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RA MINISTY OF TERRITORIAL ADMINISTRATION AND INFRASTRUCTURE

WATER AND IRRIGATION SERVICES ENHANCEMENT PROGRAM (P508124)

PHASE 1 OF THE MULTI-PHASE PROGRAMMATIC APPROACH

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

FOR THE

WATER AND IRRIGATION SERVICES ENHANCEMENT PROGRAM PHASE 1

PREPARED BY

Ministry of Territorial Administration and Infrastructure of Armenia

DRAFT

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ACRONYMS

ACM	Asbestos containing materials
AFD	Agence Francaise de Developement
BoQ	Bills of Quantities
BMP	Biodiversity Management Plan
DED	Detailed Engineering Design
DPM	Deputy Prime Minister
ESCP	Environmental and Social Commitment Plan
EMIB	Environmental and Mining Inspection Body
ESCOP	Code of Environmental and Social Practice
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health, and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
EU	European Union
FGRM	Feedback and Grievance Redress Mechanism
FS	Feasibility Study
GoA	Government of Armenia
GRC	Grievance Redress Committee
H&S	Health and Safety
HLIB	Health and Labor Inspection Body
HMC	Hydrometeorology and Monitoring Center
IA	Implementation Agency
IBRD	International Bank for Reconstruction and Development
ILCS	Integrated Living Conditions Survey
ILO	International Labor Organization
IPF	Investment Project Financing
IS	Irrigation Schemes
KPI	Key Performance Indicators
LMP	Labor Management Procedures
LSGB	Local Self-governance Bodies
MoE	Ministry of Environment
MoESCS	Ministry of Education, Science, Culture and Sports
MSIP	Management Strategies and Implementation Plans
MTAI	Ministry of Territorial Administration and Infrastructures
OHS	Occupational Health and Safety
PCT	Project Coordination Team
PDO	Project Development Objective
PEA	Project Execution Agency
POM	Project Operations Manual
RF	Resettlement Framework
RoA	Republic of Armenia
SEP	Stakeholder Engagement Plan
SNCO	State Non-Commercial Organization

TA	Technical Assistance
ToR	Terms of Reference
WB	World Bank
WBG	World Bank Group
WC	Water Committee
WSA	Water Supply Agency
WSS	Water Supply and Sanitation
WMP	Waste Management Plan
WUA	Water User Association

EXECUTIVE SUMMARY

I. Project Context

Water and Irrigation Services Enhancement Program Phase 1 (or hereafter "the WISE Project", or "the Project") aims to enhance the sustainability and reliability of water service delivery by modernizing irrigation and Water Supply and Sanitation (WSS) infrastructure, strengthening policy and institutional frameworks, and improving climate forecasting and management capacity. It focuses on five key areas: (i) expanding irrigated areas through rehabilitation and modernization, with a focus on reducing energy consumption in pumped irrigation; (ii) expanding access to safely managed water supply by improving water systems in unserved rural settlements; (iii) developing a comprehensive National Water Strategy, Standalone Irrigation and WSS strategies, National Irrigation Master Plan and a tariff reform program; (iv) strengthening water sector agencies and Water User Associations (WUAs) through capacity-building, financial sustainability measures, and technological upgrades; and (v) data collection and investment planning for WSS in unserved areas.

II. ESMF Approaches, Rationale, Objectives and Scope

A framework approach has been adopted, as decisions on specific investments, their detailed technical designs, and site locations will be made during project implementation. Therefore, the project will utilize framework instruments to guide the necessary assessments and the preparation of site-specific environmental and social management plans (ESMPs).

The Environmental and Social Management Framework (ESMF) applies to all project components (refer to 1.3) and outlines the necessary requirements to comply with the environmental and social (E&S) laws and regulations of the Republic of Armenia (RoA), as well as the World Bank's (WB) Environmental and Social Standards (ESSs) and the World Bank Group's (WBG) Environmental, Health, and Safety Guidelines (EHSGs).

The ESMF establishes principles, rules, guidelines, and procedures for assessing the E&S risks and impacts of each type of anticipated project investment, including screening criteria for proposed activities. It provides a framework for generic mitigation measures to be undertaken at all stages—from identification and selection through design and implementation to monitoring and evaluation of results.

Additionally, the ESMF outlines the responsibilities of agencies tasked with addressing project risks and impacts, including an assessment of their capacity to manage E&S risks effectively. It also includes templates to facilitate the preparation of management tools as required by established procedures.

III. Project Description

The Project Development Objective (PDO) is to provide improved access to efficient and financially sustainable irrigation and rural WSS services in selected areas of Armenia. The project is part of a 10-year Multi-phase Development Approach (MPA) that aims to improve the delivery of irrigation and rural WSS services across Armenia. Phase 1 is designed to enhance climate-resilient irrigation and WSS services. It will equip six Water User WUAs with modern irrigation systems and enhance irrigation service efficiency through upgrades to primary, secondary and tertiary networks in selected schemes to boost climate resilience towards drought, floods and extreme heat. Phase 1 will also improve access to sustainable WSS services by developing rural WSS investment plans and upgrading water supply infrastructure. It will also prepare FSs, designs, and bidding documents for Phase 2 investments.

Further, Phase 1 will also include Performance-based Conditions (PBCs) to support policy, legal and institutional reforms as well as a learning program that documents insights to guide implementation through research, data analysis and policy development. The project implementation period of Phase 1 will be six years.

Phase 1 of the project includes four components, including one component with PBCs, as follows:

a. **Component 1. Water Sector Reform and Institutional Strengthening (US$20M)** supports MTAI and the Water Committee (WC) in key priority areas, including the development of national strategies for water, irrigation, and rural drinking water and sanitation; revision of irrigation tariffs based on land use and water consumption; establishment of an Asset Maintenance Fund and Plan for modernized irrigation schemes (IS); creation of Rural WSS units with defined agreements, performance indicators, and monitoring systems; and the launch of a National Irrigation Water Accounting and Adaptation Center (IWAAC) to enhance water management and adaptation efforts.) with PBCs. This component will also include two PBCs that seek to support institutional capacity building within MTAI, WC and WUAs.

b. **Component 2. Rural WSS Enhancement (US$30M)** will focus on providing improved access to efficient and financially sustainable rural WSS services in selected areas of Armenia. This includes a combination of institutional strengthening, capacity building as well as regulatory reforms, FS and infrastructure assessments. This subcomponent will support FSs and detailed engineering designs (DEDs) for high-priority WSS investments to enhance resilience against climate-induced droughts, floods, and extreme heat under both phases of the MPA. Based on an agreed investment plan with the Government of Armenia (GoA), it will implement 'no-regret' infrastructure and service improvements in the most critical unserved settlements, considering technical, economic, socio-political, and institutional factors.

c. **Component 3. Modernizing Irrigation Infrastructure & System Management (US$119M)** will finance rehabilitation and modernization of selected irrigation systems at main, secondary, and tertiary canal levels currently managed jointly by WSA at the large main canal and reservoirs level and by WUAs at the secondary and tertiary distributary level. The total command area of the irrigation systems under consideration is about 39,580 ha which will be selected based on hydrological, technical, economic, and agricultural parameters, under a Framework Approach[1]. Similarly, for Phase 2 a total of additional 4 ISs were short-listed for consideration under this phase.

d. **Component 4: Project Management (US$6M).** An interim WISE Project Coordination Team (PCT) will be housed within the WC and will assume primary responsibility for project implementation, including implementation of civil works and related procurement and financial management (FM), compliance with agreed E&S management measures, and project monitoring and evaluation (M&E). This component will finance staff costs; coordination of the project-financed activities with other ongoing International Financial Institution (IFI) projects in the water sector; design, implementation, and reporting of baseline and project completion surveys; and the preparation of assessment studies (e.g., pre-feasibility and FSs), DEDs, and

[1] This is an indicative number based on the assumption that all short-listed schemes will qualify for project investment upon completion of the preliminary and detailed design studies. This number is considered as a 'high scenario' and the final project areas may be reduced after selection of I&D schemes for the project rehabilitation program, which also has implications for the total beneficiaries under the project.

construction supervision. The component will also include capacity building support for the PCT, including citizen engagement training skills for the staff of the PCT.

IV. Project Financing

The Project will finance four components for the total cost of US$175M (out of which US$80M is proposed to be financed by IBRD, US$70M by AFD, US$20M by GoA, and US$5M will be an EU grant (via AFD)). Project implementation will be six years.

V. Potential Environmental and Social Impacts of the Activities

The overall E&S risk is assessed as substantial for both environment and social. While the Project is envisaged to result in positive E&S outcomes through institutional strengthening of key agencies, as well as improved sustainability, resilience, and quality of water supply and services in Armenia, there could be residual impacts due to the quality of project implementation and institutional capacity for risk management, particularly during the initial stage of the project implementation. Potential impacts that typically result from medium-scale rehabilitation and/or construction works include generation of construction and organic wastes, dusts and noise pollution, land acquisition and restrictions on land use, occupational and community H&S for workers and host communities associated with construction activities. Dam safety requirements will be assessed prior to appraisal considering potential construction of small-scale regulating reservoirs.

Social risks may arise from inadequate stakeholder engagement, excluding vulnerable groups from project benefits, policy decisions, and capacity-building opportunities in the water sector. Inequitable access to water resources, whether real or perceived, could lead to conflicts and community tensions. Tariff reforms may further exacerbate these issues by creating perceptions of unfair benefits or financial burdens, particularly for poor and vulnerable populations facing reduced access to water services. SEA/SH rating is assessed as moderate primarily associated with small- to medium-scale construction activities and labor mobilization and the project's potential operations in rural settings.

Negative impacts, typical for medium-scale civil works under the project include generation of inert construction, hazardous, and organic waste (e.g., from vegetation clearing in existing WSSs and ISs), noise, dust, sedimentation, Occupational and Community H&S risks due to vehicle/machinery movement. These impacts are expected to be low to medium in magnitude, temporary, and revisable. Project activities are not expected to affect any known historical/cultural monuments and intangible cultural; ESS8 is considered relevant as a pre-cautionary measure for potential chance finds of physical cultural heritage. No impacts on intangible cultural heritage are envisaged.

Operation of irrigation and WSSs systems will improve quality of life for rural communities and reduce likelihood of water-borne disease outbreaks, but it may pose E&S risks, primarily due to: (i) increased nutrient and pollutant concentrations at discharge points, which can degrade surface and groundwater quality in natural aquifers; and (ii) increased water uptake from surface or groundwater sources, which may cause environmental impacts, including competition for water use, resulting in moderate to substantial long-term consequences on ecosystem balance, depending on the source and volume of water extracted. Additionally, intensified agriculture may cause soil and water pollution from agrochemical misuse.

The roll out of specific interventions contemplated in the future National Water Strategy, the National Irrigation Strategy, and the National WSS Strategy to be developed under Subcomponent 1.1 could have potential adverse implications if not properly assessed. These could include: i) disruption of water balance and alteration of ecosystems and habitats; ii) pollution from insufficiently treated wastewater near discharge points; iii) lack of resilience in the irrigation sector to climate change

impacts. The medium and long-term E&S outcomes will depend on how effectively these risks are addressed during the development of the strategies and managed by the preparation of a Strategic Environmental and Social Assessment (SESA) in line with ToR to be developed as per the Environmental and Social Commitment Plan (ESCP).

VI. Management of Environmental and Social Risks and Impacts

E&S risk screening will be conducted to determine the level of assessment and planning required for the sub-project proportionate to the significance of associated risks and potential impacts. E&S risk screening is a two-step process that begins with screening against the exclusion criteria followed by screening of site-specific risks.

The latter will take into account i) the type, location, sensitivity and scale of the sub-project activities being proposed; ii) the nature and magnitude of the potential E&S risks and impacts; iii) the capacity of the responsible implementing entities to manage such risks and impacts in a manner consistent with the ESSs; and iv) other areas of risk that may be relevant to the delivery of E&S mitigation measures and outcomes, depending on the specific sub-project and the context in which it is being prepared.

A site-specific Environmental and Social Impact Assessment (ESIA), along with an ESMP, will be required for subprojects classified as substantial risk to address potential risks and impacts and/or comply with national environmental permitting laws. For moderate-risk subprojects, a stand-alone ESMP will be prepared unless a specific activity presents distinct E&S risks that necessitate an ESIA. A Code of Environmental and Social Practice (ESCOP) will be adopted for low-risk and some moderate-risk subprojects, unless renovation and/or rehabilitation activities pose specific E&S risks that require a site-specific ESMP.

The project's activities will be guided by a Stakeholder Engagement Plan (SEP), ensuring meaningful stakeholder engagement, public consultations, information disclosure, and grievance management. The SEP will integrate feedback from stakeholders, with a particular focus on project-impacted people and vulnerable groups, incorporating their inputs into technical solutions, project designs, and site-specific ESMPs.

The management of land acquisition and its associated livelihood impacts will be guided by a Resettlement Framework (RF), a standalone document closely linked to the Environmental and Social Management Framework (ESMF). Likewise, labor and working conditions will be governed by the Labor Management Procedures (LMP), another standalone document that remains aligned with the ESMF.

VII. Project Implementation Arrangement

Overall responsibilities for the project implementation will be located within the Ministry of Territorial Administration and Infrastructures (MTAI) and the WC. Day-to-day implementation will be supported by the PCT within the WC. Implementation of Components 1 - 3 will be conducted through the MTAI. A project Steering Committee will be established at the level of the Deputy Prime Minister's (DPM) office to oversee and monitor the overall progress of the project. The project director will likely report directly to the Steering Committee. The development of the National Water Strategy, the National Irrigation Strategy, and the National WSS Strategy will be carried out under the leadership of the DPM's office and executed by the MTAI's and the WC with close involvement of all stakeholders engaged in the water sector in Armenia, as well as other entities involved in water sector development

The PCT will be responsible for identifying subproject interventions for each component, developing bidding documents, procuring consultancy services and subproject designs. The PCT will ensure LMP are integrated into the bidding documents/ works contracts. Additionally, it will manage the procurement of civil works and ensure technical supervision.

The PCT's E&S specialists will ensure project implementation is in consistency with all relevant E&S requirements. These requirements include adoption and implementation of framework E&S management instruments as well as development and application of site-specific environmental and social management tools, oversight on E&S performance, and reporting on the E&S impacts and outcomes of the project. The E&S Specialists will ensure that the Bills of Quantities (BoQ) for the designs of subprojects under Components 2 and 3 include Environmental, Social, Health, and Safety (ESHS) provisions and that the technical proposals submitted by bidders include a budget line for ESHS implementation. The E&S Specialists will also contribute to the development of the ToR for the TA, ensuring that ESMF requirements are incorporated.

The E&S Specialists of the PCT will also carry out supervisory visits to the construction sites of subprojects under Components 2 and 3 to ensure that the implemented works comply with the requirements outlined in the ESMPs and ESCOP.

CHAPTER 1. INTRODUCTION

The Water and Irrigation Services (WISE) Project is Phase 1 of a 10-year Multi-phase Programmatic Approach Program that is currently being developed to improve the delivery and rural WSS services across Armenia. The program is integral to supporting the government's vision to address the following ten priority areas of investment for responding to critical challenges in the country's water sector, as laid out by the Prime Minister in May 2024: (i) lack of adequate drinking water supplies to 500+ rural settlements; (ii) low water storage availability; (iii) poor financial sustainability of the water sector; (iv) poor ecological quality of water bodies and limited coverage and efficiency of WWTPs; (v) high water losses in agriculture due to deteriorated irrigation systems; (vi) diminishing Lake Sevan water quantity and quality; (vii) high depletion and poor water quality of the Ararat Artesian Basin (AAB) groundwater aquifer; (viii) low water use efficiency in most irrigated systems,; (ix) limited water use monitoring and no water balance; and (x) high energy consumption and high costs to operate most irrigation infrastructure. The MPA is expected to run over a 10-year period.

Phase 1 (US$175 million, of which US$80 million will be provided by IBRD, US$20 million by GOA, and $75 million from AFD) will enhance climate-resilient irrigation and WSS services. It will equip six WUAs with modern irrigation systems and enhance irrigation service efficiency through upgrades to primary, secondary, and tertiary networks in selected schemes to boost climate resilience towards drought, floods and extreme heat. It will also prepare FSs, designs, and bidding documents for Phase 2 investments. To improve efficiency and operational financial sustainability, the project will strengthen the WSA by establishing a modern asset management system and creating the Irrigation Water Accounting and Adaptation Center (IWAAC) for water and climate monitoring that will support climate adaptation planning and subsequent decision making, including for emergency response plans in the event of a climate disaster. Phase 1 will improve access to sustainable rural WSS services by developing rural WSS investment plans and upgrading water supply infrastructure that will incorporate engineering design principles from the Resilient Water Infrastructure Design Brief in a limited number of settlements, alongside piloting the identified water supply service option. It will also lay the groundwork for Phase 2 by preparing FSs and scaling up service deliver to boost the climate resilience of WSS services. Financial sustainability will be enhanced through institutional strengthening and drinking water tariff reforms to ensure cost recovery and affordability. Additionally, a Performance Based Condition (PBC) Component will support policy, legal, and institutional reforms, while a learning program will document insights to guide implementation through research, data analysis, and policy development.

The overall E&S risk for this project is assessed as substantial for both E&S aspects. The classification considers potential residual impacts due to the quality of project implementation, including designs, and institutional capacity for risk management, particularly during the initial stage of the project implementation. Potential impacts that typically result from medium-scale rehabilitation and/or construction works include generation of construction and organic wastes, dusts and noise pollution, land acquisition and restrictions on land use occupational and community H&S for workers and host communities associated with construction activities. In view of these potential impacts, the following WB ESSs are considered relevant:

1.1 PROJECT DESCRIPTION

The Project will take an integrated approach to infrastructure modernization and water resource management, improving irrigation, drinking water and sanitation services in Armenia. The project aims to enhance the sustainability and reliability of water service delivery by modernizing irrigation and WSS infrastructure, strengthening policy and institutional frameworks, and improving climate forecasting and management capacity. It focuses on five key areas: (i) expanding drought resilient

irrigated areas through rehabilitation and modernization, with a focus on reducing energy consumption in pumped irrigation; (ii) expanding access to drought and flood resilient, safely managed water supply by improving water systems and developing capacity for sustainable WSS services in unserved settlements; (iii) developing a comprehensive water strategy, standalone irrigation and WSS strategies, and a tariff reform program; (iv) strengthening water sector agencies and WUAs through capacity-building, financial sustainability measures, and technological upgrades; and (v) data collection and investment planning for WSS in unserved areas.

The project will focus on enhanced climate resilient planning capabilities for key agencies to deliver drinking water and irrigation services in Armenia, while mitigating against and adapting to emerging climate threats to the water sector.

PDO is to provide improved access to efficient and financially sustainable irrigation and rural WSS services in selected areas of Armenia.

The project instrument is Investment Project Financing (IPF) with Performance-Based Conditions (IPF-PBC), organized around four components, including two components with PBCs, as follows: (i) Component 1: Water Sector Reform and Institutional Strengthening (with PBCs); (ii) Component 2: Rural WSS Enhancement (with PBCs); (iii) Component 3: Modernizing Irrigation Infrastructure & System Management; and (iv) Component 4: Project Management.

Component 1: Water Sector Reform and Institutional Strengthening (US$20M) PBC component will provide support to the MTAI and the WC in key identified priority areas including: (i) the development of a consolidated National Water Strategy, a National Irrigation Strategy, a Rural Drinking Water and Sanitation Strategy, and a National Irrigation Master Plan to be approved by GoA; (ii) revision of the irrigation sector tariffs system, to transition to setting fixed fees based on actual irrigated land and variable fees based on actual use of water on the irrigated land; (iii) an Asset Maintenance Fund and an Asset Maintenance Plan to be established by the WC and/or WSA dedicated for the proper operations and maintenance (O&M) of any newly modernized irrigation scheme; (iv) the establishment of RWSS units, contractual agreements to govern RWSS, agreement of key performance indicators (KPI), and establishment of FGRM and M&E systems to better monitor RWSS activities; and (v) establishment of a national Irrigation Water Accounting and Adaptation Center (IWAAC). Component 1 includes two sub-components, and PBC, including:

- *Subcomponent 1.1 and PBC 1: Strengthening national water resources policy and planning (US$3.4M).* This PBC will provide support to the MTAI and the WC to develop and approve a comprehensive National Water Strategy, a standalone ten-year National Irrigation Strategy and a Rural WSS Strategy, and an Irrigation Master Plan. This subcomponent will also examine all existing legal frameworks for water sector management in Armenia including the Water Code, the WUA law, and other related legislative acts. PBC 1 includes three sub-PBCs, which are related to the drafting, development, and finalization of (i) a comprehensive National Water Strategy (PBC#1.1), (ii) a National Irrigation Strategy (PBC#1.2), (iii) a Rural Drinking Water and Sanitation Strategy (PBC#1.3). The project will also invest in a National Irrigation Master Plan. The Master Plan will assess technical feasibility, economic viability, environmental sustainability, social inclusivity, and climate adaptation in water-stressed areas. A thorough analysis of agricultural dynamics and market potential will guide investments, with the ToR addressing potential riparian issues under OP 7.5.
- *Subcomponent 1.2: Improving irrigation sector management and service delivery (US$16.6M)* will finance the following activities: (i) Comprehensive institutional reform program to improve functions of the WC and the WSA (US$5.3M), (ii) Implementation of a revised irrigation tariff (US$1.55M), focusing on reforming irrigation sector tariffs, balancing the main

principles of cost-recovery and affordability[2], and transitioning to fixed fees based on irrigated land and variable fees based on water usage, (iii) PBC 2 includes three sub-PBCs, including a) an asset Maintenance Fund is established and dedicated for operations and maintenance (O&M) of any newly modernized irrigation scheme under the WISE project and b) a revised bulk irrigation tariff and the WUA ISF methodology for 6 WUAs is approved and aligns with the WUA law to include 100 percent recovery of O&M costs as well as a two-part structure (fixed and volumetric) for the ISF(PBC#2.2); and c) a tariff roll out plan with communications strategy for outreach to WUAs that will be impacted by an increased tariff and an increased ISF(PBC#2.3). This sub-component will also finance Capacity building program for WUA (US$1.6M), focusing on six target WUAs in Armenia. The assistance will be provided through the re-established WUAs' Support Group and will include strengthening legal, administrative, technical, managerial, and financial management capabilities. Lastly, this sub-component will also support establishment of a National Irrigation Water Accounting and Adaptation Center (US$8.15M). This activity will establish IWAAC within the WC or a new land and water agency to enhance water and irrigation management. Building on Armenia's GIS-based system, it will integrate remote sensing, ground monitoring, and climate data to improve water accounting, crop monitoring, and adaptive irrigation planning.

