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Report No: PAD2281

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PAPER

ON A

PROPOSED ADDITIONAL LOAN AND RESTRUCTURING

IN THE AMOUNT OF US\$2 MILLION

TO THE

REPUBLIC OF ARMENIA

FOR THE

IRRIGATION SYSTEM ENHANCEMENT PROJECT ADDITIONAL FINANCING

October 20, 2017

Water Global Practice

EUROPE AND CENTRAL ASIA

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective AUGUST 31, 2017)

Currency Unit = Armenian Dram (AMD)  
AMD 478.44 = US\$1

FISCAL YEAR  
January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AMD	Armenian Dram
ARMEPS	Application of e-Procurement System
ASA	Advisory Services and Analytics
BF	Beneficiary Feedback
BP	Bank Procedure
CE	Citizen Engagement
CPAR	Country Procurement Assessment Review
CPS	Country Partnership Strategy
CQS	Consultant's qualifications based selection
CSO	Civil Society Organization
DA	Designated Account
DPO	Development Policy Operation
DS	Debt Service
ESIA	Environmental and Social Impact Assessment
EM	Emergency Maintenance
EMF	Environmental Management Framework
ESMP	Environmental and Social Management Plan
FM	Financial Management
GDP	Gross Domestic Product
GIS	Geographic Information System
GOA	Government of Armenia
GRM	Grievance and Redress Mechanism
GSG	Grievance Redress Service
Gwh	Gigawatt-hour
Ha	Hectare
IBRD	International Bank for Reconstruction and Development
IFR	Interim Financial Reports
IPF	Investment Project Financing
ISEP	Irrigation System Enhancement Project
Kwh	Kilowatt-hour
MOF	Ministry of Finance
MOTA	Ministry of Territorial Administration and Development

MTR	Mid-Term Review
NCB	National Competitive Bidding
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
OP	Operational Policy
PDO	Project Development Objective
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
RF	Result Framework
RPF	Resettlement Policy Framework
SCADA	Supervisory Control and Data Acquisition
SCWE	State Committee of Water Economy
SG	Support Group
SORT	Systematic Operations Risk Rating Tool
STEP	Systematic Tracking of Exchange in Procurement
TOR	Terms of Reference
USD	United States Dollar
WB	World Bank
WSA	Water Supply Agency
WUA	Water Users Association

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**ARMENIA**  
**IRRIGATION SYSTEM ENHANCEMENT PROJECT**  
**ADDITIONAL FINANCING AND RESTRUCTURING**

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## ADDITIONAL FINANCING DATA SHEET

*Armenia*

*Additional Financing Irrigation System Enhancement Project (P161538)*

**EUROPE AND CENTRAL ASIA**

<b>Basic Information – Parent</b>									
Parent Project ID:	P127759	Original EA Category:	B - Partial Assessment						
Current Closing Date:	30-Jun-2018								
<b>Basic Information – Additional Financing (AF)</b>									
Project ID:	P161538	Additional Financing Type (from AUS):	Restructuring, Scale Up						
Regional Vice President:	Cyril E Muller	Proposed EA Category:							
Country Director:	Mercy Miyang Tembon	Expected Effectiveness Date:	01-May1-2018						
Senior Global Practice Director:	Guang Zhe Chen	Expected Closing Date:	30-Jun-2019						
Practice Manager/Manager:	Michael Haney	Report No:	PAD2281						
Team Leader(s):	Winston Yu, Arusyak Alaverdyan								
<b>Borrower</b>									
Organization Name	Contact	Title	Telephone	Email					
State Committee of Water Economy	Arsen Harutyunyan	Chairman	37410540909	swcs@scws.am					
<b>Project Financing Data - Parent (IRRIGATION SYSTEM ENHANCEMENT PROJECT-P127759) (in USD Million)</b>									
Key Dates									
Project	Ln/Cr/TF	Status	Approval Date	Signing Date	Effectiveness Date	Original Closing Date	Revised Closing Date		
P127759	IBRD-82670	Effective	22-May-2013	29-May-2013	15-Jul-2013	30-Jun-2017	30-Jun-2018		
Disbursements									
Project	Ln/Cr/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Un-disbursed	% Disbursed
P127759	IBRD-82670	Effective	USD	30.00	30.00	0.00	28.77	1.23	95.89

<b>Project Financing Data - Additional Financing Irrigation System Enhancement Project (P161538 )(in USD Million)</b>					
<input checked="" type="checkbox"/>	Loan	<input type="checkbox"/>	Grant	<input type="checkbox"/>	IDA Grant
<input type="checkbox"/>	Credit	<input type="checkbox"/>	Guarantee	<input type="checkbox"/>	Other
Total Project Cost:		2.50		Total Bank Financing: 2.00	
Financing Gap:		0.00			
<b>Financing Source – Additional Financing (AF)</b>				<b>Amount</b>	
Borrower				0.50	
International Bank for Reconstruction and Development				2.00	
Total				2.50	
<b>Policy Waivers</b>					
Does the project depart from the CAS in content or in other significant respects?					No
Explanation					
Does the project require any policy waiver(s)?					No
Explanation					
<b>Team Composition</b>					
<b>Bank Staff</b>					
<b>Name</b>	<b>Role</b>	<b>Title</b>	<b>Specialization</b>	<b>Unit</b>	
Winston Yu	Team Leader (ADM Responsible)	Sr. Water Resources Spec.		GWA03	
Arusyak Alaverdyan	Team Leader	Sr. Agriculture Specialist		GFA03	
Armine Aydinyan	Procurement Specialist (ADM Responsible)	Procurement Specialist		GGO03	
Arman Vatyanyan	Team Member	Sr. Financial Management Specialist		GGO21	
Carolina Abigail Delgadillo Medin	Team Member	Program Assistant		GWA03	
Darejan Kapanadze	Safeguards Specialist	Sr. Environmental Specialist		GEN03	
Hiromi Yamaguchi	Team Member	Consultant		GFA03	
Lusine Grigoryan	Financial Management Specialist	Financial Management Specialist		GGO21	
Marina B. Sahakyan	Team Member	Temporary		ECCAR	

Sophia V. Georgieva	Safeguards Specialist	Social Development Specialist		GSU03
Luz Meza-Bartrina	Country Lawyer	Sr. Counsel		LEGLE
Luis M. Schwartz	Finance Officer	Sr. Finance Officer		WFALN

**Extended Team**

Name	Title	Location

**Locations**

Country	First Administrative Division	Location	Planned	Actual	Comments
Armenia		Meghri			
Armenia		Gharaghala			
Armenia		Kaghtsrashen			
Armenia		Baghramyan	X		
Armenia		Aygavan			
Armenia		Avshar			
Armenia		Armash			
Armenia		Tandzut			
Armenia		Saralanj			
Armenia		Noyemberyan			
Armenia		Norakert	X		
Armenia		Zovq			
Armenia		Azat			
Armenia		Arazap			
Armenia		Haghtanak			
Armenia		Achajur			
Armenia		Gegharkuniki Marz			
Armenia		Argina			

**Institutional Data**

**Parent (IRRIGATION SYSTEM ENHANCEMENT PROJECT-P127759)**

**Practice Area (Lead)**

Water

**Contributing Practice Areas**

<b>Additional Financing Irrigation System Enhancement Project ( P161538 )</b>
<b>Practice Area (Lead)</b>
Water
<b>Contributing Practice Areas</b>
<b>Consultants (Will be disclosed in the Monthly Operational Summary)</b>
Consultants Required? Consultants will be required

## **I. Introduction**

1. This Project Paper seeks the approval of the Executive Directors to provide an additional loan in an amount of US\$2 million to the Republic of Armenia and to restructure the Irrigation System Enhancement Project (ISEP or the Original Project, P127759) (Loan Number 8267-AM).
2. The proposed Additional Financing (AF) will be used to support additional activities (of a ‘last-mile’ variety) critical to ensuring positive impacts of the Project on beneficiaries, as well as consolidate the achievements and enhance the results and outcomes achieved so far under the Original Project. Additional investments will include the construction of a tertiary system to supplement the planned Baghramyan-Norakert Gravity Scheme under Component 1. The Original Project provided financing only for the main and secondary canals. The restructuring will reflect the increased scope and extend the project’s closing date.
3. The AF also comprises (i) modification to the Results Framework (RF); and (ii) extension of the project closing date of the Original Project. The project development objectives (PDO) will remain the same as in the Original Project.

