



## 1. Project Data

<b>Project ID</b> P158576	<b>Project Name</b> ZIRMIP	
<b>Country</b> Tajikistan	<b>Practice Area(Lead)</b> Water	
<b>L/C/TF Number(s)</b> TF-A6507	<b>Closing Date (Original)</b> 31-Dec-2020	<b>Total Project Cost (USD)</b> 15,779,998.15
<b>Bank Approval Date</b> 05-Jan-2018	<b>Closing Date (Actual)</b> 30-Jun-2021	
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment	16,567,309.20	16,567,309.20
Revised Commitment	16,211,289.53	16,566,622.43
Actual	15,779,998.15	15,779,998.15

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## 2. Project Objectives and Components

### a. Objectives

The Project Development Objectives (PDOs) were “(i) to strengthen the institutional basis for irrigation planning and management in the Zarafshon River Basin; and (ii) to improve the condition and management of irrigation infrastructure in the Zarafshon River Basin and adjacent districts in the **Syr-Darya Basin**” (Grant Agreement, page 5). The PDOs in the Project Appraisal Document were the same as those in the Grant Agreement.



b. **Were the project objectives/key associated outcome targets revised during implementation?**  
No

c. **Will a split evaluation be undertaken?**  
No

d. **Components**

The project had three components:

**1. Rehabilitation of Irrigation Infrastructure (Appraisal Amount: US\$11.91 million, Actual: US\$10.77 million).** This component provided scheme-based rehabilitation of irrigation infrastructure and key flood protection works. The emphasis of renovation was at the main systems level. In parallel, the component included a number of feasibility studies for improvement and modernization of irrigation schemes and strengthening of capacity of the Agency of Land Reclamation and Irrigation (ALRI) in responding to floods and mudflows.

**2. Development and Strengthening of Irrigation and Water Resources Management Institutions (Appraisal Amount: US\$3.52 million, Actual: US\$3.88 million).** This component financed the assistance to the Ministry of Energy and Water Resources (MEWR), ALRI, and other relevant institutions to support irrigation reforms, following the integrated water resource management (IWRM) principles. Three principles guided the design and implementation of Component 2: (a) water management at all levels should be organized in accordance with hydrologic or hydraulic boundaries, (b) a three-part management structure should be established to manage irrigation water in the basin, and (c) the irrigation main system should be operated on a volumetric basis to include measured deliveries to all water user associations (WUAs).

**3. Project Management (Appraisal Amount: US\$1.13 million, Actual: US\$0.99 million).** The existing Project Management Unit (PMU), established under the World Bank-financed Ferghana Valley Water Resource Management Project (FVWRMP), and Public Employment for Sustainable Agriculture and Water Resources Management Project (PAMP) II, was the main implementing agency. It was responsible for implementation and coordination; financial management (FM) and procurement; communication and awareness programs; environmental management and safeguards; monitoring and evaluation; and reporting to the Government of Tajikistan (GoT), European Union (EU) Rural Development Steering Committee, and the World Bank. This component was also responsible for the design, implementation, analysis, and reporting of the baseline and project completion surveys.

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

**Cost:** The project cost planned at appraisal was US\$16.2 million, and the actual cost at closing was US\$15.8 million (98 percent of the planned amount).

**Financing:** The Project was financed by the European Union (TF-A6507) and was part of a larger country engagement of the European Union under the Rural Development Program (RDP). There was no borrower contribution.



**Dates:** The project was approved by the Board on January 5, 2018 and became effective about four months later on May 7, 2018. The original closing date of December 31, 2020 was extended for six months to June 30, 2021, for continued support to the institutional activities.

**Restructuring:** The project went through a level II restructuring on December 15, 2020 to extend the closing date from December 31, 2020, to June 30, 2021, to ensure continued support to the Project's institutional activities and also to ensure continuity of the PMU staffing going into the preparation period for the new investment project, the Strengthening Water and Irrigation Management Project (SWIM, P175356).

### 3. Relevance of Objectives

#### Rationale

The project was highly relevant to the priorities and strategies of the government and the World Bank.