Component 2. Rural WSS Enhancement (US$30M) will focus on providing improved access to efficient and financially sustainable rural WSS services in selected areas of Armenia. This component consists of the following sub-component:

- *Subcomponent 2.1. Institutional strengthening, capacity building, and regulatory reform (US$7M).* This component will support activities at the national, marz, and the local levels to build institutional capacity for delivering WSS services and expanding coverage. The project will also support the collection of baseline information on the status of the RWSS services in all Marzes, lay out a roadmap for unserved areas, including improving the institutional set-up of the sector, and develop a framework for the sector-wide monitoring system. Additionally, it will focus on the implementation of monitoring and control tools in the WC, to enhance the effectiveness of supervision and control of the WSS sector; implementation of to-be-determined soft measures to improve water quality, increase water quantity, reduce NRW, and increase community satisfaction; a socio-cultural and gender analysis to examine national policies, strategies, sectoral plans, and programs, and to identify gaps related to RWSS services and access in the target areas**;** development of a capacity capacity-building strategy along with a detailed capacity-building plan and associated costs; design and delivery of a learning and Information, Education, and Communications (IEC) program that includes trainings on scheme planning, design, and construction; operations and maintenance; procurement procedures and practices; financial accounting and reporting; monitoring and evaluation; etc.; and the completion of sector development studies to develop the national strategy for the WSS sector (supported by Subcomponent 1.1. In addition to the enabling environment, the project will also focus on investment planning. Specifically, based on the comprehensive assessment regarding RWSS services, the project will develop an investment plan for drinking water in the unserved areas in all Marzes in line with the prioritization criteria agreed with the client.
- *Subcomponent 2.2. FSs and Infrastructure Investments (US$23M).* This subcomponent will support the undertaking of FSs to prepare and structure WSS investments that will withstand climate change exacerbated drought, flood, and extreme heat. Fs and DEDs will be developed

[2] Cost recovery principle: costs for irrigation water supply, at least in terms of operational and maintenance costs, should be covered by the ISF; Affordability principle: ISF should be affordable for the water users.

for the highest-priority investments for implementation under both phases 1 and 2 of the MPA. Based on the prioritization of activities under the investment plan, the subcomponent will implement infrastructure and service improvement interventions deemed to be 'no-regret' in nature for the highest-priority unserved settlements, based on criteria agreed with GoA based on technical, economic, socio-political and institutional considerations. Infrastructure investments will include construction of water networks, including household connections (and connections to schools and healthcare facilities, where necessary), metering, and any necessary water treatment systems, which will incorporate climate resilient engineering principles. In phase 1, these investments are expected to be in Ararat, Kotayk, Aragatsotn, Shirak, and/or Tavush marzes – the confirmation of which will be based on technical, economic, socio-political and institutional considerations.

Component 3. Modernizing Irrigation Infrastructure & System Management (US$119M) will finance rehabilitation and modernization of selected irrigation systems at main, secondary, and tertiary canal levels currently managed jointly by WSA at the large main canal and reservoirs level and by WUAs at the secondary and tertiary distributary level. The total command area of the irrigation systems under consideration is about 39,580 ha (Table 1) which will be selected based on hydrological, technical, economic, and agricultural parameters, under a Framework Approach[3]. Similarly, for Phase 2 a total of additional 4 ISs were short-listed for consideration under this phase. This component consists of the following sub-components:

- *Sub-component 3.1: Modernizing Climate Resilient Irrigation Infrastructure & System Management (US$114 million).* The activities to be carried out in schemes selection include detailed FSs, including Economic and Financial Analysis, and ESIA for rehabilitation/modernization. Final selection of schemes will be based on technical feasibility, estimated investment cost, financial and economic viability, and allocated budget. In addition, the project will engage WUAs at an early stage of design to participate and sign-off on the designs. The following structures will be considered for rehabilitation and/or reconstruction/modernization across the selected schemes: headworks; critical sections of main canals inverted syphons; aqueducts, secondary and tertiary network (pipeline or lined); water control/distribution; outlets; mudflows; flood protection; flow and/or volumetric measurement structures, wherever necessary check structures for easy removal or flushing of trash, bridges, maintenance roads, and related pump stations with aim of identifying technological advancements that can modernize selected systems (e.g., conversion from pumping to gravity or transition from gravity to pressurized pipe networks, where feasible, or construction of off-line canal side regulating reservoirs), and other required ancillary structures. Wherever feasible, the project will maximize elevation to convert from pumped to gravity systems, to reduce energy consumption and minimize GHG emissions. While a large part of the rehabilitation/modernization will involve reconstruction/modernization of original systems, the feasibility and detailed design studies will systematically examine the opportunities to consider water control and delivery structures, that are operated to maintain a constant canal water levels over time – regardless of the flow rate. Climate adaptation and hazard resilience principles will be embedded in the selection and in the technical design of investments based on the Water Global Practice's guidelines.

Table 1: Short-List of ISs for Phase 1

[3] This is an indicative number based on the assumption that all short-listed schemes will qualify for project investment upon completion of the preliminary and detailed design studies. This number is considered as a 'high scenario' and the final project areas may be reduced after selection of I&D schemes for the project rehabilitation program, which also has implications for the total beneficiaries under the project.

No	Irrigation scheme	Water source	WUAs involved in O&M	Command Area (ha)	Actual Irrigated Area (ha)	Type of irrigation	Length of Main Canal (km)	length of secondary distributors (km)
				Phase I				
1	Lower Hrazdan canal	River Hrazdan/Ranchpar p/s	Yerevan WUA, Echmiadzin WUA	11,400	7,000	mixed	53.0	43.00
2	Arzni-Shamiram canal	River Hrazdan/Aparan reservoir	Kotayk WUA, Aragatsotn WUA	20,600	12,000	gravity	89.1	15.2
3	Kotayk canal	River Hrazdan	Kotayk WUA,	4,000	1,400	mixed	32.0	74.0
4	Lori canal	Rivers Tashir and Dzoraget, (also dotaton from Rivers Miskhanka, Agarak and Hovandar)	Lori WUA	3,080	410	gravity	47.6	18.0
5	Debetavan	River Debet	Tavush WUA	500	500	mixed	14.0	3.0
	TOTAL			**39,580**	**21,310**			

- *Sub-component 3.2: Introduction of Supervisory Control and Data Acquisition (SCADA) (US$5 million).* This sub-component will finance two activities. The first activity will be related to field data from throughout the canal and pipeline systems. Following the development of a comprehensive SCADA plan, the field data activity will include (i) accurate real-time measurement of critical flow rates and water levels, (ii) transmission of that data, (iii) organization and archiving of that data, (iv) providing easy access to real-time as well as historical data, (v) standardization of equipment and software for these purposes, (vi) training of an excellent SCADA team of technicians for installation, troubleshooting, and repair, and (vii) establishment of a high quality, well-stocked SCADA center with spare parts, equipment for testing, diagnostics, and component assembly. Of particular importance will be the establishment of data security and backup. Once the first activity is well established, investments will be made for a second SCADA activity. The second SCADA activity will provide limited remote manual operation and monitoring of headwork gates. This will not be the primary focus of SCADA but will provide valuable experience for future Armenian irrigation investments in remote manual and automatic (not included here) operation of gates and monitoring of water distribution in the larger canal systems, where modernization investments will be made. The use of flow measurement data will be integrated. The SCADA system will not only assist operators with real-time information for improved water management; it will also provide historical databases for later analysis and planning.

Component 4: Project Management (US$6M). An interim WISE PCT will be housed within the WC and will assume primary responsibility for project implementation, including implementation of civil works and related procurement and financial management (FM), compliance with agreed E&S management measures, and project monitoring and evaluation (M&E). This component will finance staff costs; coordination of the project-financed activities with other ongoing International Financial Institution

(IFI) projects in the water sector; design, implementation, and reporting of baseline and project completion surveys; and the preparation of assessment studies (e.g., pre-feasibility and FSs), DEDs, and construction supervision. The component will also include capacity building support for the PCT, including citizen engagement training skills to the staff of the PCT.

1.2 ESMF RATIONALE, OBJECTIVES AND SCOPE

Since the specific details and locations of the project investments will be finalized during implementation, with FSs and DEDs conducted in the early stages to guide site-specific investment decisions, a framework approach has been adopted for the project to guide relevant E&S assessments and preparation of the management plans at the sub-project level.

The present Environmental and Social Management Framework (ESMF) serves as a guiding document for the preparation and implementation of all project components, ensuring compliance with the E&S laws and regulations of the RoA, as well as the WB's ESSs and the WBG's Environmental, Health, and Safety Guidelines (EHSGs).

The ESMF establishes principles, rules, guidelines, and procedures for assessing the E&S risks and impacts of each type of anticipated project investment, including screening criteria for proposed activities. It provides a framework for generic mitigation measures to be undertaken at all stages—from identification and selection through design and implementation to monitoring and evaluation of results. Additionally, the ESMF outlines the responsibilities of agencies tasked with addressing project risks and impacts, including an assessment of their capacity to manage E&S risks effectively. It also includes templates to facilitate the preparation of management tools as required by established procedures.

This ESMF applies to the Project's components and activities with potential E&S implications and guides the implementation of relevant ESSs. The Project's SEP serves as a guiding reference for the implementation of stakeholder engagement, consultations, disclosure, and outreach, to address provision of ESS 10 provisions.

The scope of the ESMF also covers Associated Facilities. These include activities that are "i) directly and significantly related to the Project; ii) carried out or planned to be carried out contemporaneously with the Project; and iii) necessary for the Project to be viable and would not have been constructed, expanded or conducted if the project did not exist. Provisions of ESSs relevant for the WISE Project apply to the Associated Facilities, to the extent that the MTAI has control or influence over such Associated Facilities.

This ESMF builds on lessons learned from previous water sector projects, as well as existing procedures and systems within the WC. These projects include, but are not limited to, the Integrated Water Resource Management (Akhouryan River) Project, the Construction of Kaps Reservoir Project, and the Gravity Irrigation System Project, all funded by KfW.
Communal Infrastructure Program (CIP) II, Phase 3, funded by EIB/KfW

The ESMF comprises the following chapters:

- Chapter 1 outlines the introduction and rationale of the ESMF
- Chapter 2 outlines a regulatory analysis of the relevant Armenia's legal framework and gaps with the WB's ESSs
- Chapter 3 outlines the project's E&S risk assessment along with the proposed mitigation measures
- Chapter 4 outlines E&S management processes for activities under the project.
- Chapter 5 outlines implementation arrangements for the E&S management.

The annexes carry technical tools for the preparation of relevant site-specific E&S instruments. The toolkit includes guidelines, forms, and templates that are intended to help implement this ESMF.

ESCP provides overall guidance for the agreed E&S management commitments, as well as agreed consultation and engagement approaches with relevant stakeholder groups, particularly target communities. SEP serves as a guiding reference for stakeholder engagement, consultations, disclosure, and outreach, to address provision of ESS 10. The ESCP and SEP are available as standalone documents of the WC.

1.3 DISCLOSURE AND STAKEHOLDER CONSULTATIONS

The ESMF, along with other E&S instruments including the SEP, RF, LMP, and ESCP will be publicly disclosed in-country via the WC website. E&S instruments will be consulted at the national level including national, regional and community level stakeholders before project appraisal.

Consultations will be continued during project implementation at the regional level and based on consultation outcomes ESMF, along with other E&S instruments, will be finalized and redisclosed in-country.

Stakeholder consultations at the sub-project level for the purpose of site-specific assessments and preparation of management plans are guided in the project's SEP.

CHAPTER 2. LEGAL, POLICY AND REGULATORY FRAMEWORK

Investments funded by the WISE project must be implemented in accordance with the principles of sustainable development, including environmental, social, health and safety (ESHS) considerations in line with the applicable RoA legal framework and WB's ESSs.

Specific provisions have been included in this ESMF to address any provisions in the ESSs that are not fully addressed under the RA laws and regulations.

2.1 REPUBLIC OF ARMENIA'S LEGAL FRAMEWORK

Article 12. Protection of the Environment and Sustainable Development of the RoA Constitution stipulates that the State shall foster the protection, enhancement, and restoration of the environment, as well as the prudent use of natural resources, following the principles of sustainable development and with due regard for the responsibility owed to future generations. All individuals have a duty to contribute to environmental protection.

The table below presents summaries of key legislation most relevant to the WISE project:

Table 2: Relevant National Legal Framework for the Project

Codes, Laws, Decrees	Description and Relevance to Project Activities
Land Code (2001, last amended in 2022)	The Land Code governs land ownership, use, and management in Armenia, defining legal frameworks for property rights and land protection. Land can be owned by the state, communities, or private entities and may be leased or acquired through purchase, inheritance, or privatization. It is categorized by purpose, such as agricultural, residential, industrial, and protected areas. All ownership and use rights must be registered in the state cadaster, with legal protection and dispute resolution through courts. The state may revoke rights by court order in cases of pollution, degradation, or legal violations, ensuring compliance in project-related land matters.
Water Code (2002, last amended in 2024)	The Water Code establishes the legal framework for the protection, use, and management of the country's water resources. Its main purpose is to ensure the sustainable and efficient use of water while balancing environmental conservation, economic development, and public needs. The code regulates water ownership, allocation, and quality, ensuring access to clean water for domestic, agricultural, industrial, and energy purposes. It also sets guidelines for water protection, pollution control, and disaster prevention related to water resources. By promoting integrated water resource management, the Water Code aims to safeguard Armenia's water ecosystems, prevent overuse, and ensure long-term water security for present and future generations.
Subsoil Code (2011, last amended in 2023)	The Code establishes the principles and procedure for use of natural resources in the territory of the RoA, the relations connected with management and conversion of waste of subsurface use, environmental protection from harmful effects when using subsoil, work safety, and also protection of the rights and legitimate interests of the state and persons during use of natural resources are governed. The Code shall be respected by works contractors who operate their own quarries as well as by material suppliers to works contractors if the latter choose to purchase inputs in the market.
Forest Code (2005, last amended in 2022)	The Code regulates relations connected with sustainable forest management – guarding, protection, rehabilitation, afforestation and rational use of forests and forest lands of the RoA as well as forest stock-taking, monitoring, control and forest lands.

	Forest users are obliged to compensate or restore the damage caused to forests and forest lands as a result of their forest use.
Tax Code (2018, last amended in 2024)	The Tax Code of Armenia regulates taxation, defining tax types, rates, payment procedures, and benefits. State taxes include environmental tax, while local taxes cover real estate (land) tax. Mandatory payments include environmental fees. Agricultural producers are exempt from profit tax on income from agricultural product sales, provided other income does not exceed 10% of gross income. Environmental tax is imposed on emissions from stationary and mobile sources, waste generation, and natural resource use. The Code sets compensation levels for exceeding emission limits, and violators of permissible emission norms face administrative liability.
Civil Code (1998, last amended in 2024)	The Civil Code defines the legal status of participants in civil commerce, property rights, contractual obligations, and related non-property relations. Land use rights may arise as key issues in the WISE Project. The Code serves as a legal framework and must be considered throughout all project phases in civil and juridical matters.
Labor Code (2004, last amended in 2023)	Armenia's Labor Code regulates collective and individual labor relations, defining employment terms, rights, obligations, and workplace safety. It covers non-discrimination, working hours, overtime, wages, leave, social insurance, and prohibits child and forced labor. A written contract is mandatory. A 2023 amendment introduced provisions against Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH). The Code applies to all Project staff, contractors, and consultants.
Law on Environmental Impact Assessment and Expertise (2014, last amended in 2023)	The Law on Environmental Impact Assessment and Expertise (EIAE), adopted in 2014 and amended in 2023, provides the legal basis for environmental impact assessments, state expertise of planned activities, and strategic ecological assessments (SEA) for programs or policies. Activities are classified into two categories (A and B) based on impact severity. Certain activities outside these categories, if conducted in environmentally sensitive areas, also require an EIA under Category B procedures. It also outlines public consultation procedures, ensuring notification, access to information, and stakeholder engagement, though meaningful early-stage consultations and inclusion of vulnerable groups remain weak. Project-financed activities will be screened for EIA and state expertise requirements, while strategies and policies will require SEA, including transboundary impact assessments if applicable.
Law on Wastes (2004, last amended in 2022)	The law regulates waste management, including collection, transfer, reduction, and prevention of negative impacts on human health and the environment. It defines state policies, standardization, monitoring, statistical reporting, and mechanisms for waste processing. It also outlines responsibilities for waste reduction, compensation for environmental damage, and legal compliance. Article 10(d) mandates territorial authorities to allocate construction waste disposal sites and issue permits. Demolition and construction waste must be recycled when possible or disposed of in designated locations.
Law on surveillance over the land use and land conservation (2008, last amended in 2020)	The Law provides objectives and types of effective use and conservation of RA lands, inspection related to enforcement of land legislation and institutions, procedures of control, rights and responsibilities of entities controlling land use and protection. The Law applies to all lands of the RA Land Fund, irrespective of purpose, ownership and/or right to use.

