

Project Administration Manual

Project Number: 53022-001
Loan and Grant Numbers: XXXX
June 2021

Kyrgyz Republic: Landslide Risk Management Sector
Project

ABBREVIATIONS

ADB	–	Asian Development Bank
DMF	–	design and monitoring framework
EARF	–	environmental assessment and review framework
EMP	–	environmental management plan
FMA	–	financial management assessment
GAP	–	gender action plan
GoKR	–	Government of Kyrgyz Republic
GRM	–	grievance redress mechanism
IEE	–	initial environmental examination
InSAR	–	Interferometric Synthetic Aperture Radar
KCHE	–	Kyrgyz Integrated Hydrogeological Expedition
LARF	–	land acquisition and resettlement framework
LARP	–	land acquisition and resettlement plan
O&M	–	operation and maintenance
MES	–	Ministry of Emergency Situations
MOEF	–	Ministry of Economy and Finance
MTACC	–	Ministry of Transportation, Architecture, Construction and Communications
oblast	–	district
PIC	–	project implementation consultant
PIU	–	project implementation unit
SOE	–	statement of expenditure
SPS	–	Safeguards Policy Statement
SSEMP	–	site-specific environmental management plan
TOR	–	terms of reference

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry of Emergency Situations is wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by Ministry of Emergency Situations of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan and grant agreements. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan and grant agreements, the provisions of the loan and grant agreements shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

1. This project is the Asian Development Bank's (ADB) first integrated preemptive landslide risk reduction investment to safeguard rural communities in the Kyrgyz Republic.¹ The project will take a comprehensive approach combining structural (including civil works and equipment) and non-structural (strategy, training, and analysis) interventions.

2. The project outcome will be: vulnerability and exposure of communities and infrastructure to landslide events reduced. The project is aligned with the following impacts: human and material loss from climate- and geophysical-related disasters reduced and level of protection of the population and territories from emergency situations increased for sustainable development.

3. **Output 1: Landslide mitigation engineering measures implemented.** The exposure of at-risk communities to landslides will be reduced through mitigation engineering measures in about 15–20 subprojects. These include unloading soil overburden, reshaping bulging or cracked areas on hillsides, and draining underground and surface water. Subprojects will incorporate considerations for future climate change. Nature-based solutions, including greening and timber retaining and drainage structures, will be implemented where appropriate. Beneficiary communities, particularly women and households headed by women, will be engaged in the planning, implementation, and operation and maintenance (O&M) of subprojects. Sustainable asset management and O&M plans and budgets will be prepared and implemented for each subproject. These will identify roles and responsibilities for community representatives.

4. **Output 2: Systems for on-site and national landslide monitoring improved.** The landslide risk monitoring capacity of the MES, at-risk communities, and other stakeholders including the KCHE, MTACC, and local authorities will be modernized. The project will establish an integrated risk-based multilevel landslide monitoring system. It will combine on-site monitoring and a pilot national landslide monitoring approach using satellite-based interferometric synthetic aperture radar (InSAR). On-site monitoring systems will be installed in about 20 subprojects not included under output 1.² The pilot InSAR system will provide broad-based monitoring of surface displacements and analysis of historical slope movement, and support the updating of the national landslide inventory under output 3. The integrated system will be linked to the existing national early warning system and the network of crisis management centers. Beneficiary communities, particularly women and households headed by women, will be engaged for planning and O&M of monitoring sites. Associated gender-sensitive training will be provided to key government and community stakeholders. Sustainable asset management and O&M plans and budgets will also be prepared and implemented for each monitoring subproject.

