REQUEST FOR EXPRESSIONS OF INTEREST (CONSULTING SERVICES – FIRMS SELECTION)

REPUBLIC OF ARMENIA
RESILAND: Armenia Resilient Landscape Project
Grant No.: TF0C4647, TF0C4643

Assignment Title:	Feasibility Studies, Design, Tender Packages, Copyright control (author's/follow-on supervision) and Environmental Social Impact Assessment for Restoring Closed Mines in Tandzut (Lori Region) and Northern Kapan Waste Disposal Site (Kapan, Syunik Region). Feasibility Studies and Reclamation Scenarios for Abandoned Kavart Mining Site (Kapan, Syunik Region)
Reference No. (as per Procurement Plan):	AM-EPIU-490531-CS-CQS

The Republic of Armenia has received financing from the World Bank (the International Bank for Reconstruction and Development ("IBRD"), acting as an Implementing Agency of the Global Environment Facility ("GEF") and as administrator of the Multi-Donor Trust Fund for Supporting Armenia Resilient Landscapes Project and International Development Association ("IDA"), acting as administrator of the Multi-Donor Trust Fund for Supporting Armenia Resilient Landscapes Project) toward the cost of the RESILAND: Armenia Resilient Landscape Project, and intends to apply part of the proceeds for consulting services.

The main objective of the consulting services ("the Services") is to conduct feasibility study, prepare design documents and develop tender/bidding packages for restoration of abandoned mine lands at the Tandzut former mine site (Lori Region) and the Kapan former mine sites (Syunik Region). The latter includes: (i) the Kavart former mine site, where about 61 ha are impacted by open pits and waste ore disposal, as well as (ii) the Northern Kapan waste disposal site ("Northern Kapan site" or "Project site" or "Site" former mine site, where over an area of ca. 50 ha a total of 8-10 ha are covered with several small waste deposits. In addition to the design and tender documentation, the Consultant shall also ensure author's (follow-on) supervision during the restoration works, to confirm that the works are implemented in accordance with the approved design, provide clarifications as needed, and support quality assurance from a design perspective. The end goal is to restore and reestablish natural and agro-ecological land cover, stabilize terrain, prevent soil erosion and ensure safety as well as sustainability of the site. The intended overarching outcome is to reduce environmental risks and impacts as well as hazards to public health and safety to acceptable levels complying with good international industry practice. Wherever possible, productive repurposing options and scenarios should be identified to foster sustainable long-term use,

care and maintenance of the sites. The Consultant should consider, that the sites will need differentiated approaches leading to different types of outputs.

The duration of the assignment/contract is 15 months, calculated from the date of contract signing. **For Author's (follow-on) supervision** the assignment/contract will start with the restoration works and will be carried out till the end of the restoration works.

The detailed Terms of Reference (TOR) for the assignment are attached to this request for expressions of interest in Annex A.

The Environmental Project Implementation Unit now invites eligible consulting firms ("Consultants") to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services.

QUALIFICATION REQUIREMENTS

The Consulting firm must have sufficient resources and capacity to carry out the services.

The Consulting Firm must demonstrate the following:

- At least of five (5) years experiences in engineering design and preparation of cost estimate documentation for environmental and civil works, preferably related to mine closure, site stabilization, or degraded land restoration;
- Experience related to mine closure, site stabilization, or degraded land restoration will be considered as advantage;
- Experience in the preparation of tender documents in accordance with national and/or international procurement standards;
- Demonstrated capability in providing author's (follow-on) supervision services for technically complex or environmentally sensitive construction works;
- A minimum of five (5) years of operational experience in relevant fields of environmental engineering consultancy;
- Experience working with international donor-funded projects, including those financed by the World Bank, EBRD, or UN agencies, will be considered an asset;
- Familiarity with the environmental, geological, and institutional context of Armenia, including engineering norms and construction standards, will be considered an advantage;
- Experience working with the Government of Armenia or its regional/local institutions will be considered an asset.

Licensing Requirements (Applicable in Armenia)

- To be eligible for contract award, the consulting firms must have all the required certificates and licenses and act in accordance with the RA legislation.
- The design estimate documents must comply with the requirements of the national standards and GOST applicable in the Republic of Armenia.

Key Experts, whose requirements are specified in the TOR, will not be evaluated at this stage.

The attention of interested Consultants is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank's "Procurement Regulations for IPF Borrowers" September 2023 ("Procurement Regulations"), setting forth the World Bank's policy on conflict of interest.

Consultants may associate with other firms to enhance their qualifications, but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

A Consultant will be selected in accordance with the Consultant Qualification Selection method set out in the Procurement Regulations.

Further information can be obtained at the address below during office hours (09:00-18:00).

Expressions of interest must be delivered in a written form to the address below via e-mail NO later than by July 11, 2025, 18:00.