## **II. Background and Rationale for Additional Financing in the amount of US\$2 million**

### *Country Context*

4. The 2008 crisis revealed vulnerabilities in Armenia’s growth model: up till then, Armenia experienced remarkable growth, which led to overall improvement of living conditions for all, especially for the poor. The economy grew primarily based on non-tradable sectors, especially construction, fueled by capital inflows and remittances. Once the inflows stopped, construction collapsed: The gross domestic product (GDP) growth was down by 14 percent in 2009 compared to nearly 7 percent increase in 2008. The policy response to the crisis – a significant increase in public spending – tested Armenia’s macroeconomic resilience to external shocks as fiscal and external headroom was quickly eroded. While the fiscal stimulus had an impact and growth started to recover, crossing 7 percent in 2012, the economy started to slow down significantly by 2013, mainly because of modest regional and global momentum, limited progress on competitiveness enhancing reforms, and sluggish investment. The dramatic fall in oil prices starting in 2014-15, which led to a sharp depreciation in the ruble and slowdown in Russia, was the next shock to hit Armenia, transmitted through declining remittances, exports and foreign investment. In 2016 the Armenian economy continued its modest, export-driven recovery. However, fiscal pressures remain elevated due to the negative impact on revenues of a decline in both imports and nominal GDP. Growth remains sensitive to external conditions and internal political shifts, including the government change in September 2016 and then in June 2017, as well as parliamentary elections held in April 2017 and presidential election planned for in 2018. Modest but positive growth projections for agriculture and industry, combined with an increase in real wages in both the public and private sectors, are likely to support continued poverty reduction during 2017-18. As a result, poverty in 2014 (30.0 percent) was still higher than that

pre-crisis (27.6 percent in 2008)<sup>1</sup> and the poverty rate is projected to decline from 24.9 percent in 2016 to 23.2 percent in 2018<sup>2</sup>.

#### *Sector Context*

5. Over recent decades, though the agriculture sector has added more value in absolute terms to the economy, its overall share of GDP has steadily decreased (around 17.2 percent in 2015). Yet, Armenia is still an agrarian society with the agriculture sector providing around 35 percent of total employment. Moreover, with important links to the growing food processing industry, agriculture will continue to play an important role in the Armenian economy. Agriculture in Armenia is heavily dependent on irrigation. More than 80 percent of the gross crop output is produced on irrigated lands. High value crops such as fruits, vegetables, and vineyards claim 84 percent of the total irrigated arable land. Total irrigable area in Armenia is around 208,000 hectares. In 2005, the net income per hectare for irrigated wheat was 65,000 Armenian drams (AMD) equivalent to US\$156, twice as much as on rain-fed lands in the mountainous areas.

6. Agricultural water management is still subject to various inefficiencies. The current climate change phenomenon has impacted on such inefficiencies. Over the last 80 years, Armenia's mean annual temperature has increased 0.85 °C, and in the last 30 years, there has been an increase of 1.2 severe hydro-meteorological phenomena per year, and in the last 20 years there has been an increase of 1.8 cases annually. The volume of glaciers of the Caucasus has been reduced by 50 percent over the last century, and changes in glacier composition can potentially reduce long term river flow in Armenia. Most of the irrigation and drainage infrastructure built during Soviet times has not been adequately maintained. The budgets for rehabilitation and further infrastructure development decreased significantly from about 50 billion AMD (US\$120 million) per year during the Soviet era to 4 billion Armenian Drams (US\$10 million) per year on average in the period 1994–2011, including donor assistance. Operation and maintenance budgets have been reduced from 25 billion AMD (US\$60 million) per year in the Soviet era to 8-10 billion AMD (US\$20–25 million) per year now (World Bank 2013). As a consequence, water conveyance losses have gradually increased, to around 59 percent in 2012. Rehabilitation of irrigation canals is required and water-saving technologies, such as drip irrigation, need to be adopted where economically and technically justified.

7. Widespread high-lift pump irrigation systems built during Soviet times are now uneconomical due to the high cost of energy in the country. Electricity, which was heavily subsidized during Soviet times, is now supplied at a market price to agricultural water users. Pump irrigation systems are now being substituted with gravity schemes. As a result, electricity spending by water supply institutions has decreased from 129 million kilowatt-hours to 25 million kilowatt-hours (84 percent reduction).

#### *Irrigation System Enhancement Project – Original IBRD Loan*

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<sup>1</sup> World Bank (2016). Country Partnership Strategy for the Republic of Armenia for FY2014-FY2017

<sup>2</sup> World Bank (2016). Polarization and populism: Europe and Central Asia Economic Update Office of the Chief Economist November 2016

8. It is these sector issues which the Original Project attempts to address. This AF is in line with the PDO of the Original Project: (i) to reduce the amount of energy used and to improve the irrigation conveyance efficiency in targeted irrigation schemes; and (ii) to improve the availability and reliability of important sector data and information for decision makers and other stakeholders. In particular, the AF activities will support improvements to the overall conveyance efficiency of a targeted irrigation scheme. During the implementation of the Original Project, the team observed in the field that for the Baghramyan-Norakert Gravity Scheme, the existing tertiary system was not in sufficient condition to reliably deliver irrigation waters directly to the farmer plots. It appeared that conditions had worsened since the time of the Original Project appraisal. As such, an investment in only the main and secondary gravity canals may not realize the full economic potential. Thus, to remedy this, the tertiary system will be rehabilitated and designed (e.g. closed pipe) to encourage and allow farmers the choice of on-farm technologies (e.g. drip irrigation). This will further enhance overall efficiency. Depending on the final costs of the remaining works, should savings be available these would be prioritized towards piloting and demonstrating these on-farm technologies.

9. During the preparation of the Original Project, the Baghramyan-Norakert Gravity Scheme was envisioned to include the construction of a 4.96 km long feeder canal to receive water from the Tkahan Canal (original source is Lake Sevan) and deliver these waters by gravity to about 573 ha of agricultural land. After construction of the feeder canal, the pump stations Norakert No.1, No.2 and Baghramyan No.1 would not be needed. These three pump stations have exceeded their normal working life and are in a poor state. Operation and maintenance (O&M) of these pump stations is expensive. As a result, these pumps currently are seldom used by the responsible water user association (Ashtarak WUA). Water from this new gravity system will be delivered through the newly constructed feeder canal to the existing discharge basins of the pump stations, from which irrigation water is distributed by the tertiary canals to individual farmers. The maximum irrigable land in this scheme is based on the capacity of both the new feeder structures and the available water resources.

10. In a letter dated July 20, 2017, the Government of Armenia (GOA) requested an AF of US\$2 million to cover these additional investment needs. Their implementation will not trigger new safeguards policies and will not change the environmental category of the Project as they are a continuation of on-going works of a similar scope and scale. The AF will extend the project by one year, through June 30, 2019.

#### *Summary of Project Progress and Results to Date*

11. The Project became effective on July 15, 2013. In general, good overall implementation progress is observed with a high probability that the PDO will be achieved. Overall implementation progress towards achievement of the PDO has been rated *Satisfactory* since July 2017. Following the Mid-Term Review (MTR, November 16-22, 2015) and the completion of detailed design work for two revised schemes (described below in para 13), it was determined that some targets given in the results framework need to be updated. Moreover, it was decided that one indicator could be simplified further to facilitate monitoring and evaluation. This includes the indicator regarding the estimated water losses that would be reduced by rehabilitating 13 diversion outlet canals. The MTR mission found that overall the Government is in compliance with all legal covenants, safeguards, and fiduciary performance standards.

12. To date, several Project targets have already been achieved or exceeded. Two Lots of the Meghri Gravity Scheme were fully completed and have been operational since April 2016. The 15 out of 18 pumps have been dismantled and are now saving 1.8 million kilowatt hours (Kwh) per year and the pressurized system benefits 476 ha of land. These farmers now have more reliable irrigation services. Moreover, the rehabilitation of the diversion outlet canals is completed (ahead of schedule) and is “saving” over 24 million cubic meters of water that otherwise would have been lost to the system and benefiting 8,850 ha of land. This rehabilitation work has also reduced energy usage by almost 15 million Kwh a year. Moreover, all water metering devices, to better monitor abstractions by WUAs critical for tariff collection, have been installed (with the exception of one that was stolen and will be replaced). Progress with the Geghardlich and Kaghtsrashen Gravity Schemes has been delayed due to concerns raised by communities and the subsequent agreed changes to their designs but completion is expected by end December 2017.