Country and Sector Context: Tajikistan is the smallest and poorest of the Central Asian countries. Agriculture plays a key role in its economy with about 20 percent of GDP and 53 percent of employment. The sector grew in response to structural reforms (farm privatization, liberalization of the domestic market for cotton, the reduction of local government interference in farmer decisions, and increasing commercialization of agriculture), with annual growth averaging 6 percent from 2010 to 2016 in real terms. Continued agriculture sector growth is critical for poverty reduction, as 77 percent of Tajikistan's poor live in rural areas (ICR, page 5). Out of the total cultivated area of 875,000 hectares (ha), approximately 85 percent was developed for irrigated agriculture, which accounts for more than 90 percent of agriculture crop production in Tajikistan. However, the value of output produced per cubic meter of irrigation water remains constrained due to irrigation inefficiency and low-quality irrigation services (unreliable water supply, limited capacity to irrigate in dry periods, frequent flash flood damages to irrigation infrastructure, insufficient protection of croplands from flood inundation and erosion, etc.) causing stressed water resources for many rural communities. This also poses serious impediments to farmers seeking to raise yields and shift to higher-value crops resulting in food insecurity. Regular maintenance of secondary and tertiary canals ceased in many areas due to ill-defined property rights over this infrastructure and weak development of water user associations (WUAs). At the river basin level, water management and delivery are compromised by a disjointed water allocation system, the lack of comprehensive basin-wide planning, the absence of a regular system to deal with water supply shortfalls, and inadequate funding for flood protection works.

Relevance to Government Priorities and Strategies: To address these issues, the Government took certain steps: (a) Presidential Decree No. 12 of November 2013, provided the legal basis for reform; (b) establishment of the Ministry of Energy and Water Resources (MEWR) by combining parts of the former Ministries of Land Reclamation and Water Resources and Energy; and (c) approval of the Water Sector Reform Program for 2016–2025 in December 2015. However, the Agency for Land Reclamation and Irrigation (ALRI) and WUAs needed capacity building, budget resources, complemented by an adequate legal base and law enforcement.

Relevance to World Bank Strategies: The World Bank has been active in irrigation and water resources management through the Public Employment for Sustainable Agriculture and Water Resources Management Project (PAMP) (P119690), Tajikistan Second Public Employment for Sustainable Agriculture and Water Resources Management Project (PAMP II) (P133327), and Tajikistan Agricultural



Commercialization Project (P132652). The Project was built on the lessons drawn from these previous projects. At appraisal, the Project was also aligned with the Country Partnership Strategy for Tajikistan for FY15–FY18. At closure, the PDO remained relevant to the Country Partnership Framework (FY19–23), particularly the Pillars II and III (i.e., Improving Public Institutions and Environmental Sustainability-Increasing Efficiency in Water Sector; and Fostering Private Sector Growth and Market Creation-Supporting Infrastructure).

## Rating

High

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

Strengthen the institutional base for irrigation planning and management in Zarafshon river basin.

#### Rationale

The PAD did not include a TOC but the ICR prepared a sound TOC (ICR, page 7-8) for PDO1. Accordingly, this objective was achieved through the activities conducted under Component 2 (Development and Strengthening of Irrigation and Water Resources Management Institutions), which comprises three subcomponents: Subcomponent IIa: Irrigation Main System and River Basin Management: Support to ALRI and MEWR, Subcomponent IIb: Local Level Irrigation System Management: Support for WUAs, and Subcomponent IIc: Renovation and Equipping of Ancillary Structures. The ICR noted that, the development and strengthening of irrigation and water resources management institutions would result in an increase in the proportion of WUAs functioning in accordance with their roles and responsibilities agreed upon in their charters and an increase in irrigated area covered by volumetric main system management in the long term. The ICR also mentioned that capacities at the central and local/basin level would be increased by improved planning and irrigation management data system and bilateral agreements to create the bases for more efficient and integrated water management and strengthened governance framework in the selected basin and a model for the operationalization of the Government's water sector reform.