Environmental Project Implementation Unit
Attn: Armen Yesoyan (Acting Director of EPIU)
65A Tigran Mets Ave., 3rd fl.
Yerevan 0008, Armenia
Tel: +374 96 693 911
E-mail: resiland.epiu@gmail.com

ANNEX A

RESILAND: ARMENIA RESILIENT LANDSCAPES PROJECT (P179988)

TERMS OF REFERENCE

For

Consulting Services

Feasibility Studies, Design, Tender Packages, Copyright control (author's/follow-on supervision) and Environmental Social Impact Assessment for Restoring Closed Mines in Tandzut (Lori Region) and Northern Kapan Waste Disposal Site (Kapan, Syunik Region). Feasibility Studies and Reclamation Scenarios for Abandoned Kavart Mining Site (Kapan, Syunik Region)

1. Introduction and Background

The objectives of the RESILAND: Armenia Resilient Landscape Project are to: (i) increase the area under sustainable landscape management in Selected Locations and (ii) promote sustainable economic activities to communities in Targeted Landscapes in Armenia. The project is co-financed by the Global Environment Facility and Multi-Donor Trust Fund for Supporting Armenia Resilient Landscapes Project executing by the Environmental Project Implementation Unit of the Ministry of Environment of Armenia. INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD) acting as an Implementing Agency of the Global Environment Facility and INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA) acting as administrator of the Multi-Donor Trust Fund for Supporting Armenia Resilient Landscapes Project.

The Project follows an integrated landscapes approach to restore forests and wetlands and will rely on four key issues: (i) reduction of forest fragmentation and increase in density of tree cover by restoring the forest land degraded due to mining and by forest enrichment planting; (ii) improving management of neglected and abandoned wetlands, (iii) increasing community economic benefits, and (iv) strengthen the institutional foundation for the sustainable management of landscapes, creating green jobs, and increasing community benefits. Project activities are grouped into four interrelated components and their respective subcomponents. Under its three main components, the Project will finance consulting services, non-consulting services, goods, equipment, training, workshops, as well as small works.

The Project Components include:

Component 1: Institutional Capacity and Policy Development.
Component 2: Landscape Restoration
Component 3: Promoting Communities' Benefits.
Component 4: Project Management, Monitoring & Evaluation, and Communication.

2. Project Implementation Arrangements

The Client will be the Environmental Project Implementation Unit (EPIU), a State agency under the Ministry of Environment. To ensure high quality implementation of the tasks under these ToRs, a national market approach is envisaged.

A consulting firm with international work experience, and/or the involvement of experts with international work experience, will be considered an asset.
The Consultant will report to the EPIU Director, to whom all written reports and other outputs shall be sent electronically.

3. Objectives of the assignment

The main objective of the assignment is to conduct feasibility study, prepare design documents and develop tender/bidding packages for restoration of abandoned mine lands at the Tandzut former mine site (Lori Region) and the Kapan former mine sites (Syunik Region). The latter includes: (i) the Kavart former mine site, where about 61 ha are impacted by open pits and waste ore disposal, as well as (ii) the Northern Kapan waste disposal site ("Northern Kapan site" or "Project site" or "Site" former mine site, where over an area of ca. 50 ha a total of 8-10 ha are covered with several small waste deposits. In addition to the design and tender documentation, the Consultant shall also ensure author's (follow-on) supervision during the restoration works, to confirm that the works are implemented in accordance with the approved design, provide clarifications as needed, and support quality assurance from a design perspective. The end goal is to restore and reestablish natural and agro-ecological land cover, stabilize terrain, prevent soil erosion and ensure safety as well as sustainability of the site. The intended overarching outcome is to reduce environmental risks and impacts as well as hazards to public health and safety to acceptable levels complying with good international industry practice. Wherever possible, productive repurposing options and scenarios should be identified to foster sustainable long-term use, care and maintenance of the sites. The Consultant should consider, that the sites will need differentiated approaches leading to different types of outputs. Hence, the consulting firm will accomplish the following tasks:

For all sites:

a) Identify necessary baseline data for establishing priority interventions.

b) Identify high hazards/risks.

c) Prioritize risk mitigation measures.

d) Develop alternative options for engineering approaches for improving the safety and management of tailings management facilities.

e) Identify the level of risk reduction for each alternative and associated cost.

For the Kavart site only:

f) Determine a set of cost-effective risk mitigation, remediation, repurposing options to be supported by the Project, to be presented in a comprehensive feasibility study. The feasibility study

will analyze the alternatives for the restoration, remediation and mitigation works, including detailed cost estimates. In addition, the studies will explore, identify and characterize options for productive repurposing, redevelopment and reuse of as much of the former mine lands and features as possible.

For the Northern Kapan waste disposal site and Tandzut sites only:

g) Conduct detailed engineering design and obtain necessary permitting.

h) Prepare tender documents for the remediation and restoration activities.

4. Site Description and Spatial Context

The Tandzut former mine site is situated about 1.5. km from the closest cottage, and 3 km due West of the village center of Lermontovo. Access is via a ca. 4 km long single-lane gravel road, which was once the main haul road but has since deteriorated significantly. Winter access is mostly impossible due to the steepness of the terrain and snow cover. The former mine lies at an elevation of 2,000 m a.s.l. in a valley, hidden from view and fairly protected from wind. The surroundings appear geotechnically stable with no evidence of mass movements or strong erosion. The exposed slopes of the former open pit mine, as well as the waste rock deposit, are said to have started a natural revegetation process. The only relevant potential pathway of adverse impacts from the mine to sensitive receptors appears to be runoff from the mine site, which may exhibit high acidity and may contain elevated concentrations of heavy metals.