13. A Request for Inspection was submitted (April/May 2016) by members of the Goght community regarding the Geghardalich Gravity Scheme and by residents of the Garni community regarding the Kaghtsrashen Gravity Scheme. These two schemes are un-related to the proposed works under the AF. Community complaints related to, inter alia, allegations of insufficient water availability and environmental impacts. A management response was prepared and submitted to the Panel (June 20, 2016). In response to community concerns, the GOA decided to modify the designs of these two gravity schemes. These design changes were discussed extensively with communities and accepted by them including by the new Mayors and village council members from both communities. With these design changes, the results framework will need to be modified since target indicators (particularly the energy savings target) will change due to these design changes. Following further review, on June 28, 2017, the Panel notified the Board of its intention not to investigate further.

14. Environmental and Social Impact Assessments (ESIAs) were carried out for all four gravity irrigation schemes under the Project. While the initial quality of reports from the consultants was weak, the Project Implementation Unit (PIU) has managed to upgrade the quality of these documents with hands-on support from the Bank team. ESIA reports were disclosed and public consultations held to the satisfaction of the Bank team. Compliance with on-going Environmental and Social Management Plans (ESMPs) has been satisfactory. New safeguard documents (ESIAs/ESMPs as applicable) will be produced for the new investments to be funded by the AF. These will follow the procedures outlined in the environmental and social safeguard framework documents developed for the Original Project (both the Environment Management Framework -EMF - and the Resettlement Policy Framework - RPF).

15. The World Bank Climate and Disaster Risk Screening Tool has also been applied to this AF (report on file). Armenia's climate has changed with average higher temperatures and lower precipitation, resulting into more frequent extreme events including droughts especially in the AF activity area. The AF activity supporting improvements to the overall conveyance efficiency of the irrigation system will ensure to reliably deliver irrigation waters to 635 farmers plots (573 ha). This will mitigate climate change impact, especially drought which is expected to be exposed more frequently in future in the AF activity location. Thus, the AF activity will provide

adaptation co-benefits by reducing vulnerability to the impacts of climate change by increasing adaptive capacity and resilience.

16. The procurement of works, goods, and selection of consultant services have been implemented in line with the agreed rules and provisions. The procurement filing system is satisfactory. Separate evaluation committees are established for each procurement selection procedure. All members sign the declaration on independence and impartiality before starting the evaluation of bidding documents and proposals. The level of involvement of the procurement staff in contract administration is improving. The preparation of Terms of Reference (TOR) for technical supervision consultancy assignments has improved over project implementation.

17. The Financial Management (FM) arrangements at the PIU, including planning and budgeting, accounting, financial reporting, funds flow, internal control, external audits, and staffing are satisfactory and continue to be acceptable to the Bank. There are no overdue audits under the Original Project.

18. Disbursements to date are US\$28.77 million which is 95.9 percent of the IBRD loan of US\$30 million for the Project.

#### *Rationale for Additional Financing*

19. The proposed AF is aligned with the Armenia Country Partnership Strategy (CPS) for FY2014-FY2017 (2016, Report No. 98735-AM). In particular, this AF will support “*more efficient irrigation network as a result of targeted investments and informed decision making*” under Objective 1.3: Improve efficiency and sustainability of irrigation and pasture-land as key inputs to rural economy. In Armenia, water resource availability is projected to change. Temperature is expected to increase and precipitation is expected to decrease. River flow is expected to decrease by the increased temperature and decreased precipitation as well as decreased volume of glaciers and snow cover. The AF is expected to address to the resilience to such future climate vulnerabilities.

20. The activities to be financed by the AF are aligned with the Original Project PDO and aimed at fully achieving the Original Project outcomes. In particular, the AF activities will support improvements to the overall conveyance efficiency of the irrigation systems. For the Baghramyan-Norakert Gravity Scheme, the existing tertiary system was not in sufficient condition to reliably deliver irrigation waters directly to the farmer plots. It appeared that conditions had worsened since the time of the Original Project appraisal. As such, supporting the rehabilitation of a tertiary system will ensure that the benefits from the investment in the main and secondary system are realized. This would provide waters (from the main canal) to 573 ha benefiting 635 farmers. The estimated economic rate of return for this investment is around 17 percent. Additional time is also needed to complete the two revised schemes under the Project.

### **III. Proposed Changes**

21. No changes are envisioned in the PDO or overall implementation arrangements, with the exception of the application of the Bank’s new Procurement Policy and Regulations<sup>3</sup>. Activities to be funded by the AF support the PDO indicator related to improvement of conveyance efficiency in irrigation systems. Most importantly, the AF activities supplement a scheme that was already included in the Original Project (Component 1). The activities are not foreseen as having any new potential environmental or social impacts beyond what is described in the Original Project documents, and there are no changes in triggered safeguards policies. The same PIU, which now has extensive experience working with the World Bank and has sufficient capacity on various operational policies (e.g. procurement, financial management, environment and social safeguards), will continue and implement the activities under the AF.

22. The activities under the AF will be subject to the New Procurement Policy and Regulations. All rules and procedures for procurement will be in line with the “Bank Directive” and the “Procurement Regulations for IPF Borrowers” (July 2016). More details will be provided by the Borrower in the Project Procurement Strategy for Development document (see Attachment 1). The procurement and contract management processes will also be tracked through the Systematic Tracking of Exchange in Procurement (STEP) system.

23. The Results Framework will be updated (Annex 1) to reflect the impact of the AF and the findings at the MTR mission. This includes revising some targets due to changes made to some gravity schemes (due to community complaints) and simplifying some PDO indicators.

24. The AF would extend the Project by one year to June 30, 2019.

<b>Summary of Proposed Changes</b>	
The proposed changes associated with the AF comprise modifications to the original (i) RF; (ii) closing date; and (iii) components’ cost.	
Change in Implementing Agency	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Project's Development Objectives	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Results Framework	Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]
Change in Safeguard Policies Triggered	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change of EA category	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Other Changes to Safeguards	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Legal Covenants	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Loan Closing Date(s)	Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]
Cancellations Proposed	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Disbursement Arrangements	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Reallocation between Disbursement Categories	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]

<sup>3</sup> Bank Directive on Procurement in IPF and Other Operational Procurement Matters (effective on July 2016)

Change in Disbursement Estimates	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change to Components and Cost	Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]
Change in Institutional Arrangements	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Financial Management	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Change in Procurement	Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]
Change in Implementation Schedule	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]
Other Change(s)	Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]

### Development Objective/Results

#### Project's Development Objectives

##### Original PDO

The PDO is (i) to reduce the amount of energy used and to improve the irrigation conveyance efficiency in targeted irrigation schemes; and (ii) to improve the availability and reliability of important sector data and information for decision-makers and other stakeholders.

#### Change in Results Framework

The RF will be updated to reflect the impact of the AF (including the extension of time) and the findings at the MTR mission (November 2015). Some PDO indicators will be revised to be simplified. Some target values will be revised due to design changes made to some gravity schemes (due to community complaints). The target values are also adjusted in line with the extension of the project closing date by one year. Additional indicators related to citizen engagement (CE) have also been added. The details are:

##### *PDO Indicators:*

The original PDO indicator was “*Lost liters per second per 100 meters in the targeted irrigation schemes (to measure improved conveyance efficiency)*”. This will be revised to be simplified to “*Water losses reduced in rehabilitated canals*”. The target value of the revised indicator will be achieved by rehabilitating the 13 diversion outlet canals. As of November 28, 2016, the rehabilitation of all diversion canals under the program have been completed and are now reducing the target losses of 24 million cubic meters per year (equivalent to the 0.71 liters/s/per 100 meters original target).

The target value of the PDO indicator, “*Amount of energy saved annually in operating the irrigation system*”, has been reduced from 38 GWh to 36.8 GWh because of the design change at the Kaghtsrashen Gravity Scheme in response to community concerns.

The target values for the PDO indicators “*Data about O&M and EM used by SCWE, WSAs and WUAs for decision making*” and “*Technical audit of irrigation agencies used by MOTA and SCWE for decision making*” are modified to be “*Data used for budgetary and investment planning purposes*”. This is to give greater clarity on the final aim of this collected information.

