Republic of Azerbaijan

Project Preparation in relation to: Competitive and Resilient Agriculture and Irrigation Services (CRAIS) Project

Review and Updating of Feasibility Studies, Technical Assessments and Detailed Engineering Design for Irrigation Schemes

Terms of Reference

1. BACKGROUND

The Republic of Azerbaijan possesses considerable water resources and extensive irrigated agricultural lands. Irrigation remains critically important due to uneven seasonal distribution of precipitation, increasing water scarcity, and growing climate variability. The Kur-Araz lowland and surrounding agricultural regions are highly dependent on irrigation systems to sustain agricultural productivity, food security, and rural livelihoods. Agriculture remains one of the key sectors of the national economy, and reliable irrigation services are essential for maintaining agricultural production in the arid and semi-arid regions of the country.

The irrigation and drainage (I&D) sector, regulated and managed by the Azerbaijan State Water Resources Agency (ASWRA), plays a strategic role in supporting agricultural development and regional socio-economic growth. Azerbaijan has extensive irrigation and drainage infrastructure including main canals, secondary and tertiary distribution systems, pumping stations, reservoirs, and associated hydraulic structures supplying water to large agricultural command areas. However, a substantial portion of the infrastructure was constructed several decades ago and currently suffers from deterioration, hydraulic inefficiencies, operational constraints, sedimentation, aging hydro-mechanical equipment, and insufficient automation and monitoring systems.

The main weaknesses affecting the irrigation sector include: (i) significant conveyance losses and low water-use efficiency; (ii) deteriorated canal systems and hydraulic structures with many assets requiring rehabilitation and modernization; (iii) aging hydro-mechanical and electro-mechanical equipment; (iv) insufficient automation, telemetry, and SCADA systems; (v) operational inefficiencies and limited asset management systems; (vi) sedimentation and hydraulic bottlenecks; (vii) climate-related vulnerabilities including drought risks; and (viii) dam safety concerns associated with critical hydraulic infrastructure.

The sector also requires considerable public investments for operation and maintenance (O&M), rehabilitation of aging infrastructure, modernization of hydraulic systems, and improvement of dam safety and operational reliability. In recent years, the Government of Azerbaijan has prioritized modernization of irrigation systems, strengthening water security, improving climate resilience, and introducing modern water management practices including digital monitoring and SCADA-based operational systems. Despite these efforts, the current condition of many irrigation assets remains below required technical and operational standards.

The World Bank is supporting the Government of Azerbaijan in preparation of the Competitive and Resilient Agriculture and Irrigation Services (CRAIS) Project (The Project). The Project aims to improve irrigation service delivery, strengthen climate-resilient irrigation infrastructure, modernize water management systems, improve agricultural competitiveness, and enhance institutional capacity.

The broader project scope also includes support for climate-smart agriculture, land consolidation, modernization of Water Users Associations, access to finance, and strengthening of the food safety system. The scope of the Project includes three technical components:

Component 1: Improve climate resilient irrigation services.

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This component would finance rehabilitation/modernization of irrigation infrastructure to reduce climate risks in the provision of irrigation and drainage (I&D) services. Modernization of water infrastructure would include construction of lined canals, lining of existing canals with geomembrane, construction of cross-regulators for better water control on primary canals, repair of large siphons, and installation of gated farm turnouts equipped with flowmeters.

Component 2: Strengthen agricultural value chains and support climate resilient agriculture.

This component would aim to promote the effective uptake and adoption of Climate Smart Agriculture (CSA) technologies and practices as well as address access to finance gaps of farmers and small and medium enterprises / agribusinesses. In addition, the component would support land consolidation and modernization of Water Users Associations (WUA) in two select pilot areas.

Component 3: Enhance the capacity of the food safety system.

This component adopts a food safety life cycle approach, aiming to address critical gaps in food safety policy and regulation, risk assessment and management, and information dissemination and education, including engagement with the private sector.

Component 4. Project Management.

The Project will be implemented by the Azerbaijan State Water Resources Agency (ASWRA), and Ministry of Agriculture (MOA). The Project Implementation Units (PIU) to be established within the ASWRA would be responsible for the management of Component 1, while the PIU within MOA would be responsible for the management of Components 2 and 3.