5. **Output 3: Capacity for landslide risk management strengthened.** The capacity of the MES, at-risk communities, government agencies including local authorities, and other stakeholders for landslide risk assessment, mitigation, and resettlement will be strengthened. The project will develop a gender-sensitive national landslide risk management road map. It will develop a geographic-information-system-based platform and database to assess landslide hazard, exposure, and vulnerability with sex-disaggregated data. This will build on the existing data-sharing platform and risk maps. Updated maps will be disseminated to key government and community stakeholders to support coordination and planning. The project will develop

¹ A landslide is the movement of a mass of rock, debris, or earth down a slope. Landslides can be initiated by rainfall, snowmelt, changes in ground water, earthquakes, disturbance by human activities, or any combination of these factors. Source: United States Geological Survey. [What is a landslide and what causes one?](#)

² The systems are expected to comprise sensors to measure and assess slope stability, groundwater levels, and key trigger variables.

procedures and case studies to strengthen institutional capacity for planning, implementation, and O&M of landslide mitigation and resettlement. Emphasis will be given to community engagement and consideration for future climate change impacts to ensure long-term sustainability and effectiveness.³ The project will conduct a participatory gender-sensitive landslide risk awareness, planning, and information-sharing program for at-risk communities. The MES staff will be trained in O&M and financial management of O&M to strengthen their internal asset management systems, records, and safeguards.

6. The project will apply a sector lending approach in selecting and implementing landslide risk management subprojects under output 1. A feasibility study, including geotechnical and geophysical survey and site landslide risk mapping, has been undertaken for a representative subproject in Ayusai, Ayu village, Osh oblast.⁴ The MES has prepared a long list of 46 prospective subprojects, which have undergone preliminary assessment during project preparation.⁵ To be financed under the project, the subprojects must comply with the applicable selection criteria and procedures described in Section III (D) below. Eligibility criteria include: (i) ideally 9% and minimum 6% expected economic internal rate of return; (ii) category B or C environment and social safeguard classification and avoiding or minimizing permanent land acquisition and resettlement; and (iii) no association with a uranium mining site.

7. Draft terms of reference (TOR) for project implementation consultant (PIC) is included in Appendix 1. Further summary description of landslide monitoring and landslide risk database is included in Appendix 2.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 1: Project Readiness and Target Startup Schedule

Indicative Activities	Month in 2021										Responsibility
	3	4	5	6	7	8	9	10	11	12	
Readiness support consultant mobilized	X										ADB
PIC advertised		X									MES
RFP issued for PIC				X							MES
IFB issued for first works package							X				ADB-MES
IFB issued for first goods package								X			ADB-MES
PIC contract signed, PIU recruited										X	MES
Loan and grant negotiations			X								ADB-GoKR
ADB Board approval					X						ADB
Loan and grant signing						X					ADB-GoKR
Government legal opinion provided								X			GoKR
Loan and grant effectiveness									X		GoKR-ADB

ADB = Asian Development Bank, IFB = invitation for bidding, , GoKR = Government of Kyrgyz Republic, MES = Ministry of Emergency Situations, PIC = project implementation consultant, PIU = project implementation unit, RFP = request for proposal.

Source: Asian Development Bank.

³ Anderson and Holcolme. 2013. *Community-Based Landslide Risk Reduction*. Washington, DC: World Bank.

⁴ Technical Feasibility Study: Ayusai Subproject (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).

⁵ Landslide Risk Assessment (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).

[illegible]

	2021				2022				2023				2024				2025				2026				2027				2028			
Quarter:	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Output 3																																
3.1 Landslide risk database and platform																																
3.1.1 Design and procurement																																
3.1.2 Development and installation																																
3.1.3 Stakeholder training																																
3.2 Landslide risk management capacity building																																
3.2.1 National/Oblast/site level landslide risk assessments (incl. mapping)																																
3.2.2 Community risk assessment and planning																																
3.2.3 Landslide risk management roadmap																																
3.2.4 Procedures and training materials on landslide risk assessment and mitigation																																
3.2.5 Procedures and training materials on resettlement																																
3.2.6 Stakeholder training																																

PIU = project implementation unit, RFP = request for proposals

Source: Asian Development Bank.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