The PDO indicators that measured the achievement of PDO1 are PDO indicator 1 (proportion of WUAs functioning in accordance with their roles and responsibilities agreed upon in their charters) and PDO indicator 2 (irrigated area covered by volumetric main system management). However, no PDO indicator monitored improvements in the basin level integrated water resources management (IWRM).

#### Outputs:

##### Irrigation Main System and River Basin Management: Support to ALRI and MEWR:

- Restructuring of the ALRI operations in Zarafshon River Basin (ZRB) along hydraulic boundaries. Based on the delineated hydraulic boundaries, the state departments for irrigation in Panjakent and



Ayni were merged into a basin organization for ZRB (State Department for Land Reclamation and Irrigation [SDLRI]) effective January 1, 2020. The new charter and organizational structure prepared in line with IWRM principles were developed and adopted by the ALRI, staff were hired, and basic budget estimates were prepared to ensure financial viability of the organization. The new organization included a management office and five hydrographic operational sections and a mobile repair and service base. Skills of the SDLRI personnel to manage the main systems were improved through implementation of a volumetric method for calculating water delivery through main canals to the irrigation system of WUAs. The capacity of specialists was also improved through a training program. From the water management perspective, this merger has taken place given the hydrological boundaries in full alignment with the river basin management approach being rolled out across key river basins in Tajikistan.

- Bilateral water supply agreements (between WUA-WUA members and WUA-ALRI) were signed clarifying and institutionalizing the roles of key stakeholders. The SDLRI's role was eased (by having to only sign bulk water supply agreements with fewer WUAs) while giving greater visibility and management to WUAs (in relation to communication with WUA members). However, contractual elements on debt accumulation (especially, in the wake of upcoming increases in electricity prices by end 2021 and legal actions against WUAs and liabilities (for potentially not supplying sufficient volumes of water) were left out in the bilateral agreements.
- Trainings: Three workshops and 15 trainings were conducted—10 for SDLRI and 5 for WUAs—on various aspects of irrigation management. In total, 115 participants benefited from the trainings against the final target of 100 due to high demand received by the PMU for trainings. According to the surveys conducted before and after the training, the level of knowledge and skills of participants increased from 18–33 percent to 50–65 percent.
- Irrigation Management Information System (IMIS) and Water Accounting Database (WAD) were developed and supported the National Water Information System (NWIS). The PAMP II project had supported the establishment of the country's first NWIS. The Project provided the ALRI offices with both hardware and software and supported the expansion of the ZRB coverage by IMIS. The geospatial component of IMIS and WAD were finalized, and the river basin management plan data were integrated with real-time data from hydro posts within the revamped GIS-based geoportal capable of producing reports covering real-time data around river water level and water consumption. All the irrigated areas under the Project were covered by the GIS-based inventory of irrigation systems and hydraulic structures.
- A new accounting software was adopted for computerization of accounting in the SDLRI of ZRB. The new software was installed in mid-August 2020, followed by theoretical and practical trainings for 10 days. Five permanent employees of the accounting department and three specialists from other departments of the SDLRI of ZRB participated in the trainings.

#### Establishing and Increasing Capacity of WUAs:

- Based on the reorganization of WUAs, the number of WUAs decreased from 62 to 24. A total of 1,243 participants, representing the 24 WUAs, attended the training covering the following topics: water accounting operation and monitoring of systems, WUA law, finance and accounting, installation of water measuring devices on on-farm irrigation systems of WUAs, fundraising in WUAs, and irrigation water use plans. Within the scope of the technical support provided for increasing capacity of WUAs, 16 office buildings were built in the cities of Panjakent, Shahrison, Devashtich, and Ayni. Additionally, eight existing office buildings were renovated in the Panjakent district and surrounding landscapes were improved. The WUA charters, in line with the Law on WUAs, elaborated the role and



responsibilities of WUAs including participation in the management and rehabilitation of irrigation systems, collection of membership fees and payments, monitoring of water use and tracking of grievances. According to the end line survey, all WUAs complied with the new law and had an independent executive director and audit and grievance committees, and undertook public hearings on annual reports and approved budgets—all contributing to greater transparency and trust among WUA members.

- A total of 24,730 ha of irrigated area was served by strengthened WUAs against a target of 25,000 ha in the Results Framework.