Figure 1: Location of Tandzut former mine site

A review of analytical data carried out during a previous environmental assessment will be essential to guide a risk-based remediation approach. Actions should be emphasized that focus on containing risks and hazards that could impact off-site receptors: potential examples are the transport of toxic heavy metals through surface water runoff; impacts on aquatic eco-systems and food chain through water as a pathway; and wind-blown dust from the site. The measures proposed for this site should prioritize and maximize the role of natural attenuation processes for the actual mine site, and the containment of identified, significant hazards that could reach sensitive receptors. **The key environmental risks and hazards** associated with the existing mine sites include:

(i) Soil and Water Contamination from residual heavy metals, acid mine drainage and other pollutants that pose a significant risk to soil quality, streams, and downstream water bodies, particularly the Tandzut River in Lermontovo and the Voghji River in Kapan. Runoff from the sites introduces toxic elements, adversely impacting aquatic ecosystems and posing risks to human health.

(ii) Air Quality Impacts due to dust emissions and soil movement from the sites, which can degrade air quality and pose respiratory hazards to nearby communities. Additionally, loose soil and disturbed landscapes increase erosion risks, leading to sedimentation in nearby surface waters.

(iii) Biodiversity Loss resulting from past mining activities, which have significantly altered natural habitats. Ongoing site conditions continue to affect local flora and fauna, further disrupting the ecological balance.

(iv) Geotechnical and Structural Risks associated with landslides and unstable slopes, which may be present at the sites, threatening the stability of both the mining areas and surrounding regions. These risks are particularly significant in locations with steep terrain or an extensive history of excavation, such as the Kavart mine site.

(v) Seismic Vulnerability, as both Lori and Syunik Region fall within seismically active zones. Ground movements triggered by seismic activity may compromise the structural integrity of reclamation efforts and contribute to further land degradation.

(vi)Community Health and Safety Risks due to potential exposure to contaminated water, soil and air emissions, which may pose significant health hazards to nearby residents and local population.

(vii) Climate and Weather-Related Risks, including heavy precipitation and snowmelt, which can exacerbate acid drainage, soil erosion, and sediment transport, further deteriorating water quality. Extreme weather conditions, such as strong winds and heavy snowfall, also pose additional hazards, impacting both the sites and nearby communities.

The potential for productive repurposing appears very low for the Tandzut site, due to remoteness, difficult access and small size of the mine area. It should be verified (with the Ministry for Territorial Administration) that the site has been released from the mining cadastre as a potential mineral resource and can indeed be processed for final closure and reclamation.

Northern Kapan waste disposal site ("Northern Kapan site" or "Project site" or "Site") is scattered around one of the southern macro-slopes of Bargushat Mountain Ridge at the altitude of 1080-1310 masl2 running Northwards from Kaban city center.

Northern Kapan site was associated with the operation of so-**called Kavart mine** that is located 500 m east of the Site. The mines are located only 3.5 km NNW from Kapan city center. The old mining infrastructure is still largely preserved, if derelict and deteriorating. It includes the shaft, hauling equipment, administrative buildings, processing plant, a network of haul and access roads, a residual open pit, as well as extensive mine waste dumps.

The access to the mine sites is via a two-lane asphalt road, which was likely designed for Soviet-era heavy traffic. The road is deteriorated but remains functional. From the former administrative center of the mine, mostly single lane gravel and dirt roads connect to the various sectors of the former mine. These range from passable to heavily deteriorated (the latter especially at the Bashkent site).

The mine has two distinct operational sectors / units:

(a) The former mine of Kavart is located in the administrative boundaries of Kapan city municipality of Syunik marz. The territory is adjacent to the slopes of the Bashkend-Katari mountain range from the south-eastern branches of the Bargushat mountain range and measuring

about 500 m wide 200 m deep and 200 m high. The waste from this open pit was deposited immediately to the South in several terraces. Residual open pit and waste dump cover a combined area of about 60 hectares.

(b) The site North Kapan is located at the Southern macro-slope of Bargushat Mountain Ridge, 2 km north of Kapan town (43,190 people) – the administrative center of the Kapan Municipality and the provincial capital of Syunik Province. It has an area of about 50.0 ha and occupies an elevation range from 1,071 to 1,306 meters above sea level. The area is adjacent to Arajadzor section of Kapan Forest economy. The adverse anthropogenic impact on forest areas of Kapan region is due to over 150 years of ongoing geological study of minerals, extraction activities and logging. As a result of mining, several areas covered with waste are established. The activities resulted in weathering and vegetation disturbance.

Both mining operations are said to have closed in the early 2000's.