9. **Executing Agency.** The MES is the executing agency for project. MES will assign one staff representative as the Project Focal Point. The Project Focal Point will monitor the respective activities and supervise the activities of the project implementation unit (PIU). They are also responsible for compliance with the loan and grant covenants. ADB will finance and mobilize a consultant to support MES with project readiness and startup activities including recruitment of the PIU, PIC, and other advance contracting.⁶

10. **Project Implementation Unit.** A new PIU will be established within MES to implement the entire project scope, comprising: (i) a PIU Director to manage the overall project; (ii) a Compliance Unit covering finance, safeguards, and procurement for the entire project; (iii) a Disaster Risk Management Unit for project implementation; and (iv) and Support Staff (see Table 4 and Figure 1 below). The PIU will be responsible for daily project implementation. MES shall establish the PIU and recruit the key positions of PIU director; financial management specialist; disbursement specialist; and procurement specialists within 15 days of the loan and/or grant effectiveness. MES shall ensure that throughout the project implementation the PIU is fully functional and operational with staffing, financial, and other resources. These staff will be fully qualified to undertake their assigned responsibilities and be knowledgeable about project details. Staff will also be familiar with ADB policies, guidelines and regulations including, but not limited to, the *Procurement Policy (2017)*, *Procurement Regulations (2017)*, *Safeguards Policy Statement (SPS) (2009)*, *Policy on Gender and Development (2003)*, and *Loan Disbursement Handbook (2017)*. MES shall ensure that the TOR, recruitment, evaluation, and appointment of all key PIU staff identified in the PAM have the prior approval of ADB.

11. **Project Coordination Group.** The MES will establish a Project Coordination Group comprising relevant directors and regional representatives of stakeholder agencies and organizations including but not limited to: MTACC; State Committee of Industry, Power and Subsoils; State Insurance Organization; Ministry of Labor and Social Development; Central-Asian Institute for Applied Geosciences; GEOPRIBOR; and other relevant non-governmental, community, and research organizations. The function of the group will include: (i) planning and consultation on project activities; (ii) appropriate coordination and alignment of activities across group members; and (iii) communication and monitoring of project progress, outcomes, and impacts. The Project Coordination Group will meet as often as necessary to discharge its functions and not less than bi-annually.

12. MES shall provide adequate office space with basic facilities for the PIU and the PIC throughout the duration of the project.

Table 3: Project Implementation Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Ministry of Economy and Finance	Designated representative of the borrower: (i) Sign loan and grant agreements; (ii) Monitor project implementation and provide respective coordination and facilitation; (iii) Allocate and release counterpart funds in a timely manner; (iv) Authorize establishment of project advance accounts for ADB loan and grant funds;

⁶ The consultant was mobilized in March 2021 with 3 person-months intermittent input.