*Intermediate Results Indicators (target values):*

The target value of “*Operational water user associations strengthened*” has been reduced from 44 to 37 and then to 14. This is due to the fact that during the project implementation the Government undertook an exercise to consolidate some of the WUAs. The revised number of WUAs is currently 14.

Two new CE indicator[s] will be introduced to reflect the Bank’s new commitment: “% of grievances responded within 5 business days (target 100%)” – this indicator will be monitored by PIU as part of maintenance of the project Grievance and Redress Mechanism (GRM) and reported to on a 6-month basis; and

“% beneficiaries (farmers) who report that their needs have been reflected in Project design (target 70%)” – this indicator will be measured by a survey to be conducted at the end of the project.

**Compliance**

**Covenants - Additional Financing (Additional Financing Irrigation System Enhancement Project - P161538)**

Source of Funds	Finance Agreement Reference	Description of Covenants	Date Due	Recurrent	Frequency	Action
IBRD	Schedule 2, Section I, A. 1.	The Borrower, through SCWE, shall designate the PIU with the responsibility for procurement planning, monitoring and reporting, financial management and disbursement, maintenance of Project accounts and preparation of Project reports, and shall ensure that PIU at all times shall have adequate staff and resources to fulfill its responsibilities with respect to Project implementation and management.		<input checked="" type="checkbox"/>	Yearly	New
IBRD	Schedule 2, Section I, A. 2.	The Borrower shall ensure that the PIU shall carry out the Project in accordance with the Operations Manual and, except as the Bank shall otherwise agree, shall not amend or waive any provision of the Operations Manual if, in the opinion of the Bank, such amendment or waiver may materially and adversely affect the carrying out of the Project or the		<input checked="" type="checkbox"/>	Yearly	New

		achievement of the objective thereof.				
IBRD	Schedule 2, Section I, A. 3.	The Borrower shall maintain the WUA's Support Group within the PIU until completion of the Project which shall assist in the implementation of Part C.2 of the Project.		<input checked="" type="checkbox"/>	Yearly	New
IBRD	Schedule 2, Section I, A. 4.	The Borrower shall ensure that necessary budgetary resources are made available to the irrigation sector for maintenance of irrigation systems in the Borrower's annual budget.		<input checked="" type="checkbox"/>	Yearly	New
IBRD	Schedule 2, Section I, B. 1.	The Borrower, through SCWE, shall: (a) apply for the activities under Part A of the Project the criteria, policies, procedures and arrangements set out in the EMF, EMPs, EIAs, RPF and RAPs as required; and (b) not amend or waive, or permit to be amended or waived the EMF, EMPs, EIA, RPF and RAPs, or any provision thereof, in a manner which, may materially and adversely affect the implementation.		<input checked="" type="checkbox"/>	Yearly	New
IBRD	Schedule 2, Section I, B. 2. (a) (i)	The Borrower, through SCWE, shall ensure that civil works on any particular irrigation scheme or section of a scheme selected under Part A of the Project will not start, unless an EMP for that scheme or a selected section, satisfactory to the Bank, has been prepared by the Borrower and disclosed locally, and on the SCWE website.		<input checked="" type="checkbox"/>	Yearly	New
IBRD	Schedule 2, Section I, B. 2. (a) (ii) and (iii)	The Borrower, through SCWE, shall ensure that the arrangements are made for public review and comment of said EMP, any comments received have been responded to in a manner acceptable to the Bank, and the final approved version of the EMP has been disclosed locally; and any provision of the respective EMP is not assigned, amended, abrogated or		<input checked="" type="checkbox"/>	Yearly	New

		waived without prior review and approval of the Bank.				
IBRD	Schedule 2, Section I, B. 4. (b)	The Borrower, through SCWE, shall maintain at all times, throughout Project implementation, a Dam Safety Panel comprising environmental and social experts, under terms of reference, composition and resources satisfactory to the Bank, for the purpose of reviewing and advising the Borrower on safety and other critical aspects of the design, construction and operations of dams.		<input checked="" type="checkbox"/>	Yearly	New

**Conditions**

Source Of Fund	Name	Type
IBRD	Operational Manual	Effectiveness

**Description of Condition**

The Additional Condition of Effectiveness consists of the following, namely that the Operations Manual shall have been amended and adopted in a manner satisfactory to the Bank.

Source Of Fund	Name	Type
IBRD	Withdrawal Conditions	Disbursement

**Description of Condition**

Notwithstanding the provisions of Part A of this Section, no withdrawal shall be made for payments made prior to the date of the Signature Date.

**Risk**

Risk Category	Rating (H, S, M, L)
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Low
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Substantial
8. Stakeholders	Substantial
9. Other	
OVERALL	Substantial

**Finance**

<b>Loan Closing Date - Additional Financing (Additional Financing Irrigation System Enhancement Project - P161538 )</b>					
<b>Source of Funds</b>			<b>Proposed Additional Financing Loan Closing Date</b>		
International Bank for Reconstruction and Development			30-June-2019		
<b>Loan Closing Date(s) - Parent (IRRIGATION SYSTEM ENHANCEMENT PROJECT - P127759 )</b>					
Explanation: Additional investments will include the construction of a tertiary system to supplement the planned Baghramyian-Norakert Gravity Scheme under Component 1. All activities are estimated to be completed by June 30, 2019.					
<b>Ln/Cr/TF</b>	<b>Status</b>	<b>Original Closing Date</b>	<b>Current Closing Date</b>	<b>Proposed Closing Date</b>	<b>Previous Closing Date(s)</b>
IBRD-82670	Effective	30-Jun-2017	30-Jun-2018	30-Jun-2019	
<b>Allocations - Additional Financing (Additional Financing Irrigation System Enhancement Project - P161538 )</b>					
<b>Source of Fund</b>	<b>Currency</b>	<b>Category of Expenditure</b>	<b>Allocation</b>		<b>Disbursement % (Type Total)</b>
			<b>Proposed</b>		<b>Proposed</b>
IBRD	USD	(1) Goods, works, non-consulting services, consultants' services, Training and Operating Costs for the Project	1,995,000.00		80.00
		<b>Front-end Fee</b>	5,000.00		
		<b>Total:</b>	2,000,000.00		
<b>Components</b>					
<b>Change to Components and Cost</b>					
Current estimates for the Baghramyian-Norakert tertiary system, leaving the choice of on-farm technology to the farmer, would be around an additional US\$2.0 million (inclusive of the required associated consultancies e.g. construction supervision, design and supervision). An additional US\$0.5 million would also be need to support project management over this extended period of time and enhanced scope of work. This AF will be reflected by component cost as given below.					
<b>Current Component Name</b>	<b>Proposed Component Name</b>	<b>Current Cost (US\$M)</b>	<b>Proposed Cost (US\$M)</b>	<b>Action</b>	

Component 1. Irrigation System Enhancement	Component 1. Irrigation System Enhancement	33.10	35.10	Increase
Component 2. Management Information	Component 2. Management Information	1.70	1.70	No Change
Component 3. Project Management and WUAs' Support	Component 3. Project Management and WUAs' Support	2.70	3.20	Increase
	<b>Total:</b>	37.50	40.00	

### Change in Procurement

#### Explanation:

The activities under the AF will be subject to the New Procurement Policy and Regulations. All rules and procedures for procurement will be in line with the “Bank Directive” and the “Procurement Regulations for IPF Borrowers” (July, 2016). The procurement and contract management processes will also be tracked through the Systematic Tracking of Exchange in Procurement (STEP) system.

To ensure that Bank funds are used only for the purposes for which the financing was granted, the Bank will carry out its procurement functions, including implementation support, monitoring and procurement oversight, under a risk-based approach (thresholds applicable since November, 2016). The current risk has been assessed by the Bank during Original Project preparation and will be reassessed and updated during project implementation.

### Appraisal Summary

#### Economic and Financial Analysis

The AF investments in the last-mile tertiary system will ensure the generation of economic benefits to the farmers. For the Baghramyan-Norakert Gravity Scheme, since the tertiary system is either non-existent or in very poor condition, rehabilitating a tertiary system will ensure that the benefits from the investment in the main and secondary system are realized. This overall scheme would provide irrigation services (from the main canal) to 573 ha benefiting 635 farmers. These 573 ha of lands (based on the earlier practices) are planned to be cultivated for vineyards (303 ha), orchards, mostly apricots (135 ha), and alfalfa (135 ha). Using typical farm budgets for these crops, it is estimated that net revenues (after – before project; and subtracting those benefits assigned to the main feeder system) will reach almost US\$ 640,000 by year ten. Using an estimated engineering cost (of US\$ 1,932,000) for the tertiary system, the economic rate of return is around 17 percent (assuming a 25-year period). Sensitivity analysis was also performed varying the benefits and costs by 10 percent. This analysis demonstrates that these results are robust with economic rates of return above 12 percent across these different scenarios.