Law on Atmospheric Air Protection (1994, last amended in 2022)	The Law regulates activities affecting air quality to ensure environmental safety and public health. It sets legal measures to prevent and control pollution, establishes emission standards, and mandates air quality monitoring. Aligned with Armenia's environmental commitments, it applies to the project, requiring contractors to minimize dust and emissions during construction, transportation, and waste storage.
Law on Flora (1999, last amended in 2023)	The Law on Flora defines Armenia's state policy on the protection, maintenance, reproduction, and use of natural flora. Article 5 outlines government responsibilities, including conservation programs, species protection, flora monitoring, and international cooperation. It also regulates plant resource use, the flora register, and green zones in settlements. Protected species are identified under this law, which applies to the project
Law on Fauna (2000, last amended in 2023)	The Law aims to ensure conservation of animals and their genetic diversity, maintain the integrity of animal populations, protect animals from inappropriate disturbance, protect migration routes and regulate use of animal species. The responsibilities of different agencies (including the government, ministries and other State bodies, local authorities and local self-government institutions) are outlined. The law makes provision for listings of animals and their use; elaboration of the Red Book for animals; setting goals for animal conservation; measures for dealing with disputes; and international agreements relating to animal conservation issues. The law applies to this project.
Law on Specially Protected Natural Areas (2006, last amended in 2023)	The Law establishes State policy and legal principles for the sustainable development, restoration, conservation and use of ecosystems, nature complexes, and SPNAs of environmental, economic, social, scientific, historical-cultural, aesthetic, health, climate regulating, recreational, and spiritual value. Protected areas are classified into (i) biosphere reserve; (ii) state reserve; (iii) national park; (iv) natural park; (v) state sanctuary, and (vi) natural monument. Formal designation of a protected area is possible exclusively on the State-owned land. Activities prohibited in the territory of SPNAs include hunting and fishing; harvest of plants, flowers, or seeds; timber extraction; animal grazing; introduction alien species; and mineral exploration and mining. The law applies to this project.
Law on Environmental Oversight (2005, last amended in 2020)	The Law regulates the issues of organization and enforcement of oversight over the implementation of the national environmental legislation of Armenia and defines the legal and economic basis underlying the specifics of oversight, the relevant procedures, conditions and relations, as well as environmental oversight.
Law on Tariffs for Compensation of Damage Caused to Flora and Fauna as a Result of Environmental Violations (2005, last amended in 2023)	The Law sets tariffs for compensating damage to fauna and flora caused by environmental violations. Article 3 addresses hunting or destruction of species in the Red Book of Animals, while Article 5 outlines compensation for damage to flora, including illegal tree cutting and destruction, with higher penalties for protected areas and natural monuments. Compensation varies by species and location, with up to 10 times the standard tariff in certain areas. Article 6 details the calculation of damages based on the number and volume of affected flora and fauna, tripling the tariff for habitat destruction.
Law on State Regulation of Ensuring Technical Safety 2005, last amended in 2023)	The Law on State Regulation of Technical Safety establishes the legal, economic, and social framework for technical safety in Armenia. It defines state principles and mechanisms to prevent incidents, mitigate risks, and protect the population and environment. The law applies to hazardous production units, excluding nuclear, power, and transport sectors. Dam construction requires technical safety expertise, with compliance confirmed before commissioning, and registration in the Dangerous Production Unit Register.
Law on expropriation of property for public interests (2006, last amended in 2018)	The Law on Expropriation of Property for Public Interests (2006) regulates land acquisition and resettlement in Armenia. However, it lacks alignment with ESS5, as it does not mandate public consultations, a grievance mechanism, or compensation for economic and social impacts, livelihood losses, or informal land users. It also lacks provisions for supporting vulnerable groups. Additionally, outdated cadaster data pose

	challenges, though modernization efforts are underway. The Law establishes procedures for determining public interest, expropriating property, and compensating owners. It applies to all registered land, property, and rights belonging to individuals, legal entities, and communities. Expropriation must occur only in exceptional cases defined by law, with adequate compensation provided.
Law on Rights of People with Disabilities (2021)	This law ensures that persons with disabilities can fully exercise their civil, political, economic, social, and cultural rights on an equal basis, in line with the Armenian Constitution and international standards. Its provisions will be upheld throughout the Project to promote meaningful participation and full inclusion of people with disabilities.
Law on Equal Rights and Equal Opportunities of Women and Men (2013, last amended in 2020)	The Law ensures equal rights and opportunities for men and women across political, social, economic, and cultural spheres.
Law on Sanitary and Epidemiologic Security of Population (1992, last amended in 2020)	The Law defines the legal, economic and organizational basis for insuring security of the RA population, as well as state guarantees, eliminating adverse impact of the harmful working conditions on human health, and providing for favorable conditions for human life and vital activities for future generations. The sanitary and epidemiological conditions defined by the Law should be applied to the Project staff, as well as to the personnel of contractors and consultants involved in the Project at all phases.
Law on Fire Safety (2001, last amended in 2023)	The law governs the relationships between state bodies, local self-governing authorities in Armenia, organizations, companies, and individuals in the field of fire safety. It outlines the fundamental principles for shaping state fire safety policies and establishes the legal mechanisms for their implementation, including ensuring the population has access to effective and reliable fire protection systems. The law applies to this project.
Law on the protection and use of immovable monuments of history and culture and historical surrounding (1998, last amended in 2024)	The law establishes the State policy and legal basis for managing cultural monuments. It classifies monuments into those of the national (Ran) and local value and defines rights and responsibilities of various parties in registering, protecting, studying, preserving, rehabilitating, restoring, and using of monuments. Proposed investments and strategic documents undergo screening for potential impacts on cultural heritage, and the mitigation hierarchy is applied. Destroying cultural monument or undertaking any types of works on them in the absence of or in non-conformity with the authorized design is strictly prohibited.
Law on Intangible Cultural Heritage (2009, last amended in 2018)	The Law establishes a legal framework for the identification, documentation, protection, and promotion of intangible cultural heritage in the country. The law calls for the establishment of a National Council for Safeguarding Intangible Cultural Heritage comprised of governmental and non-governmental agencies and communities of different cultures. In addition, the law requires the Ministry of Education, Science, Culture, and Sports to keep a National Inventory of Intangible Cultural Heritage and use it for preserving and promoting cultural traditions, skills, and knowledge.
Law on Urban Development (1998, last amended in 2023)	The law defines the principles of urban development activity in RoA and regulates the relations related to that activity. According to this law, obtaining the construction permit is not required for regular maintenance, interior furnishing, landscaping of the area, and other low risk works on buildings and structures from the list specified by the GoA in case these works do not limit the intended use of the real estate or do not contravene specified servitudes.

The Law on Real Estate Valuation Activity (2005, last amended in 2021)	This law establishes the principles of real estate appraisal in Armenia and regulates related activities. It defines property valuation objects as immovable assets, including land, subsoil, water bodies, forests, buildings, and other structures that cannot be separated from the land without damage or altering their intended use.
Law on Freedom of Information (2003, last amended in 2023)	This law regulates relations connected to freedom of information, defines information managers in the field of information provision, as well as the procedure, forms and conditions of obtaining information. The operation of this law extends to state and local self-government bodies, state institutions, organizations financed from budgets, as well as public organizations and their officials.
Government Decree N 1325-N on the Procedure for Public Notification and Discussion (2014, last amended in 2023)	This procedure regulates the relations connected to the procedure of public notification, discussions and hearings (hereinafter referred to as discussions) of the strategic environmental impact assessment of the founding document and all categories of planned activities: environmental impact assessment and expertise.

2.2 WORLD BANK'S ENVIRONMENTAL AND SOCIAL STANDARDS

Based on the assessment of potential E&S risks and impacts, the following ESSs are relevant to the project.

- **ESS1: Assessment and Management of Environmental and Social Risks and Impacts** – Ensures that projects identify, assess, and manage E&S risks effectively.
- **ESS2: Labor and Working Conditions** – Establishes requirements for fair treatment, safe working conditions, and labor rights protection.
- **ESS3: Resource Efficiency and Pollution Prevention and Management** – Focuses on sustainable resource use and pollution control, including air, water, and waste management.
- **ESS4: Community Health and Safety** – Addresses potential project-related H&S risks to communities, including exposure to hazardous materials and infrastructure safety.
- **ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement** – Guides the management of displacement, compensation, and livelihood restoration due to land acquisition or restrictions.
- **ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources** – Ensures that projects protect biodiversity, ecosystems, and the sustainable use of natural resources.
- **ESS8: Cultural Heritage** – Requires the protection and preservation of tangible and intangible cultural heritage that may be affected by the project.
- **ESS10: Stakeholder Engagement and Information Disclosure** – Mandates meaningful consultation, public disclosure of project information, and grievance redress mechanisms to ensure stakeholder participation throughout the project's cycle.

The WB undertakes E&S screening of each project and classifies all projects into one of four classifications: High Risk, Substantial Risk, Moderate Risk or Low Risk. In determining the appropriate risk classification, the Bank will take into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential E&S risks and impacts; and the capacity and commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the E&S risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of E&S mitigation measures and

outcomes, depending on the specific project and the context in which it is being developed. These could include legal and institutional considerations; the nature of the mitigation and technology being proposed; governance structures and legislation; and considerations relating to stability, conflict or security. The Bank reviews the risk classification assigned to the project on a regular basis, including during implementation, and changes the classification where necessary, to ensure that it continues to be appropriate.

The E&S risk of the *WISE Project* is rated Substantial. All subprojects under the *WISE Project* must be screened to filter out any activity which is ineligible for the Project financing. The E&S assessment and/or relevant management tools will provide PCT with the information needed to ensure that each subproject meets the E&S requirements of the national legislation and is consistent with the Environmental and Social Framework of the WB.

2.3 REGULATORY GAP ANALYSIS

Table 3 presents the identified gaps between Armenia's relevant laws and regulations and the requirements of the WB's ESSs and the required additional measures to address such gaps under the ESMF.

Table 3: Assessment of the relevant laws and regulations in Armenia against the requirements of the WB's ESSs[4]

ESS Topics	Analysis	Gap Filling Measures
ESS 1 Assessment and Management of Environmental and Social Risks and Impacts		
Environmental and social assessment and management of risks and impacts, including mitigation hierarchy	E&S risk assessment and impact mitigation instruments other than a full-scale EIA are acknowledged by the Law on EIAE, meaning that for projects that do not require EIA, no environmental due diligence is applied. Approach to defining environmental risk category of activities and selecting relevant environmental assessment instruments for risk mitigation differs between the national legislation and the ESF. While the WB sets for criteria for risk classification and defines risk of projects case-by-case based on these criteria, the Law on EIAE provides exhaustive lists of risk category A and B activities based on their nature and scope. Environmental monitoring of activities permitted through the EIAE procedure is covered by the law but lacks details for due enforcement and value adding. Developer is required to produce an Environmental Monitoring Program as part of the EIA report. The level of technical detail to be included in the Monitoring Program is not specified (e.g., monitoring parameters, methodology, timing/frequency, etc.). It is stated, though, that environmental impacts of ongoing activities, compliance with the terms of environmental permit, and post-project analysis of environmental outcome is to be covered.	The assessment and management of E&S risks and impacts will adhere to ESS1 requirements, as detailed in the ESMF. The ESMF outlines guidelines for social assessments, stakeholder consultations, project alternatives analysis, and cumulative impact evaluation. Provisions on Associated Facilities will also be applied in accordance with the ESMF.
Project Area of Influence including Associated Facilities	The EIAE Law does not refer to associated facilities (AF).	Sub-project activity screening will be applied as part of the feasibility study, in case AFs are identified, the ESS1 requirements will be applied through a mutual cooperation with the financiers of the respective AFs.

[4] WB. 2024. Analysis of Gaps between National Legislation of Armenia and WB's ESF Policy.

Institutional responsibility and enforcement capacity	The EIAE Law is not clear on the use of monitoring data for the adaptive management of projects.	Monthly E&S monitoring of civil works will be used for their adaptive management.
Measures to protect vulnerable groups	The national legislation does not require the identification or management of impacts on disadvantaged and vulnerable groups.	The ESS1 and ESS10 requirements will be applied as further guided in the SEP. The RF also includes provisions for informal land users.
ESS 2 Labor and Working Conditions		
Terms and conditions of employment	Armenia has in place a comprehensive Labor Code (2004). Armenia has also ratified core labor conventions of the International Labor Organization (ILO). However, enforcement of the Labor Code has been lagging, mainly due to the capacity of the Health and Labor Inspection Body (HLIB) to enforce the laws, as well as the number and pace of legislative changes in the past decade.	The ESS2 requirements will be applied where gaps exist in terms of law enforcement and supervision of Labor Code for Project workers. National legislative framework will be reassessed during implementation once the PCT has sufficient capacity and cooperation with law enforcement agencies, particularly the HLIB, is fully established and functional.
Occupational Health and Safety (OHS)	While the Labor Code includes main provisions concerning OHS, there are certain gaps with ESS2 requirements as well as areas that require further strengthening. The Labor Code requires employers to provide safe and healthy work environments, conduct OHS risk assessments and plans, provide safety trainings to employees, and provide personal protective equipment, sanitary and rest facilities. The OHS standards are also regulated by specific decrees, and acts. The Criminal Code provides penalties for violations of OHS laws and regulations. The Labor Code requires employers to establish procedures for monitoring compliance with OHS requirements, to approve internal OHS acts and regulations, and to appoint a dedicated safety expert. It also requires employers to inform and consult employees on OHS issues and provides for the establishment of H&S committees. While the Code requires employers to inform workers about any dangerous work situation and to suspend the works in such instances, it does not explicitly prohibit retaliating against a worker who reports an unsafe situation; nor does it explicitly provide for workers to leave unsafe work situations. The Labor Code does not include explicit requirements on provision of first aid kits in workplaces, nor is it	The project's LMP will require supervision engineers and contractors to closely monitor labor and working conditions. Additionally, a workers' GRM will be established to facilitate reporting of unsafe working conditions. The OHS practices will be in line with ESS2 and WBG's General EHSG will be applied.

	explicit on responsibility for keeping and maintaining training records. It does not require for the provision of separate washroom or other facilities for men and women.	
Child labor and forced labor	Armenia has ratified all key international conventions concerning child labor and the minimum working age for full time employment is 16 years, which is in line with ESS2. National legislation prohibits all of the worst forms of child labor. However, children aged between 14 and 16 years can work with the written consent of a parent or legal guardian. The law allows children younger than 14 to work in the entertainment sector, with prescribed limitations and parental or legal guardian consent. The maximum duration of the workweek is 24 hours for children who are 14 to 16, and 36 hours for children who are 16 to 18. Persons younger than 18 may not work overtime; in harmful, strenuous, or dangerous conditions; at night; or on holidays. However, the Labor Code does not explicitly require employers to conduct an appropriate risk assessment when employing a child between the ages of 14 and 18 to ensure that a minor is not exposed to occupational risk, nor that employers monitor how the protective measures for young workers are implemented.[5]	Risks concerning child and forced labor are considered to be low The ESS2 requirements will be applied in terms of risk screening, age verification and supervision of labor and working conditions.
Gender discrimination at workplace	Armenia has in place laws on gender discrimination and sexual harassment and abuse and newly introduced legal amendments to Labor Code prohibit violence and sexual harassment in the workplace. However, sexual harassment of women in the workplace may take place in all regions, while responsiveness of law enforcement is reportedly more limited outside the capital.	The application of ESS2 will be required for establishing worker's GRM, particularly sensitized to SEA/SH, by contractors.
Grievance mechanism	Employees who believe that their labor rights are violated can seek remedy through various judicial mechanisms, but the labor legislation does not provide grievance mechanisms at the employer level for the	The ESS2 requirements will be applied, and Contractors will have to establish worker's GRM.

[5] The Labor Code requires that persons below the age of 18 years undergo medical examination before the commencement of employment. Therefore, a health certificate can be one of the requirements to be included in the list of required employment documents for the conclusion of an employment contract.

	workers to directly raise any workplace concerns and solve individual labor disputes. This represents a gap with the ESS2 requirement for the workers' grievance mechanism. Labor disputes are addressed by court according to the Code on Civil Procedure (2018). The Labor Code does provide a procedure for the resolution of collective disputes as a part of collective bargaining processes.	
ESS 3 Resource Efficiency and Pollution Prevention and Management		
Efficient use of resources	The main laws providing for efficient use of resources and pollution management are the Water Code (2002), the RA Law on Fundamentals of National Water Policy (2005), the RA Law on Energy Saving and Renewable Energy (2004), as well as the Subsoil Code (2011), the Law on Waste (2004), and the Law on Atmospheric Air Protection (1994).	The RoA legislation will be applied.
Waste disposal	The main laws providing for efficient use of resources and pollution management are the Water Code (2002), the Law on Fundamentals of National Water Policy (2005), the Law on Energy Saving and Renewable Energy (2004), as well as the Subsoil Code (2011), the Law on Waste (2004), and the Law on Atmospheric Air Protection (1994). The national regulatory framework for pollution prevention prioritizes public health protection and is based on defining thresholds for permitted concentrations of pollutants to which humans may be exposed. The country lacks waste disposal and wastewater treatment infrastructure, which is a major challenge for pollution management. The Law of Waste (2004) and the Law on Waste Disposal and Sanitary Cleaning (2011) rule out informal dumping and free burning of waste, prohibit disposal of hazardous waste at municipal landfills, establish ownership of waste and the system of payment for its disposal. Waste separation is suggested for possible reuse and encouraged at the community level, and economic incentives are suggested for waste reduction and recycling. The Law on Waste provides incentives for waste reduction and recycling but does not establish waste management hierarchy.	Waste management and disposal will comply with national regulations, while Asbestos containing materials (ACM) management will follow WBG's ESHS guidelines and EU standards.

ESS 4 Community and Health Safety		
Infrastructure and equipment design and safety	Emergency preparedness is provided through the Law of RA on the Protection of Population in Emergency Situations (1998), the Law of RA on Fire Safety (2001), the Law of RA on Seismic Protection (2002), and the Law of RA on Civic Protection (2002). Despite the adopted principle of integrated watershed management, conflicts over water use between communities as well as between communities and industrial water users occur.	The ESS4 requirements will be applied. Dam safety requirements will be assessed for each irrigation scheme requiring establishment of new regulating reservoirs and requirements of the ESS4 or Good International Industry Practices (GIIPs) will be followed depending on the risk profiles.
Security personnel	The RA law on Private Custodian Service Activities defines legal bases for custodians', security personnel's activities, licensing requirements, provides provisions for activities' implementation and reservations for activities implementation, use of force and arms, etc.	The RoA legislation requirements will be applied. The project does not envisage mobilization of armed security personnel for the purpose of the project's activities. However, contextual risks and mitigation measures concerning security will be assessed as part of site-specific ESIAs.
Community exposure to health issues	The Law on Ensuring Traffic Safety (2005) provides basis for the organization of traffic, including the installation of traffic signs, road marking, and management of traffic around work sites within road corridors. These rules are usually followed on highways and main roads but less so on secondary roads. Enforcement of regulations on handling hazardous materials and hazardous waste is sometimes hindered by low public awareness of the rules and the effects of non-compliance on human health. For example, the willingness of communities to reuse asbestos-containing waste.	The ESS4 requirements will be applied and relevant CHS risks will be assessed as part of site-specific ESIAs. Infrastructural design safety requirements will be integrated the feasibility and detailed design TORs.
ESS 5 Land Acquisition, Restrictions on Land Use, and Involuntary Settlement.		
Requirements to avoid or minimize land acquisition and related adverse impacts	There are some key gaps between the RA Law on Expropriation of Property for the Needs of Society and the State, and ESS5. The Law requires that eminent domain is only used in "exceptional cases," defined as "no alternative is possible for the public interest project to be implemented." Accordingly, before the decision for land	The ESS5 requirements will be applied to supplement the RA Law on Expropriation of Property for the Needs of Society and the States. The project will adopt the RF in the event that land acquisition and/or expropriation

	acquisition, alternatives need to be explored to determine whether the project can be constructed on alternative plots.	of assets warranting application of the ESS5 are envisaged.
Eligibility criteria for compensations and livelihoods support	The RA Law on Expropriation of Property for the Needs of Society and the State does not cover compensation for economic and social impacts and does not include informal land users as eligible for compensation.	The ESS5 requirements will be applied in line with the RF.
Livelihoods restoration	The Law on the Expropriation of Property for the Needs of the Society and the State does not envisage livelihood restoration.	The ESS5 requirements will be applied in line with the RF.
Measures to protect vulnerable groups	The Law on the expropriation of Property for the Needs of the Society and the State does not have provisions for assistance or support to disadvantaged and vulnerable people.	The ESS5 requirements will be applied in line with the RF.
Forced eviction	Article 218 of the RA Civil Code and Article 60 of the RA Constitution refer to property ownership and expropriation of private property but neither clearly define what "public and state needs" or "overriding public interests" are. Even the 2006 RA Law on Expropriation of Property for the Needs of Society and the State does not fully explicate what the essence of those two key concepts is. The Law, however, identifies the principles and objectives based on which the prevailing public interest is determined, and property is expropriated to the Government. The Law contains provisions for forced eviction of property.	The ESS5 requirements will be applied in line with the RF.
Grievance mechanism	The Law does not require public consultation or a grievance mechanism during the land acquisition process.	The ESS5 and ESS10 requirements will be applied in line with the RF and SEP.
ESS 6 Biodiversity Conservation and Sustainable Management of Living Resources.		
Biodiversity conservation	Management of biodiversity and living natural resources is regulated by several laws, the most important being the RA Law on the Specially Protected Natural Areas (2004), the RA Law on Flora (1999), the Ra Law on Fauna (2000), and the RA Law on Hunting and Hunting Economy (2007). The EIAE Law (2023), the RA Law on Environmental	The RoA legislation will be applied.

	Oversight (2005), and the Forest Code (2005) also have several direct implications for the protection and management of biodiversity.	
Habitats	The laws concentrate on the protection of populations and specimen of wildlife. Whereas protection of their habitats is not given adequate importance. There is no categorization of habitats into transformed, natural, and critical, and no uniform biophysical classification.	The ESS6 requirements will be applied to fill the gaps in ithe RoA legislation. The E&S screening process will guide species surveys and a standalone Biodiversity Management Plan will be prepared for substantial risks and impacts.
Living natural resources	Article 5 of the Law on Environmental Oversight prohibits overexploitation of natural resources, however, depletion and degradation of living natural resources such as forests, fisheries, pastures, and individual species inhabiting them still occurs. Lack of human resources and technical means for inspection is obvious. The absence of insufficiency-supported thresholds of sustainable resource use and/or methodological guidance for their establishment are key challenges for enforcement.	The ESS6 requirements will be applied. ESIAs will assess water abstraction and ecosystem impacts, and mitigation measures will follow GIIP, with SESAs ensuring sustainable resource management in line with ESS6.
ESS 7 Cultural Heritage		
Management of adverse impacts on cultural heritage both tangible and intangible	The RA Law on the Protection and Use of Immovable Monuments of History and Culture and Historical Surroundings (1998) and the RA Law on Import and Export of Cultural Values (2004) regulate the protection and use of physical cultural resources of Armenia, and the RA Law on Intangible Cultural Heritage (2009) protects intangible values. Spatial and urban planning procedures include provisions for the preservation of historic monuments and urban heritage. However, coordinated management and enforcement are challenging as part of assets are owned by the Armenian Apostolic Church and private bodies.	The RoA legislation will be applied for the protection of known cultural heritage that could be affected by civil works. Chance finds procedures will be implemented in accordance with the ESMF for any potential discoveries, particularly during earthworks.
ESS 10 Stakeholder Engagement and Information Disclosure		
Engagement with stakeholders, including measures for vulnerable groups	The Constitution, the RA Law on Urban Development (1998), the EIAE Law (2023) guarantee public notification, access to information, and stakeholder engagement for development projects. Although the legislative framework stipulates the need for proper public notices and	The ESS10 requirements will be applied in line with the SEP, including required engagement with affected people and vulnerable groups.

	consultation meetings, it fails to ensure meaningful consultation meetings at the early stage of projects and ensure for the participation of vulnerable groups.	
Information disclosure	The EIAE Law (2023) guarantees public notification and access to information.	The RA legislation will be applied to the disclosure of E&S management documents prepared following the requirements of EIAE Law. ESS10 requirements will be applied to E&S management documents, including site-specific management plans in line with the SEP.
Grievance mechanism	Armenia has recently developed legislation and electronic tools to receive and handle citizens' feedback and complaints. However, there is no requirement for exercising specific grievance mechanism in the frames of projects.	The ESS10 requirements will be applied in line with the SEP.