Project Implementation Organizations	Management Roles and Responsibilities
	<ul style="list-style-type: none"> (v) Authorize establishment of account for counterpart funds; (vi) Endorse to ADB the authorized staff with approved signatures for withdrawal application processing; and (vii) Process and submit to ADB any request, when required, for reallocating the grant and loan proceeds.
Ministry of Emergency Situations	<p>Executing Agency:</p> <ul style="list-style-type: none"> (i) Assign a Project Focal Point; (ii) Establish the PIU legal structure; (iii) Recruit and sign contracts with PIU staff; (iv) Overall responsibility for managing project including financial management and procurement systems; (v) Maintain supervision and control over project bank reconciliation statements; (vi) Include the project in internal audit processes and reporting; (vii) Overall responsibility for reporting on physical, non-physical, financial progress for project activities including the development of the government's project completion report and its submission to ADB; (viii) Establish a Project Coordination Group; (ix) Ensure PIU conduct timely financial and management audits as per agreed timeframe and taking recommended actions; (x) Comply with Loan and Grant Agreements' covenants; (xi) Sign all contracts with suppliers of works, goods, and services; (xii) Recruit project implementation consultant during project startup; and (xiii) Public disclosure of project outputs.
Project Implementation Unit	<ul style="list-style-type: none"> (i) Daily project implementation activities in accordance with project design and requirements; (ii) Coordinate activities and meetings between MES, Project Coordination Group, and other stakeholders and act as focal point for communication with ADB on project-related matters; (iii) Update and implement an overall project plan, establish financial management and procurement system, and preparing annual project budget; (iv) Establish project accounts for ADB loan and grant funds and counterpart funds. (v) Responsible for project advance accounts and manage counterpart fund account on behalf of MOF; (vi) Prepare and submit timely disbursement claims and withdrawal applications on behalf of MES; (vii) Update procurement plan, as necessary; (viii) Monitor, evaluate and report on project progress, and disseminate project progress (e.g., planned and completed project activities including procurement) through a dedicated project website; (ix) Preparing quarterly progress and other reports in format acceptable to ADB in line with reporting plan (see Section IX below). (x) Prepare the feasibility study and due diligence reports for subsequent subprojects under output 1 with a support from PIC, and submit for ADB's approval (xi) Recruit consultants and procure works and goods; (xii) Coordinate with other government agencies, departments and units, local governments, district and local offices, communities as necessary; (xiii) Guide the plans, surveys, studies, detailed designs, capacity development activities, demonstration activities, workshops to be prepared or implemented by the consultants; (xiv) Developing sustainable O&M and asset management plans; (xv) Ensure compliance with environmental and social safeguard requirements; (xvi) Carry out monitoring and public consultation during implementation to ensure the proper implementation of the project's site-specific environmental management plans and land acquisition and resettlement plans; (xvii) Monitor and promptly address complaints, and ensure their effective and adequate resolution; (xviii) Monitor and supervise consulting services; (xix) Monitor and supervise works conducted by contractors, and the delivery of goods procured by suppliers with the support of the consultants;

Project Implementation Organizations	Management Roles and Responsibilities
	(xx) Implement gender action plan, monitor, and update, and report on the progress of implementation of the plan as necessary; (xxi) Monitor project progress and evaluating project benefits and social and environmental impacts; (xxii) Conduct economic analysis at the midterm of the project implementation period; (xxiii) Implement required loan and grant covenants; (xxiv) Manage loan disbursement and maintain financial accounts; (xxv) Maintain appropriate accounts, including reports on withdrawal applications and disbursement; (xxvi) Reconcile project accounts and ensure timely requests and release of fund to the support departments/PIUs. Overall project fund reconciliation after every fiscal year closing and as required by ADB; and (xxvii) Prepare supporting documents for replenishment of advance account, financial statements, and arrangement of the annual audit report in close consultation with concerned government agencies.
ADB	Financier: (i) Provide timely guidance at each stage of the project for smooth implementation; (ii) Review all the documents that require ADB approval upon the submission by the PIU; (iii) Conduct periodic project review missions, a midterm review, and a completion mission; (iv) Monitor executing agency's compliance of all loan and grant covenants; (v) Timely process withdrawal applications and release eligible funds; (vi) Monitor executing agency's compliance of financial audit recommendations; (vii) Regularly update the project performance review reports with the assistance of the executing agency and PIU; and (viii) Regularly post on ADB website the updated project information documents for public disclosure, and the safeguards documents as per disclosure provision of the ADB Safeguards Policy Statement (2009), and ADB Access to Information Policy (2019).

ADB = Asian Development Bank, PIU = project implementation unit, MES = Ministry of Emergency Situations, MOF = Ministry of Economy and Finance.