### **Outcomes:**

The percentage of WUAs functioning in accordance with their roles and responsibilities agreed upon their charters (PDO indicator 1) increased from 40 percent (baseline) to 100 percent (meeting the target). This was defined as the share of WUAs meeting at least 60 percent of the 14 key indicators that included: training, crop planning, participation in irrigation rehabilitation planning, irrigation scheduling, definition of service area, tracking of grievances, water volume tracking, issuance of receipts for WUA membership, preparation of minutes of the meetings, issuance of receipts for irrigation water, WUA membership fee tracking, irrigation water payment tracking, Annual General Meetings, and tracking of WUA membership. The share of paying WUA members also increased and reached 93 percent in 2021, up from 53 percent in 2018. This occurred despite increasing the average fees from around TJS 100 in 2018 to over TJS 250, mainly driven by the shift to water consumption-based fees from a more common area-based membership fee (per ha of land). This also showcases the value that household farms attach to better and timely supply of water.

PDO indicator 2 (irrigated area covered by volumetric main system management) was partially achieved with 80 percent of the target value reached (irrigated area covered by volumetric main system management was 16,651 ha, below the target of 21,000 ha). Out of the 14 WUAs in ZRB supported under the Project, 10 WUAs, which have a contract with ALRI, are part of the billing system. The remaining WUAs operate autonomously, receiving water directly from the river. A physical network of water measurement devices was built, including automated flow measurement devices, WUA-border (in/out) gates, to help move all stakeholders toward evidence-based volumetric-based water tracking. However, some WUAs were slow to adopt the volumetric billing system; this stemmed from the delays in data collection and 'synchronization' with actual data from automated devices because of the need to frequently charge batteries and connect to the internet. Lower-than-expected results for this indicator can also be attributed to the unrealistic target set during preparation, which did not fully reflect the geographic conditions in some districts (villages in mountainous areas have their own autonomous water withdrawal points), the areas served by these did not contribute to an increase in the irrigated area covered by the volumetric main system. Additionally, in some cases, measurement structures were installed at discharge, not inflow, points, resulting in underachievement of this PDO indicator.

Piloting volumetric-based billing system brought initial positive results both in terms of collection rates and easing of the burden for WUAs in collecting and recording payments. It has also enabled WUAs to respond to the farmers' needs. According to the household survey conducted at the end of the Project, of those respondents who have used the billing system to pay for their irrigation water, four out of five respondents stated that they have found it useful. These improvements in the billing system not only influenced water management plans at the WUA level but also reinforced WUAs in demanding water and ensured that the ALRI is responsible for water delivery.



While the ICR did not provide any results on integrated water resources management, volumetric water measurement is an important step towards that. There are also remaining challenges in terms of debt accumulation, legal actions against WUAs and liabilities that needs to be dealt in the follow-on project. However, due to the significant amount of work and results achieved by the project in terms of building institutional capacity for irrigation planning and management, the achievement of the objective is rated substantial.

## **Rating**

Substantial

## **OBJECTIVE 2**

### **Objective**

Improve the condition and management of irrigation infrastructure in Zarafshon river basin and adjacent districts in Syr-Darya basin.

### **Rationale**

#### **Theory of Change:**

The TOC lacked some key outcomes regarding the achievement of PDO 2. The Project implemented a public works program for manual cleaning and a larger-scale rehabilitation program, intended to improve the irrigation infrastructure. The ICR linked this output directly to increased yields, missing the irrigation efficiency and service delivery related outcomes that are directly relevant, thus more appropriate to measure the achievement of the PDO. As a result of improved irrigation infrastructure, one would expect first increased efficiency of irrigation infrastructure (increased water savings during conveyance) and improved water service delivery (i.e., increased adequacy,- reliability and timeliness of irrigation water). The TOC did not include these key aspects and the PDO indicators did not measure these outcomes. On the other hand, the yield outcome is a higher-level result that is impacted by improved irrigation but also many other factors such as weather and adoption of improved technologies and provision of inputs to farmers, thus there is an issue in attributing yield increases 100 percent to the rehabilitation of irrigation infrastructure activities.