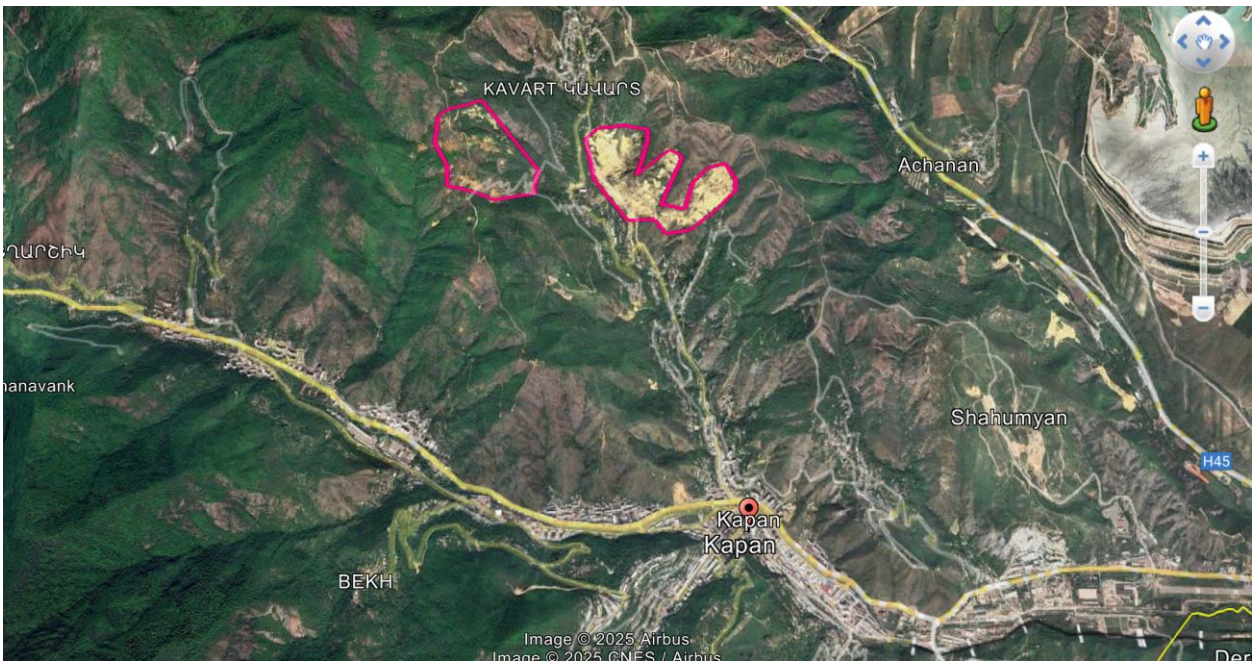

Figure 2: Overview of Bashkent and Kavart sites.

The natural terrain is hilly, with moderately steep slopes; on ridges between valleys, outcrops of the bedrock typically occur. The natural ground in the mine area appears geotechnically stable, no signs of significant landslides or mass movements were observed on undisturbed ground. The natural land cover is a sparse forest on northerly-exposed slopes, merging into brush and grass cover on southern expositions and in areas with little topsoil above the bedrock (e.g., ridges). At present, the land is mostly used as pastures (including free range), small agricultural plots, residences / small farms as well as for some commercial activity (e.g., workshops, storage).

Northern Kapan waste disposal Site **Conditions:**

Waste seems to have been deposited opportunistically where the slope had lower angles in 4 to 5 different locations, each single one involving fairly small quantities (several 10,000s to several

100,000s of m^3). Waste was generally deposited downslope without apparent layering or compaction, and no berms were constructed; it has assumed its natural angles of repose, usually around 35 degrees. There is a risk of deteriorating geotechnical properties by weathering and clay mineral formation, which could trigger mass movements (landslides) under wet conditions (e.g., during strong rainfall, after snow melt). This said, so far, no major mass movements seem to have occurred in the waste deposits. There is evidence for ongoing erosion, and transportation of waste rock down slope and likely into the surface water network.

In the few small water courses below the Northern Kapan waste disposal site t sector, comparatively few signs of acid mine drainage could be observed. The water is clear with a slightly bluish color. Where small seepages and springs emerge and come in contact with oxygen, there is little evidence of metal leaching and oxidation (the typical red-orange precipitates of acid mine drainage are not present). It will be crucial to review and, if necessary, supplement the results of the soil and water sampling and chemical analyses to determine soil chemistry and the potential environmental impacts of atmospheric contact of the waste rock and seepage.

At the ridge separating the next valley to the west, there are a number of exploration shafts, and adits (tunnels), which are surrounded by small waste rock deposits. It is noteworthy that the natural vegetation on this ridge is very sparse, likely due to exposition and the rocky nature of the soil, which may be an important consideration for recultivation planning. The top of the ridge is about 1350 m above sea level.

Kavart Site Conditions:

The Kavart open pit at the eastern side of the [*name*] valley has been abandoned without any reclamation measures. It has steep, terraced slopes about 200 m high, with an average slope angle of 50-50 degrees. Some of the berms of the original operational layout have collapsed, and formed two large landslides, each involving several 10,000 m^3 of material. One of these is located just north of the central sector of the open pit, the other on its northern rim. In addition to the mass movements, significant erosion is occurring, leading to siltation of downstream water courses.

Visible strong erosion and siltation are also ongoing waste deposits immediately to the south of the open pit. Low grade ore and waste rock have been deposited by downslope dumping on the Eastern slope of the [name} valley. The tips extend all the way downslope to the small creek flowing at the bottom of the valley southwards to Kapan, and are in contact with its waters.

The dimensions of the waste deposit are about 600 m wide and 250 m high. There are five-six levels of berms, created by haul roads that zigzag up the waste deposit. They appear to have been deposited without compaction or consolidation. There is no evidence of past remediation or recultivation attempts and 20+ years after mine closure there is no sign of incipient natural revegetation.

At the northern sector of the open pit, a depression is located that may have been a sedimentation pond or water reservoir. Its bottom is covered with fine sediment (sand, silt) and reeds evidence regular water logging. During snow melt and rain standing water is reported in this area. During

the field visit, several seepage points were observed from the pit's slopes, some of them apparently highly acidic and with high loads of metal ions (Indicated by bright orange colors).

The bottom of the open pit is about 30 m below the lowest point of the rim, corresponding to the former road access. There is no connection between the pit and the stream running at the bottom of the valley. There is a steady flow of seepage from various points in the slopes, which is collected in the bottom of the pit, and then flows into an opening connecting to former underground works. There is incipient vegetation on parts of the slopes, as well as on the central landslide; other parts (usually with rocks in light gray, yellow and orange colors) have no vegetation at all. The slopes appear unstable, with continuous rock falls, small slides, erosion, etc. (during the site visit, several small rock falls were observed). The perimeter of the pit is not secured by any fencing or barriers.