Source: Asian Development Bank

B. Key Persons Involved in Implementation

1. Executing Agency and ADB

Executing Agency

Ministry of Emergency Situations	Mr. A. Mambetov State Secretary 2-1 Toktonaliev St. Bishkek 720055 Kyrgyz Republic
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2. Project Implementation Unit

13. The PIU staff requirements are presented in Table 4. This is in line with the project structure in Figure 1. Table 5 summarizes expected equipment requirements of the PIU. Recruitment of PIU positions will follow a transparent and competitive process in line with government procedures with ADB's prior review and approval. ADB prior no objection is required for hiring of candidates for Director, Compliance Unit, and Disaster Risk Management Unit positions. The roles and tasks of key PIU positions are in Table 6.

Table 4: Staff Requirement for Project Implementation Unit

Project Implementation Unit Staff		Location	Expected Total Months	# Staff
1	Director	Bishkek	78	1
Compliance Unit				
2	Financial Management Specialist	Bishkek	78	1
3	Disbursement Specialist	Bishkek	78	1
4	Environment Specialist	Osh	78	1
5	Safeguards (Resettlement) Specialist	Osh	78	1
6	Chief Procurement Specialist	Bishkek	36	1
7	Procurement Specialist	Bishkek	36	1
Disaster Risk Management Unit				
8	Geotechnical Coordinator	Osh	78	1
9	Civil Engineer	Osh	78	1
10	Junior Geotechnical Specialist and Civil Engineer ^a	Osh	48	2
11	Landslide Monitoring Specialist	Bishkek	78	1
Support Staff				
12	Office Manager/Translator	Bishkek	78	1
13	Driver	Bishkek	78	2

^a Two junior staff will be hired for initial survey, design, and procurement period.

Source: Asian Development Bank

Table 5: Expected Project Implementation Unit Equipment Requirements

Items	Quantity
Licensed accounting software (1C)	1
Desktop computer with LCD screen	8
Laptop package (1 Laptop, 1 LCD screen)	2
3-in-1 Scanner Printer Copier	4
Photocopier	2

Items	Quantity
Fax	2
Mobile phone	8
Furniture package (Director chair and desk, 10 desks and chairs, cabinets, etc.)	1
Meeting Table and Chairs	1
Vehicle Running Costs (Fuel, Oil, Maintenance, etc.)	144
Vehicle	2

Source: Asian Development Bank

Table 6: Roles and Responsibilities of Key Project Implementation Unit Staff

Position	Roles and Responsibilities
PIU Director	<ul style="list-style-type: none"> (i) Draft annual work programs for each output, based on design and monitoring framework, GAP, and agreed implementation plans and terms of reference appended to PAM, and submit them to the Project Focal Point and obtaining their agreements; (ii) Consult with the financial management specialist to monitor budgetary expenditure, review disbursement requests, prepare the annual budget and submit these to the Project Focal Point for agreement; (iii) Ensure the hiring of suitably qualified staff to implement all outputs in accordance with ADB requirements; (iv) Guide and collaborate with the relevant staff to monitor output implementation in accordance with the agreed work program described in PAM and appendices; (v) Attend, hold or participate in seminars, workshops, media events etc. to represent the project; (vi) Conduct site visits as required to monitor and correct implementation of the project; (vii) Develop and submit recommendations to the Project Focal Point to resolve issues which arise during project implementation; (viii) Support the Project Focal Point in the overall project management and preparation of reports for the Government and its relevant agencies; (ix) Manage all staff directly working on the project, including staff grievance procedures and make recommendations to the Project Focal Point on hiring decisions; (x) Coordinate with relevant key staff to maintain an overview of the day-to-day operations of the project; (xi) Provide operational support to key staff members in the implementation of their responsibilities; (xii) Draft a comprehensive project reporting system, submit it to the Project Focal Point for agreement and implementation; (xiii) Coordinate implementation of project outputs with the relevant project related agencies; (xiv) Draft O&M plans for MES's review and approval; (xv) Assist the Project Focal Point to coordinate interaction with relevant ministries and agencies, as may be required; (xvi) Liaise with local government administrations participating in the project to ensure successful implementation of project activities; (xvii) Draft project implementation reports and submit to the Project Focal Point for agreement and distribution; (xviii) Ensure Project website is established and maintained; (xix) Liaise with ADB staff and supervision missions to ensure successful completion of missions and ongoing project monitoring; and (xx) Implement recommendations of ADB supervision missions and associated aide-memoires, as agreed by the Project Focal Point.
Financial Management Specialist	<ul style="list-style-type: none"> (i) Responsible for recording, and monitoring of both ADB and Government funds; (ii) Ensure timely preparation of the annual audited project accounts and management audit report and submission to ADB within 6 months of financial year end; (iii) Authorize periodic and annual project financial statements, review and authorize bank reconciliation statements, and conduct budget monitoring reviews; (iv) Ensure adequate financial controls related to financial management and reporting; (v) Cooperate with the PIU Director to develop a strategy for guiding and supporting purchase operations made by the PIU in regard to project components; (vi) Maintain information on ADB disbursement guidelines, and other resources needed by staff in carrying out disbursements, advance account operation, SOE procedures; (vii) Support procurement specialists to negotiate and prepare standard bidding packages and specifications to evaluate, enter into contracts, oversee delivery, issue invoices, inspect/test procured items, and make payments to suppliers/contractors;