Proposed CRAIS-financed investments under Component 1

Component 1 focuses on rehabilitation and modernization of strategically important irrigation infrastructure in the Kur-Araz lowland and adjacent agricultural regions. Much of the irrigation infrastructure in the project areas has experienced years of deferred maintenance and operational deterioration. The existing I&D infrastructure has been in operation for more than 40 years. The modernization of the schemes listed below would be based on “resilient water infrastructure design” principles to address climate-change-exacerbated droughts.

The proposed investments include rehabilitation, modernization, and technical upgrading of the Bash Mughan Canal, New South Mughan Canal, Old South Mughan Canal (including the Machine Branch of the New South Mughan Canal where relevant), and Sabir Canal (see Table 1). Modernization and rehabilitation of off-farm irrigation infrastructure would include canal lining with geomembrane, construction of cross-regulators, repair of large siphons, installation of gated farm turnouts equipped with flowmeters, installation of real-time telemetry and SCADA systems, and selective conversion of on-farm systems to closed/pressurized systems where feasible. The proposed rehabilitation and modernization measures shall aim to improve irrigation performance, operational reliability, climate resilience, water-use efficiency, and long-term sustainability of the irrigation systems.

Table 1: Priority irrigation schemes for CRAIS support.

No	Irrigation Scheme	Districts / Coverage (thousand ha)	Notes
1.	Bash Mughan Canal (main ~34 km + secondary ~112.7 km)	75.0 (Imishli, Saatli, Sabirabad)	Likely a priority scheme; although external electrical & SCADA incomplete
2.	New South Mughan Canal and Old South Mughan Canal	71.65 (Bilasuvar, Imishli, Jalilabad)	Often presented together

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3.	Machine Branch of New South Mughan Canal (with pumping station)	Bilasuvar, Imishli, Jalilabad	Closely linked to New South Mughan
4.	Sabir Canal	51.9 (Saatli, Sabirabad)	

Preliminary technical-economic assessments, feasibility studies, engineering designs, expert reviews, and technical studies have already been prepared for irrigation schemes proposed for the CRAIS support. However, these studies require review, updating, and further development to support investment planning, achieve procurement readiness, and ensure compliance with World Bank technical, environmental, social and dam safety requirements.

The World Bank provided the Republic of Azerbaijan a Grant from the Grant Facility for Project Preparation Trust Fund (GFPP) for preparation of the Project. For preparation of Component 1 of the Project, the grant will support ASWRA to (i) prepare and/or update technical feasibility studies, designs, technical assessments, bills of quantities, technical specifications for the intended project investments; and (ii) prepare site-specific instruments for environmental and social risk management sufficient for project readiness for implementation.

The consultancy under this Terms of Reference (TOR) will: (i) review the existing documentation for the irrigation schemes proposed for the CRAIS support and validate their completeness; (ii) identify and recommend the most ready canal (sub-project) for updating/finalizing the engineering design and preparing bidding documents; (iii) update the necessary technical and economic assessments and feasibility studies for all viable sub-projects, starting with the selected priority (readiest) sub-project; (iv) conduct a comprehensive independent dam safety assessment (including dam dependency review) for associated hydraulic structures connected to Bahramtapa Hydrojunction and any other relevant structures linked to all other irrigation schemes under the project (including Component 2); and (v) update the detailed engineering design, construction drawings, Bills of Quantities, technical specifications for the selected priority irrigation sub-project.

The Ministry of Agriculture (MoA), as the Recipient of the GFPP grant, is the Contracting Authority for this assignment. ASWRA is the direct beneficiary under this consultancy and will technically lead and coordinate the assignment as well as accept the deliverables.

2. OBJECTIVES

These Terms of Reference (TOR) provide the framework for hiring an international consulting firm with relevant experience in irrigation rehabilitation, hydraulic engineering, feasibility studies, detailed engineering design, climate-resilient irrigation systems, dam safety assessments, and environmental and social impact assessment.