CHAPTER 3. ENVIRONMENTAL AND SOCIAL RISK ASSESSMENTS

3.1 ENVIRONMENTAL AND SOCIAL BASELINE

Armenia is a land-locked country within the Caucasus region between Europe and Asia. The majority of the country is at high altitude (greater than 1,000 meters above sea-level), including Lake Sevan, a freshwater lake, with a surface area of 1,279 kilometers and the Seven River Basin with a surface area of 4,721 km2, spans approximately one sixth of the nation's total land area.

In general, ecosystems of Armenia are characterized by a number of peculiarities, which all together contribute to formation of rich and unique biodiversity. Geographical distribution of main biotypes of flora and fauna of Armenia is conditioned by vertical zonation and topographic diversity of the area, thanks to which biodiversity of each zone is characterized by its species composition, qualitative and quantitative indicators and consequently its specialized role. Dependent on the geological history of the areas, landscape components and local climate 10 landscape-climatic zones have been formed in Armenia. Their typical conditions contributed to formation of high diversity of habitats of flora and fauna species and as a consequence the presence of unique communities, high level of endemism as well as rich agrobiodiversity. The abundance of species composition of biodiversity in Armenia is conditioned also by the fact that Armenia as a part of the Armenian Highland is located in the intersection of important provinces of formation of flora and fauna of the region as well as is a crossroad of migration routes of birds.

Proper management of water resources plays a key role in the socio-economic development of Armenia. About 80% of the country's crops are irrigated, with agriculture accounting for 15% of gross domestic product. Net income per hectare, in general, is higher on irrigated lands. Hydropower accounts for 40% of total electricity production. Groundwater is the source of 96% of drinking water. Thus, availability of water resources and their management are important determinants of the country's overall macroeconomic performance.

Component 1 of the project will be implemented at a national level focusing on legal, regulatory, institutional, and technical capacity reforms for the WC, the WSA, and selected WUA.

Construction of the water network under Component 2, including household connections, and any necessary water treatment infrastructure is expected to be in Ararat, Tavush, Kotayk, Aragatsotn, or Vayots Dzor, based on technical, economic, socio-political, and institutional considerations.

Investments in irrigation modernization under Component 3 will be considered in the following canals/marzes: a) Kotayq main canal irrigation system in Kotayq marz, b) Arzni-Shamiram main canal irrigation system in Argatsorn and partially in Kotayq marzes, c) Lower Hrazdan main canal irrigation system in Armavir marz, d) Debetavan canal in Tavush marz, and e) Lori canal irrigation systems in Lori marz with canals flowing through agricultural zones to support irrigation for farmlands. Some sections may pass near or within the protective zones of designated natural areas or buffers. The shortlisted schemes for several small-scale (0.2 to 0.6 mln.cub.m.) regulating reservoirs are located across same marzes. There are no protected areas on the selected reservoir schemes. Given the hydrological connectivity of the selected regions, some schemes may also be situated near environmentally sensitive areas of Ramsar sites such as Khor Virap Marshes (Ararat Marz) and Lake Sevan (Gegharkunik Marz bordering Kotayk Marz).

Final scheme selection will occur after a FS, considering water availability, technical soundness, economic viability, E&S assessments, investment costs, and funding. Rural communities in target areas rely on small-scale farming for food security and income, with limited employment opportunities exacerbating poverty and social inequities. High proportions of vulnerable populations

exist, including low-income households, elderly individuals, women-headed households, and those with restricted access to essential services.

The project targets underserved rural settlements, where sanitation is under-developed and most households use pit latrines. Water quality is declining, with 29% of surface water and 7% of groundwater bodies at risk due to untreated wastewater, agricultural runoff, and waste. Vulnerable groups face greater barriers to accessing water services and community participation.

3.2 POTENTIAL ENVIRONMENTAL IMPACTS OF THE ACTIVITIES

While the Program is expected to generate positive E&S outcomes by strengthening institutions and improving the sustainability, resilience, and quality of water services in Armenia, residual risks remain, particularly due to the quality of implementation and institutional capacity for risk management in the initial stages.

Negative impacts, typical for medium-scale civil works under the project include generation of inert construction, hazardous, and organic waste (e.g., from vegetation clearing in existing WSSs and ISs, noise, dust, sedimentation, Occupational and Community Health and Safety risks due to vehicle/machinery movement. These impacts are expected to be low to medium in magnitude, temporary, and revisable. Project activities are not expected to affect any known historical/cultural monuments and intangible cultural heritage. No impacts on intangible cultural heritage are envisaged.

Operation of irrigation and WSSs systems will improve quality of life for rural communities and reduce likelihood of water-borne disease outbreaks, but it may pose E&S risks, primarily due to: (i) increased nutrient and pollutant concentrations at discharge points, which can degrade surface and groundwater quality in natural aquifers; and (ii) increased water uptake from surface or groundwater sources, which may cause environmental impacts, including competition for water use, resulting in moderate to substantial long-term consequences on ecosystem balance, depending on the source and volume of water extracted. Additionally, intensified agriculture may cause soil and water pollution from agrochemical misuse.

The National Water Strategy, the National Irrigation Strategy, and a Rural Drinking Water and Sanitation Strategy to be developed under Subcomponent 1.1 may have broad environmental implications: i) disruption of water balance and alteration of ecosystems and habitats; ii) pollution from insufficiently treated wastewater near discharge points; iii) lack of resilience in the irrigation sector to climate change impacts. The long-term E&S outcomes will depend on how effectively these risks are addressed during the development of the strategies and managed by the preparation of a SESA. ToRs for a SESA will be developed in alignment with regulatory reforms and national strategy development for irrigation, guiding the assessment of downstream E&S risk management related to policy reforms and national water, irrigation, and rural WSS strategies.

The overall E&S risk is classified as substantial with the following analysis for each relevant ESSs.

3.2.1 Environmental and Social Risk Assessment and Mitigation Measures (Construction Phase)

The main E&S risks and impacts expected during the construction phase, especially under Components 2 and 3, are summarized in the table below:

Table 4: E&S Impact Matrix for Construction Phase

Issue	Risks and Impacts	Probability[6]	Magnitude[7]	Mitigation Measures
Environmental Pollution (ESS1, ESS2, ESS3, ESS4)				
Generation of non-hazardous construction waste	Debris from canal lining replacement, excavation, and demolition can accumulate in surrounding areas, including excess soil, rock, shrubs, and branches. Additional waste includes organic material from silt and vegetation removal, household waste from construction camps, and packaging materials (cardboard, wood). Pollution from the sanitation facilities provided at construction camps.	Probable	Significant	• Sites for permanent waste disposal identified and agreed with local officials. • Identify and approve permanent waste disposal sites with local authorities. • Allocate designated temporary storage areas to prevent scattered dumping. • Prohibit open-air burning of waste both on and off the worksite. • Store waste and excess materials in designated on-site locations and promptly transport them to approved disposal sites. • Use covered vehicles for waste transportation to prevent spillage and environmental contamination. • Obtain written approval from municipal authorities for permanent waste disposal. • Promote reuse and recycling of packaging materials like cardboard and wood.
Generation of hazardous construction wastes	There is risk of leakage of oil/lubricants, littering of nearby area with used filters, tires, broken equipment parts. Contamination from oil spills during vehicles and equipment servicing and washing, from stockpiled waste materials, oil products, chemicals and other hazardous materials.	Probable	Severe	• Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information. • The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching. • The wastes shall be transported by specially licensed carriers and disposed in a licensed facility.

[6] Frequent, Highly Probable, Probable, Low, Not Probable
[7] Severe, Significant, Moderate, Minor, Negligible

Air pollution	Air pollution due to dust generation associated with earthworks, demolition works, transportation of construction materials/waste and truck traffic, emissions from equipment.	Probable	Significant	• Cover truck beds with tarps during material transport. Water work sites in the course of dusty works or in case of especially hot and dry weather conditions. • Store and handle material appropriately to limit dust (e.g. protect cement with tarpaulins). • Keep construction equipment and machinery in an adequate technical condition. • Avoid idling engines. Do not use sub-standard fuel.
Noise pollution	Increase in noise levels is expected during demolition, construction and transportation activities (in particular, earthworks, pneumatic drilling, cranes operations, equipment dismantling, or installation).	Probable	Significant	• Keep construction equipment and machinery in an adequate technical condition. • Avoid idling of engines. Disallow on-site activities beyond the working hours. • Workers shall wear ear protection devices as part of their Personal Protective Equipment **(**PPE), if they are exposed to noise levels higher than 85 dB (A).
Soil Erosion (ESS1, ESS2, ESS4)				
Soil erosion and land degradation	Heavy equipment use can cause erosion, road damage, and soil degradation. Site clearing and leveling expose bare soil, increasing the risk of erosion and siltation. Improperly piled excavated soil can lead to further erosion and sediment runoff.	Probable	Significant	• Minimize the use of heavy machinery to reduce soil disturbance. • Design infrastructure to minimize environmental impact. • Schedule construction during the dry season, when possible, to limit erosion risks. • Implement erosion control measures such as hay bales and silt fencing. • Cover excavated soil piles with plastic sheeting and use hay bales or similar methods to prevent runoff
Biodiversity (ESS1, ESS6)				

Biodiversity disruption	The likelihood of adverse impacts on biodiversity and natural habitats is low, as Component 2 activities will take place in rural or urban areas, away from protected zones, forests, and wildlife. Component 3 works will follow existing canal alignments. However, vegetation cleaning for new schemes, material extraction, and waste disposal may still cause wildlife disturbance and habitat disruption, requiring careful management.	Low	Significant	For Flora • Schedule major earthworks outside the active vegetation period in natural landscapes. • Control vegetation clearance along renovated line alignments to prevent damage beyond designated corridors. • Exclude the construction of new schemes in and around naturally protected areas and Ramsar sites. For Fauna • Limit construction activities to a narrow corridor along the pipeline to minimize habitat disruption. • Restrict vehicle movement and material storage to avoid excessive site disturbance. General Environmental Measures • Screen all subprojects to prevent severe impacts on natural habitats and biodiversity. • Source building materials responsibly from licensed suppliers with sustainable logging, quarrying, and borrowing plans, including reclamation measures.
Impact on Aquatic Life from Increased Water Intake	Increased water intake from the surface water stream may harm aquatic life, leading to ecosystem degradation, erosion, and siltation	Probable	Significant	• Obtain a water use permit from the Ministry of Environment (ME) for the Shor-Shor water transmission pipeline. • Calculate and maintain environmental flow to protect aquatic ecosystems. • Regularly monitor environmental flow through scheduled measurements to ensure compliance.
Resource Efficiency (ESS1, ESS4, ESS3)				
Water use	Potential adverse effects on communities, other water users, and nearby natural water sources due to construction-related water use.	Low	Moderate	• Specify water requirements for drinking and technical use in design documents, including designated sources. • Obtain special permits from local communities for high water-demand projects, based on water balance calculations. • Secure a water use permit from the ME for withdrawals from rivers or natural streams. • Identify environmentally responsible material sources within budget constraints.

				• Purchase building materials exclusively from certified and registered suppliers to ensure sustainability.
Labor and Working Conditions (ESS2) [8]				
Workplace discrimination	Discrimination may occur based on gender, age, ethnicity, sexual orientation, or disabilities, particularly affecting foreign labor migrants, who are often employed in low-wage or temporary construction jobs	Probable	Moderate	• Contractors are required to have signed employment contracts with all employees. • Implement and monitor non-discrimination measures that ensure fair hiring, wages, and treatment for all workers, including foreign labor migrants. • Conduct regular training sessions on workplace diversity, inclusion, and anti-discrimination for employers and workers. • Provide accessible and confidential grievance channels for workers to report discrimination cases, ensuring timely investigation and resolution. Strengthen oversight through labor inspections and collaboration with relevant regulatory bodies.
Occurrence of construction related OHS incidents	Direct impacts on H&S may result from various factors such as working at heights, crane/bulldozer operations, welding, electrical works, poorly organized construction sites, traffic-related risks poorly organized construction sites, traffic-related risks and sanitary situation during construction. Additional risk include exposure to dangerous materials, noise and vibration, poor air quality, confined spaces, drowning risks, and unsafe site/structures conditions leading to potential accidents.	Probable	Severe	• Ensure that Contractors and Technical Supervision Consultants include OHS experts to instruct workers on OHS requirements and monitor compliance. • Ensure that Contractors develop and implement OHS Management Plans as part of their C-ESMPs • Inspect and license construction equipment before use, ensuring strict adherence to operational guidelines. • Maintain first aid medical kits and fire-fighting equipment on-site at all times. • Provide sanitation facilities with clean water and a designated canteen for workers. • Ensure that all personnel maintain proper hygiene, keeping workplaces and dining areas clean and pest-free. • Require construction crews to stay hydrated and protect them from extreme heat exposure, in compliance with local and national H&S regulations.

[8] Further specified in Program LMP

				• Ensure that all workers and visitors are provided with and use personal protective gear (PPE). • Conduct worksite safety training for all workers. • Ensure that operators of large equipment are properly trained and licensed.
Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) at workplace	Misconduct by other project workers, potentially affecting women and other vulnerable workers.	Probable	Moderate	● Ensure all workers receive and sign codes of conduct and SEA/SH sensitization ● FGRM adapted to SEA/SH allegations
Child and Forced Labor	Currently assessed as very low in the context of the project	Low	Moderate	● Minimum age requirements of 18 and age verification ● Close supervision on the LMP
Community Health and Safety (ESS4)				
Public safety hazards	Potential safety hazards from the movement of construction materials, vehicles, machinery, excavation activities, and temporary on-site storage due to inadequate housekeeping.	Probable	Severe	● Ensure proper organization of construction materials, equipment, excavation activities, and on-site storage in compliance with Site-Specific ESMPs.
Dam safety	The WISE Project does not involve large reservoir construction or reconstruction but includes daily regulation reservoirs for ISs. Failure or collapse of these structures could cause localized damage to neighboring areas.	Low	Severe	● Application of dam safety requirements and/or GIIPs depending on the scale and characteristics of the reservoirs under ESS4. ● Develop an emergency response plan for potentially affected communities.
Service disruption during construction	Water and irrigation services may experience occasional disruptions during construction, potentially restricting access to water and sanitation, which could pose public health risks.	Probable	Moderate	● Conduct prior consultations with affected residents to inform them about the expected disruptions and gather feedback. ● Provide advance public announcements through appropriate channels to ensure timely awareness of service interruptions

Traffic safety	Construction activities, increased speed, and higher traffic volumes pose direct and indirect hazards to public traffic and pedestrians.	Probable	Severe	● Install signage and warning signs to ensure the site is clearly visible and the public is informed of potential hazards before construction begins. ● Implement active traffic management with trained personnel, especially near schools, to ensure safe public passage. ● Enforce speed limits on public roads and establish onsite limits (20 km/h for heavy trucks). ● Design safe entry and exit points for construction vehicles. ● Avoid high-risk roads, intersections, and turning points, opting for safer routes. ● Ensure secure storage and restraint of equipment and goods to prevent hazards to other road users. ● Equip moving machinery with restricted rear visibility with audible alarms. ● Establish traffic control rules and procedures, such as prohibiting forklift operation with forks in a down position and regulating onsite traffic flow.
SEA/SH	Despite labor influx, SEA/SH risks for the host community remain moderate, with no reported cases linked to major civil works, military mobilization, or paid security forces	Low	Minor	● Implement Codes of Conduct for all project's workers ● SEA/SH sensitization for the workers and host community, and ● Establishment of a SEA/SH-sensitive Feedback and Grievance Redress Mechanism (FGRM) ● Incorporation of SEA/SH preventive action plan into the ESMPs and E-ESMPs
Livelihoods Impacts associated with Land Acquisition and Temporary Restrictions on Land Use (ESS5)[9]				
Land acquisition	Acquisition of land is not required for underground water pipelines, which will be based on servitude contracts on a voluntary basis. The project will likely use the existing channels. However, additional land may be required for retrofitting the existing irrigation infrastructure,	Probable	Moderate	● Alternative designs to avoid and minimize physical and economic displacement as established in the RF. ● Prior consultations, and implementation of Resettlement Plan(s) (RPs) according to the ESS5.

[9] Further detailed in Program RF

	constructing small and medium scale regulating reservoirs, and expanding piped water. The project will explore alternative design options to avoid and minimize physical and economic displacement impacts resulting from involuntary land acquisition.			
Restrictions on land use	Access restrictions on land use during the construction phase, which could disrupt livelihoods activities and access.	Probable	Moderate	● Schedule construction in coordination with the affected community. ● Provide compensation and/or livelihood assistance in accordance with the RF.
Cultural Heritage (ESS8)				
Impacts on cultural heritage	Excavation and earthworks may unintentionally disturb physical cultural heritage or expose hazardous materials from previous land use. Project activities are not expected to affect any known historical/cultural monuments. No impacts on intangible cultural heritage.	Probable	Moderate	In case of chance finds: ● Immediately halt excavation and notify the State Agency for Cultural Heritage Protection and local authorities. ● Resume work only after receiving written approval from the relevant authorities. In case of unidentified objects or hazardous substances: ● Stop all construction activities immediately and inform the national emergency authorities. ● Do not proceed until formal permission is granted. In case of historical/cultural monuments: ● Conduct E&S screening to inform the site-specific ESMPs and develop and implement Cultural Heritage Management Plan (CHMP) as part of ESMPs and C-ESMPs.
Social Exclusion and Stakeholder Engagement (ESS1 and 10)				
Inadequate Stakeholder Engagement and Grievance Management	Lack of early community engagement may lead to implementation challenges and conflicts over water use.	Probable	Significant	• Implement a standalone SEP to identify and engage all stakeholders from the start. • Ensure transparent communication by defining engagement principles, sharing information, and collecting feedback during project preparation. • Establish and maintain FGRM with designated focal points in each affected community.

				• Display FGRM contact information publicly to ensure accessibility.

3.2.2 Environmental and Social Risk Assessment and Mitigation Measures (Operation and Maintenance Phase)

The main E&S risks and impacts expected during the O&M phase, especially under Components 2 and 3, are summarized in the table below:

Table 5: E&S Risk Assessment during the O&M Phase

Issue	Risks and Impacts	Probability[10]	Magnitude[11]	Mitigation Measures
Environmental Pollution (ESS1, ESS2, ESS3, ESS4)				
Water contamination	Surface and groundwater may be contaminated by natural and human-induced sources, including pathogens, toxic metals (e.g., arsenic), anions (e.g., nitrate), and organic compounds. Contamination can result from routine discharges, accidental spills, or intentional actions (e.g., sabotage), leading to waterborne disease outbreaks due to deficiencies in the distribution system. Potential risks also include releases of septage and fecal sludge.	Probable	Significant	• Identify contamination risks and collaborate with public authorities to protect water quality. • Assess water source vulnerability to disruptions and implement necessary security measures. • Ensure water treatment facilities operate in compliance with national water quality standards, maintaining system security and resilience. • Prioritize land application of high-dissolved-solids waste over surface water discharge, following an impact evaluation on soil, groundwater, and surface water. • Recycle filter backwash when feasible and treat reject streams (including brine) according to national regulations. Disposal methods may include municipal sewer systems, evaporation, or underground injection
Waste water discharges	An increase in water supply will lead to a higher volume of municipal wastewater, potentially overloading existing infrastructure	Probable	Significant	• Engage stakeholders, including local authorities and communities, to address wastewater management challenges. • Support the development of small-scale wastewater collectors (e.g., large septic collectors) and utility services. • Promote water reuse initiatives for communal purposes to reduce wastewater discharge and improve sustainability.