While the seepage waters show some evidence of acidity, only in a few places, the leaching of significant amounts of metals seems to occur, as overall the water is clear and the riverbeds show only occasional and moderate yellow-orange discoloration.

The waste tip on the eastern side of the valley extends all the way down to the bottom of the valley where it is in contact with a small stream flowing south towards Kapan. However, the surface waters do not seem to be impacted by acid mine drainage, the water being clear with an occasional slight blue-gray sheen, and little discoloration visible in the streambed. It would be important to obtain water analysis for metal ions as well as anions.

There are small quantities of municipal waste deposited at the access area to the former open pit mine.

The closest residences and commercial activities are located only about 100-150 m down-valley from the waste dumps of the Kavart site. About 150 m above the upper rim of the open pit, the Kavart cemetery is situated.

Preliminary identification of potential scenarios for reclamation and repurposing options:

One of the remediation options for this pit may be creating of an engineered landfill that would fill the current void, would help stabilizing the slopes and allow using some of the stock of mine waste as cover material.

5. Scope of Services

The consulting firm should accomplish the following tasks:

5.1 Geomorphological Surveys

- Conduct topographic survey of the site.
- Create maps with variable scale and the required resolution / precision depending on design requirements (typically 1:2000, 1:5000, and 1:10,000), including complete information on conventional topographical symbols, scale, and all relevant surface features and structures.

- Assess areas showing signs of erosion, such as gullies, scouring, and soil loss
- Map areas where sediment has accumulated due to mining operations, identifying potential hazards.
- Classify existing landforms, such as:
  - Scarps: Vertical or near-vertical cliffs created by mining,
  - Benches: Flat areas resulting from step-like excavation,
  - Slopes: Steep, unstable areas that may require stabilization.

Depressions: potential areas for (ground)water accumulation, and mixing / geochemical exchange between surface and groundwater

- Conduct geological and geotechnical survey
  - -slope stability analysis e.g. by using software like GeoStudio or PLAXIS
  - Assessment of mine tailings composition and volume
  - Soil compaction and permeability tests etc.
- Conduct hydrological survey
  - Creation of a Digital Elevation Model (DEM)
  - Surface water drainage pattern mapping
  - Groundwater depth and flow direction analysis.

5.2 Engineering Geological / Geotechnical Analysis

- Analyze the dimensions, angles, and shapes of landforms to understand their stability and potential for restoration.
- Conduct slope stability assessments using:
  - Geotechnical Investigations: Engineering geological mapping, rock mass classification, soil and rock sampling and laboratory tests to determine shear strength and other properties.
  - Computer Modeling: Use slope stability models (e.g., limit equilibrium methods) to predict potential failure areas.
- Identify high-risk zones susceptible to landslides or erosion, focusing on steep slopes and disturbed areas.

- Investigate the underlying geology to understand the natural processes influencing landform stability and erosion.Identify rock types, fault lines, and other geological features that may affect restoration efforts, as well as any potential underground works that may be present.

- Study natural processes affecting the site, including:

  - Hydro(geo)logical processes: analyze how water movement affects erosion and sediment deposition.

  - Vegetation role: examine how existing vegetation influences soil stability and erosion control

  - Take seismic loading into account for stability analyses.

- Develop alternative options for engineering approaches to improve the safety and tailings management facilities.

- Identify the level of risk reduction for each alternative and associated cost.

- Assess and present plan revegetation, monitoring, and regulatory compliance.

- Use of GIS, remote sensing, modeling, bioengineering, drone technology, and AI for effective restoration design, feasibility study and monitoring. For each mining site present site videos and 3D animations (4-5 min) describing current conditions and result of restoration scenarios.

5.3 Environmental (Risk) Assessment

- Conduct field surveys and assessments to collect baseline data on ecological conditions and contamination levels (with consideration of geogenic background levels).

- Identify high hazards/risks and prioritize risk mitigation measures.

- Assess the extent and nature of degradation of the site as compared to the natural geogenic background conditions.

- Identify historical activities that may have introduced pollutants (e.g., tailings, waste dumps).

- Evaluate potential risks to human health and the environment from identified contaminants.

- Visual and organoleptic screening assessment of environmental site conditions, identifying telltale signs of contamination such as acid mine drainage, salt effervescences, discoloration of soil, or contaminations from operational processes, e.g., lubricants, fuels, paints or solvents.

- In areas identified as potentially contaminated by the screening, conduct detailed soil sampling. reflecting key parameters for host rock and ore (heavy metals, As, high pH…), and / or of operational processes (aliphatic and aromatic hydrocarbons).

- Assess hydro(geo)logical and hydrographic conditions, including flow patterns and drainage issues.
- Analyze potential flood risks due to altered drainage patterns from mining activities.
- Map existing potential receptors such as water bodies, groundwater, sensitive biodiversity and human residential / economic presence.
- Develop and execute a plan to sample and analyze surface and groundwater for chemical contaminants (heavy metals, pH, nutrients, etc.).
- Produce a comprehensive environmental and social impact assessment, summarizing baseline conditions and current ES risks and manifest impacts.