The main objectives of the assignment are to:

(i) carry out a comprehensive review of existing studies, feasibility studies, technical-economic assessments, conceptual designs, hydraulic data and operational records for the irrigation schemes for CRAIS support under Component 1 and validate their viability and readiness for World Bank financing;

(ii) identify and recommend to ASWRA all viable schemes as well as the most readiest canal (sub-project) for financing based on technical completeness, data availability, economic justification, climate resilience and implementation readiness;

(iii) upon ASWRA's formal approval of the recommended priority sub-project, prepare or update the necessary technical and economic assessments and feasibility studies for all viable sub-projects identified under Phase 1 (starting with the priority sub-project to be identified jointly with ASWRA) to inform the CRAIS project appraisal and to facilitate rehabilitation and modernization through loan financing;

(iv) conduct an independent dam safety assessment (including a project-wide dam dependency review) for associated hydraulic structures connected to Bahramtapa Hydrojunction and any other relevant structures linked to the priority sub-project and other viable schemes, in accordance with Environmental and Social

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Framework (ESF) Environmental and Social Standards 4 (ESS4) "Community Health and Safety" Annex 1 and the Good Practice Note on Dam Safety;

(v) assess and recommend modernization measures for automation, telemetry and SCADA systems for the priority sub-project;

(vi) carry out consultations with ASWRA, local stakeholders, irrigation institutions and relevant government entities;

(vii) update detailed engineering designs, construction drawings, Bills of Quantities, technical specifications and the draft technical parts of the works/equipment bidding documents for the readiest (priority) sub-project only, thereby advancing it to full procurement and implementation readiness;

(viii) support ASWRA in obtaining formal approval for the updated engineering design(s) from the relevant government bodies;

(ix) ensure full compliance in accordance with the World Bank Environmental and Social Framework (ESF) and applicable national legislation; and

(x) Draft the technical parts of the works (NCB/ICB) tender bidding documents for the readiest/priority scheme.

This assignment does not include updates for the remaining viable schemes beyond the feasibility study level.

3. SCOPE OF WORK

The work to be carried out by the Consultant shall be divided into three phases:

Phase 1:

Review existing studies, feasibility studies, technical-economic assessments, conceptual designs, hydraulic data, operational records, and undertake intensive technical consultations with ASWRA, irrigation institutions, local stakeholders, and relevant government entities regarding rehabilitation and modernization priorities for the irrigation schemes under Component 1.

This Phase shall include preparing the Inception Report, validating the viability and readiness of the irrigation schemes for World Bank financing, and identifying the needs and scope for updating existing documentation.

Phase 2:

Following the review under Phase 1, the Consultant shall identify and recommend to ASWRA the most readiest canal as a priority sub-project for financing under the CRAIS project. Upon securing ASWRA's formal written approval of the recommendation, the Consultant shall prepare (or update) the necessary technical and economic assessments and feasibility studies for all viable sub-projects identified under Phase 1, starting with the selected priority sub-project, so as to inform the CRAIS project appraisal (target: April 2027) and to facilitate readiness for commencement of rehabilitation and modernization immediately after effectiveness of the CRAIS project.

The updated FS for the selected priority sub-project will also inform Phase 3 (full procurement/implementation readiness). FSs for all other viable schemes should be updated as much as possible to inform appraisal.

Upon completion of works under Phase 2, the Consultants are required to deliver an Updated Feasibility Study Report for all viable subprojects, including preferred options, preliminary technical solutions, indicative quantities and costs, economic/financial analyses, climate-resilience and SCADA recommendations, dam-safety findings, and indicative implementation schedules.

Phase 3:

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Finalize the engineering design for the selected priority scheme, including the preparation or updating of detailed engineering designs, construction drawings, Bills of Quantities, Technical Specifications and draft Technical parts of the works/equipment bidding documents.

Phase 3 should include detailed descriptions and technical specifications for the works and goods, hydro-mechanical equipment, automation systems, SCADA systems, telemetry systems and other equipment to be supplied and installed. In addition, the Consultant should prepare Draft Technical Requirements of the bidding documents for the works/goods suitable for procurement under World Bank procedures (Section VII – Works' Requirements under FIDIC Red Book).

ASWRA shall be responsible for submitting updated designs to the relevant government bodies and obtaining the required approvals. The Consultant shall, upon ASWRA's request, provide technical clarifications and supporting information concerning design changes (if any) made under Phase 3, and shall contribute to preparation of the application package as required.

There may be a short gap between Phases 2 and 3 required for review and formal approval of the recommended priority sub-project and the updated feasibility / technical assessments.