[10] Frequent, Highly Probable, Probable, Low, Not Probable
[11] Severe, Significant, Moderate, Minor, Negligible

Wastewater generation from water treatments	Wastewater generated from water treatment processes includes filter backwash, reject streams from membrane filtration, and brine streams from ion exchange or demineralization. These waste streams may contain suspended solids, organic matter, high dissolved solids, extreme pH levels, and heavy metals	TBD	TBD	• Implement effective collection and management systems for sewage and greywater, whether treated separately or combined. • If managing greywater separately, apply source control measures to prevent the discharge of problematic substances, such as oil, grease, large particles, and chemicals.
Solid wastes	Water treatment generates solid waste residuals, including process residuals, used filtration membranes, spent media, and miscellaneous wastes. Sludge is produced from pre-sedimentation, coagulation (e.g., alum or ferric hydroxide), lime softening, iron/manganese removal, and filtration. It may contain arsenic, heavy metals, radionuclides, lime, polymers, and microorganisms. Spent media may include filter materials (sand, coal, diatomaceous earth), ion exchange resins, and granular activated carbon.	Probable	Significant	• Optimize coagulation processes to minimize solid waste generation. • Dispose of ferric and alum sludge via land application, if permitted and proven safe through modeling and sampling to prevent groundwater and surface water contamination. • Ensure special disposal for sludge containing toxic metals (e.g., arsenic, radionuclides). • Regenerate activated carbon by returning spent carbon to the supplier for reuse
Resource Efficiency (ESS3)				
Increased Water Consumption and Discharges	Uncontrolled discharge of domestic wastewater, including sewage and greywater, can cause microbial and chemical contamination, oxygen depletion, increased turbidity, and eutrophication in aquatic systems	Probable	Moderate	• Ensure water withdrawal complies with the conditions specified in the Water Use Permit. • Maintain environmental flow through regular monitoring and measurement to prevent ecological disruption.
Water System Leaks	Leaks in the water system reduce	TBD	TBD	• Implement routine inspection and maintenance to detect

and Pressure Loss	pressure, compromising system integrity and water quality by allowing contamination. They also increase demand on source water, chemical usage, and energy consumption for pumping and treatment			and address leaks early. • Prioritize urgent repairs for blockages, pump failures, sewer line ruptures, or imminent overflows. • Prevent sewage entry into storm drains during spills using containment measures like sandbags or inflatable dams. • Establish a leak detection and repair program, tracking past leaks and unaccounted-for water to identify high-risk areas. • Replace aging or high-risk mains vulnerable to leaks due to location, pressure stresses, or other risk factors.
Community Health and Safety (ESS1, ESS4)				
Spread of water-borne diseases	Risks and Impacts: Inadequate enforcement of water supply and wastewater discharge standards can lead to public health risks, including disease outbreaks, foul odors, well contamination, and infrastructure deterioration due to wastewater discharge in streets or open areas.	Probable	Significant	• Operate and maintain the water distribution system in compliance with national and international standards. • Prevent external contamination by ensuring the system functions as a protective barrier. • Implement routine septic tank maintenance and a systematic collection process for fecal sludge and septic waste. • Use appropriate collection vehicles, including vacuum tanker trucks and hand-pushed vacuum tugs, for efficient waste management. • Ensure safe disposal of fecal sludge and septage at designated treatment facilities to prevent environmental contamination. • Conduct periodic sludge collection and transport using manual or mechanical methods to maintain sanitation standards.
Dam Safety Requirements		TBD	TBD	• Implement the Operations and Maintenance (O&M) Plan and ensure O&M procedures are effectively carried out • Implement the emergency preparedness plan and ensure its effective execution.
Climate change (ESS1, ESS4)				
Climate change risks	Climate screening identifies extreme heat, droughts, and floods as key	Probable	Significant	• Incorporate climate resilience into engineering design, following the Resilient Water Infrastructure Design Brief.

	risks that could affect infrastructure lifespan, equipment durability, and community health and safety (CHS).			• Enhance adaptation by implementing early warning systems and providing real-time evapotranspiration (ET) data to help farmers anticipate water shortages, optimize irrigation, and reduce overuse. • Use resilient materials, construction methods, and local knowledge to address climate stressors and allow for future upgrades. • Select sites with multiple access routes, ensuring at least one is protected against climate risks (e.g., paved roads to prevent washouts or routes avoiding flood-prone areas).
Social Exclusion and Stakeholder Engagement (ESS1 and 10)				
Exclusion of vulnerable groups	Vulnerable groups may be excluded due to financial or physical constraints and increased fees.	Probable	Significant	• Incorporate strategies to mitigate the impacts of possible tariff changes for vulnerable groups or provide temporary subsidies through WUAs, Local Self-governance Bodies (LSGBs), or government support. • Implement a standalone SEP with an FGRM to identify vulnerable groups and ensure their meaningful participation in the project.

CHAPTER 4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCESSES

This section describes the procedures to guide:

a. E&S screening of the proposed subprojects,
b. Preparation of relevant subproject specific E&S instruments,
c. E&S review and approval processes,
d. E&S monitoring of works, and
e. Grievance resolution.

4.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT APPROACH

The PCT will use the following approach in the overall management of E&S risks and potential impacts associated with the Project activities:

a. Infrastructure investments under the Project (Components 2 and 3) will only be approved where these are considered technically feasible, from technical, economic, and E&S standpoints based on feasibility assessments.

b. Subprojects shall avoid, or minimize if unavoidable, adverse E&S impacts, including involuntary land acquisition. The project's implementation agency should explore viable alternative designs to avoid/minimize negative impacts and/or enhance positive impacts as early as the design phase.

c. Any subproject with potential negative E&S impacts should be implemented in line with relevant management plans and/or guidelines to prevent, minimize and mitigate such impacts.

d. Monitoring and reporting of the implementation of E&S performance will be part of the overall Project supervision, monitoring and reporting arrangements. Unless there are systematic non-compliance issues, a third-party and/or independent monitor may be mobilized.

The overall E&S management seeks to guide targeted assessments and preparation of E&S instruments proportional to the level of potential risks, impacts, and baseline sensitivity, including vulnerability.

Technical assistance (TA) subprojects will integrate ESSs provisions into their activities and outputs.

Subprojects involving infrastructure investments with potential E&S implications will be managed in line with the processes described in the ESMF. This may include the preparation of site-specific ESIA reports and/or ESMPs in line with the ESSs provisions.

4.1.1 Integrating Environmental, Social, Health, and Safety into Technical Assistance

In line with the ESS1, the terms of reference (ToR), workplans, and other processes defining the scope and outputs of TA to be delivered under the Project shall be drafted so that the advice and other support provided is consistent with applicable ESSs. TA outputs shall be grounded with a thorough understanding of their potential E&S implications, informed by assessments and stakeholder consultations and shall incorporate recommendations for addressing potential impacts consistent with applicable ESSs. These may include technical inputs on policy, sector strategy, workplans and capacity building. Since the Project will also finance FS and DEDs to inform the scope of infrastructure financing under Components 2 and 3, ESIAs shall be carried out and ESMPs shall be prepared to address relevant ESSs provisions. ToRs for undertaking ESIAs and developing ESMPs shall include disclosure, stakeholder consultation, convening of expert panels, etc. at critical phases of the delivery of TA.

The quality of TA outputs, including coverage of E&S aspects, shall be satisfactory to the WB. If Project-financed TA produces inputs for intended civil works but the latter are not undertaken within the scope of the Project, the Project's responsibility does not extend to any further modifications that TA products may undergo in future and to ensuring consistency of undertaken works with the WB's ESF.

4.1.2 Environmental and Social Screening of Subprojects

Subprojects involving infrastructure investments will be screened to:

a. determine eligibility for financing against the Exclusion List and the Project risk classification (no high-risk subprojects may be supported by WISE Project.

b. identify key E&S risks and potential impacts and determine the appropriate E&S instruments for assessing and managing these risks.

Based on these screening outcomes, decisions will be made by the PCT with regard to the types and scope of the assessment and instrument required for each subproject investment/activity.

Step 1: Subproject Info and Eligibility Screening

Key information on the subprojects will be provided as part of the Project's annual workplan which will need to be reviewed by the PCT E&S specialists. This information will inform the E&S eligibility and technical screening process.

The Project's Exclusion List (refer to **Annex 1)** will be used and disseminated by PCT to ensure ineligible subprojects are not progressed and exclude activities with significant, complex, irreversible and/or unprecedented adverse E&S impacts. Following this step, select subprojects which warrant further technical screening will be identified to determine the required site-specific assessments and management plans.

Step 2: Technical Screening and Instrument Determination

The PCT's E&S Specialists, in collaboration with relevant technical specialists and/or focal points within MTAI and WC, will perform E&S technical screening using a subproject screening tool (refer to **Annex 2),** to assess E&S risks and potential impacts and determine relevant risk management instruments to be developed for a specific subproject.

Environmental and Social Risk Screening

E&S risk screening will be conducted to determine the level of assessment and planning required for the subproject proportionate to the significance of associated risks and potential impacts. E&S risk screening is a two-step process that begins with screening against the exclusion criteria followed by screening of site-specific risks.

The latter will take into account i) the type, location, sensitivity and scale of the subproject activities being proposed; ii) the nature and magnitude of the potential E&S risks and impacts; iii) the capacity of the responsible implementing entities to manage such risks and impacts in a manner consistent with the ESSs; and iv) other areas of risk that may be relevant to the delivery of E&S mitigation measures and outcomes, depending on the specific subproject and the context in which it is being prepared.

The following criteria provide guidance for the PCT to determine subproject risk classification:

Table 6: Sub-Project Risk Classification

Risk Classification	Description	Description of Sector-specific Examples
High[12]	Wide range of significant adverse risks and impacts on human or environment health including i) long term, permanent and/or irreversible and impossible to avoid entirely due to the nature of the project; ii) high in magnitude and/or in spatial extent; iii) significant adverse cumulative impacts or transboundary impacts; and iv) a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.) Some of the significant E&S risks and adverse impacts of the Project cannot be mitigated or specific mitigation measures require complex and/or unproven mitigation, compensatory measures or technology, or sophisticated social analysis and implementation.	Regulating reservoirs with significant livelihoods impacts, new irrigation canal development, major waste treatment plants.
Substantial	The Project may not be as complex as High-Risk Projects, its E&S impacts may be smaller (large to medium), and the location may not be in such a highly sensitive area, and some risks and impacts may be significant. This depends on whether the risks and potential impacts have the majority or all of the following characteristics: i) mostly temporary, predictable and/or reversible and the nature of the project does not preclude the possibility of avoiding or reversing them; ii) adverse social impacts may give rise to a limited degree of social conflict, harm or risk to human security; iii) medium in magnitude and/or spatial extent; iv) there is medium to low probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.), and there are known and reliable mechanisms available to prevent or minimize such incidents. Mitigatory and/or compensatory measures may be designed more readily and be more reliable than those of high-risk sub projects.	Regulating reservoirs with some livelihoods impacts and some physical displacement (i.e., agricultural land), canal re-alignment, installation of new WSS networks to serve underserved areas. Expanding and enhancing rural WSSs may elevate nutrient and pollutant levels at discharge points, affecting water quality, while increased water extraction from surface or groundwater sources could disrupt ecosystems and create water-use competition with potential long-term impacts.

[12] High risk projects are expected to be screened out during eligibility screening process.

Moderate	Potential risks and adverse impacts on human and/or environmental health are not likely to be significant. This is because the Project is not complex and/or large, does not involve activities that have a high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas. As such, the potential risks and impacts and issues are likely to have the following characteristics: i) predictable and expected to be temporary and/or reversible; ii) low in magnitude; iii) site-specific, without likelihood of impacts beyond the actual footprint of the Project; and iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.). The Project's risks and impacts can be easily mitigated in a predictable manner.	Medium-scale canal and schemes modernization (i.e., rehabilitation, equipment refurbishment, lining etc.), with insignificant livelihood impact, minor alignment, rehabilitation of the existing WSS networks.
Low	Potential adverse risks to and impacts on human populations and/or the environment are likely to be minimal or negligible. These Projects, with few or no adverse risks and impacts and issues, do not require further environment and social assessment following the initial screening.	Minor rehabilitation of the irrigation canal and WSS networks with no land acquisition, and no major disruption of services.

Site-specific ESIA with ESMP will be required for subprojects classified as substantial risk to address potential risks and impacts and/or meet the national law requirements on environmental permitting. Stand-alone ESMP will be prepared for moderate-risks subprojects unless a specific activity presents distinct E&S risks that require an ESIA. ESCOP shall be adopted for subprojects with low and some moderate E&S risks, unless renovation and/or rehabilitation activities raise specific E&S risks requiring a site-specific ESMP.

Land Acquisition and Resettlement Screening

The screening process will include a comprehensive assessment of cadastral maps and field verification to determine whether a subproject requires land acquisition and/or is likely to result in physical and/or economic displacement of people currently using the proposed site. The verification of cadastral maps will ensure that all land tenure records are up to date and accurately reflect the ownership, usage, and rights of affected individuals. Copies of ownership certificates or any relevant documentation indicating rights over the land will be attached to the screening reports and/or E&S plans. If land acquisition or displacement is identified as a potential impact, an RP will be prepared, as outlined in the RF for the project. The scale, level of detail, and consultations required for the RP will be determined based on the scope and risks associated with the land acquisition. The RP will guide the process for land acquisition and the compensation of affected persons, ensuring that all necessary legal and social mitigation measures are in place. RP will focus on mitigation measures such as compensation, land replacement, and livelihood restoration.

Dam Safety

For the new dams for water reservoirs under Component 3 of the project that could cause safety risks, such as an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or potential for significant downstream impacts, the PCT will engage experienced and competent professionals for the supervision of the design and

construction, and require the owner of the dam to adopt and implement dam safety measures during the design, bid tendering, construction, operation, and maintenance of the dam and associated works. According to ESS4, these dams will require (i) reviews by an independent panel of experts (the Panel) of the investigation, design, and construction of the dam and the start of operations; (ii) preparation and implementation of the following detailed plans:

- a plan for construction supervision and quality assurance
- an instrumentation plan
- an operation and maintenance plan; and
- an emergency preparedness plan.

(iii) prequalification of bidders during procurement and bid tendering; and (iv) periodic safety inspections of the dam after completion, and implementation of measures required to address safety deficiencies.

For any other new dams to be constructed under Component 3 of the project's dam safety measures designed by qualified engineers in accordance with GIIP will be adopted and implemented.

Cultural Heritage

In the event that the proposed ISs and WSS infrastructure could potentially affect known cultural heritage:

- Designs of works in and around cultural heritage sites will be submitted for review and consent to the Ministry of Education, Science, Culture and Sports (MoESCS) to ensure that Project interventions do not affect adversely structural integrity of historic buildings, do not compromise their heritage value, or negatively revise their aesthetic appearance.
- If there are aspects of works that could affect religious buildings, property and/or user rights to which are held by the Apostolic Church of Armenia, will be submitted for review and consent to the Church. If works in or around a cultural heritage site poses a risk of physical damage to a heritage building or its individual elements, an adequate protective cover will be provided. Also, if r items placed in buildings interior pose a risk to safety and/or security of such items, a plan for their removal from the site and temporary safe-storage will be developed upfront (to be included as part of ESIA documentation) and implemented prior to mobilization of works contractor to the site.
- Cultural heritage management plan for such sites will be integrated into site-specific ESMPs.
- For any activities that may impact cultural heritage, including historical structures, cemeteries, sanctuaries, and other culturally significant sites, local communities will be consulted to ensure their perspectives are considered, and activities will be aligned accordingly. Chance finds: if a chance find is encountered during earth works, contractor will be obligated to take all activities on hold and immediately inform the PCT. The PCT will promptly communicate information to the MoESCS and seek formal guidance on the course of further action from the Ministry and inform the WB. Works will resume upon written notice from the MoESCS certifying that all urgent actions required for excavation and removal of artifacts and/or their on-site conservation are completed.

Waste Management

- Waste, including ACMs from replaced pipes and organic debris from canal rehabilitation, will be managed in compliance with national regulations, WBG EHS Guidelines, and European Union (EU) standards. Disposal will follow the ESMF procedures to ensure safe handling, transportation, and designated site disposal.
- Waste management plans (WMP) will be integrated into site-specific ESMPs, including mitigation measures to prevent soil and water contamination. Contractors will be responsible for implementation and obtaining the necessary permits.

- Protective measures will be applied near sensitive receptors such as water bodies, agricultural land, or residential areas to mitigate pollution risks.
- If hazardous waste is discovered unexpectedly, contractors must halt work and inform the PCT, which will coordinate with authorities for proper management before resuming activities.

Biodiversity Management

If the proposed ISs and WSS infrastructure impact biodiversity:

- Biodiversity risks, including habitat disturbance from land clearing, vegetation removal, and infrastructure development near or within protective zones of modified, natural or critical habitat areas or buffers zones, and Ramsar sites, will be assessed through the E&S screening process. Species surveys will be conducted to prevent impacts on critical habitats, and exclusion criteria will be applied for construction near ecologically sensitive areas.
- Biodiversity Management Plans (BMPs) will be integrated into site-specific ESMPs, which will incorporate mitigation measures to protect biodiversity. A stand-alone BMP will be prepared if significant risks are identified through screening.
- Water abstraction activities will be evaluated through ESIAs to prevent depletion of natural water sources and minimize ecosystem disturbances. Mitigation measures will be integrated into project design to align with GIIP.

Step 3: Preparation of Instruments

Based on the above screening, the PCT will determine:

- whether site-specific ESIA with ESMP (refer to Annex 3) shall be prepared to address relevant ESS provisions and/or national requirements. If necessary, the PCT will engage qualified and independent experts based on the scale and complexity of potential risks and impacts.

  OR

- stand-alone ESMP shall be prepared to address relevant ESS provisions (refer to **Annex 4** for a template);

  OR

- ESCOP provided in **Annex 5** shall be adopted for subprojects to address low and some moderate E&S risks.
- If land acquisition is envisaged, an RP shall be prepared in line with the RF.

Potential E&S impacts at the subproject level will be assessed based on subproject design (including operational parameters), baseline conditions and receptor sensitivity. Potential impacts will be characterized according to i) type (direct or indirect; positive or negative); ii) duration/temporal scope (permanent or temporary (short-term or long-term); iii) geographical extent (local, regional, or national); and iv) significance (low, moderate, substantial). Proposed measures to avoid, reduce or mitigate potential adverse impacts and to enhance benefits will be specified for design, construction, and operation phases.

At the request of the Bank, subproject instruments may be reviewed and cleared by the WB.

Step 4: Integrating ESHS into Procurement

The management measures outlined in the E&S instruments and/or ESCOP will inform ESHS requirements of bidding documents in accordance with the WB's Procurement Guidelines including:

- Submission of ESHS Management Strategies and Implementation Plans (MSIPs) required to manage the key ESHS risks of the project as part of the bid/proposal;
- Budgeting for ESHS outcomes included in the BoQs. If required, separate budgeting through provisional sums may be required for management of risks and impacts where budgeting cannot be determined during the bidding phase;
- Key ESHS personal required to implement ESHS requirements; and
- ESHS reporting matrices and requirements.

The ESMF includes standard ESHS provisions which will form part of the bidding documents. Draft bidding documents, including ToR for planned works, will be reviewed by E&S Specialists of PCT.

The following steps (refer to ***Table* 7**) reflect key requirements that must be performed by E&S Specialists of PCT, who will be responsible for integrating key provisions of ESMPs and/or ESCOPs and technical recommendations for the management of E&S risks and impacts in the overall procurement process and contract implementation.

Table 7: Actions for Integrating E&S Measures in Procurement for Civil Works

Stage of Contractual Process	Actions by the PCT (Environmental and Social Specialists and Procurement Specialists)
Before bidding	● Ensure that ToRs clearly define the supervision engineer's responsibilities regarding oversight of, and reporting on, E&S aspects as required in the sub project ESMP and/or ESCOP, LMP provisions and/or other technical design considerations. ● Ensure the skill mix of the supervision engineer's team as specified in ToRs includes key staff qualified and experienced in managing similar projects, and demonstrated capacity to manage E&S issues, including issues pertaining to CHS and labor.
Preparation of bidding documents	● Review contract conditions included in bidding documents to: - Ensure that the relevant mitigation measures in the ESMP, ESCOP and/or other technical recommendations and general provisions in the LMP are reflected and budgeted in the contract. - Ensure the ESMP, ESCOP and other relevant provisions in the technical specifications form part of and is explicitly referred to in the bidding documents. - Identify relevant provisions in the LMP (workers, camps, child and forced labor, safety, grievance redress, etc.) regulating the contractor's responsibility and identify any gaps, inconsistencies or areas of concern that could be addressed through additional provisions in the "particular conditions of contract" and/or technical specifications. - Include a requirement that all workers sign 'Codes of Conduct' governing behavior and identifying sanctions. - Clearly identify that training programs on SEA/SH, prevention of communicable diseases, Codes of Conduct, etc. will be undertaken by the contractor and relevant expertise will be hired to perform such activities. ● Ensure the contract conditions clearly specify what type of penalty the contractor will face if the provisions of the ESMP, ESCOP, LMP and other relevant provisions for contractors and Contractor's ESMP (C-ESMP) are not

Stage of Contractual Process	Actions by the PCT (Environmental and Social Specialists and Procurement Specialists)
	adhered to—including by sub-contractors. This may include direct incentives to contractors in the form of penalties for poor performance on E&S matters or specific Performance Securities for C-ESMP compliance. ● Ensure bidding documents clarify the responsibilities of the contractor to prepare and adhere to a C-ESMP based on the ESMP and/or ESCOP, LMP and that no civil works will commence until the C-ESMP has been approved by the supervision engineer. ● Ensure the bidding documents detail how the contractor and supervision engineer will be required to monitor and report on the impacts on the local community, issues related to labor influx and workers' camps. ● Propose KPIs for Contract Management, reflecting issues and risks specific to the contract and the monitoring plan.
Bid evaluation	● Review and verify the recommended bidder that documents related to the MSIPs (or management plans as equivalent), implementation capacity, and other obligations of the contractor required to be submitted with the bid are sufficiently detailed and cover the contractual requirements. ● Require the contractor's representative or dedicated community liaison staff to have the ability to communicate in local languages. ● Verify that the contract management framework identifies clearly lines of communication and that these are formalized, and a consistent record is provided. ● Ensure that the contractor meets the project's OHS requirements for capability and experience.
After contract signing	● Prior to commencing works, the contractor submits site-specific C-ESMP(s) and potential workforce requirements which includes specific management plans for: (i) work activities; (ii) traffic management; (iii) OHS; (iv) environmental management; (v) social risk management; and (vi) labor influx. ● Supervision engineer reviews and approves the C-ESMP—with inputs from appropriate PCT experts and other relevant government agencies—before any works start. ● Set up a process for contract management that plans for regular meetings of the parties to monitor the contractor's performance in all areas. ● Ensure the C-ESMP and mitigation plans are updated promptly and re-disclosed as appropriate to address new issues. ● Ensure that the following measures are fully documented for the WB's review: - Training activities for workers on OHS, activities related to the Code of Conduct, etc. - Performance of recommended specific management plans. - FGRM reports. - Other deliverables as specified in the contract including implementation of site-specific community/SEP, if applicable.

