, as well as its independence." A notable shortcoming was that land and productivity targets were only measured for wheat, and did not include other crops as envisaged. The Mid-Term survey was never conducted, and no information on the achievement of outcomes was available until the end-line survey was conducted in 2018 and 2019 (ICR, paragraph 55).

Revision of the RF after the 2015 AF. The original three PDO indicators, land productivity, water productivity, and irrigated area remained unchanged, but their targets were slightly revised upwards to reflect scale-up of activities. Also, four new intermediate outcome indicators were added to the RF (Annual farm jobs created; Number of farmer information centers built and operational; Preparation of a draft Law on Irrigation and Drainage; and Recruitment of CBR based staff in the irrigation department), and four indicators added in 2013 were dropped (Number of training sessions provided to each irrigation association each year; Associated command area covered; Number and type of water saving measures demonstrated; and Number of farmers adopting the demonstrated measures). A questionable modification was dropping the intermediate indicator measuring the adoption of new technologies, because this meant that the project would not track any adoption rates.

Overall implementation was poor and the soundness of the data collected was questionable.

c. M&E Utilization

According to the ICR (paragraph 68) "poor measurement, reporting, and evaluation of outcomes meant that such information could not be used to aid management and decision-making." That said, output data was reliable enough to be used by the project management to up scale the project in 2015. The late availability of data on achievements of outcomes meant that the project could not make evidence-based decisions on whether and by how much to change outcome targets.

Overall M&E Quality is rated Modest. This rating reflects moderate design shortcomings, poor implementation and limited utilization.

M&E Quality Rating

Modest

10. Other Issues



a. Safeguards

The project was classified as environmental category B. Four safeguard policies were triggered: Environmental Assessment (OP/BP 4.01), Pest Management (OP/BP 4.09) Involuntary Resettlement (OP/BP 4.12), and Projects on International Waterways (OP/BP 7.50). The social and environmental impacts of the project were expected to be small and overall positive. An Environmental and Social Management Framework (ESMF) for the project was developed, building upon the generic safeguard framework developed and used for emergency operations in Afghanistan. The ESMF summary in English was sent to the World Bank's Infoshop on November 12, 2011, and a revised ESMF at AF was disclosed in September 2015. Although OP/BP 7.50 was triggered, no notification to other riparian countries was required because the activities were rehabilitation works that did not result in exceeding the scope of the original scheme.

Compliance with Environmental and Social Safeguards. According to the ICR (paragraph 71) "environmental and social safeguards were satisfactorily complied with." The project conducted regular monitoring to ensure that contractors followed the approved Environmental and Social Management Plan and complied with environmental and social requirements. However, the project did not provide adequate reports on Occupational Health and Safety (OHS) management. A Grievances Redress Mechanism (GRM) was established and a total of 345 grievances were registered and resolved.

b. Fiduciary Compliance

Financial Management (FM). Quarterly Interim unaudited Financial Reports were filed on time. The project addressed the observations of internal and external audit reports and shared evidence with the Bank. Two fiduciary issues were flagged: First, asset management remained a constant observation. Second, the project deducted a cumulative amount of US\$ 122,143.73 as liquidated damages from the contractor from project inception until January 2018 and deposited this amount in MAIL Revenue Account. According to the ICR (paragraph 72), "Financial management gaps on asset management and liquidated damages were resolved."

Procurement. Procurement of works and goods were all successfully awarded/completed with no outstanding issues. However, two procurement issues remain outstanding, first, the procurement plan continues to be outdated, and second, two procurement staff had their employment terminated without any reason (ICR, paragraph 73).

c. Unintended impacts (Positive or Negative)

d. Other



11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Modest	Modest	
Quality of ICR	---	Substantial	

12. Lessons

The ICR included seven lessons. The following three are emphasized with some adaptation of language:

- **To ensure achieving maximum benefits to farmers, projects involving irrigation scheme rehabilitation need to be complimented with on-farm technical support and investments.** The project experience showed that integrating complementary non-rehabilitation interventions will help ensure that the benefits of scheme rehabilitation are maximized, sustained, and distributed more equitably within communities.
- **M&E design needs to be oriented towards measuring and evaluating outcomes to provide a comprehensive assessment of the project achievements.** The project's M&E system was heavily focused on outputs tracking, which introduced unnecessary complexities. For example, the project faced difficulties in measuring complex variables such as water productivity and income changes from crop conversion.
- **Coordination between public institutions needs adequate incentives to ensure smooth cooperation in projects that involve irrigation and agriculture components.** The project experience showed that the public sector coordination on irrigation and agriculture was problematic. There were efforts to encourage inter-ministry coordination across the Ministry of Agriculture, Irrigation, and Livestock, Ministry of Energy and Water and Ministry of Rural Rehabilitation and Development (via engagement on policy development and reform) as well as intra-ministry coordination between the Irrigation Directorate and Directorate General of Agriculture Extension and Development. However, these efforts were futile or fleeting.

13. Assessment Recommended?

No

14. Comments on Quality of ICR



Quality of Evidence. The ICR acknowledged that M&E design had shortcomings and implementation was poor. The ICR relied on a reanalysis at completion to assess the project achievements.

Quality of Analysis. The ICR provided clear linking between evidence and findings to the extent possible - given the M&E weaknesses. However, the soundness of the project's M&E data is questionable.

Lessons were generally based on evidence and analysis, and reflected the project experience.

Results Orientation. The ICR included a good discussion on outcomes despite concerns on the accuracy of the M&E data.

Internal Consistency. Various parts of the ICR were internally consistent and logically linked and integrated.

Consistency with guidelines. The ICR used the available data-to the extent possible to justify the assigned ratings. Discussion of outcomes was thorough, and the efficiency analysis was reasonable.

Conciseness. The ICR was well written and provided thorough coverage of the implementation experience and candidly reported on shortcomings. There was enough clarity in the report's messaging. The outputs in Annex 1 lacked targets, and the ICR could have discussed whether the recommended risk mitigation measures worked.

Overall, the Quality of the ICR is rated Substantial despite some minor shortcomings.

a. Quality of ICR Rating
Substantial