3.1. Phase 1 – Review of Existing Studies, Technical Assessments, Consultation Process and Inception Report

The objective of this phase is to validate the viability and readiness of the proposed irrigation schemes for World Bank financing under CRAIS and to identify the needs and scope for further work.

The Consultant shall review all existing feasibility studies, technical-economic assessments, conceptual designs, expert review reports, hydraulic analyses, preliminary technical studies, as-built drawings and operational records previously prepared for the schemes under Component 1.

The Consultant shall assess existing technical approaches and, where appropriate, evaluate alternative rehabilitation and modernization scenarios, including:

(i) rehabilitation based on restoration and improvement of the original hydraulic and operational design principles;

(ii) targeted rehabilitation and modernization of conveyance, regulation and delivery infrastructure, including operational optimization and water-efficiency improvements;

(iii) modernization through introduction of automation, telemetry, SCADA systems, digital water management tools and, where technically and economically feasible, pressurized irrigation solutions within parts of the command areas.

The Consultant shall discuss these scenarios with ASWRA and relevant stakeholders. The consultation process shall be open, transparent and inclusive.

Based on the review and consultations, the Consultant shall prepare, for each of the schemes, a short readiness assessment covering data completeness, technical adequacy of existing studies, key gaps, estimated effort required for updating, and a preliminary ranking of readiness for financing.

Output of Phase 1: Inception Report (maximum 15 pages excluding annexes) containing: readiness assessment of the schemes; summary of needs and scope for further works; recommendation (or ranking) of the most suitable / readiest sub-project; detailed work plan and methodology; staffing and mobilization plan; implementation schedule; proposed field investigations; list of data gaps; and issues/risks.

3.2. Phase 2 – Updated Feasibility Study / Technical Assessments, and Dam Safety Assessment

Following completion of Phase 1, the Consultant shall formally recommend to ASWRA the most readiest canal as a priority sub-project for financing under the CRAIS project. The recommendation shall be based on technical completeness of existing documentation, data availability, economic justification, climate-resilience

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benefits, dam-safety considerations, implementation readiness and overall contribution to the objectives of Component 1.

Upon receipt of ASWRA's formal written approval of the recommended priority sub-project, the Consultant shall prepare (or update) the necessary technical and economic assessments and feasibility study for that priority sub-project as a priority. Thereafter, the Consultant shall also update (or prepare) the necessary technical and economic assessments and feasibility studies for all the other viable sub-projects identified under Phase 1, to inform the CRAIS project appraisal stage (to be conducted by April 2027).

Phase 2 is therefore not limited to the selected priority/readiest scheme; all FSs for the viable schemes need to be updated as much as possible, as needed to complete project appraisal.

The essential FS updates (for all viable schemes including the readiest scheme) necessary to conduct the project appraisal in April 2027 will include:

• Indicative costing including estimated fiscal & physical contingencies;

• Cost-benefit analyses including climate co-benefits (this will be guided by the World Bank economist); and

• Conceptual designs for the hard-type and soft-type investments under Component 1 as needed to: (i) describe Component 1 adequately in the (appraisal-stage) "Project Document" (PD); (ii) inform the project-wide Environmental & Social Management Framework & Resettlement Policy Framework (that are being prepared through a separate consultancy effort); (iii) dam dependency note & dam safety assessment (for relevant dams under Components 1 and 2); and (iv) determine the number & type of beneficiaries & other development/intermediate-outcome indicators for the PD's Results Framework.

Any further effort on the FS updates (if any), beyond the aforementioned essential prerequisites of project appraisal, may continue after April 2027. However, for the priority/readiest scheme, all updates under Phase 2 should be completed to enable starting the detailed Phase 3 for that one scheme.

The required update of feasibility studies and technical assessments shall comprise:

A. Background Assessments and Dam Safety Assessment

i) Review of water resources, hydraulic conditions, climatic conditions, operational systems and existing infrastructure associated with the selected scheme;

ii) Review and evaluate current irrigation operations, agricultural water use and future irrigation requirements under "with project" and "without project" scenarios;

iii) Review of engineering investigations and assessment of the present physical condition of the irrigation infrastructure and associated hydraulic structures;

iv) Review of dam dependency, as defined by the World Bank policy on the safety of dams (ESF ESS4 Annex 1), to assess the reliance of the project on the dams in the project area for all three project components. This review should include for example, the Dam Under Construction called Yengija upstream of the Water Users Associations (WUA)/irrigation pilot in Gabala district under Component 2. The Consultant shall make reference to the ESF ESS4 Annex 1 Safety of Dams, the Environmental & Social Framework for IPF Operations Guidance Note for Borrowers and the Good Practice Note on Dam Safety including its annexes.