Step 5: Review and Approval

All relevant site-specific ESMPs, RPs (where needed), and bidding documents, are subjected to internal review by E&S Specialists of the PCT.

The PCT will be responsible for ensuring final review and submission of E&S instruments and bidding documents (subject to procurement requirements) to the relevant government authorities for approval, as required, and to the WB for no objection.

Step 6: Implementation, Monitoring, and Reporting

Civil works: E&S impact mitigation and management measures outlined in the ESMPs, ESCOP, and C-ESMPs will be supervised by supervision engineer and PCT's E&S Specialists, as well as other experts where required. Implementation of the required measures associated with the delivery of civil works will be the responsibility of the selected contractors as per their contracts. E&S monitoring is required to gather information to determine the effectiveness of implemented mitigation and management measures and to ensure compliance of the contractor with the approved plans. E&S performance indicators will be defined in these plans and measured from time-to-time to assess overall compliance. Some activities may require monitoring beyond the construction phase or Project life to address maintenance, closure, or rehabilitation issues and this will be determined in the design stage.

Bidding documents will confirm expected reporting intervals with contractors, who will be required to submit regular reports on ESHS indicators and any incidents and/or accident that may have adversely impacted on the environment arising from sub-projects. This will feed into periodic reports of the PCT and substantiate semi-annual project monitoring reports to the WB.

Land Acquisition: Implementation of RPs where required will be monitored based on indicators as specified in the each of the relevant plan, based on context-specific risks and impacts. The PCT social specialists, assisted by relevant experts, will monitor, and input the status and progress of RP implementation, including any emerging issues related to RP implementation and flag issues that require high-level resolution. Lessons learnt obtained from the initial stage of RP implementation will be used to improve the project's implementation of the land acquisition planning, including required training, budget planning and allocation and community facilitation support.

4.1.3 Management of Environment and Social Risks and Impacts for Associated Facilities

E&S risk screening will also identify whether there are AF as defined in the ESMF. These includes activities that are:

- directly and significantly related to the project;
- carried out, or planned to be carried out contemporaneously with the project; and
- necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.

Such facilities are defined as "Associated Facilities" and the ESS provisions apply, to the extent that the project's implementing agency has control or influence over such AF.

If AF are identified, the PCT will engage with proponents/financiers to ensure compliance with the relevant ESSs under the WISE project. If the PCT deems that it lacks the control or influence necessary to enforce the relevant ESS provisions, the PCT shall formally notify the WB and seek a No-Objection prior to commencing any works involving such associated facilities.

In line with the ESCP, the PCT shall prepare a quarterly report on the project-level E&S performance and reflect the status as part of the bi-annual project's progress reports. A relevant template can be referenced in Annex 2.

CHAPTER 5. IMPLEMENTATION ARRANGEMENT FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT

5.1 INSTITUTIONAL ARRANGEMENT

The MTAI and the WC will have overall responsibility for the Program, with implementation managed by an interim PCT under the WC. A Program Steering Committee, chaired by the DPM's Office, will oversee and monitor progress, with the Program Director reporting directly to the Committee. The National Water Strategy, National Irrigation Strategy, and National WSS Strategy will be developed under the DPM's leadership and executed by MTAI and WC, ensuring active participation from all stakeholders in Armenia's water sector. Given the multi-stakeholder nature of E&S management, MTAI and WC will lead efforts, while PCT coordinates implementation responsibilities to ensure effective collaboration. Specific roles and responsibilities are outlined as follows:

5.1.1 Project Coordination Team

Overall responsibilities for the WISE Project implementation will be located within the MTAI and the WC. Day-to-day implementation will be supported by the PCT within the WC. Implementation of Components 1 - 3 will be conducted through the MTAI. A project Steering Committee will be established at the level of the DPM's office to oversee and monitor the overall progress of the project. The project director will likely report directly to the Steering Committee. The development of the National Water Strategy, the National Irrigation Strategy, and the National WSS Strategy will be carried out under the leadership of the DPM's office and executed by the MTAI's and the WC with close involvement of all stakeholders engaged in the water sector in Armenia, as well as other entities involved in water sector development.

The PCT will be responsible for identifying subproject interventions for each component, developing bidding documents, procuring consultancy services and subproject designs. The PCT will ensure LMP are integrated into the bidding documents/ works contracts. Additionally, it will manage the procurement of civil works and ensure technical supervision.

The PCT's E&S specialists will ensure project implementation is in consistency with all relevant E&S requirements. These requirements include adoption and implementation of framework E&S management instruments as well as development and application of site-specific E&S management tools, oversight on E&S performance, and reporting on the E&S impacts and outcomes of the project. The E&S Specialists will ensure that the BoQ for the designs of subprojects under Components 2 and 3 include ESHS provisions and that the technical proposals submitted by bidders include a budget line for ESHS implementation. The E&S Specialists will also contribute to the development of the ToR for the TA, ensuring that ESMF requirements are incorporated.

The E&S specialists of the PCT will also carry out supervisory visits to the construction sites of subprojects under Components 2 and 3 to ensure that the implemented works comply with the requirements outlined in the ESMPs and ESCOP. If there is an RP developed for any of the subprojects, the Social Specialist will monitor its implementation and will report to the WB. PCT will be responsible for documenting E&S monitoring work by completing and storing field monitoring forms and producing regular narrative reports on the outcomes of monitoring. These reports will summarize findings of field work, analyze common issues encountered, explain the nature of remedial actions worked out for addressing issues, and assess the status of remedial actions undertaken upon recommendation issues under a previous report period. OHS aspects should be covered during supervision and monitoring activities. That means observing whether the works providers adhere to good OHS practices, whether all employees have received OHS training, whether there have been incidents and accidents, checking the respective logs, and the availability and use of personal protective equipment. Respectively, the E&S compliance section of the progress report should include the statement indicating that the PCT has checked OHS issues and existing practices and if there have

been any serious incidents or fatalities. Similarly, the PCT will ensure that the project operational manual contains respective OHS provisions. Any incidents and accidents occurring at project sites or within project-supported activities should be reported immediately, e.g. by the contractor to the employer. All incidents and accidents should be reported to the WB no later than 48 hours from their occurrence in line with ESCP.

Additional specialists will be hired during project implementation on a need basis and will be reassessed during the initial year of project implementation. These specialists could potentially include experts in OHS, gender, community outreach and stakeholder engagement.

5.1.2 Technical Supervision Consultants

A technical supervision consultant will complement PCT's in-house capacity for ESMF implementation. The consultants' ToR will be agreed upon with the WB. The ToR will clearly outline the consultants' tasks, including supervising the E&S performance of contractors, providing professional support and guidance on ESHS, and reporting to the employer. Technical supervisors will be responsible for promptly identifying any ESHS issues that may arise during project implementation and assisting contractors in addressing them. If contractors fail to take timely and satisfactory corrective action, technical supervisors will issue written notices to the contractors and follow up accordingly. In cases where contractors persistently fail to implement corrective actions, technical supervisors must escalate the matter to the employer and recommend appropriate managerial action to resolve the issue.

5.1.3 Design and Construction Contractors

During the design phase, the design contractor will assist the PCT in obtaining all necessary permits and agreements from the relevant state and local authorities.

During the construction phase, the contractor will be responsible for developing the Contractor's ESMP, which must be implemented upon approval by the PCT and the WB. The contractor is also responsible for obtaining all necessary permits and agreements related to the construction works.

The construction contractor shall implement all proposed E&S mitigation measures for the subproject. Before submitting a bid for any works contract, the contractor must integrate the costs for implementing requirements of the relevant ESMP, including the LMP. Where appropriate, the PCT may withhold contractor's payment until corrective action(s) is/are implemented on significant noncompliance of the LMP for the WISE Project.

5.1.4 Supervising Agencies

The Environmental and Mining Inspection Body (EMIB) under GoA is responsible for inspecting the implementation of provisions ruled through the environmental permits. The EMIB is also mandated to inspect compliance with all aspects of environmental legislation. The Inspectorate has the authority to impose sanctions in the areas of environmental protection, as well as the use and extraction of subsoil and mineral resources.

Health and Labor Inspection Body (HLIB) ensures compliance with legal requirements governing the healthcare sector, as well as the labor legislation of the RoA and other regulatory legal acts related to labor law. The inspection body is responsible for risk management related to employee H&S, as well as for implementing preventive measures in these areas, with a focus on public health, workplace safety, and labor relations.

Table 8: Roles and Responsibilities

Implementing Agencies	Roles and Responsibilities
Ministry of Territorial Administration and Infrastructures	The main mandate of MTAI includes developing and implementing Armenia's territorial policy, formulating State policy for community services, ensuring balanced territorial development, overseeing social-economic programs by governors, and quality assurance of territorial bodies' performance. MTAI also monitors community budgets, addresses citizen complaints about territorial and local self-government activities, liaises with the media under its Public Information Policy, and develops State policy for the National Archive. All decisions regarding the identification, preparation, and implementation of sub-projects under the WISE project will be fully coordinated with MTAI.
Water Committee	The committee develops and implements the policy of the Government of Alberta in managing and using state-owned water systems. As the WISE Project execution agency, it will be responsible for all activities implemented within the project.
Project Management Structure	The Project Management Structure will be established and will operate under the WC. It will be responsible for day-to-day activities of the Project including hiring consultants and contractors for - development of a comprehensive national water strategy: a standalone ten-year national irrigation strategy, and a standalone rural drinking water and sanitation strategy; a national program of support and training for the existing WUA; - elaboration of water systems (including irrigation as well as supply and sewage systems) rehabilitation and construction designs; - implementation of civil works; and - technical supervision of the construction works.
Related Agencies	**Roles and Responsibilities**
Ministry of Environment	At the national level, the MoE has the mandate for environmental protection, the sustainable use and regeneration of natural resources and the improvement of the environment. It issues permits for water use and discharge. These functions are performed by the core body of the Ministry as well as subordinated agencies including: (i) "Environmental Impacts Expertise Center" SNCO is responsible for EIA and environmental permitting; designs of civil works to be implemented under the WISE Project may be subject to EIA and environmental classification by the MoE. (ii) "Hydrometeorology and Monitoring Center" SNCO is responsible for monitoring water flow, water balance and water level fluctuations, research of environmental pollution and weather forecasting air as well as surface water quality monitoring.
Environmental Protection and Mining Inspection Body	It operates under the RoA GoA and performs the enforcement of laws and regulations pertaining to air and water pollution, land use, biodiversity conservation and forest protection; exercises supervision and/or other functions prescribed by laws. The Inspection Body may apply sanctions in the field of environmental protection, as well as regarding the use and reproduction of subsoil and mineral resources.
Local Self-Governance Bodies	LSGB and local authorities assist the Project team with field studies, organizing public consultations, and issuing permits for construction and waste removal. They help resolve complaints and grievances and participate in other necessary issues. Local authorities can also provide

	community lands for temporary or permanent use for Project activities such as access roads, construction camps, and pipeline installations.
Water User Associations	WUAs as direct stakeholders of rehabilitated canals take active role during design preparation with selection of problematic sections of target canals for rehabilitation. They provide key information required for economic analysis on cultivated crops in the target area, the catchment area of the canals, the size of irrigated and non-irrigated lands.

5.1.5 The World Bank

The WB provides project implementation support to the Borrower throughout the project's lifecycle. This includes reviewing and approving ToRs and bidding documents to ensure the proper incorporation of ESHS aspects, site-specific E&S instruments for subprojects, quarterly monitoring reports and biannual implementation progress reports for the WISE Project prepared by PCT, which includes a chapter on ESHS performance. The WB will examine and evaluate the quality of E&S supervision of subprojects as a part of its regular implementation support missions to WISE Project. This would include a review of E&S monitoring reports submitted by PCT, as well as random field visits to subproject implementation sites during WISE implementation support missions.

CHAPTER 6. STAKEHOLDER ENGAGEMENT, INFORMATION DISCLOSURE AND GRIEVANCE MANAGEMENT

Stakeholder engagement is an inclusive process carried out throughout the project life cycle to build strong, constructive, and responsive relationships. It aims to identify opportunities and risks both from and to the project and is a core aspect of ESS 10. Participatory approach to framing E&S management under WISE Project as well as for planning of E&S impact mitigation is essential to ensure the quality and relevance of ESF instruments.

An SEP has been developed as a standalone document and will serve as the primary reference for planning and implementing engagement activities with relevant stakeholders, including target communities under all project components.

6.1 PUBLIC CONSULTATION

Public consultation meetings will be held in accordance with the requirements of ESS10 and the respective legislation for the RA, and as specified in the Program SEP.

The Armenian laws regulating public consultation and coordination, as well as information availability to the public are listed below:

- Fundamentals of the RA legislation on Nature Protection ensure citizen's right to request complete information concerning the environmental situation and obtain it on time.
- The Law on Environmental Impact Assessment and Expertise calls for mandatory disclosure of information on planned projects/programs, include information on their environmental implications, and requires solicitation of public feedback on the disclosed documentation.
- The Law on freedom of information ensures accessibility and transparency of information, as well as defines procedures for requesting and issuing of information by various types of legal bodies.

Detailed record of public consultation process will be kept. Minutes of all meetings held will be produced to include the following information:

- What announcement was made on the meeting, through what media, and on what date?
- What was the time and venue of a meeting held?
- How many attendees were in the meeting?
- What was the agenda of the meeting?
- Who were key speakers and what aspects did they cover?
- What were the main types of questions asked by residents and how these questions were responded?

Minutes will be supported with photo material taken during consultation, with the consent of participants, and lists of attendees with their contact information and original signatures.

This ESMF as well as site-specific ESMPs will be finalized with incorporation of feedback from the stakeholders and re-disclosed along with the minutes of consultation meetings.

Public consultations will continue during the construction phase led by the PCT staff and construction supervision contractors, and records of E&S issues raised, and complaints received during consultations, field visits, informal discussions, formal letters, etc., will be followed up. The records will be kept in the PCT office and be available for the WB upon request.

More detailed information about stakeholder engagement and public disclosure are provided in the SEP.

6.2 OUTREACH TO COMMUNITY AND VULNERABLE GROUPS

During the screening process, vulnerable segments of the affected community will be identified, including but not limited to a significant number of women-headed households, ethnic minorities, persons with disabilities, and extremely poor households. These groups require meaningful consultation to ensure their perspectives and needs are adequately considered.

Stakeholder engagement will prioritize consultations, collaboration, empowerment, and two-way communication. Targeted information and communication materials will be developed and disseminated to these groups. Furthermore, focus group discussions, roundtable meetings, and individual consultations with representatives or members of these groups will be conducted to capture their perspectives, concerns, and specific requirements for inclusion in the project.

The concerns and recommendations raised will be duly considered in the development of detailed designs to the greatest extent possible, and feedback will be provided to the relevant stakeholders.

The SEP prepared for the WISE Project provides details on outreach to community and vulnerable groups.

6.3 INFORMATION DISCLOSURE

This draft ESMF will be disclosed through the WC's web page and made available in print version at the regional administrations in Armenian and English languages. Consultation on it will be undertaken with relevant government and non-government institutions. ESIA reports for subprojects and/or Site-specific ESMPs will also be disclosed in two languages on the WC's web page, and hard copies in Armenian will be delivered to the administrative centers closest to the subproject sites. Local communities will be notified on the availability of these hard copies as well as on the means of communicating their feedback on the documents under consideration. Public consultation meetings with sub-project-affected people and relevant stakeholders will be held in the vicinity of subproject sites selected to guarantee easy access of stakeholders.

The SEP prepared for the WISE Project provides details on how different stakeholders can be engaged and informed of the Project.

6.4 FEEDBACK AND GRIEVANCE REDRESS MECHANISM

An FGRM will be established and maintained throughout the course of the Project. The GRM will ensure that citizens can submit inquiries and grievances, and have their grievances redressed in a timely and effective manner without directly addressing the court.

The Project will develop a separate Grievance Mechanism for direct and contract workers that will be used to address complaints from workplace concerns and will be SEA/SH sensitive. The objective of deployment of these measures is SEA/SH prevention and response to complaints. The details are provided in the standalone LMP and the SEP.

Communities and individuals who believe that they are adversely affected by a project or subproject supported by the WB may also submit complaints to the WB'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 complaints to the WB's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time

after concerns have been brought directly to the WB's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the WB's corporate GRS, please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the WB Inspection Panel, please visit www.inspectionpanel.org.

CHAPTER 7. ENVIRONMENTAL AND SOCIAL CAPACITY BUILDING AND TRAINING

In line with the project's ESCP, the PCT will be responsible to prepare, and implement the capacity building plan as part of the Project's ESMF and Project Operations Manual (POM), including but not limited to:

- training for PCT staff, relevant government stakeholders, WUAs, contractors, and supervision engineers on key E&S aspects of the project. This will cover but is not limited to subproject level ESIAs and ESMPs, OHS, safe management of hazardous wastes including ACMs, CHS, emergency preparedness and response, stakeholder engagement, prevention and management of SEA/SH, and grievance management.
- community engagement sessions and awareness programs on relevant E&S aspects of the project to promote safer project implementation and ensure affected communities understand their rights and available support systems.

To do so, the PCT shall establish and maintain an E&S team within the PCT that is tasked with E&S management, covering subproject E&S assessment and instrument preparation, supervision, capacity building and overall reporting. The team shall be equipped with qualified staff and resources to effectively manage the ESHS aspects of the project. At a minimum, it shall include one environmental specialist and one social specialist.

The PCT shall enter into cooperation with relevant government agencies both at the national and subnational levels as well as non-government organizations to manage E&S risks and impacts of the project.

CHAPTER 8. BUDGET AND COST OF IMPLEMENTING ESMF

The costs associated with implementing the ESMF include expenses related to E&S impact assessments, expert consultations, training, capacity-building activities, and mitigation measures.

Actual budget estimates for the various components of the WISE Project will be determined once project activities are finalized. These estimates will be based on the specific nature of activities within each component and will be incorporated into the design packages.

Table 9 provides an indicative cost for E&S assessments and capacity building activities for implementation of ESMF (except E&S staff cost that are part of PCT staff budget).

Table 9: ESMF Implementation Budget

ESMF implementation activities (incl. SEP)	Unit Cost, (USD)	Q-ty	Total cost (USD)
Training/capacity building for PCT and involved agencies on ESF requirements during project implementation	60,000	Lump sum	60,000
ESIA/ESMPs and other assessment costs for activities under Components 2 and 3 For 6 years of implementation – 150,000 per year	150,000	6	900,000
Capacity building for Project beneficiaries on thematic E&S areas	15,000	5	75,000
E&S training for PCT staff, contractors' staff and sub-contractors as well as supervision engineers (including on thematic capacity building)	5,000	5	25,000
SEP implementation budget	110,000	Lump sum	110,000
E&S staff	TBD (part of the PCT budget)	Monthly	TBD
Total			**1,170,000**

LIST OF ANNEXES

ANNEX 1. EXCLUSION LIST

Subprojects that include activities listed here are not eligible for financing.

1. Subprojects involving major land acquisition through the use of eminent domain with significant impacts on livelihoods and/or result in physical displacement.
2. Activities which will cause, or have the potential to result in, permanent and/or significant damage to non-replicable cultural heritage, such as irreplaceable cultural relics, historical buildings and/or archaeological sites.
3. Activities that may cause or lead to forced labor or child abuse, child labor exploitation or human trafficking, or subprojects that employ or engage children, over the minimum age of 14 and under the age of 18, in connection with the project in a manner that is likely to be hazardous or interfere with the child's education or be harmful to the child's health or physical, mental, spiritual, moral, or social development.
4. Activities which will cause irreversible impacts on species of flora and fauna included in Red Books of RoA.
5. Subprojects involving activities that have potential to cause any significant loss or degradation of critical habitats whether directly or indirectly, or which would lead to adverse impacts on natural habitats.
6. Subprojects having significant impact on any ecosystems of importance (especially those supporting rare, threatened, or endangered species of flora and fauna).

ANNEX 2. PROJECT-LEVEL ENVIRONMENTAL AND MONITORING TEMPLATE

This monitoring plan outlines key E&S indicators for compliance with WB ESSs relevant to the project. In line with the ESCP, this report shall be submitted to the WB on a quarterly basis not later than 20 business days after the end of each reporting period and overall E&S project performance shall be reflected in the project's progress reports.

A. Status of E&S Management under the Project

- **Component 1: Water Sector Reform and Institutional Strengthening**

  Summary of the project implementation status and Strategic SESA

- **Component 2: Rural WSS Enhancement**

  Summary of the feasibility studies, detailed design and infrastructure activities and site-specific ESIAs and ESMPs, and contractors' E&S performance and emerging issues, including any incidents and/or accidents.