Position	Roles and Responsibilities
	<ul style="list-style-type: none"> (viii) Coordinate with the PIU Director, to develop and implement payment mechanisms and procedures to support purchases of goods, technical assistance, and construction services; and (ix) Communicate through the PIU Director information and/or documentation to the Government or ADB for their inspection, obtaining comments and/or for commencement of funding.
Disbursement Specialist	<ul style="list-style-type: none"> (i) Responsible for financing, funds flow arrangements, payments, and monitoring of the advance account; managing procedures for the advance account and SOE procedures; (ii) Establish program account(s) to manage and record utilization of project funds; (iii) Prepare withdrawal applications, statements of expenditures, and disbursement requests for replenishment of the advance accounts in accordance with provisions in ADB's <i>Loan Disbursement Handbook</i> (2017, as amended from time to time); (iv) Maintain payment records of all invoices received; (v) Ensure that payments for all program related expenditures are made in a timely manner; (vi) Ensure that adequate financial controls for fund management and reporting; and (vii) Perform other related functions, duties, and tasks as may be requested by PIU Director.
Environment Specialist	<ul style="list-style-type: none"> (i) Coordinate daily environmental safeguards related activities; (ii) Ensure the project complies with all measures and requirements set forth in the EARF, IEE, and any corrective or preventive actions set forth in a safeguards monitoring report; (iii) Conduct review of proposed subprojects for eligibility according to the EARF and subproject selection criteria; (iv) Ensure statutory clearances and permits are obtained in a timely manner; (v) Prepare environmental safeguard documents including safeguards-related action plans for implementation, as per EARF and required by ADB Safeguards Policy Statement and relevant government laws, rules and regulations; (vi) Ensure environmental safeguard documents such as the EARF, IEE, environmental due diligence reports, environmental management plans, monitoring reports and corrective action plans are prepared and updated according to latest environmental conditions, subproject designs, and feedback from project stakeholders; (vii) Ensure IEEs are included in the bid and contract documents and key provisions from the environmental management plans (EMPs) are highlighted in the main sections; (viii) Coordinate with team members and other experts during bid and technical evaluation to ensure sufficient resources are allocated by bidders/contractors for safeguard compliance and EMP implementation during execution of works; (ix) Coordinate with the Social Safeguards Officer on the establishment of project GRM and ensure all project staff, consultants and contractors are provided with regular briefings on GRM, complaints/grievances received and status of resolution; (x) Ensure contractors and subcontractors are provided with safeguards orientation prior to start of works and on a regular basis as needed. (xi) Ensure safeguards documents and related information are disclosed on project website/s, notice boards, and project sites in form and language understandable by stakeholders and project-affected people; and (xii) Prepare safeguards monitoring report for submission to ADB.
Resettlement Specialist	<ul style="list-style-type: none"> (i) Conduct review of prospective project works sites for eligibility according to the LARF and subproject selection criteria; (ii) Ensure the project complies with all measures and requirements set forth in the LARF, LARP, and any corrective or preventive actions set forth in a safeguards monitoring report; (iii) Ensure preparation of due diligence report and/or LARP for additional subprojects and other works (including meaningful consultations and GRM establishment); (iv) Ensure that LARP will be updated during detailed design; (v) Ensure that bidding documents, capacity building programs, demonstration activities, and any other activities include all requirement to implement LARP and GAP; (vi) Ensure that the bidder selected will have adequate resources to implement and update LARP and GAP; (vii) Undertake social safeguards and gender monitoring activities and prepare social safeguard and gender reports to be submitted to ADB; and (viii) Ensure that works are implemented in accordance with ADB Safeguards Policy Statement (2009) as well as the government law and regulation related to resettlement.
Procurement Specialists	<ul style="list-style-type: none"> (i) Develop an operational manual covering the procurement policies, procedures and standard documents to minimize cost and ensure a scheduled carrying out of procurement activities in line with the requirements of the Government and ADB; (ii) Ensure gender-responsive and social-inclusive tendering and execution of civil works;