5.4 Ecological Assessment

- Evaluate the health and coverage of vegetation and identify areas of soil erosion or degradation.
- Assess the Vegetation cover and biodiversity survey including ecosystem functioning.
- Evaluate the "environmental indicator" plant species for ecosystem functioning by using digital tools and applied field data observation methods.
- Conduct surveys to identify flora and fauna species present, focusing on threatened or endangered species.
- Assess habitat quality and availability for local wildlife, assess the possible human and wildlife conflict across the target communities.
- Identify key ecological processes to be restored, identify key biodiversity species on ecosystem functioning to be restored.
- Evaluate the site's potential for natural recovery versus the need for active intervention.
- Use risk assessment models to predict the potential impact on surrounding ecosystems and communities.
- Define *Water quality* (pH, heavy metals, sulfates).
- Conduct air and dust monitoring (if applicable; -*Contaminant mapping* and risk identification).

5.5 Social Impact Assessment

- Address environmental legacies and socio-economic impacts on local communities.
- Conduct socio-economic survey for establishing priority interventions to restore damaged landscapes by fulfilling legal and ethical obligations.

- Collect information on land ownership, land lease as well as informal land use in the area, prepare a detailed map.
- Identify people and communities as potential receptors of physical and chemical risks from the former mining sites.
- Assess the economic implications of the mining site on local livelihoods and land use.
- Identify any possible temporary, long-term, or permanent restrictions to the land ownership or (legally sanctioned, forma as well as informal) land use that may result from site reclamation, remediation and repurposing activities.
- Identify potential opportunities for community involvement in the reclamation process.
- Identify any historical or cultural sites within or adjacent to the mining area.
- Explore ways to ensure local communities benefit from restoration efforts, including job creation and community involvement in restoration activities.

5.6 Stakeholder Identification and Engagement

- Engage with local communities to gather insights on historical site use, community concerns, and expectations for reclamation.
- Identify key stakeholders, including local communities, government agencies, and NGOs.
- Identify private sector companies interested in restoration activities.
- Based on the outcomes of consultations, develop proposals for Public-Private Partnerships.
- Develop a communication plan to keep stakeholders informed.

5.7 Development of Restoration Scenarios

- Based on the assessment described above, develop meaningful restoration scenarios that contribute to the restoration of the healthy ecologic balance, address community needs, and achieve regulatory compliance. Each Scenario should include:

- Methodology and approach,
- Justification for chosen methods based on best practices and site-specific conditions,
- Description of reclamation techniques, recommendations on ecological restoration, hydrological management, land use planning techniques,
- Potential risks,
- Summary of potential environmental impacts for each scenario,

- Mitigation strategies to address adverse effects,
- Estimated costs for implementing the scenario,
- Proposed schedule for each phase of the restoration process, including key milestones,
- Identification of funding sources and resource needs (labor, materials, equipment),
- Description of the format of public-private partnership (if applicable),

● Consult the scenarios with relevant stakeholders and assist them in selection of the appropriate restoration direction.

5.8 Engineering Design of the Selected Restoration Scenario

● Prepare detailed design for the selected restoration scenario, which shall be based on:

○ Environmental Impact Assessment.

○ Geological and Hydrological Studies.

○ Regulatory Framework: Overview of laws and regulations governing restoration,

○ Restoration Objectives.

The design documents shall include:

○ Preliminary Site Plan and Specifications,

○ Plan of the physical lay-out for the site Post-Completion,

○ Site Remediation Techniques: Methods for addressing contamination and stabilization.

○ Water Management Plans: Strategies for managing surface and groundwater flow.

○ Waste Management Approaches: Plans for handling mining waste and tailings,

○ Traffic management plan for construction vehicles and machinery to be deployed for transportation of materials necessary for restoration and reclamation

○ Drawings that include schematics of the objects involved in the project.

○ Methods for soil remediation and enhancement, including organic amendments and erosion control measures.

○ Strategies for managing water resources, including reestablishing natural drainage patterns and improving water quality.

Vegetation and land Use planning:

- Plan for habitat restoration that supports local wildlife, including nesting sites and food sources.

- Native plant species for replanting, considering local biodiversity and habitat requirements (if applicable).

- Planting techniques and schedules, including site preparation and maintenance (if applicable).

- ***Phytoremediation Zonesn (e.g.,*** use of metal-accumulating plants like *Brassica juncea* for site cleanup; *Agroforestry and native tree integration for long-term stability etc.)*.

- **Agroecological Integration (e.g.** zones designated for community gardens or permaculture, Soil contouring and swales for water harvesting, Livestock exclusion zones during early regrowt.

- **Biodiversity Corridors (**Pollinator habitat restoration along perimeter; Bird/bat boxes and wildlife-friendly fencing, endangered and vulnerable species habitats' conservation etc.).

- Restoration design with native plant species for replanting, considering local biodiversity and habitat requirements.

- Planting techniques and schedules, including site preparation and maintenance (if applicable) as well as estimate the cost of per activity shill be presented.

- An estimate that will include summary, object and local estimates.

- A bill of quantities prepared on the basis of the estimate, the cost of each work unit will be included in the urban planning normative documents of the Republic of Armenia.

- Volume sheet based on the estimate, the cost of each unit of work will include all costs, profits, duties, fees, taxes and other costs defined by RA urban planning normative documents.

- Terms of reference for selecting a contractor for the implementation of works.

- A complete list of materials and products, including the types, specifications, quantities of material and technical resources for the necessary assembly.