Note that this economic analysis is conservative in that (i) it does not include the energy savings (since the pumps were not used in recent years) and (ii) does not include the productivity gains

associated with high-efficiency on-farm systems (e.g. drip). The latter is excluded as it is not known at this time what the final construction contract cost will be. Depending on the final costs of the remaining works, should savings be available these would be prioritized towards piloting and demonstrating these on-farm technologies. Thus, final benefit numbers may actually be larger.

### **Technical Analysis**

Various approaches may be taken to the design of the tertiary system. Traditionally in Armenia and dating back to Soviet days, open channel parabolic pre-cast canal elements have been used. In arid environments, ideally the tertiary system can be designed as a closed pipe system. This reduces evaporative losses. Moreover, if the entire system is piped and under pressure, farmers may be given the choice of on-farm irrigation technology that best suits their needs (e.g. drip, sprinklers). This would be the most efficient approach (from a water saving perspective). Careful consideration will need to be considered in planning for a piped tertiary system (e.g. land leveling, appropriate field drains) based on the proposed cropping (e.g. whether new or existing apricots and vineyards). A design consultancy will be mobilized with the AF proceeds to explore these various design options which will be evaluated within the context of the overall design of the main Baghramyan system. Since the tertiary works are a “last-mile” connectivity activity, earlier analysis (for the Environment and Social Impact Assessment) on the main feeder confirms the water availability for the 573 ha.

Given that the approach to the tertiary will consider farmer preferences and will be the responsibility (for O&M purposes) of the WUA, additional consultations with the Ashtarak WUA and its members will be required to ensure its proper design.

### **Financial Management**

The financial management (FM) function of the AF will be handled by the existing PIU, which will be responsible for planning and budgeting, flow of funds, accounting, financial reporting, internal controls and external auditing. There will be no change in the current FM and disbursement arrangements under the Project.

The FM arrangements of the Original Project implemented by the PIU have been reviewed periodically as part of the Project FM implementation support and supervisions (with the latest conducted in June 2017), and have been consistently found satisfactory and acceptable to the Bank. There is adequate FM staffing for the implementation of the AF. The overall FM risk for the Project is moderate.

There are neither overdue audits nor Interim Financial Reports (IFR) under the Original Project. The auditor issued unmodified (clean) opinions on the Original Project’s financial statements with no issues raised in the management letters. Similar audit arrangements will be adopted for this AF, which will be included in the overall Project’s audit. The PIU will prepare a single set of consolidated annual financial statements for the Project and the AF. The audit of the Project and the AF will be conducted by (i) independent private auditors acceptable to the Bank, on TORs acceptable to the Bank, and (ii) according to the International Standards on Auditing issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants. The annual audited Project consolidated financial statements will be submitted to the

Bank within six months of the end of each fiscal year and also at the closing of the Project. The audit will be procured by the PIU, and the cost of the audit will be financed from the proceeds of the Project. The Project audit reports will be posted on the website of the State Committee of the Water Economy (SCWE) of the GOA.

Project management-oriented IFRs will be used for monitoring and supervision purposes. The existing formats of the IFRs will be used and the PIU will produce a consolidated set of IFRs for the Original Project and the AF every calendar semester throughout the life of the Project and will submit them to the Bank no later than 45 days after the end of the semester.

The PIU will manage a pooled Designated Account (DA) specifically for the proceeds of both loans, i.e. the Original Project/Loan and the AF in the Single Treasury Account (the Treasury) of the Ministry of Finance (the MOF) at the Central Bank of Armenia. The country Treasury system is being used to maintain designated accounts of Bank-financed projects, including this Project. In addition, the country budget system will be used for the Project. For all the other FM elements, the PIU's respective systems are used for the Project.

### **Procurement**

The procurement of works, goods, and selection of consultant services have been implemented in line with the agreed rules and provisions. The procurement performance is Satisfactory.

The activities under the AF will be subject to the New Procurement Policy and Regulations. All rules and procedures for procurement will be in line with the "Bank Directive" and the "Procurement Regulations for IPF Borrowers" (July, 2016). The Project Procurement Strategy for Development (PPSD-Annex 1) has been developed and agreed with the Bank. According to the strategy, the additional funds will be directed towards the civil works for the rehabilitation and reconstruction of the Baghramyan-Norakert tertiary system and the technical supervision of those works. While the size of the envisaged civil works contract is not attractive to foreign companies, the local market is able to provide sufficient competitors (i.e. there are at least 7-8 companies specializing in works in the irrigation sector), who are adequately equipped (experienced staff and machinery) and have the appropriate capacity and financial resources to ensure the quality and timely implementation of works. Based on this, open competition among national companies will be applied (request for bids- national market). Moreover, since the engineering design will be prepared under the Original Project, the PIU will be able to undertake advance procurement of both (civil works and technical supervision) contracts, at its own risk. The PIU will use ARMEPS (e-Procurement) for aspects of the procurement process, including: issuing procurement documents, and addenda, receiving bids, and carrying out other procurement actions.

The procurement and contract management processes will be tracked through the Systematic Tracking of Exchange in Procurement (STEP) system.

### **Social Analysis**

#### **Social Safeguards**

The Project does not envision land acquisition or resettlement impacts as the investments are expected to rehabilitate an existing tertiary canal network. Initial screening conducted by Water

PIU indicates that all lands where works will be conducted are community-owned lands. However, unexpected impacts may be discovered at design stage. The Project triggers Operational Policy (OP) 4.12 and has a Resettlement Policy framework, approved by the Bank for the Original Project. The RPF has been amended and re-disclosed to explicitly apply to this AF. In the event that resettlement impacts (such as permanent or temporary land acquisition, or economic displacement) are identified during project implementation, provisions of the RPF will be followed: the PIU will prepare and implement a Resettlement Action Plan (RAP) or Abbreviated RAP.

### **Citizen Engagement**

The PIU has gathered significant experience with stakeholder engagement, communications, and grievance redress under the ongoing Project. During project implementation, the PIU's Social, Environmental, and Communications Specialists have adopted various CE strategies to respond to the concerns of residents in some Project-affected communities: producing and disseminating public information materials, holding dedicated discussions with residents and Civil Society Organizations (CSOs) outside the required consultations, drawing in external/independent expertise to address technical issues of concern, establishing a community monitoring mechanism to jointly measure water levels during irrigation season, among others. The current Project has also adopted design amendments / included additional investments in two of its schemes a result of community feedback.

One of the key lessons learned from the past project experience is the need for a proactive CE approach: sharing of information, engaging with citizens' concerns and proposals at an early stage, and setting up local-level citizen monitoring mechanisms where possible, rather than an approach that is mostly reactive to complaints and to potential misinformation.

The AF will build on this experience. Under the AF, a tertiary irrigation network will be constructed. The PIU will apply a number of CE mechanisms to ensure that potential issues with community concerns, resistance, or conflict among stakeholders are detected - and that solutions are discussed and agreed - at an early stage. The following CE mechanisms will be adopted:

*Public information and consultations:* The PIU will conduct minimum two detailed and gender-balanced consultations on the design of the project. Initial consultations will take place prior to - or in the process of completing - the design for tertiary irrigation infrastructure to discuss the selection of locations, type of works, beneficiaries' expectations on potential impacts from the investment. These consultations may be combined with preparation of ESMP documents. Follow up consultations will be conducted at or shortly after completion of works to inform population [interested beneficiaries] on the conducted works and discuss any outstanding issues the community may want to raise prior to completion of activities. In addition to the consultations, the PIU will disseminate public information in the form of posters and leaflets with maps and brief description of project activities. The consultations will also serve a public information function allowing all interested citizens to interact with PIU experts, design and construction engineers, and raise questions and concerns directly with project implementers.