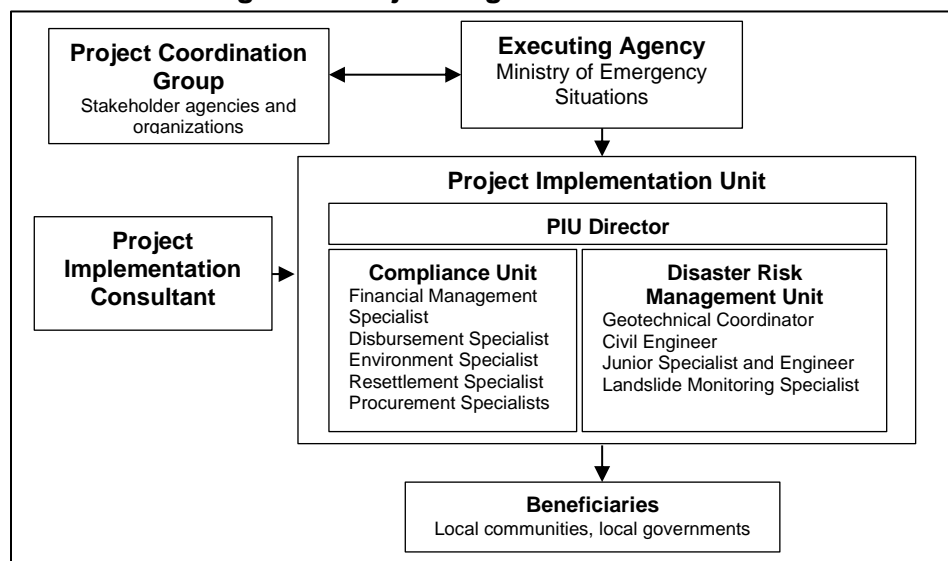
Position	Roles and Responsibilities
	<ul style="list-style-type: none"> (iii) Maintain an information database on procurements of technical services, suppliers of equipment, ADB procurement guidelines, standard and model bidding documents, and other resources needed by staff in carrying out project components; (iv) Negotiate and prepare standard bidding packages and specifications to evaluate, enter into contracts, oversee delivery, issue invoices, inspect/test procured items, and make payments to suppliers/contractors; (v) Establish a monitoring system for overseeing project procurement actions, coordinating necessary approvals or correcting shortcomings in procedures, and monitoring and managing progress and deliverables of approved contracts; (vi) Prepares updated procurement plan (18-month timeframe) and submits to PIU Director for ADB review and approval; and (vii) Communicate through the PIU Director information and/or documentation to the Government or ADB for their inspection, obtaining comments and/or for commencement of funding.
Geotechnical Coordinator/ Junior Geotechnical Specialist	<ul style="list-style-type: none"> (i) Serve as coordinator for all activities including design and construction of all civil works, delivery of goods, services, and capacity building; (ii) Support development and implementation for monitoring and evaluation system for output implementation; (iii) Reconfirm, monitor, update, and report: (a) activities with milestones, performance targets and indicators with baselines, all of which are defined in the Design and Monitoring Framework, (b) requirements indicated in the Summary Poverty Reduction and Social Strategy, and (c) GAP; (iv) Review and verify deliverables and claims of suppliers of civil works, goods, services, and capacity building and report/submit to PIU Director; (v) Prepare prioritization and selection of additional subprojects in line with agreed criteria for approval by PIU Director; (vi) Organize and conduct local consultation seminars, workshops, and training sessions; (vii) Report any deviations from the work plan to the PIU Director; (viii) Support the PIU Director for the execution of the outputs 1 and 2; (ix) Identify any operational problems and raise them with the PIU Director; (x) Coordinate with district MES office, local governments to resolve any issues in implementing outputs and inform them of the outputs status; (xi) Organize orientation or training programs to educate project participants; and (xii) Cooperate with the PIU Director to draft an annual work plan for the PIU, which will be submitted to the Project Focal Point for approval.
Civil Engineers	<ul style="list-style-type: none"> (i) Support Geotechnical Coordinator in planning, management, and implementation of all outputs with focus on civil works; (ii) Organize and conduct local consultation seminars, workshops, and training sessions; (iii) Lead feasibility study and detailed design of civil works ensuring adequacy and eligibility of site selection. (iv) Support preparation of bidding documents including on specifications. (v) Support monitoring and reporting of activities and supervision of civil works and preparation of periodic reporting.
Landslide Monitoring Specialist	<ul style="list-style-type: none"> (i) Support Geotechnical Coordinator in planning, management, and implementation of all outputs with focus on implementation and integration of landslide monitoring activities. (ii) Organize and conduct local consultation seminars, workshops, and training sessions; (iii) Lead feasibility study and detailed design of monitoring activities ensuring adequate integration with civil works (on-site monitoring) and IT systems (national-level monitoring). (iv) Support preparation of bidding documents including on specifications. (v) Support monitoring and reporting of all activities and preparation of periodic reporting.