Reliance is principally defined in this case in two ways:

• Reliance on the water resources stored by the dam where a project will depend on the storage and operation of a dam for its supply of water and could not function if the dam failed.

• Reliance on the integrity of the upstream dam where failure of the dam could cause extensive damage to or failure of the project facilities.

In the specific case of dams linked to Bahramtapa Hydrojunction and the Bash Mughan Canal the Consultant shall summarize the operation of the Bash Mughan canal from a water resources perspective and list the dams

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and their reservoirs which need to be screened from both a water resources and integrity perspective in case of failure, the dams upstream on the Araz River. A desk-based exercise assessing both the project functionality in case of failure for reservoirs providing water to the canal and the likely damage of the infrastructure in case of upstream dam failures (even if these don't provide water to the canal) should be performed. This should either rely on existing flood maps or perform a tier one consequence assessment as described in the GPN on Dam Safety. The assessment should consider the dam height, storage volume and distance to the canal as well as consider the cascade nature of the potential impact.

v) Independent dam safety assessment of relevant hydraulic structures (including Bahramtapa Hydrojunction and those connected to Bahramtapa Hydrojunction as relevant to the priority sub-project and other viable schemes). Significant concerns requiring immediate attention shall be reported to ASWRA without delay. The independent dam safety assessment shall be documented in a separate report. The assessment shall consider the requirements of the ESF ESS4 Annex 1 Safety of Dams, including the need to (a) inspect and evaluate the safety status of the existing dam or DUC, its appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance procedures; and (c) provide a report of findings and recommendations for any remedial work or safety related measures necessary to upgrade the existing dam or DUC to an acceptable standard of safety. The Consultant shall also make reference to the Good Practice Note on Dam Safety including Appendix 6; a Tier I assessment will be considered sufficient.

The Consultant's dam-safety role and deliverables are further elaborated as follows:

(a) Prepare a Project Dam Dependency Note covering all three CRAIS components, identifying all dams (existing and under construction) on which the project relies for water resources or whose failure could affect project facilities, and assessing the consequences of dam failure (Tier I consequence assessment where flood maps are unavailable);

(b) Conduct an Independent Dam Safety Assessment (Tier I) of Bahramtapa Hydrojunction and any other relevant hydraulic structures linked to the priority and other viable sub-projects, covering safety status, performance history, O&M procedures, and recommendations for remedial works or safety-related measures;

(c) Document findings in a stand-alone Independent Dam Safety Assessment Report and reflect key findings and recommendations in the updated Feasibility Studies and in the detailed designs of the priority sub-project;

(d) Report any significant dam-safety concerns requiring immediate attention to the Client without delay;

(e) Ensure that the dam-safety outputs are consistent with ESF ESS4 Annex 1, the Guidance Note for Borrowers, and the Good Practice Note on Dam Safety (including its annexes).

B. Updated Feasibility Studies and Technical Analysis

vi) Analysis of preferred rehabilitation and modernization options and recommendation of the infrastructure to be rehabilitated, modernized, improved or replaced;

vii) Preparation of preliminary cost estimates, quantities of works and implementation schedules at feasibility-study level;

viii) Economic and financial analyses under "with project" and "without project" scenarios (IRR, NPV, sensitivity and risk analysis, investment cost per hectare, and other relevant indicators).

Output of Phase 2: Updated Feasibility Study Report for all viable subprojects (starting with the approved priority sub-project to inform Phase 3 and covering all other viable schemes to inform CRAIS project appraisal), including preferred options, preliminary technical solutions, indicative quantities and costs, economic/financial analyses, climate-resilience and SCADA recommendations, dam-safety findings, and indicative implementation schedules.

3.3. Phase 3 – Detailed Engineering Design, Procurement Readiness for the Priority Sub-project

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Following ASWRA approval of the updated feasibility study and preferred option for the priority sub-project, the Consultant shall update the detailed engineering designs and all technical documentation required to bring that sub-project to full procurement and implementation readiness.