*Assessing beneficiary satisfaction and level of involvement in decision-making:* The PIU will

conduct a local quantitative or qualitative survey at initial and final stage of the AF/Project in all beneficiary communities. The survey will target active farmers / water users. The survey will be applied during or shortly following the consultations described above. At the initial stage the survey will assess beneficiaries' needs and expectations from the investment. Questions on irrigation needs, and socio-economic situation of households may also be added. At the final stage the survey will assess perceptions on relevance of the investment, quality of works, and perceptions on beneficiaries' involvement in design [extent to which their views have been taken into account], among others. The survey sample will be gender balanced and findings will be disaggregated by gender. The World Bank will support PIU with preparing TORs and methodology for the beneficiary survey; the survey will be outsourced to a research company.

*Grievance redress mechanism:* The Project will build on the GRM, established under the Original Project, and maintained by the PIU ([info@wsdp.am](mailto:info@wsdp.am)). PIU staff (specifically Social and Environmental Specialists) are responsible for responding to and recording all inquiries and grievances received. Grievances will be referred to the respective expert within PIU (e.g., technical, resettlement, environmental, etc.), solutions will be discussed and agreed with the complainant, and recorded in the GRM log database. A five business-day timeframe will be established for grievance response (suggest to create email with automated response feature). The period for resolving a complaint may depend on complexity or additional information needed; the timeframe for communicating back the status of complaint resolution will be kept.

A local focal point will be identified during consultations, and announced at public consultations. S/he will support PIU with channeling questions, feedback, or grievances by community members, disseminating information about the Project and helping to ensure that GRM contact information is consistently available and posted in visible/accessible spaces. Local focal points are volunteers, preferably representatives of water users and not necessarily affiliated with local government administration. For example, community WUA representative may be chosen as a focal point. PIU will encourage the involvement of women in consultations, and as community focal point. PIU will also maintain a list of local focal points.

## **Gender**

The ISEP AF builds upon the Original Project, which is fully gender-informed. Due to the smaller scope of activities under the AF and parallel analytical work conducted on WUAs with gender components, the project does not envision a self-standing gender analysis. However, it will draw upon findings of relevant gender analysis in Armenia, specifically: the latest Country Gender Diagnostic (2013), Country Gender Action Plan (forthcoming, 2017), qualitative research conducted under Armenia DPO (2015), and under the Armenia Voice and Accountability ASA (2017). The latter reports examine specifically the involvement of women in irrigation and irrigation systems management.

The latest Country Gender Diagnostic (2013), women's participation in the labor force in Armenia displays the most notable gender gap (only 55 percent of working age women are in the labor force). The Government's Gender Policy Strategy specifically aims to safeguard equal conditions and opportunities for men and women and to ensure their equal participation in all aspects of social life. World Bank (2015) research among water users notes persisting social norms in

particular constraining women from participating in leadership positions in WUAs.

Actions include targeting of both male and female users, gender-balanced consultations and beneficiary feedback (BF). The number of beneficiaries and all BF indicators will be disaggregated by gender. In addition to ensuring balanced participation of men and women in consultations and beneficiary surveys, PIU will encourage women's participation as local representatives or focal points for disseminating project information, collecting inquiries and complaints, and liaising with the project's GRM.

### **Environmental Analysis**

The AF Project envisions a smaller scope of activities than the Original Project. Hence the environmental category of the Project remains B, and no additional safeguard policies are triggered. ESIA were carried out for all four gravity irrigation schemes under the Project. While the initial quality of reports from the consultants was weak, the PIU has managed to upgrade the quality of these documents with hands-on support from the Bank team. Draft final ESIA reports were disclosed and public consultations held to the satisfaction of the Bank team. Compliance with on-going ESMPs has been satisfactory. New safeguard documents (ESIAs/ESMPs/RAPs as applicable) will be produced for the new investments to be funded by the AF. These will follow the procedures outlined in the environmental and social safeguard framework documents for the Original Project (both the EMF - and the RPF).

Some initial consultations in the communities who will benefit from and on whose lands the AF will take place, were conducted during preparation of the ESIA for the Baghramyan main feeder system under the Original Project.

OP/ Bank Procedure (BP) 7.50 was triggered for the Original Project, because the Meghri Gravity Scheme rehabilitated under it abstracts water from the Meghri and Araks rivers, the latter being an international waterway shared by Armenia, Turkey, Iran, and Azerbaijan. Communication between the riparian states on the Original Project interventions had been deemed unnecessary and a waiver on notification was granted by Europe and Central Asia Vice President. The policy remains triggered for the AF although is not directly applicable to it. The same is true for OP/BP 4.37: it was triggered for the Original Project, because conversion of Geghardalich pumping scheme to gravity implied switching of water abstraction from Azat reservoir to the Geghardalich reservoir and expansion of the latter to be achieved by increasing the height of the existing dam from 13.9 m to 15.5 m. The policy remains triggered for the AF Project although is not directly applicable to works to be supported by the AF.

During earth works undertaken so far under the Original Project, no chance finds have been encountered. In case this occurs in future during works supported by the Original Project or the AF, the detailed course of action meeting requirements of the national legislation and of the OP/BP 4.11 is provided in the EMF.

### **Risk**

The overall risk rating for the proposed AF and the Original Project is rated Substantial as assessed in the Systematic Operations Risk Rating Tool (SORT). The following three key risks have been identified:

(i) *Political and Governance*: Domestic political developments have impacted implementation progress and resulted in delays. After the 2017 change in government, those dynamics contributed to polarized debates on some key elements of the Bank program. Some continued uncertainty exists after Parliamentary elections in April 2017 in conjunction with a weak fiscal situation. Moreover, as a result of the transfer of the WUAs' support function to the SCWE two years ago and an inadequate support by the SCWE, the last two seasons of irrigation performance by the WUAs have been subpar (primarily from a financial perspective). The Bank team continues the dialogue with the SCWE on these issues to mitigate these risks. This risk is considered "Substantial".

(ii) *Environment and Social*: This risk is maintained at "Substantial" given the nature of the complaints from communities related to the Kaghstrashen and Geghardlich Gravity Schemes. In response, the GOA identified a compromise solution with local communities and redesigned these two schemes. The Bank and the PIU also agreed on an enhanced monitoring plan as well as an engagement and communication strategy to ensure that any negative impacts or potential disruptions arising during the course of the project would be adequately addressed. Additional monitoring indicators are also put in place to help minimize these risks (refer to detailed information in Citizen Engagement section). It should be highlighted, however, that the nature of the works under the AF are of a low risk variety (small scale and scope).

(iii) *Stakeholders*: The participation of farmers in WUA activities is critical to the successful implementation and adoption of these works. This includes collection of tariff payments for this infrastructure to support its O&M and hence long-term sustainability. To mitigate these risks, the project will keep monitoring communication activities targeting the farmers in order to improve their participation in WUA activities and ensure a transparent decision making process. A separate activity is also being done (by the Bank) to examine voice and accountability issues related to the stakeholders of the WUA. This is especially important in the context of the tertiary system under the AF. This risk is considered "Substantial".

## **V. World Bank Grievance Redress**

Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of the World Bank's non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

## Annex 1: Revised Results Framework and Monitoring

### Project Development Objectives

#### PDO Statement

The PDO is (i) to reduce the amount of energy used and to improve the irrigation conveyance efficiency in targeted irrigation schemes; and (ii) to improve the availability and reliability of important sector data and information for decision makers and other stakeholders.