The PDO indicators were: area served by improved irrigation infrastructure, which is an output level indicator, and increased yield for selected cereal and food crops on rehabilitated irrigation land, which is a higher level impact as mentioned above

### **Outputs**

- Total length of irrigation canals rehabilitated was 1,162 km, exceeding the target of 1,100 km
- Length of irrigation canals rehabilitated manually was 1,031 km. exceeding the target of 985 km.
- Length of irrigation canals rehabilitated mechanically was 131 km. exceeding the target of 115 km.
- Major hydraulic control, conveyance and protection structures rehabilitated was 118 km, exceeding the target of 115 km.
- 14 pumping stations were installed, exceeding the target of 10.
- 20 vertical tube wells were constructed, which was less than the target of 28 (71 %).
- 52 canal systems and structures were rehabilitated/ constructed, which was less than the target of 58 (90 %).



- 4 pipeline systems were installed/rehabilitated, which was less than the target of 5 (80 %).
- 25 flow measurement device sets were installed significantly exceeding the target of 10 device sets.
- 3 river bank protection sections were rehabilitated, less than the target of 4 sections.
- 529 flow control gates were installed /rehabilitated, exceeding the target of 500 gates.
- 100 percent of the irrigated area was covered by GIS based inventory of irrigation systems and hydraulic structures, meeting the target.
- 115 staff of ALRI and WUAs were trained on water measurement and volume based service contracting, exceeding the target of 100 people.
- Irrigated area covered by strengthened WUAs was 24,730 ha, which was slightly less than the target of 25,000 ha.
- Direct beneficiaries of public works program was 3,737, exceeding the target of 3,500 people.
- Female beneficiaries of the public works program was 1,038, exceeding the target of 700 people.

### Outcomes:

The area served by improved irrigation infrastructure increased to 29,716 ha, less than the target of 30,000 ha, through the activities conducted under Component 1 of the Project.

The area-weighted crop yield increase across the three major food crops (wheat/cereals, potatoes, vegetables) was 19.5 percent, above the PDO target increase of 10 percent. The ICR reported that the “without project” yield was based on average crop yield statistics for five districts. Total production of key food crops across districts where the project took place increased from 15 percent (wheat/cereals) to 36 percent (vegetables) with an average increase across food crop categories of 26 percent. Crop patterns changed with significant reductions in the area under wheat/cereals and significant increases in the areas under potatoes and vegetables.

The project achieved or exceeded its targets on all of its indicators, but there was no clear evidence on how much of the yield increase was attributable to the project’s irrigation rehabilitation improvements, as input and technology adoption also plays a significant role. In addition, in the absence of a robust impact evaluation, the yield increases were questionable particularly for the “without project” areas. The ICR did not provide information on irrigation efficiency for the rehabilitated infrastructure or irrigation water adequacy, reliability and/or equity for project beneficiaries, which are directly relevant to the PDO and the project activities. However, the ICR mentioned that the increased payment levels by jamoats for irrigation water (as mentioned in the previous objective), shows the value the farms attach to the level and timeliness of water. Nevertheless, due to lack of concrete data on key outcomes, the achievement of this objective is rated **modest**.

**Rating**  
Modest

## OVERALL EFFICACY

### Rationale





The achievement of the first objective is rated substantial, and achievement of the second objective is rated modest due to lack of concrete evidence on key outcomes. Given the preponderance of output targets that were exceeded or met, and the yield increases (albeit with unclear attribution), the overall efficacy is rated substantial on balance.

### Overall Efficacy Rating

Substantial

## 5. Efficiency

**Economic Efficiency:** According to the ex-ante economic analysis conducted during appraisal stage, the NPV was US\$7.1 million (at a discount rate of 10 percent over 15 years) and the EIRR was 22 percent. Due to lack of data during appraisal, the agronomic benefits from both existing and newly irrigated areas were assumed to be due only to the fixed 10 percent increase in the yields of each considered crop, and no other benefits were assumed. The ex-post analysis applied a similar methodology but improved the valuation of incremental benefits by (i) using the available statistics data (five project districts for 2016–2020) as a baseline; and (ii) including the benefits from the changes in crop patterns and crop rotation as a result of better irrigation, in addition to using the actual crop yields in project areas. Thus, the incremental benefits in terms of increased agricultural production and income in response to the improved access to irrigation for an area of 29,716 ha, generated an economic net present value (ENPV) of US\$24.18 million (US\$814 per ha) at a discount rate of 10 percent over 15 years. The economic internal rate of return (EIRR) is 49.65 percent.