The general scope of work for the priority sub-project comprises:

i. Additional engineering investigations, field inspections, surveys, hydraulic assessments and specific technical studies as required to finalize the designs.

ii. Detailed engineering designs for the rehabilitation and modernization works identified in the updated FS, including associated hydraulic structures, hydro-mechanical equipment, automation and SCADA systems, grading and repair of access roads, and related infrastructure. The design task shall include preparation of the Engineer's Cost Estimate.

iii. Preparation or update of Bills of Quantities, Technical Specifications and construction drawings.

iv. Preparation of the draft technical parts (Works' Requirements/Employer's Requirements) of the bidding documents for works and/or equipment in accordance with the applicable World Bank Standard Procurement Documents (FIDIC Red Book, as agreed with ASWRA and the World Bank).

v. ASWRA shall be responsible for submitting updated designs to the relevant government bodies and obtaining the required approvals. The Consultant shall, upon ASWRA's request, contribute to preparation of the application package, provide technical clarifications and supporting information concerning design changes made under this assignment.

Detailed Scope of Work

a) Detailed designs: The Consultant shall update engineering designs to international standards, respecting the legislation, codes and practices of the Republic of Azerbaijan.

b) Design Criteria: Design criteria will be developed to set out the principles and assumptions underlying the design, the principal standards, criteria and procedures, and the design software and digital engineering tools to be employed.

c) Bills of Quantities and Engineer's Estimate: The Consultant shall prepare estimates of quantities for each component of works. Prior to finalization, the proposed unit rates and the basis on which they are determined shall be submitted for the Client's review.

d) Technical specifications: The Consultant shall prepare detailed descriptions of works and detailed technical specifications for the works and for the goods, hydro-mechanical equipment, automation systems, SCADA systems, telemetry systems and other equipment to be supplied and installed.

e) Modern design processes: The design process shall follow normal international engineering procedures (consideration of alternatives, O&M requirements, least-cost solutions, durability, sustainability, climate resilience and treatment of environmental and social issues). Industry-standard computer software shall be used.

f) Management and Quality Control: The Consultant shall ensure close management of the engineering designs so that the tasks are completed on time and meet international standards of quality.

g) Draft Technical parts of the bidding documents: The Consultant shall prepare the draft Technical parts of the works/equipment bidding documents suitable for procurement under World Bank procedures (Section VII – Works' Requirements under FIDIC Red Book). The final decision on the procurement approach and finalization of full bidding documents shall rest with ASWRA in coordination with the World Bank.

h) Digitalization: The Consultant shall digitalize spatial and descriptive data for the priority scheme, including GIS-based infrastructure mapping, digital engineering drawings, hydraulic structure databases and operational infrastructure databases.

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4. REQUIRED QUALIFICATIONS AND STAFFING FOR CONSULTANT

The Consultant is expected to deploy a team of specialists including the following key staff (Core Team):

• Team Leader / Senior Irrigation Engineer – minimum BSc and at least 15 years of experience in leadership of multidisciplinary irrigation and hydraulic infrastructure design and feasibility-study teams.

• Senior Irrigation Engineer – minimum BSc and at least 10 years of experience in rehabilitation and design of irrigation canals and hydraulic structures.

• Senior Irrigation / Design Engineer – minimum BSc and at least 10 years of experience in detailed design of irrigation systems.

• Dam Safety Specialist – minimum BSc and at least 15 years of experience in dam safety assessment, hydraulic structures and embankment dams.

• Geotechnical Engineer – minimum BSc and at least 10 years of experience in geotechnical investigations, earth structures and foundations, and canal lining including using geosynthetics**.**

• Mechanical/Electrical Engineering Specialist (pumping stations and SCADA systems) – minimum BSc and at least 15 years of experience.

• Hydrologist / Water Resources Specialist – minimum BSc and at least 10 years of experience in hydrological analysis and water resources assessment.

• Agricultural Economics Specialist – minimum BSc and at least 10 years of experience in a relevant field.

All key staff should have the minimum above qualifications and experience, including work in similar assignments, conditions and regions.

Other staff required for the assignment (Non-Core / Support Team):

• Communication / Stakeholder Engagement Specialist – minimum BSc and at least 10 years of experience in a relevant field.

• GIS and Survey Specialist – minimum BSc and at least 10 years of experience.