- **Component 3: Modernizing Irrigation Infrastructure & System Management**

  Summary of the feasibility studies, detailed design and infrastructure activities and site-specific ESIAs and ESMPs, and contractors' E&S performance and emerging issues, including any incidents and/or accidents.

B. Organizational Structure

Status of the ESCP action:

- The PCT shall establish and maintain an E&S team responsible for E&S management, including assessment, supervision, capacity building, and reporting. The team shall consist of at least one environmental specialist and one social specialist.
- The PCT shall engage with relevant government agencies and non-government organizations to manage E&S risks and impacts.
- Monitoring Indicators:
  - Recruitment of E&S specialists completed within 45 days of project effectiveness.
  - Cooperation established with relevant government agencies and NGOs.

C. E&S Capacity Building Plan

Status of the ESCP action:

- A capacity building plan will be prepared and implemented as part of the ESMF and POM. Training shall be provided for PCT staff, government agencies, WUAs, contractors, and supervision engineers on E&S impact assessment, OHS, CHS, SEA/SH prevention, and grievance management.
- Monitoring Indicators:
  - Capacity building plan finalized within three months of project effectiveness.
  - Training sessions conducted and documented.

D. E&S Supervision Status

Regular monitoring reports provided by the contractors and supervision engineers shall be analyzed to understand the overall E&S compliance status for each sub-project activities. The same applies for the implementation of the Component 1 that the PCT will need to monitor.

- Status of E&S document preparation and implementation.
- Stakeholder engagement activities.
- Complaints received and resolved through the grievance mechanism.
- Contractors' and subcontractors' E&S performance.
- Incidents and accidents
- E&S non-compliances with ESMPs and corrective actions.

a. Contractors' Monthly Reports

Contractors and supervising firms will provide monthly monitoring reports on E&S performance, aligned with contract requirements.

Monitoring Indicators:

- Monthly reports submitted for supervision engineers and PCT
- Quality of the reporting and data presented
- Non-performance and non-compliance issues

b. Incidents and Accidents

Significant project-related incidents or accidents must be reported to the Bank within 48 hours. An investigation will be conducted, and a Corrective Action Plan (CAP) will be implemented.

Monitoring Indicators:

- Status of investigation
- Status of Corrective Action Plans (CAPs)
- Status of incident and/or accident closures

E. Environmental and Social Standards Monitoring

Status of the implementation of the project according to each relevant ESSs as outlined in the project's ESCP.

a. ESS1: Environmental and Social Assessment

- Status of SESA including key E&S issues and how measures will be integrated into regulatory reforms and strategy development, status of public consultations under Component 1
- Status of E&S screening at the sub-project level and respective site-specific ESIAs and ESMPs for Component 2 and 3

b. ESS2: Labor and Working Conditions

- Status of the implementation of the project's LMP.
- Status of the workers' GRM and records of any grievances and resolution

c. ESS3: Pollution Prevention and Waste Management

- Status of WMP implementation in respective ESMPs and C-ESMPs

d. ESS4: Community Health and Safety

- Status of CHS measures, including traffic safety and emergency response plans, incorporation of CHS into designs (esp. structural safety)
- Screening of dam safety requirements and implementation
- SEA/SH prevention measures

e. ESS5: Land Acquisition and Resettlement

- Screening of land acquisition and resettlement impacts for each scheme (irrigation and WSS)
- Status of preparation and implementation of RPs
- Grievances related to land acquisition and expropriation of assets

f. ESS6: Biodiversity Conservation

- Assessment of biodiversity risks and impacts screening and status of mitigation measures in site-specific ESMPs and C-ESMPs where applicable.

g. ESS8: Cultural Heritage

- Screening of cultural heritage risks and impacts for each sub-scheme (irrigation and WSSs) and implementation of mitigation measures (i.e., Cultural Heritage Management Plans) in site-specific ESMPs and C-ESMPs where applicable.
- Chance finds in project's sites and implementation of chance finds procedures.

h. ESS10: Stakeholder Engagement and Information Disclosure

- Status of SEP implementation, including compliance with information disclosure requirements and public consultations
- Status of project FGRMs, including clearly established roles and responsibilities, FGRM publicization, uptake channels and SHA/SH referral pathways
- Grievance records and status of their resolution

F. Corrective Action Plans to Address Non-Compliances

G. E&S Workplan for the next quarter

ANNEX 3. ENVIRONMENTAL AND SOCIAL SCREENING FORM

The environmental and social screening procedure consists of two stages: (1) Initial screening using the **Exclusion List** in Annex 1; and (2) Screening proposed activities to identify the approach for E&S risk management. This Screening Form is the second stage and is used for all subprojects. Completed forms will be kept in the Project files and may be reviewed by the WB during project implementation.

1. Subproject Information:

Subproject Title	
Subproject Location	
Implementing Agency	
Estimated Cost	
Start/Completion Date	
Brief Description of Subproject	

2. Environmental and Social Screening Questionnaire

Questions	Answer		Next Steps
	Yes	**No**	
ESS1: Assessment and Management of Environmental and Social Risks and Impacts			
Is the subproject likely to have significant adverse environmental impacts that are sensitive and unprecedented that trigger the 'Ineligible Activities' in the exclusion list and/or classified as high risk?			If "Yes": Exclude from project.
Are the risks and potential impacts associated with subproject have the majority or all of the following characteristics: i) mostly temporary, predictable and/or reversible and the nature of the project does not preclude the possibility of avoiding or reversing them; ii) adverse social impacts may give rise to a limited degree of social conflict, harm or risk to human security; iii) medium in magnitude and/or spatial extent; iv) there is medium to low probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.), and are there known and reliable mechanisms available to prevent or minimize such incidents?			If "Yes": - Prepare a site-specific ESIA with ESMP for the proposed subproject, based on the template in **Annex 3**. - Include E&S risk management measures in bidding documents
Does the subproject involve construction of water reservoirs?			If "Yes":

			- Prepare a site-specific ESIA with ESMP for the proposed subproject, based on the template in Annex 3. - Include E&S risk management measures in bidding documents
Does the subproject involve renovation or rehabilitation of any small-scale infrastructure of the existing WSS and irrigation networks?			If "Yes": - Apply relevant measures based on the ESCOPs in **Annex 5** (unless specific renovation and/or rehabilitation raises specific environmental and social risks requiring a site-specific ESMP). - Include E&S risk management measures in bidding documents.
Does the project lead to any risks and impacts on, individuals or groups who, because of their particular circumstances, may be disadvantaged or vulnerable.[13]			If "Yes": Apply relevant measures described in the ESMF, RPF and SEP.
ESS2			
Does the subproject involve uses of goods and equipment involving forced labor, child labor, or other harmful or exploitative forms of labor?			If "Yes": Exclude from project.
Does the subproject involve recruitment of workforce including direct, contracted, primary supply, and/or community workers?			If "Yes": Apply LMP
Will the workers be exposed to workplace hazards that needs to be managed in accordance with local regulations and EHS Guidelines? Do workers need PPE relative to the potential risks and hazards associated with their work?			If "Yes": Apply LMP
Is there a risk that women and/or other category of workers (i.e., sub-contractors' workers, community workers) may be underpaid when compared to other categories of workers when working on the project construction?			If "Yes": Apply LMP

[13] "Disadvantaged or vulnerable" refers to those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or ethnic peoples status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits.

ESS3			
Is the project likely to generate solid or liquid waste that could adversely impact soils, vegetation, rivers, streams or groundwater, or nearby communities?			If "Yes": - Prepare a site-specific ESMP for the proposed subproject, based on the template in **Annex 4** . - Include E&S risk management measures in bidding documents.
Do any of the construction works involve the removal of asbestos or other hazardous materials?			If "Yes": Apply asbestos guidance provided in **Annex 6**.
Are works likely to cause significant negative impacts to air and / or water quality?			If "Yes": - Prepare a site-specific ESMP for proposed subproject, based on the template in **Annex 4** . - Include E&S risk management measures in bidding documents.
Does the activity rely on existing infrastructure (such as discharge points) that is inadequate to prevent environmental impacts?			If "Yes": - Prepare a site-specific ESMP for the proposed subproject, based on the template in **Annex 4** . - Include E&S risk management measures in bidding documents.
ESS4			
Is there a risk of increased community exposure to communicable disease (HIV/AIDS, Malaria), or increase in the risk of traffic related accidents?			If "Yes": Apply LMP and relevant measures in SEP.
Is an influx of workers, from outside the community, expected? Would workers be expected to use health services of the community? Would they create pressures on existing community services (water, electricity, health, recreation, others?)			If "Yes": Apply LMP
Is there a risk that SEA/SH may increase as a result of project works?			If "Yes": Apply LMP
Will the subproject require the government to retain workers to provide security to safeguard the subproject?			If "Yes": Prepare a site-specific ESMP for the proposed subproject, including an assessment of potential risks and mitigation measures of using security personnel.
ESS5			

Will the subproject require the involuntary acquisition of new land (will the government use eminent domain powers to acquire the land)?[14]			If "Yes": Refer to and apply the project RF.
Will the subproject lead to permanent physical displacement (including people without legal claims to land)?			If "Yes": Exclude from project.
Will the subproject lead to economic displacement (such as loss of assets or livelihoods, or access to resources due to land acquisition or access restrictions)?			If "Yes": Refer to and apply the project RF
Has the site of the subproject been acquired through eminent domain in the past 5 years, in anticipation of the subproject?			If "Yes": Refer to and apply the project RF
Are there any AF needed for the subproject (such as access roads) that will require the involuntary acquisition of new land?			If "Yes": Refer to and apply the project RF
Is private land required for the subproject activity being voluntarily donated to the project?[15]			If "Yes": Refer to and apply the project RF
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources			
Does the subproject involve activities that have potential to cause any significant loss or degradation of critical habitats[16] whether directly or indirectly, or which would lead to adverse impacts on natural habitats[17]?			If "Yes": Exclude from project.
Is subproject site located in a designated natural protected area?			If "Yes":

[14] ESS5, Footnote 10: "In some circumstances, it may be proposed that part or all of the land to be used by the project is donated on a voluntary basis without payment of full compensation. Subject to prior Bank approval, this may be acceptable providing the Borrower demonstrates that: (a) the potential donor or donors have been appropriately informed and consulted about the project and the choices available to them; (b) potential donors are aware that refusal is an option, and have confirmed in writing their willingness to proceed with the donation; (c) the amount of land being donated is minor and will not reduce the donor's remaining land area below that required to maintain the donor's livelihood at current levels; (d) no household relocation is involved; (e) the donor is expected to benefit directly from the project; and (f) for community or collective land, donation can only occur with the consent of individuals using or occupying the land. The Borrower will maintain a transparent record of all consultations and agreements reached."

[15] See above footnote

[16] ESS6, paragraph 23: "Critical habitat is defined as areas with high biodiversity importance or value, including (a) Habitat of significant importance to Critically Endangered or Endangered species, as listed in the IUCN Red List of threatened species or equivalent national approaches; (b) Habitat of significant importance to endemic or restricted-range species; (c) Habitat supporting globally or nationally significant concentrations of migratory or congregatory species; (d) Highly threatened or unique ecosystems; and (e) Ecological functions or characteristics that are needed to maintain the viability of the biodiversity values described above in (a) to (d)."

[17] ESS6, paragraph 21: "Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition."

			- Prepare a site-specific ESIA with ESMP for the proposed subproject, based on the template in Annex 3. - Include E&S risk management measures in bidding documents.
Will the project involve the conversion or degradation of non-critical natural habitats?			If "Yes": - Prepare a site-specific ESIA with ESMP for the proposed subproject, based on the template in **Annex 3**. - Include E&S risk management measures in bidding documents.
Will the activity require extensive clearance of trees, including inland natural vegetation?			If "Yes": - Prepare a site-specific ESIA with ESMP for the proposed subproject, based on the template in **Annex 3**. - Include E&S risk management measures in bidding documents.
Will there be any significant impact on any ecosystems of importance (especially those supporting rare, threatened, or endangered species of flora and fauna)?			If "Yes": Exclude from project.
ESS8			
Is the subproject to be located adjacent to a sensitive site (historical or archaeological or culturally significant site) or facility?			If "Yes": Apply Chance Find Procedures
Is the subproject to be located near buildings, sacred trees or objects having spiritual values to local communities (e.g., memorials, graves, or stones), or require excavation near there?			If "Yes": Apply Chance Find Procedures

3. Conclusion

Subproject is declined

☐

Sub-project is accepted

☐

Based on the screening outcome, applicable E&S risk management instruments are:

ESIA including ESMP	☐
Stand-alone ESMP	☐
ESCOPs	☐
RAP	☐

Name and title of person who conducted screening:

Date of screening:

ANNEX 4. OUTLINE OF ESIA REPORT

Executive Summary *(not more than 5 pages)*

Introduction

Environmental and Social Screening Outcome

Project Description

Analysis of Alternatives

Environmental and Social Impact Assessment Methodology

Environmental and Social Baseline

Expected Environmental and Social Risks and Impacts

Impact Mitigation

Environmental and Social Management Plan

CHAPTER 1. Introduction

CHAPTER 2. Legal and Policy Framework

CHAPTER 3. Technical, ESSs and Regulations

CHAPTER 4. Project Description

CHAPTER 5. Analysis of Alternatives

CHAPTER 6. Environmental and Social Screening

CHAPTER 7. ESIA Methodology

CHAPTER 8. Physical and Natural Environment

CHAPTER 9. Potential Environmental and Social Risks and Impacts

CHAPTER 10. Impact Mitigation

CHAPTER 11. Environmental and Social Management Plan

(Institutional and reporting arrangements)

Annex 1 Environmental and Social Management Matrix (mitigation plan and monitoring plan)

Annex 2. Public Consultation

Annex 3. References

Annex 4. Maps, Graphs, Pictures

Annex 5. ESIA Team Composition

ANNEX 5: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN TEMPLATE

PART A: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE			
Subproject title			
Municipality, community			
Scope of site-specific activity			
Institutional arrangements (WB)	Task Team Leader:	Environmental Specialist: Social Specialist:	
Implementation arrangements (RoA)	Implementing entity:	Works supervisor:	Works contractor:
SITE DESCRIPTION			
Address and site location			
Who owns the land? Who uses the land (formal/informal)?			
Description of physical and natural environment around the site			
Locations and distance for material sourcing, especially aggregates, water, stones?			
LEGISLATION			
National & local legislation & permits that apply to project activity			
PUBLIC CONSULTATION			
When / where the public consultation process will take /took place			
ATTACHMENTS			

Attachment 1: Site map/photo
Attachment 2: Records of Public Consultation Process
Attachment 3: Licenses/Permits/Agreements held by contractor

PART B: SAFEGUARDS INFORMATION

ENVIRONMENTAL /SOCIAL SCREENING			
	Activity/Issue	**Status**	**Triggered Actions**
Will the site activity include/involve any of the following?	1. Rehabilitation	[ ] Yes [ ] No	See Section **A** below
	2. New construction	[ ] Yes [ ] No	See Section **A** below
	3. Individual wastewater treatment system	[ ] Yes [ ] No	See Section **B** below
	4. Toxic or hazardous materials[18]	[ ] Yes [ ] No	See Section **C** below
	5. Impacts on forests and/or protected areas	[ ] Yes [ ] No	See Section **D** below
	6. Acquisition of land[19]	[ ] Yes [ ] No	See Section **E** below
	7. Traffic and Pedestrian Safety	[ ] Yes [ ] No	See Section **F** below
	8. Community and labor health and safety	[ ] Yes [ ] No	See Section **G** below
	9. Preservation of Cultural Heritage	[ ] Yes [ ] No	See Section **H** below

[18] Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

[19] Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

PART C: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
0. General Conditions	Notification and Worker Safety	(a) The public has been notified of the works through appropriate notification at each work site (including information on the company undertaking works and contact information). (b) All legally required permits for extraction of construction materials, disposal of waste, and others as relevant have been acquired for construction and/or rehabilitation. (c) All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (d) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots). (e) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
A. General Rehabilitation and /or Construction Activities	Air Quality	(a) Use debris chutes during interior demolition above the first floor. (b) Keep demolition debris in a controlled area and spray with water mist to reduce debris dust. (c) Suppress during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site. (d) Keep the surrounding environment (sidewalks, roads) free of debris to minimize dust. (e) There will be no open burning of construction / waste material at the site. (f) There will be no excessive idling of construction vehicles at sites.
	Noise	(a) Limit construction noise to daytime working hours. (b) During operations the engine covers of generators, close air compressors and other powered mechanical equipment, and place equipment as far away from residential areas as possible.
	Water Quality	(a) Establish appropriate erosion and sediment control measures such as hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers. (b) Wash construction vehicles and machinery only in designated areas where runoff will not pollute natural surface water bodies.
	Waste management	(a) Minimize amount of generated waste to the extent possible. (b) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. (c) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (d) Allocate sites for temporary on-site storage of various types of waste. Do not allow accumulation of excessive amounts of waste on-site.

		(e) Inert construction waste will be collected and disposed of properly by licensed collectors or by obtaining formal arrangements with municipal authorities to allocate a disposal site for inert construction waste. (f) Make timely arrangements for the disposal or hand-over of hazardous waste to licensed companies. (g) The records of waste disposal will be maintained as proof for proper management as designed. (h) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
	Topsoil Management	(a) Topsoil removal and temporary stockpiling for re-cultivation of the land. (b) To avoid the topsoil erosion, keep the height of its piles below 2 m and the inclination of the slope - below 45o. (c) Arrange water diversion channels along the perimeter of the topsoil fill and protect piles against the scattering by the wind blow. (d) In case of storing the topsoil for long, periodically loosen it or saw grass. (e) The contractor is responsible for handling topsoil in accordance with the requirements of Armenian legislation and the reinstatement plan (if any). (f) Temporary storage of excavated soil at determined places. (g) Backfilling of the excavated ground as needed and disposal of the excess mass to the places, approved in writing.
	Material supply	(a) Use existing plants, quarries or borrow pits that have appropriate official approval or valid operating license. (a) Obtain licenses for any new quarries and/or borrowing areas if their operation is required. (b) Reinstate used sections of quarries and/or borrowing areas as extraction proceeds on or properly close quarries if extraction is completed and the license expires.
B. Individual wastewater treatment system	Water Quality	(a) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities. (b) Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment. (c) Monitoring of new wastewater systems (before/after) will be carried out.
C. Toxic/ hazardous Materials	Asbestos management	(a) If asbestos is located on the project site, it shall be marked clearly as hazardous material. (b) When possible the asbestos will be appropriately contained and sealed to minimize exposure. (c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust (d) Asbestos will be handled and disposed by skilled & experienced professionals. (e) If asbestos material is to be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site. (f) The removed asbestos should not be reused.
	Toxic / hazardous waste management	(a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information. (b) The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching. (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used.

D. Affected forests, wetlands and/or protected areas	Protection	(e) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. (f) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided. (g) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences. (h) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
E. Unexpected need for land take	Private land ownership/use	(a) If expropriation of land was not expected but is required, or if loss of access or income of legal or illegal users of land was not expected but may occur, do not enter site and promptly notify the employer. (b) Do not commence works requiring land take prior to official notice of employer on the completion of involuntary resettlement and full provision of compensation to the affected people.
F. Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	In compliance with national regulations, ensure that the construction site is properly secured, and construction-related traffic is regulated. This includes but is not limited to: ▪ Signposting, warning signs, barriers, and traffic diversions: site will be clearly visible, and the public warned of all potential hazards. ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g., avoiding major transport activities during rush hours or times of livestock movement. ▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. ▪ Safe and continuous access to office facilities, shops, and residences during renovation activities, if the buildings stay open for the public.
G. Community and labor health and safety	Public relationship management	(a) Assign local liaison person within Contractor's team to be in charge of communication with and receiving requests/ complaints from local population. (b) Consult local communities to identify and proactively manage potential conflicts between an external workforce and local people. (c) Raise local community awareness about sexually transmitted disease risks associated with the presence of an external workforce and include local communities in awareness activities. (d) Inform the population about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate.

		(e) Limit construction activities at night. When necessary, ensure that night work is carefully scheduled, and the community is properly informed, so they can take necessary measures. (f) At least five days in advance of any service interruption (including water, electricity, telephone, bus routes), advice community through postings at the work site, at bus stops, and in affected homes/businesses. (g) Address concerns raised through Grievance Redress Mechanism established by the Employer within the designated timeline within the scope of Contractor's liability. (h) To the extent possible, do not locate work camps in close proximity to local communities. (i) Undertake siting and operation of worker camps in consultation with neighboring communities.
	Labor management	(a) Recruit unskilled or semi-skilled workers from local communities to the extent possible. Where and when feasible, worker skills training, should be provided to enhance participation of local people. (b) Provide adequate lavatory facilities (toilets and washing areas) in the work site with adequate supplies of hot and cold running water, soap, and hand drying devices. A temporary septic tank system should be established for any residential labor camp and without causing pollution of nearby watercourses. (c) Raise awareness of workers on overall relationship management with local population, establish the code of conduct in line with international practice and strictly enforce them, including the dismissal of workers and financial penalties of adequate scale. (d) Immediately inform technical supervisor of works and the employer on any OHS accidents/incidents at worksite, access roads, etc. involving contractor's personnel, which have caused damage to human or/and environmental health.
	FGRM	(a) FGRM is established and advertised at the local level. The Contractor is informed of his responsibility to register and communicate to the PIU received verbal and non-verbal grievances. (b) FGRM contact information, including local focal points, has been posted at the construction site and the local community's administrative office. (c) The Contractors' local liaison person receives and registers grievances from the population in the FGRM log and communicates the grievances to the PIU regularly.
	SEA/SH preventive actions	(a) Conduct SEA/SH awareness training for all workers, emphasizing appropriate workplace behavior, reporting mechanisms, and zero tolerance for harassment. (b) Ensure the availability of confidential and accessible reporting channels for SEA/SH-related grievances, including anonymous reporting options. (c) Establish and strictly enforce a code of conduct in line with international best practices, including specific provisions on SEA/SH prevention.
H. Preservation of Cultural Heritage	Cultural Heritage	(a) If an activity is implemented in the vicinity of cultural heritage sites/monuments or within their protective zones, a notification shall be made, and approvals/permits shall be obtained from local authorities. All construction activities must be planned and carried out in accordance with local and national legislation.