- A detailed description of the necessary installation work, an estimate of the terms and costs.

- The requirements for the license, technical means, work resources and professional qualities required for the performance of the works.

- A clear timeline for implementation, including key milestones and deadlines.

- Submission of claims for the warranty period of the object, its individual parts and used materials.

- A schedule of restoration and reclamation works according to the groups of works to be performed.
- Information about equipment, engineering support networks, list of engineering and technical means, content of technological solutions.
- Environmental management plan for all civil construction works.
- Safety requirements during restoration and reclamation works.
- Volume sheet based on the estimate, the cost of each unit of work will include all costs, profits, duties, fees, taxes and other costs defined by RA urban planning normative documents,
- Emphasize workers' safety, environmental protection, and infrastructure safety, including sealing of disused and abandoned mine shafts and managing hazardous materials in the tender document,
- ToR should include restoration working environment's safety and security regulations, whereas the responsibility of workers safety and security must rely on the contractor or work implementing firm.

- Focus on environmental care, regulatory compliance, social engagement, and economic planning.
- Long-term Sustainability Plan, including establishment of sustainable local economic opportunities,
- Monitoring and Maintenance Plan: including methods and frequency of data collection to assess progress,
- Budget and Funding Sources
- Risk Assessment and Mitigation Strategies
- Plans for updating stakeholders on progress and results throughout the restoration process.

- Present eligibility criteria for contract award, including all the required certificates and licenses and act in accordance with the RA legislation and international standards.

- Obtain necessary permitting and prepare tender documents for the restoration, remediation activities.

For the Kavart site only:

- Elaborate comprehensive feasibility study for restoration (reforestation) or/and most optimal scenario for reclamation
- Investigate optimal alternative scenarios (e.g. 2-3 scenarios) for reclamation and carry out feasibility studies including financial analysis and planning

- Define a set of cost-effective risk mitigation for alternative reclamation scenarios

- Develop detailed financial resources' mobilization; and elaborate effective implementation mechanism and plan for each scenario.

- Scenarios should be presented, discussed, and the most optimal scenario should be agreed with the regional and local communities, heads, municipalities. The obtained agreements should be presented based on the relevant documentation or/and protocol forms.

- The studies will identify and characterize options for productive repurposing, redevelopment and reuse of as much of the former mine lands and features as possible.

5.9 Implementation of Environmental and Social Impact Assessment (ESIA).

5.10 Author's (Follow-on) supervision

The consultant is expected to conduct the author's/follow-on supervision of the restoration work:

- Ensure the presence of relevant specialists on the site area;

- Undertake visits to the site area according to the schedule agreed with the Client which will manage the works;

- When necessary, arrange out-of-schedule visits as requested by the Client;

- Closely cooperate with the contractor in management of running arrangements;

- With written approval of the Client, immediately correct any design omissions and/or errors and deviations detected during the works;

- Verify the quality of the works performed by a contractor and whether they are in line with the design layouts and technical specifications;

- Accurately register all discovered errors and deviations in the supervision journal and, if required, give necessary recommendations for their improvement;

- Immediately inform the contractor and advise the Client in writing about existing shortcomings;

- Sign the statement on completion of works as well as any mid-term acts/statements as necessary along with the contractor and Client, certifying that works meet all design and quality requirements;

- Promptly notify the contractor of any works violating technical specifications and the approved design layouts,

- If the contractor is not doing the work in accordance with the plans, notify the contractor in writing and suspend work on that respect, especially regarding any existing risks and any significant or unacceptable deviations from the design layout (that may increase the anticipated cost or extend the term of the works);

- Coordinate with the contractor on design changes within the site area that do not result in any cost or volume modifications to the restoration design/project, ensuring that such changes are preliminarily agreed with the Client and that the Client is informed at least two days in advance before any changes are implemented.

6. Reporting

Deliverables must be clearly written and presented both in Armenian and English. Reports shall have a clear structure containing an executive summary, introduction, the main part, and conclusion with recommendations. Reports shall include the required findings, results of surveys, and/or data analysis and feedback from stakeholders as appropriate. The recommendations should be relevant to the findings. All products must be developed according to the methodology agreed with the EPIU, who will review and approve interim outputs before final outputs are developed. 15 working days should be allowed for the review of the outputs. Comments and suggestions from the EPIU, World Bank team, and/or stakeholders' feedback shall be incorporated into the final outputs. Final outputs will be reviewed by the EPIU and endorsed by the Ministry of Environment.

Deliverable	**Approved (months after contract signing)**	**Payment release (percent)**
1. Inception report outlining the overall approach and methodology	1	5
2. Comprehensive Environmental and Social Assessment Report	6	25
3. Draft Feasibility Study Report (Kavart)	8	30
4. Final Feasibility Study Report (Kavart)	9	
5. Draft Engineering Design (Tandzut & Northern Kapan waste disposal site**)**	11	39,5
6. Final Engineering Design and ESIA (Tandzut & Northern Kapan waste disposal site**)**	15	
7. Author's (follow-on) supervision – starting with the restoration works and will be carried out till the end of the restoration works. The timeline will be defined separately in the contract and/or as an amendment to the main contract.		0,5

The selected consultant will be offered to sign two contracts i.e. Lump - Sum for preparation of designs and Time based for author supervision.

7. QUALIFICATION REQUIREMENTS

The Consulting firm must have sufficient resources and capacity to carry out the services.