**These results are at** | Project Level

### Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values							Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR1	YR2	YR3	YR4	YR5	YR6	End Target			
Amount of energy saved annually in operating the irrigation system	<input type="checkbox"/>	Gigawatt-hour (GWh)	0.00	0.00	0.00	16.80	36.80	36.80	36.80	[ORIGINAL : 38.00] 36.80	Annual	State Committee of the Water Economy (SCWE) database of energy bills for WSAs and WUAs-WUA SG database on WUAs recurrent costs	WUAs' SG
<b>Revised:</b> Water losses reduced in rehabilitated canals  [ORIGINAL: Lost liters per second per 100 meters in the targeted irrigation schemes (to	<input type="checkbox"/>	[ORIGINAL: Number]  Mln. Cubic meter	0	0	0	23.58	23.58	23.58	23.58	[ORIGINAL : 0.71] 23.58	Annual	PIU and technical consultants	Technical consultants' reports– PIU progress reports

measure improved conveyance efficiency)]													
Data about O&M and EM used by SCWE, WSAs and WUAs for decision making	<input type="checkbox"/>	Text	Not available	Not available	Completed	Disseminated among decision makers	Most of recommendations adopted	Most of recommendations adopted	Most of recommendations adopted	[ORIGINAL : Most of recommendations adopted] Data used for budgetary and investment planning purposes	Once	Consultant's report	Consultants/SCWE-WSAs-WUAs
Technical audit of irrigation agencies used by MOEINR and SCWE for decision making		Text	Not available	Not available	Completed	Disseminated among decision makers	Most of recommendations adopted	Most of recommendations adopted	Most of recommendations adopted	[ORIGINAL : Most of recommendations adopted] Data used for budgetary and investment planning purposes	Once	Consultant's report	Consultants/SCWE-WSAs-WUAs
Percentage of WUAs having water intakes tracked by SCWE in real time.	<input type="checkbox"/>	Percentage	0.00	0.00	80.00	100.00	100.00	100.00	100.00	100.00	Annual	WUAs SG field visits reports and GIS database	WUAs SG

### Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values							Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR1	YR2	YR3	YR4	YR5	RY6	End Target			
Number of Pump Stations shut down	<input type="checkbox"/>	Number	0.00	0.00	0.00	2.00	4.00	4.00	4.00	4.00	Annual	PIU progress reports	PIU
Length of outlet canals receiving water from pumping stations that have been rehabilitated	<input type="checkbox"/>	Kilometers	0.00	0.00	15.20	47.10	52.00	52.00	52.00	52.00	Annual	Contractors' reports.	Contractors/PIU

Observation points equipped with Installation of limnographs and water measurement devices for the SCADA system	<input type="checkbox"/>	Number	0.00	0.00	71.00	71.00	71.00	71.00	71.00	71.00	Twice, at the end of year 1 and at the end of year 2	Provider and installation company's report	PIU
Area provided with irrigation and drainage services - Improved (ha)	<input checked="" type="checkbox"/>	Hectare(Ha) Sub-Type Breakdown	0.00	0.00	0.00	9977	12932	12932	12932	12932	Annual	WUAs' support group GIS irrigation database	PIU
Operational water user associations strengthened (number)	<input checked="" type="checkbox"/>	Number	0.00	0.00	44.00	44.00	44.00	44.00	44.00	[ORIGINAL: 44.00] 37	Annual	WUAs' Support Group Logbook of implemented training and support activities	PIU
Water users provided with improved irrigation and drainage services (number)	<input checked="" type="checkbox"/>	Number	0.00	0.00	0.00	8816	12336	12336	12336	12336	Annual	WUAs' Support Group technical database and survey	PIU
Water users provided with improved irrigation and drainage services - female (number)	<input checked="" type="checkbox"/>	Number Sub-Type Breakdown	0.00	0.00	0.00	353.00	493.00	493.00	493.00	493.00	Annual	WUAs' support group technical database and survey	PIU
WUAs staff trained	<input type="checkbox"/>	Number	0.00	0.00	220.00	220.00	220.00	220.00	220.00	220.00	Annual	WUAs training activities logbook	PIU
WUAs' women staff trained.	<input type="checkbox"/>	Number Sub-Type	0.00	0.00	80.00	80.00	80.00	80.00	80.00	80.00	Annual	WUAs' training	PIU

		Breakdown										activities logbook	
Presence of women in WUAs' executive bodies (excluding water masters)	<input type="checkbox"/>	Percentage	4.00	4.00	6.00	8.00	10.00	10.00	10.00	10.00	Annual	WUAs Support Group Administrative Database	WUAs' SG
Number of site specific ESMPs prepared	<input type="checkbox"/>	Number	0.00	1.00	3.00	4.00	4.00	4.00	4.00	4.00	Semi-annual	Safeguards Reports	PIU
<b>New:</b> % of grievances responded within 5 business days		Percentage	0	0	0	0	0	100	100	100	Semi-annual	PIU GRM database	PIU
<b>New:</b> % beneficiaries who report that their needs have been reflected in project design (disaggregated by gender)*		Percentage	0	0	0	0	0	30	70	70	At end of year 2	Survey	PIU

\*The proposed new indicator relates to Baghramyian-Norakert Tertiary Network Project.

#### Annex 4 (cont'd): Revised Results Framework and Monitoring

##### Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)
Amount of energy saved annually in operating the irrigation system	Due both to conversion schemes and rehabilitation of outlet canals in pumping schemes
Water losses reduced in rehabilitated canals	An average seepage loss of 1.94 l/s per 100 meters of canal was reported by PIU. They estimate that repair of the identified canals would reduce these losses by 65% and as such the estimated annual water "savings" is calculated
Data about O&M and EM used by SCWE, WSAs and WUAs for decision making	The data will be used by SCWE for identifying the financial gap between available and needed resources. The data will be used by WSAs and WUAs for improving investment planning.
Technical audit of irrigation agencies used by Ministry of	The recommendations of the study will help MOEINR/SCWE to identify the

Energy Infrastructures and Natural Resources <sup>4</sup> (MOEINR) and SCWE for decision making	measures to be taken to increase efficiency and sustainability of the irrigation agencies (Water Supply Agency (WSA) and WUAs).
Percentage of WUAs having water intakes tracked by SCWE in real time.	This relates to the installation of real-time measurement devices at the intake points for each of the WUAs

### **Intermediate Results Indicators**

Indicator Name	Description (indicator definition etc.)
Number of Pump Stations shut down	No description provided.
Length of outlet canals receiving water from pumping stations that have been rehabilitated	No description provided.
Observation points equipped with installation of limnographs and water measurement devices for the SCADA system	Introduction of real-time water level measurement devices.
Area provided with irrigation and drainage services - Improved (ha)	No description provided.
Operational water user associations strengthened (number)	This indicator measures the number of water user associations strengthened under the project that are operational.
Water users provided with improved irrigation and drainage services (number)	This indicator measures the number of water users who are provided with improved irrigation and drainage services under the project.
Water users provided with improved irrigation and drainage services - female (number)	No description provided.
WUAs staff trained	It includes both full training and refresher courses.
WUAs' women staff trained.	It includes both full training and refresher courses.
Presence of women in WUAs' executive bodies (excluding water masters)	No description provided.
Number of site specific ESMPs prepared	The sites that foresees specific ESMPs are the four conversion schemes, Meghri, Geghardlich, Baghramyan and Kaghtsrashen.

<sup>4</sup> Previously SCWE was under the Ministry of Territorial Administration but later it was transferred under the Ministry of Agriculture and in October 2016, it was moved under the Ministry of Energy Infrastructures and Natural Resources.

**PROJECT PROCUREMENT STRATEGY FOR DEVELOPMENT**  
(updated as of September 14, 2017)

**1. Project Overview**

<b>Country:</b>	Armenia
<b>Full Project Name:</b>	Additional Financing to Armenia Irrigation System Enhancement Project (P127759)
<b>Total Finance (\$): without GOA co-financing</b>	2,000,000
<b>Project Number:</b>	P161538

**i. Project Description and Development Objectives:**

This Additional Financing (AF) is in line with these development objectives of the Original Project. The proposed AF is aligned with the Armenia Country Partnership Strategy (CPS) for FY2014-FY2017 (2016, Report No. 98735-AM). In particular, this AF will support “*more efficient irrigation network as a result of targeted investments and informed decision making*” under Objective 1.3: Improve efficiency and sustainability of irrigation and pasture-land as key inputs to rural economy.

The Project Development Objectives (PDO) are the same as for the Original Project, i.e.: (i) to reduce the amount of energy used and to improve the irrigation conveyance efficiency in targeted irrigation schemes; and (ii) to improve the availability and reliability of important sector data and information for decision makers and other stakeholders.”

The activities to be financed by the AF are aligned with the Original Project PDO and aimed at fully achieving the Original Project outcomes by the proposed closing date (June 30, 2019). The AF is needed to enhance the Project benefits from planned investments in main and secondary infrastructure (for the Baghramyan-Norakert scheme) by rehabilitating deteriorated tertiary infrastructure.

**ii. Result Indicators:** The PDO results indicators include:

- Energy savings of slightly more than 36.8 million Kw/h, equivalent to about 30 percent of the total needs of the irrigation system in Armenia;
- Improvement in conveyance efficiency of the outlet canals of selected schemes by reducing water losses by over 24 Mm<sup>3</sup> annually.