		(b) It shall be ensured that provisions are put in place so that artifacts or other possible “chance finds” encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.

PART D: MONITORING PLAN

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
CONSTRUCTION PHASE						
1.						
2.						
…						
n.						
OPERATION PHASE						
1.						
2.						
…						
n.						

FIELD ENVIONMENTAL AND SOCIAL MONITROING CHECKLIST

Subproject number and title					
Municipality, community					
Name of technical supervisor					
Name of works contractor					
Date of site visit					
Status of civil works					
Documents and activities to be examined	Status				Comments
	Yes	Partially	No	N/A	
Contractor holds license for extraction of natural resources					
Contractor holds permit for operating concrete/asphalt plant					
Contractor holds agreement for final disposal of waste					
Contractor holds agreement with service provider for removal of household waste from site					
Work site is fenced, and warning signs installed					
Works do not impede pedestrian access and motor traffic, or temporary alternative access is provided					
Working hours are observed					
Construction machinery and equipment is in standard technical condition (no excessive exhaust and noise, no leakage of fuels and lubricants)					
Construction materials and waste are transported under the					

covered hood					
Construction site is watered in case of excessively dusty works					
Contractor's camp or work base is fenced; sites for temporary storage of waste and for vehicle/equipment servicing are designated					
Contractor's camp is supplied with water and sanitation is provided					
Contractor's camp or work base is equipped with first medical aid and fire-fighting kits					
Workers wear uniforms and protective gear adequate for technological processes (gloves, helmets, respirators, eyeglasses, etc.)					
Servicing and fuelling of vehicles and machinery is undertaken on an impermeable surface in a confined space which can contain operational and emergency spills					
Vehicles and machinery are washed away from natural water bodies in the way preventing direct discharge of runoff into the water bodies					
Construction waste is being disposed exclusively in the designated locations					
Extraction of natural construction material takes place strictly under conditions specified in the license					
Excess material and topsoil generated from soil excavation are stored separately and used for backfilling / site reinstatement as required					
Works taken on hold if chance find encountered and communication made to the State agencies responsible for cultural heritage preservation					

Upon completion of physical activity on site, the site and contractor's camp/base cleared of any remaining left-over from works and harmonized with surrounding landscape					
Grievance redress information available and accessible to project community (billboards, brochures, etc.)					
Grievance log maintained; summary of grievances					
Accidental damages caused by contractor have been restored					
In the event of land acquisition/resettlement impacts, compensation delivered before start of construction works					

ANNEX 6. ENVIRONMENTAL AND SOCIAL CODES OF PRACTICES

To manage and mitigate potential negative environmental impacts, the project applies Environmental Codes of Practice (ESCOPs); outlined in this document. The ESCOPs contain specific, detailed, and tangible measures that would mitigate the potential impacts of each type of eligible subproject activity under the project. They are marked as relevant for the planning phase, the implementation phase, or the post-implementation phase of activities. They are intended to be simple risk mitigation and management measures, readily usable to the Borrower and contractors. The ESCOPs consist of general ESCOP for infrastructure and specific ESCOPs for WSS and irrigation rehabilitation sub-projects.

General ESCOP for Infrastructure Activities

Issue	Environmental Prevention/Mitigation Measures	Responsible Party
Noise during construction	***Planning Phase***	Construction contractor, technical supervision consultant, PCT
	a) Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance.	
	Implementation Phase	
	b) Use when needed and feasible noise-control methods such as fences, barriers, or deflectors (such as muffling devices for combustion engines or planting of fast-growing trees). c) Minimize project transportation through community areas. Maintain a buffer zone (such as open spaces, row of trees or vegetated areas) between the project site and residential areas to lessen the impact of noise to the living quarters.	
Soil erosion	***Planning Phase***	Construction contractor, technical supervision consultant, PCT
	a) Schedule construction during dry season to the extent possible. b) Design infrastructure so that it will create least impact.	
	Implementation Phase	
	c) Contour and minimize length and steepness of slopes. d) Use mulch, grasses, or compacted soil to stabilize exposed areas. e) Minimize use of heavy machinery. f) Use erosion control measures such as hay bales and silt fencing. g) Cover pile with plastic sheeting; prevent runoff with hay bales, or similar measures.	
	Post-Implementation Phase	
	h) Cover with topsoil and re-vegetate (plant grass, fast-growing plants/bushes/trees) construction areas quickly once work is completed. i) Design channels and ditches for post-construction flows and line steep channels/slopes (e.g., with palm frowns, jute mats, etc.).	
Air quality	***Implementation Phase***	Construction contractor, technical supervision consultant, PCT
	a) Minimize dust from exposed work sites by applying water on the ground regularly during dry season. b) Avoid burn site clearance debris (trees, undergrowth) or construction waste materials. c) Keep stockpile of aggregate materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals. d) Reduce the operation hours of generators /machines /equipment /vehicles.	

	e) Control vehicle speed when driving through community areas is unavoidable so that dust dispersion from vehicle transport is minimized. (Implementation phase)	
Water quality and availability	***Implementation Phase***	Construction contractor, technical supervision consultant, PCT
	a) Activities should not affect the availability of water for drinking and hygienic purposes. b) No soiled materials, solid wastes, toxic or hazardous materials should be stored in, poured into, or thrown into water bodies for dilution or disposal. c) Avoid the use of wastewater pools particularly without impermeable liners. d) Provision of toilets with temporary septic tank. e) The flow of natural waters should not be obstructed or diverted to another direction, which may lead to drying up of riverbeds or flooding of settlements. f) Separate concrete works in waterways and keep concrete mixing separate from drainage leading to waterways.	
Hazardous and non-hazardous waste	***Implementation Phase***	Construction contractor, technical supervision consultant, PCT
	a) Segregate construction waste as recyclable, hazardous and non-hazardous waste. b) Collect, store and transport construction waste to appropriately designated/ controlled dump sites. c) On-site storage of wastes prior to final disposal (including earth dug for foundations) should be at least 300 metres from rivers, streams, lakes, and wetlands. d) Use secured area for refuelling and transfer of other toxic fluids distant from settlement area (and at least 50 metres from drainage structures and 100 metres from important water bodies); ideally on a hard/non-porous surface. e) Train workers on correct transfer and handling of fuels and other substances and require the use of gloves, boots, aprons, eyewear, and other protective equipment for protection in handling highly hazardous materials. f) Collect and properly dispose of small amount of maintenance materials such as oily rags, oil filters, used oil, etc. Never dispose spent oils on the ground and in water courses as it can contaminate soil and groundwater (including drinking water aquifer).	
	Post-Implementation Phase	
	g) After each construction site is decommissioned, all debris and waste shall be cleared.	
Asbestos	***Implementation Phase***	Construction contractor, technical supervision consultant, PCT
	a) If asbestos or ACM are found at a construction site, they should be clearly marked as hazardous waste. b) The asbestos should be appropriately contained and sealed to minimize exposure. c) Prior to removal, if removal is necessary, ACM should be treated with a wetting agent to minimize asbestos dust. d) Asbestos will be handled and disposed by skilled & experienced professionals.	

	e) If ACM is to be stored temporarily, it should be securely placed inside closed containers and clearly labeled. Security measures will be taken against unauthorized removal from the site. f) The removed asbestos should not be reused.	
	Post-Implementation Phase	
	g) Removed ACM must not be reused.	
HS	***Planning Phase***	Construction contractor, technical supervision consultant, PCT
	a) When planning activities of each subproject, discuss steps to avoid people getting hurt. It is useful to consider: ● Construction place: Are there any hazards that could be removed or should warn people about? ● The people who will be taking part in construction: Do the participants have adequate skill and physical fitness to perform their works safely? ● The equipment: Are there checks you could do to make sure that the equipment is in good working order? Do people need any particular skills or knowledge to enable them to use it safely? ● Electricity Safety: Do any electricity good practices such as use of safe extension cords, voltage regulators and circuit breakers, labels on electrical wiring for safety measure, aware on identifying burning smell from wires, etc. apply at site? Is the worksite stocked with voltage detectors, clamp meters and receptacle testers?	
	Implementation Phase	
	b) Mandate the use of personal protective equipment for workers as necessary (gloves, dust masks, hard hats, boots, goggles). c) Follow the below measures for construction involve work at height (e.g., 2 meters above ground): ● Do as much work as possible from the ground. ● Do not allow people with the following personal risks to perform work at height tasks: eyesight/balance problem; certain chronic diseases – such as osteoporosis, diabetes, arthritis, or Parkinson's disease; certain medications – sleeping pills, tranquillisers, blood pressure medication or antidepressants; recent history of falls – having had a fall within the last 12 months, etc. ● Only allow people with sufficient skills, knowledge, and experience to perform the task. ● Check that the place where work at height is to be undertaken is safe. ● Take precautions when working on or near fragile surfaces. ● Clean up oil, grease, paint, and dirt immediately to prevent slipping; and ● Provide fall protection measures e.g., safety hardness, simple scaffolding/guard rail for works over 4 meters from ground. d) Keep worksite clean and free of debris on daily basis. e) Provision of first aid kit with bandages, antibiotic cream, etc. or health care facilities and enough drinking water. f) Keep corrosive fluids and other toxic materials in properly sealed containers for collection and disposal in properly secured areas.	

	g) Ensure adequate toilet facilities for workers from outside of the community. h) Rope off construction area and secure materials stockpiles/ storage areas from the public and display warning signs including at unsafe locations. Entry should be restricted to unauthorized individuals, including children. i) Ensure structural openings are covered/protected adequately. j) Secure loose or light material that is stored on roofs or open floors. k) Keep hoses, power cords, welding leads, etc. from laying in heavily travelled walkways or areas. l) If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours, if needed. m) Control driving speed of vehicles particularly when passing through community or nearby school, health centre or other sensitive areas. n) During heavy rains or emergencies of any kind, suspend all work.	
	Post-Implementation Phase	
	o) Fill in all earth borrow-pits once construction is completed to avoid standing water, water-borne diseases, and possible drowning. (Post-Implementation phase)	
Other	***Planning Phase***	Construction contractor, technical supervision consultant, PCT
	a) No cutting of trees or destruction of vegetation other than on construction site. [Implementing agency] will procure locally sourced materials consistent with traditional construction practices in the communities.	
	Implementation Phase	
	a) No hunting, fishing, capture of wildlife or collection of plants. b) No use of unapproved toxic materials including lead-based paints, un-bonded asbestos, etc. c) No disturbance of cultural or historic sites.	

Specific ESCOPs for WSS and Irrigation Rehabilitation Activities

Subproject Type	Environmental Prevention/Mitigation Measures	Responsible Party
Water Supply		
Shallow Groundwater Wells	***Planning Phase***	Construction Contractor, Technical Supervision Consultant, Project Control Technician
	a) Site wells so that appropriate zone of sanitary protection can be established.	
	Implementation Phase	
	b) Equip with slab around the well for easy drainage, a crossbeam, and a pulley to support the use of only one rope and bucket for collecting water. One rope and bucket is more hygienic for the well and water. c) Install steel steps/rungs (inside wall of a deep well) for maintenance and in case of emergency. d) A groundwater well usually has a wide-open water area. It is necessary to provide a cover/roof/wire mesh on top to protect this area from falling leaves or debris. e) Wells should always be located upstream of the septic tank soak-away. Build the soak-away as far away as possible from the well (minimum 15 m/50 feet) as it can influence the quality of the drinking water when it is too close. (Planning and implementation phase)	
	Post implementation phase	
	f) Before using a new water source, test water quality and when intended for potable purposes ensure water meets the national drinking water standard. Water quality should also be monitored in the case of all well rehabilitation.	
Spring	***Implementation Phase***	Construction contractor, technical supervision consultant, PCT
	a) Every spring capture should be equipped with a filter and a sand trap. Add a wall between the inflow and the outlet pipe to create chamber for settling out sand; build the wall with a notch (lowered section) for controlled flow. Sand must be cleaned out periodically (operation and maintenance). (Implementation and post-implementation phases) b) Collection basin for spring capture needs to have a perforated PVC pipe (holes diameter 2mm) to be used as a screen for the water intake. Alternatively, a short pipe with wire mesh (screen) around the open end should be provided. c) Collection basin needs to have a fence to protect the spring from public access and risk of contamination; and a roof/cover over the spring to prevent leaves or other debris from entering the basin.	
Rainwater harvesting	***Implementation Phase***	Construction contractor,

Subproject Type	Environmental Prevention/Mitigation Measures	Responsible Party
	a) Rainwater storage reservoir should be intact, connected to roof gutter system, with all faucets and piping intact. b) If distribution pipes are attached into the storage reservoir, install the distribution pipes 10cm above the storage/tank bottom for better use of the storage capacity. c) Cover must be fitted tightly onto the top of the storage reservoir to avoid overheating and growth of algae (from direct sunlight), and to prevent insects, solid debris and leaves from entering the storage tank. d) A ventilation pipe with fly screen should be placed in the cover to help aerate the tank/reservoir which is necessary for good water quality. e) Reservoir tanks need an overflow so that in time of heavy rain, the excess water can drain away. The overflow should be designed to prevent backflow and stop vermin/rodents/insects entering the system. A good design will allow the main storage tank to overflow at least twice a year to remove built up of floating sediment on the top of the stored water and maintain good water quality. (Planning and implementation phases)	technical supervision consultant, PCT
	Post-Implementation Phase	
	f) Roof gutters need to be cleared regularly, as bird and animal feces and leaf litter on roofs or guttering can pose a health risk if they are washed into the reservoir tank.	
Installation / Rehabilitation of pipelines	***Implementation Phase***	Construction contractor, technical supervision consultant, PCT
	Preventing contamination at water sources: a) Build a structure with roof over the water source to prevent leaves or other debris from entering into the basin. b) A fence is needed to protect the water sources (springs particularly) from public access and risk of contamination. c) The sand/gravel filter traps sediment before the spring flow enters the collection chamber and has to be changed during periodical maintenance. (Implementation and post-implementation phases) Pipe Laying: a) PVC water transmission and distribution piping need to be buried underground (coverage 50cm minimum) to prevent pipe against external damage (e.g., passing vehicles, solar UV radiation, etc.). Exposing PVC pipe to UV radiation causes the plasticizer in the PVC pipe to evaporate causing loss of integrity and brittleness. b) Pipe shall be laid in a straight line, over a constantly falling slope. c) When conditions do not allow piping to be buried (i.e., pipe is used above ground), then metal pipe must be used, and supported/braced as excessive movement may lead to leaks and breaks. d) Outlet pipes and fittings from water storage/basin shall not be PVC pipe due to exposure to solar UV/sunlight. Metal piping and fittings are preferred. e) When the distribution pipes are laying via forest area, the following considerations are needed (Planning and implementation phases):	

Subproject Type	Environmental Prevention/Mitigation Measures	Responsible Party
	● The route must be considered with minimum effects of changing the existing situations of the forest as well as the least habitats area of the animals f) Setbacks distances from important natural features (e.g. mineral licks, wildlife features such as nest, leks, dens, staging areas, lambing areas, calving areas) to conserve wildlife values should be kept, if necessary.	
Wastewater Systems		
Wastewater sewerage and treatment	***Implementation Phase*** a) Septic tanks must have a vent pipe to prevent the build-up of gas inside the chamber and shall have a 'manhole' that provides access inside the tank if needed. b) Ensure that the septic tanks have two chambers: first chamber is for settling of sludge, and the second chamber is for aerobic treatment. These chambers will generally treat wastewater better. Partially treated septic tank effluent can pollute groundwater and surface water. c) Do not discharge septic tank effluent to an open drain or other surface water. The effluents need to be treated before final disposal. This may be achieved through: (i) an underground leach field, (ii) a vegetated leach field, or (iii) a pit for soaking away. Community awareness should be raised so that the community inspects the septic tanks periodically and ensures that the septic tanks are emptied every few years for the tank to continue to function properly. (Implementation and post-implementation phases)	struction contractor, technical supervision consultant, PCT
Solid Waste Management	***Implementation Phase*** a) Solid waste depots/disposal need to be located on hard-standing areas that prevent waste entering surface or groundwater. (Implementation phase) b) Waste depots/storage/disposal should be contained, sealed and/or roofed/covered to prevent storm water contamination. Wastes need to be emptied regularly. (Implementation phase)	Construction contractor, technical supervisor, PCT

ANNEX 7. ASBESTOS MANAGEMENT GUIDANCE

a) **Applicability**

The Asbestos Management Guidance (AMG) applies to all project construction or reconstruction sites and any related areas. Contractors employed by Project are legally responsible for their construction sites and related areas and must follow the provisions of the Project AMG within those locations. Specifically, this procedure must be used to ensure the safe handling, removal and disposal of any and all ACM from those areas.

b) **Immediate Action**

On discovering ACM on a Project site the contractor must:

- Stop all work within a 5 m radius of the ACM and evacuate all personnel from this area;
- Delimit the 5 m radius with secure fencing posts, warning tape and easily visible signs warning of the presence of asbestos;
- If the site is in an inhabited area, place a security guard at the edge of the site with instructions to keep the general public away;
- Notify the PCT Environmental Specialist and arrange an immediate site inspection.

c) **Equipment**

To remove asbestos from a construction site, contractors must provide the following equipment:

- Warning tape, sturdy fence posts and warning notices;
- Shovels;
- Water supply and hose, fitted with a garden-type spray attachment;
- Bucket of water and rags;
- Sacks of clear, strong polythene that can be tied to close;
- Asbestos waste containers (empty, clean, sealable metal drums, clearly labelled as containing asbestos).

d) **PPE**

All personnel involved in handling ACM must wear the following equipment, provided by the contractor:

- Disposable overalls fitted with a hood;
- Boots without laces;
- New, strong rubber gloves;
- A respirator is not normally required if there are only a few pieces of ACM in a small area, and if the ACM is damp;
- There must be no smoking, eating or drinking on a site containing ACM.

e) **Decontamination Procedure 1: Removing small pieces of ACM**

- Identify the location of all visible ACM and spray each lightly but thoroughly with water;
- Once the ACM is damp, pick up all visible ACM with shovels and place in a clear plastic bag;
- If ACM debris is partially buried in soil, remove it from the soil using a shovel and place it in the plastic bag;
- Insert a large label inside each plastic bag stating clearly that the contents contain asbestos and are dangerous to human health and must not be handled;
- Tie the plastic bags securely and place them into labelled asbestos waste containers (clean metal drums) and seal each drum;
- Soil that contained ACM debris must not be used for backfill and must instead be shovelled by

hand into asbestos waste containers;

- At the end of the operation, clean all shovels and any other equipment with wet rags and place the rags into plastic disposal bags inside asbestos waste containers.

f) **Decontamination Procedure 2: Removing ACM-contaminated backfill**

- If soil containing ACM debris has inadvertently been used for backfill this must be sprayed lightly with water and shovelled out by hand to a depth of 300 mm and placed directly into asbestos waste containers (i.e. not stored temporarily beside the trench);
- Any ACM uncovered during the hand shovelling must be placed in a clear plastic bag;
- Once the trench has been re-excavated to 300 mm, if there is no visible ACM remaining, the trench may be refilled by excavator using imported clean topsoil.

g) **Disposal**

- ACM should be disposed of safely at a site approved by local municipality after making prior arrangement for safe storage with the site operator.
- The Contractor must arrange for the disposal site operator to collect the sealed asbestos waste containers as soon as possible and store them undisturbed at the disposal site.
- At the end of construction Contractors must arrange for the disposal site operator to bury all ACM containers in a separate, suitably-sized pit, covered with a layer of clay that is at least 250 mm deep.

h) **Personal Decontamination**

- At the end of each day, all personnel involved in handling ACM must comply with the following decontamination procedure:
- At the end of the decontamination operation, clean the boots thoroughly with damp rags;
- Peel off the disposable overalls and plastic gloves so that they are inside-out and place them in a plastic sack with the rags used to clean the boots;
- If a disposable respirator has been used, place that in the plastic sack, seal the sack and place it in an asbestos waste container;
- All personnel should wash thoroughly before leaving the site, and the washing area must be cleaned with damp rags afterwards, which are placed in plastic sacks as above.

i) **Clearance and Checking-Off**

- The decontamination exercise must be supervised by site supervisors (engineering or environmental).
- After successful completion of the decontamination and disposal, the Contractor should visually inspect the area and sign-off the operation if the site has been cleaned satisfactorily.

- The contractor should send a copy of the completion notice to the PCT, with photographs of the operation in progress and the site on completion.