The sensitivity analysis showed that project benefits were robust against adverse changes to costs and benefits. Among all the variables (i.e., crop yields, area benefiting from improved cropping, crop prices and input prices), the most sensitive variable is the output price, as a 34 percent change in it would switch the positive result (the remaining variables are less sensitive as higher changes for them are needed to switch the result). The range of potential impacts varies from an internal rate of return (IRR) of 10.42 percent (in a case of a 15 percent cumulative negative change in all main variables) to an IRR of 90.83 percent. There was also one percent cost savings during the implementation of the project.

**Administrative and Operational Efficiency:** There were no substantial administrative and/or operational inefficiencies reported by the ICR. The project closing date was extended for six months to allow for smooth transition to the next investment project.

While there are questions on the accuracy of yield data as there was no impact evaluation, the sensitivity analysis showed that the economic rate of return was quite robust to various changes. In addition, there were no administrative / operational inefficiencies. Thus, the efficiency of the project is rated substantial.

### Efficiency Rating

Substantial



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

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	100.00	22.00 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	100.00	49.70 <input type="checkbox"/> Not Applicable

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

## 6. Outcome

The project’s objective is **highly** relevant to the strategies of the World Bank and the Government both at appraisal and at closing. The Efficacy in achieving the development objective is rated substantial on balance based on the evidence on improving the institutional basis for irrigation planning and management, although the objective of improving condition and management of irrigation infrastructure could be better measured via irrigation efficiency and service delivery indicators. Efficiency is rated **substantial** based on the project’s economic internal rates of return, and operational/administrative efficiency. Based on these three sub-ratings, the project’s overall outcome is rated **satisfactory**.

### a. Outcome Rating

Satisfactory

## 7. Risk to Development Outcome

There are several risks identified by the ICR that may impact the sustainability of development outcomes.

**Institutional:** The National Water Code adopted in February 2020, already defines the legal framework and requires the adoption of additional by-laws and further regulations, which would provide the institutional environment for sustainability of the outcomes. Thus, fulfillment of the requirements defined in the National Water Code would be critical for the development outcomes to be achieved.

**Financial Sustainability:** In terms of sustainability of WUAs, the project reorganized WUAs, and provided training so that they are capable of undertaking core services in alignment with the new Law of WUAs. However, the financial sustainability of WUA activities still needs to be improved. The level of debts and the ability of state agencies to formally launch legal proceedings against non-paying WUAs will potentially affect how WUAs operate and function.

**O&M arrangements.** The rehabilitated irrigation infrastructure was transferred to ZRB SDLRI (off-farm) and WUAs (on-farm) for the O&M. While the ICR mentioned that proper O&M of the facilities would play a key role in sustainability of Project achievements, it did not mention if there is adequate technical and financial capacity to carry out O&M of the transferred facilities.



The ICR mentioned that the Strengthening Water and Irrigation Management Project (SWIM, P175356), which is under preparation, will provide the opportunity to consolidate and follow up on the important results achieved under this project.

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

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

The project design was informed by a financial and policy analysis and employed lessons learned from the previous Public Employment for Sustainable Agriculture and Water Resources Management Project (PAMP) and PAMP II. The risks were adequately identified and mitigated. The main risks identified were political and governance risks, macro-economic risks and the institutional capacity risks for implementation and sustainability associated with the weak institutional capacity of Agency of Land Reclamation and Irrigation (ALRI) and WUAs. The project actively involved NGOs at the local level and developed a sound community level grievance reporting and monitoring system to mitigate political and governance risks. To mitigate macro-economic risks, the project included rehabilitation of the complete irrigation system to ensure funding by ALRI as well as included small public works to ensure on-farm development. The project's Component II activities focused on building capacity of ALRI and WUAs. Safeguards and fiduciary measures were appropriately designed and were consistent with the World Bank's fiduciary role and the PMU's status and capacity. The World Bank mobilized an experienced team with the skills necessary to negotiate, manage, and assess the technical feasibility studies and project designs involving several international experts in the design of the Project. However, the project would have benefited from more relevant outcome indicators to measure project results.