• Quantity Surveyor / Cost Estimation Specialist – minimum BSc and at least 10 years of experience.

• CAD / Drafting technicians and other support personnel as required.

• Additional environmental and social field staff as required for surveys and consultations. ASWRA will mobilize its own Environmental and Social Specialist under the GFPP to manage E&S aspects under Component 1 and to provide inputs to the Feasibility Studies. The Consultant may still engage additional E&S staff if required. Specific arrangements can be further discussed and agreed during contract negotiations.

4.1. Indicative Level of Effort (Man-Months)

The total estimated level of effort for the assignment is approximately 30 man-months, corresponding to an indicative budget envelope of around USD 400,000 (inclusive of fees, reimbursables and contingencies) under the GFPP grant. The distribution below is indicative and may be adjusted by the Consultant in its technical and financial proposals, subject to agreement with ASWRA.

Given the scope, the Consultant is expected to maximize the use of qualified national experts and to focus detailed design on the single priority sub-project only.

Table 2: Indicative Level of Effort (Man-Months)

No.	Position	Category	Indicative Man-Months	Main responsibilities / Phase
1	Team Leader / Senior Irrigation Engineer	Core	6.0	Overall coordination, quality control, client liaison, Phases 1–3

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2	Senior Irrigation Engineer	Core	4.5	FS update, technical assessments, readiness ranking
3	Senior Irrigation / Design Engineer	Core	5.0	Detailed design of priority scheme, drawings, BOQs coordination
4	Dam Safety Specialist	Core	2.0	Independent dam safety assessment
5	Geotechnical Engineer	Core	1.5	Investigations and design input (esp. canal lining including using geosynthetics)
6	Mechanical/Electrical + SCADA Specialist	Core	1.5	Pumping stations, automation, SCADA recommendations
7	Hydrologist / Water Resources Specialist	Core	2.0	Hydrology, water balance, climate resilience
8	Agricultural Economics Specialist	Core	2.0	Economic & financial analysis (IRR, NPV, sensitivity)
9	Communication / Stakeholder Engagement Specialist	Non-Core	1.0	Consultations, workshops, disclosure support
10	GIS and Survey Specialist	Non-Core	1.0	Surveys, GIS, digitalization
11	Quantity Surveyor / Cost Estimator	Non-Core	2.0	BOQs and cost estimates
12	CAD / Drafting & Support Staff	Non-Core	1.5	Drawings and documentation support
	TOTAL		**30.0**	**Approx. USD 400,000 envelope (GFPP)**

Notes to Table 2:

• The indicative man-months include both home-office and field time.

• The Consultant shall propose a detailed staffing schedule and mobilization plan in the Inception Report, showing both international and national staff inputs.

• The Consultant is encouraged to maximize the use of qualified national experts where appropriate.

5. PLANNING, COOPERATION, REPORTING, AND TIMING REQUIREMENTS

5.1. Planning, Field Investigations and Technical Assessments

a) Planning: The Consultant shall submit an Inception Report within four weeks after commencement covering the readiness of the schemes, methodology, and work plan. Short monthly progress reports shall be submitted thereafter.

b) Field Investigations: The Consultant shall carry out required investigations, surveys, and specific studies proportionate to the assignment requirements.Engineering

5.2. Cooperation with ASWRA

The Consultant will work under the direct supervision of the pertinent officials in ASWRA, including the GFPP-grant Deputy Coordinator. ASWRA will formally designate a Coordination Team, led by the GFPP-grant Deputy Coordinator, to serve as the primary day-to-day interlocutor for the Consultant throughout the assignment. The Coordination Team will facilitate work with relevant ASWRA departments, local irrigation institutions, and other government agencies as needed.

The Consultant shall maintain close coordination with ASWRA, the designated Coordination Team, relevant government agencies, and other stakeholders throughout implementation of the assignment.

ASWRA shall provide available project-related documentation, including but not limited to:

• existing feasibility studies and technical reports;

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• available design drawings and as-built documentation;

• available hydrological, geological and topographical information;

• GIS and cadastral information where available;

• available dam safety documentation;

• available environmental and social documentation;

• introductions and coordination with relevant institutions and stakeholders.