The Consulting Firm must demonstrate the following:

- At least of five (5) years experiences in engineering design and preparation of cost estimate documentation for environmental and civil works, preferably related to mine closure, site stabilization, or degraded land restoration;
- Experience related to mine closure, site stabilization, or degraded land restoration will be considered as advantage;
- Experience in the preparation of tender documents in accordance with national and/or international procurement standards;
- Demonstrated capability in providing author's (follow-on) supervision services for technically complex or environmentally sensitive construction works;
- A minimum of five (5) years of operational experience in relevant fields of environmental engineering consultancy;
- Experience working with international donor-funded projects, including those financed by the World Bank, EBRD, or UN agencies, will be considered an asset;
- Familiarity with the environmental, geological, and institutional context of Armenia, including engineering norms and construction standards, will be considered an advantage;
- Experience working with the Government of Armenia or its regional/local institutions will be considered an asset.

7.1 Licensing Requirements (Applicable in Armenia)

To be eligible for contract award, the consulting firms must have all the required certificates and licenses and act in accordance with the RA legislation.

7.2 The design estimate documents must comply with the requirements of the national standards and GOST applicable in the Republic of Armenia.

Personnel

- The project team will consist of the following personnel, for whom the knowledge of Armenian would be an asset.

- **Project Manager**: Responsible for overall project coordination, planning, implementation, and reporting. Experienced in managing complex environmental projects, with strong leadership and communication skills. Master's degree or higher in environmental science, engineering, or related field with at least 5 years relevant experience.

- **Mining Engineer**: With proven experience in mine planning, operation and closure; detailed knowledge of technical closure and remediation practices, including securing underground works, geotechnical stabilization of post mining lands, surface stabilization and erosion control, and water / groundwater management. Degree in Mining or Geotechnical Engineering is required with at least 5 years of experience in post-mining land stabilization, slope stability assessments, or remediation works, practical experience conducting field investigations and interpreting geotechnical data, familiarity with Armenian soil and geological codes is an advantage.

- **Civil Engineer**: Will be responsible for assessing / planning relevant civil works required for the site restoration , such as roads, slope design (incl. retaining walls), drainage systems, and the shape and structure of the potential landfill and solar farm on the Kavart mine site. Bachelor's or Master's Degree in Civil Engineering is required with at least 3 years relevant experience in infrastructure design for environmental, water, or rehabilitation works Familiarity with Armenian and international engineering standards.

- **Restoration Ecologist**: Provides technical expertise on ecological restoration principles and practices, with international experience in post-mining landscapes. PhD or Master's degree in ecology, restoration ecology, or related field, with at least 5 years of international experience in ecological restoration and monitoring of mine disturbed sites, familiarity with Armenian ecological peculiarities is an advantage.

- **Soil Scientist/Geologist/Hydrologist**: Expertise in soil and geological assessment, remediation techniques, and erosion control. Experienced in assessing and restoring hydrological processes in disturbed landscapes. Bachelor's degree or higher in hydrology, environmental engineering, or related field with 3 years relevant experience, familiarity with Armenian soil types and characteristics is an advantage

- **Botanist/Plant Ecologist**: Knowledgeable in the flora of Armenia, with experience in native plant propagation and revegetation. Bachelor's or Master's degree in botany, plant ecology, or related fields, with at least 3 years of relevant experience, familiarity with Armenian biodiversity and flora is an advantage

- **Environmental Economist**: Experienced in environmental economics, with a focus on assessing the economic impacts of restoration and repurposing projects, including low-carbon economic diversification. Bachelor's or Master's degree in Economics, Environmental Economics, or a related field, with at least 3 years of relevant experience. Knowledge of Armenia's economic landscape and mining issues preferred.

- **Stakeholder Liaison Officer**: Facilitates community engagement, conducts stakeholder consultations, and coordinates capacity building activities. Strong communication and interpersonal skills, with experience in community engagement and conflict resolution. Bachelor's degree or higher in social sciences, communications, or related field, with at least 3 years of experience in community engagement in natural resources.

- **Field Technicians**: Skilled in field data collection, plant identification, soil and water sampling, and ecological monitoring. (Bachelor's degree in environmental science, biology, or

related field). **Cost Estimator / Quantity Surveyor:** Degree in Construction Economics, Civil Engineering, or related discipline. Minimum 3 years of experience in cost estimation and bill of quantities (BoQ) preparation for engineering or environmental projects;

8. Project Schedule

The project will be completed within 15 months from the day of contract signing, following a detailed project schedule to be developed in consultation with the client.

Client Responsibilities

The client will be responsible for:

- Facilitating meetings, communication and engagement with relevant stakeholders.
- Access to all relevant data that are held by public entities in Armenia, including those not publicly available.
- Obtaining any necessary permits and clearances for unrestricted site access, field research and restoration activities.
- Reviewing and providing feedback on project deliverables in a timely manner.

9. Legal Framework

- RA “Subsoil Code” /2011/
- RA "Land Code" /2001/
- RA "Forest Code" /2005/
- RA "Water Code" /2002/
- RA "Civil Code" /1999/
- Law of the RA "On Environmental Impact Assessment", 2014, edited: 2023 /
- Law of RA "On Flora" /1999/
- Law of RA "On Fauna" /2002/
- Law of RA "On wastes" /2004/
- Law of RA "On Protection of Atmospheric Air" /1994, reedited:2022
- Law of RA "On specially protected areas of nature" /2006/
- Law of RA "On Intangible cultural heritage" /2009/