**2. Strategic Assessment of Country, Borrower and Marketplace**

**a. Operational Context**

Since the tertiary system is either non-existent or in very poor condition and as a result the proposed lands have not been irrigated for several seasons now, building a tertiary system for the Baghramyan-Norakert scheme will ensure that the benefits from the investment in the main and secondary system are realized. This would provide waters (from the main canal) to 573 ha. The estimated economic rate of return for this investment is around 17%.

#### **b. Client Capability and PIU Assessment**

The fiduciary function (procurement and financial management) under the Project will be assigned to the Water Sector Projects Implementation Unit (PIU) at the State Committee of Water Economy (SCWE), which will be responsible for planning and budgeting, as well as procurement activities, accounting, financial reporting, flow of funds, internal controls, and coordinating external audits. The PIU has successfully implemented a number of projects financed by investment partners. Procurement Specialists of the PIU have the required experience and continuously attend trainings organized by the World Bank locally and regionally. The PIU's procurement staff has taken the appropriate training for application of STEP.

Environmental and Social Impact Assessments (ESIA) were carried out for the Meghri, Geghardlich, Kaghtsrashen, and Baghramyan-Norakert gravity schemes. While the initial quality of reports from the consultants was weak, the PIU has managed to upgrade the quality of these documents with hands-on support from the Bank's team. Draft final ESIA reports were disclosed and public consultations held to the satisfaction of the Bank team. Compliance with on-going Environmental and Social Management Plans (ESMPs) has been satisfactory.

#### **c. Market analysis**

During the implementation of the Original Project, the main reason for additional financing is that for the Baghramyan-Norakert scheme, the existing tertiary system is not functioning sufficiently. As such, an investment in only the main and secondary gravity canals will not realize the full economic potential without a functioning tertiary system in place. This tertiary must be rehabilitated to allow farmers to enhance their overall water use efficiency. While the size and complexity of the envisaged civil works contract is not attractive for the foreign companies, however the local market is able to provide the enough number of competitors (there are at least 7-8 companies specialized in irrigation sector), who are adequately equipped (experienced staff and machinery), have the appropriate capacity and financial resources to ensure the quality and timely implementation of works.

### **3. Procurement Risk Analysis**

Although the 2009 Country Procurement Assessment Review (CPAR) concluded that the public procurement environment in Armenia is in the medium- to high-risk category, the fiduciary risk is assessed to be "Moderate" for this grant since the fiduciary functions within the Project are assigned to the PIU which has the required experience.

Risk Description	A	B	Overall Risk Rating (A*B)	Description of proposed mitigation through the procurement process	Risk owner
	Likelihood Rating	Impact Rating			
Low participation of bidders	2	2	4	Application of e-procurement system (ARMEPS) for the procurement under the NCB procedures provides the equal possibility to wide range of bidders, and allows to increase the transparency and fairness of the procurement process.	PIU/ SCWE
Delay in the procurement and implementation processes	2	5	10	Advance development of the bidding documents  Coordinate the schedule of the envisaged public consultation on environmental and social implications of the Project with the procurement/ selection processes.	PIU/ SCWE Stakeholders
Delays in the project implementation due to possible restructuring of the PIU	2	4	8	The Bank team will closely cooperate with the PIU and SCWE, to be able to organize the quick re-assessment of the implementation capacity and arrangements, provide the necessary advisory and technical service, as well as the capacity building support.	WB/ PIU/ SCWE

#### **4. Stakeholder Analysis**

The key beneficiaries of the Project are the Water Supply Agency (WSA), WUAs receiving irrigation water from the schemes selected for the Project intervention, and rural communities cultivating land within the areas irrigated from these schemes. SCWE, as well as other related ministries (e.g. Ministry of Agriculture) are also Project stakeholders.

Following to the principles of disclosure and consultation representatives of the central and local governmental agencies, academic circles, NGOs, and WUAs will be given opportunity to place questions/comments pertaining environmental and social implications of the Project. During the course of implementation of the Original Project, the stakeholders risk has been upgraded from “Moderate” to the “Substantial”.

#### **5. Procurement Objectives**

The activities to be financed by the AF are aligned with the Original Project PDO and aimed at fully achieving the Original Project outcomes by the proposed closing date. The AF is needed to address a financing gap caused by an increase in the actual cost for construction works (compared to at the time of appraisal) to enhance the Project benefits from planned investments in main and secondary infrastructure (for the Baghramyian-Norakert scheme). Activities to be funded by the AF are either already included in the Original Project or correspond to a scaling-up of investments for which equivalent designs have already been developed under the Project. The activities are not foreseen as having any new potential environmental or social impacts, and there are no changes in triggered safeguards policies.

## **6. Recommended Procurement Arrangements for the Project**

- 1. Activity description:** (i) procurement of works (Construction of Baghramyian-Norakert On-Farm Irrigation Network); (ii) selection of local consulting firm for conducting technical supervision over construction of Baghramyian-Norakert on-farm irrigation network; and (iii) direct selection of an audit firm for conducting project financial audit (currently “SOS Audit” Ltd implements the Original Project financial audit and the consultant’s performance is satisfactory).
- 2. Activity category:** civil works and consultancy (technical supervision and audit)
- 3. Any Other Special Procurement Arrangements (i.e. Advance procurement):** The PIU is going to proceed with the procurement process before signing the Legal Agreement, ensuring that the eventual contracts are eligible for Bank IPF the procurement procedures, including advertising, and consistent with Sections I, II and III of these Procurement Regulations (July, 2016). The PIU will undertake such Advance procurement at its own risk, and any concurrence by the Bank on the procedures, documentation, or proposal for award of contract, does not commit the Bank to finance the project in question. The PIU will use ARMEPS (e-Procurement) for aspects of the Procurement Process, including: issuing Procurement Documents, and addenda, receiving bids, and carrying out other procurement actions. The Project Operational Manual will be supplemented with statements related to the new procurement arrangements, before starting the implementation process.
- 4. Estimated cost:** the tax inclusive cost estimation of each activity has been calculated on the basis of required person/time input (for consultancy services) and local market prices for construction materials and works (for civil works).
- 5. Risk rating:** Moderate
- 6. Preferred arrangement for low value low risk activities**

<b>Activity</b>	<b>Category</b>	<b>Estimated cost in USD</b>	<b>Procurement arrangement</b>
Construction of Baghramyian-Norakert On-Farm Irrigation Network	Civil works	1,932,000	Request for Bids – National Open Competitive Procurement
Technical supervision over	Consultancy	60,000	Consultant’s qualification

construction of Baghramyan-Norakert On-Farm Irrigation Network	service		based selection- Open competitive selection among national companies
Audit of the Project (including grace period)	Consultancy service	8,000	Direct Selection

The PIU will be guided by the “Procurement Regulations for IPF Borrowers” (July, 2016). **The following Requirements for national open competitive procurement will be followed:**

- a. open advertising of the procurement opportunity at the national level;
- b. the procurement is open to eligible firms from any country;
- c. the request for bids document requires that Bidders submitting Bids present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the Bank’s Anti-Corruption Guidelines, including without limitation the Bank’s right to sanction and the Bank’s inspection and audit rights;
- d. contracts with an appropriate allocation of responsibilities, risks, and liabilities;
- e. publication of contract award information;
- f. rights for the Bank to review procurement documentation and activities;
- g. an effective complaints mechanism;
- h. due attention to quality aspects is give; and
- i. maintenance of records of the Procurement Process.

The Sample Bidding documents (procurement of Small works) and Sample forms of Lump-sum and time-based contracts for Consultancy assignments used by implementation of the Original Project will be adopted accordingly and applied.

## 1. Procurement Plan

<u>Description</u>	<u>Reference No.</u>	<u>Procurement Category</u>	<u>Procurement Method</u>	<u>Bank Financed %</u>	<u>Review Type</u>	<u>Planned procurement/selection processes Start Date</u>
Construction of Baghramyan-Norakert On-Farm Irrigation Network	ISEP/AF/NCB/CW-17/001	CW	NCB	80	Post	2017/11/15
Technical Supervision over Construction of Baghramyan-Norakert On-Farm Irrigation Network	ISEP/AF/CQS/CS-17/001	CS	CQS	80	Post	2017/11/15
Audit of the Project (including grace period)	ISEP/AF/CDS/CS-17/001 AUD	CS	DS	80	Post	2018/10/20