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

Satisfactory

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

The ICR (page 22) noted that the World Bank was responsive to technical requests. The Bank team carried out regular supervision missions and maintained a constant line of communication with the stakeholders (in total five implementation support missions were carried out and seven Implementation Status and Results Reports were prepared). The Aide Memoires were detailed and emphasized all the key issues. The Bank specialists provided support on fiduciary or safeguard issues. However, during the supervision, the team could have addressed RF design issues.

#### **Quality of Supervision Rating**

Satisfactory

#### **Overall Bank Performance Rating**



Satisfactory

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

### a. M&E Design

The project lacked several key indicators to measure the project's outcomes. As mentioned in Section 4, the project would have benefited from the inclusion of the following indicators: measurement of improved water resources management at the basin level, measurement of irrigation efficiency and irrigation service delivery (adequacy, reliability, equity). The M&E framework included a baseline and an end line survey to assess the Project's impact. The baseline values for most indicators were zero. The target values were realistically estimated except the one for PDO 2 (irrigated area covered by volumetric main system management).

### b. M&E Implementation

The M&E was built on the project management and monitoring information system, which is previously developed and tested under PAMPPII, and links project management and financial/accounting platforms. Reports at the local level were produced by NGOs, WUAs and consultants, using the information system, agricultural database, and additional information at the jamoat level. However, the PMU faced some challenges on definitions (for example, the difference between the definitions of the area served by WUAs and the irrigated area) and calculation approaches.

### c. M&E Utilization

The M&E arrangement under the Project, including the surveys, produced a sizeable information database including the public works program, the investments, and agricultural production and crop yields, which informed project implementation. Thus, the World Bank team did not see a need to change the indicators throughout the Project, however additional indicators were needed to better capture project results.

Overall, due to the unrealistic targets and the lack of appropriate indicators to measure the PDO2, the M&E is rated modest.

### M&E Quality Rating

Modest

## 10. Other Issues

### a. Safeguards

**Environmental Safeguards:** The Project was categorized as Category B with moderate risk in terms of environmental and social safeguards policies and procedures, triggering Environmental Assessment (OP/BP 4.01). Accordingly, a Generic Environmental Management Plan (GEMP) as well as Site-specific



Environmental Management Plans (EMPs), based on this GEMP, were prepared, publicly disclosed, and consulted to reflect the actual conditions of the selected infrastructure works. Site-specific EMPs, which were considered an integral part of the contracts, were implemented adequately without any reported accidents. All the emergency rehabilitation works (bank protection works), rehabilitation of pumping stations, and handling of old asbestos-type pipelines, and all irrigation structure and hydraulic works were managed sufficiently by the PMU via the environmental specialist staff member supported by an experienced consultant (NGO) who provided supervision of environmental performance and provided relevant trainings and integrated environmental safeguards support. Field-based technical supervising engineers monitored the requirements of site-specific EMPs during the construction period. Training on environmental safeguards was provided to the contractors and PMU technical supervising engineers. Additionally, WUAs were provided with training on environmentally effective and safe operation of irrigation facilities. Environmental requirements on the operation of irrigation systems and hydraulic structures were developed for district water management organizations and transferred to the ALRI. Based on the developed environmental requirements, the ALRI took appropriate measures on compliance with these environmental requirements by the district water management organizations (SDLRI) in the project area.

**Social Safeguards:** No social safeguards were triggered by the project. A grievance redress mechanism that was introduced with the previous project (PAMP II) was used for the Project. Over the course of the Project, 203 grievances were received, 99 percent (201 grievances) of which were resolved; the remaining two complaints were found by the PMU to be beyond the Project's scope and were reported to the relevant authorities for resolution. The ICR reported that the environmental and social risk rating at Project closure was Low (page 21).