As needed, ASWRA will also provide logistical support for meetings and field trips. While the Consultant is expected to make its own travel arrangements including hiring local vehicles, using taxi, or public transport within its contractual remuneration and per diem allowances.

5.3. Timing and Reporting Requirements

The Consultant shall complete the assignment within approximately 12 months from the commencement date.

All reports, drawings, GIS data, calculations, and technical documentation shall become the property of the ASWRA and shall be submitted in English and Azerbaijani in both hard copy and electronic editable format acceptable to the ASWRA.

The timeframe for deliverables specified in Table 3 is indicative and can be adjusted by the Consultant in accordance with the methodology and work schedule to be prepared as part of the technical proposal. Final timing will be agreed during contract negotiations. Fixed target months shown below are preferred milestones; intermediate schedules remain indicative and subject to ASWRA agreement.

Table 3. Timeframe and list of deliverables

Deliverables	**Due date for priority scheme (readiest sub-project)**	**Due date / applicability for remaining schemes**
Phase 1: Inception Report validating viability and readiness of the schemes	4 weeks after commencement	—
Review and approval of the Inception Report by ASWRA	Within 10 days after submission	—
Phase 2: Draft Updated Feasibility Study Report for all viable sub-projects (as needed to complete project appraisal)	3 months after commencement	4 months after commencement
Review and approval by ASWRA of the Draft Updated FS	**Within 7 days after submission**	**Within 14 days after submission**
Project Dam Dependency Note	2 months after commencement	3 months after commencement
Draft Independent Dam Safety Assessment Report	3 months after commencement	Latest 4 months after commencement
Review and approval by ASWRA of Dam Dependency Note and Dam Safety Assessment	**Within 7 days after submission**	**Within 14 days after submission**
Final Updated Feasibility Study and Technical Assessment Report	3.5 months after commencement	Latest 6 months after commencement
Review and approval by ASWRA of the Final Updated FS	**Within 14 days after submission**	**Within 14 days after submission**
Final Independent Dam Safety Assessment Report	3.5 months after commencement	Latest 6 months after commencement
Phase 3: Draft Detailed Engineering Design for priority sub-project	By Month 8 after commencement	Not applicable

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Final Detailed Engineering Designs, Construction Drawings, BOQs, Technical Specifications, Bidding Documents; and documentation of government no-objection / approval for updated designs (to be obtained by ASWRA)	11 months after commencement	11 months after commencement

The Consultant shall give priority to advancing the most complete/ready sub-project (subject to confirmation after Phase 1) to full procurement readiness within the overall contract period.

6. PAYMENT SCHEDULE

Table 4.

No	Deliverable Name	Submission Due Date	% of Final Contract Amount
1	Accepted Inception Report, including readiness assessment of the schemes, methodology, work plan, staffing and mobilization plan	Within 4 weeks after commencement	10%
2	Accepted draft Updated Feasibility Study package for the priority/readiest sub-project, including the Project Dam Dependency Note and Draft Independent Dam Safety Assessment Report	By Month 3 after commencement	15%
3	Accepted Final Updated Feasibility Study and Technical Assessment Report for the priority sub-project, together with the Final Independent Dam Safety Assessment Report	By Month 3.5 after commencement	15%
4	Accepted Draft Updated Feasibility Study and Technical Assessment Reports for all remaining viable sub-projects (as essential inputs to complete project appraisal)	By Month 4 after commencement	15%
5	Accepted Final Updated Feasibility Study and Technical Assessment Reports for all remaining viable sub-projects	By Month 6 after commencement	10%
6	Accepted Draft Detailed Engineering Design package for the priority sub-project, including draft drawings, BOQs, technical specifications, cost estimate, and draft technical parts of bidding documents	By Month 8 after commencement, or as agreed following selection of the priority sub-project	20%
7	Accepted Final Detailed Engineering Design and procurement package for the priority sub-project, including construction drawings, BOQs, technical specifications, Engineer's Cost Estimate, and draft Section VII technical requirements	By 11.5 months after commencement	15%
	Total		**100%**

Payments under the lump-sum contract shall be made only upon submission and written acceptance by ASWRA of the corresponding deliverable. Deliverables shall be complete, internally quality-assured, and revised to address consolidated ASWRA comments. Submission does not by itself trigger payment, and any adjustment to milestone timing or allocation shall be agreed in writing through the contract provisions.

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