## **b. Fiduciary Compliance**

**Financial Management:** The ICR (page 21) reported that the project had an effective financial management system, thus there were no delays in the monthly documenting and reporting of expenditure from the project Designated Account. During implementation, fiduciary risk for the Project was downgraded from Substantial to Moderate and then to Low, since the Project had strong controls in place and was fully compliant with audit requirements and other FM risk mitigation measures. The fiduciary risk rating at project closure was Low.

**Procurement:** The ICR (page 21) reported that the procurement activities were handled in general compliance with the requirements of the grant agreement, Procurement Plan, and procurement/consultant guidelines applicable for the Project. The PMU was staffed adequately to meet the required procurement capacity with support from a qualified consultant. Three procurement reviews were conducted during implementation, which revealed several poor practices such as nonrefundable fees for bidding documents, inadequate time for bid preparation, and incomplete assessment of post-qualification criteria in evaluation reports. These weaknesses will need to be considered in the Project Procurement Strategy Document for the follow-on project. The procurement (fiduciary) risk rating at Project closure was Low.

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



There was no unintended impacts reported by the ICR.

**d. Other**

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**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Satisfactory	Satisfactory	
Quality of M&E	Substantial	Modest	Problems with unrealistic targets and lack of appropriate indicators for PDO2.
Quality of ICR	---	Substantial	

**12. Lessons**

The ICR provided several lessons, two of which are summarized as follows:

**Long-term support through a series of operations is crucial for countries to reform their irrigation sectors and transition to basin-based management systems.** There has been long-term cooperation between the Tajik Government and the World Bank in the agriculture sector dating back to 2006. The cooperation started with emergency projects focusing on irrigation expansion for rural livelihoods under FVWRMP and then PAMP and PAMP II. This project focused more on institutional strengthening and sector reforms. The follow-on project is needed, as the Government still needs support for adequate institutional arrangements to fully implement the National Water Code. Further support will also be required to ensure sustained success of the newly established SDLRI. Also, the technical and financial capacity of the River Basin Organizations (RBOs), which are not yet fully independent from the ALRI, needs to be increased. WUAs also need further support in terms of technical and financial capacity. Additionally, further work will be required on water measurement/and volumetric-based payment for irrigation water delivery, which was introduced in the river basin to ensure continuous success of this component. During this period, the PMU improved its capacity through the World Bank projects and the core people who were involved in previous projects remained available for preparation and implementation of this project. It will be important for the World Bank and the client to ensure that the same team will continue to prepare and implement the next project.

**It is key for projects focused on irrigation infrastructure improvement and management to design irrigation efficiency and service delivery indicators that adequately measure project outcomes.** Although yield increase is widely used as an outcome indicator for irrigation projects, attributing crop yield increases only to improved irrigation services is not logical as it is prone to several external factors including climate, quality of soil, seeds, fertilizers, and other essential agricultural inputs. Under the project the issue of agricultural data integrity also remained a



challenge for the 'yield' indicator. A robust impact evaluation, including collection of data from non-project areas, needs to be conducted at the beginning and closure of future projects. Future project designs should consider the impact of measurement systems (for example, volumetric measurement) on overall water management and define indicators that are measurable and attributable to project activities (such as irrigation efficiency, adequacy and reliability of irrigation water). The Project also experienced challenges related to reliability of official data for evaluation of investments in the irrigation sector, indicating the need for a much more robust M&E system not only at the project level but also at the national level.

### **13. Assessment Recommended?**

No

### **14. Comments on Quality of ICR**

The report was concise, provided a detailed overview of the project and accurately followed the ICR preparation guidelines. The ICR's lessons were clear and based on evidence. However, there were some shortcomings in the theory of change, and the completeness of evidence in the efficacy section mainly for the second objective. The theory of change under the second objective did not clearly define outcomes and impacts, i.e., irrigation efficiency, and service delivery related outcomes and indicators measuring these outcomes were needed.

#### **a. Quality of ICR Rating** Substantial