ADB = Asian Development Bank, EARF = environmental assessment and review framework, EMP = environmental management plan, GAP = gender action plan, IEE = initial environmental examination, GRM = grievance redressal mechanism, LARF = land acquisition and resettlement framework, LARP = land acquisition and resettlement plan, MES = Ministry of Emergency Situations, O&M = operation and maintenance, PAM = project administration manual, PIU = Project Implementation Unit, SOE = statement of expenditure.

Source: Asian Development Bank.

C. Project Organization Structure

Figure 1: Project Organization Structure



Note: PIU additionally includes support staff
Source: Asian Development Bank.

D. Selection and Approval of Civil Works Subprojects

14. In accordance with the ADB sector modality approach, subprojects under Output 1 will be selected and prepared for implementation in line with the following procedures and subject to project budget. A feasibility study has already been prepared for one representative landslide risk management subproject in Ayu Village. Subprojects (sites) may be grouped together as appropriate into individual civil works procurement packages.

1. Subproject Eligibility Criteria

15. The PIU with support of the PIC will identify, evaluate, and select civil works subprojects based on the following criteria: (i) alignment of subproject objectives with the overall purpose of the project; (ii) quality and resilience standards; (iii) safeguards compliance; and (iv) economic viability and financial sustainability.

Criterion 1: Subproject Objectives

16. A subproject will be selected if:

- (i) It will physically mitigate the risks of landslide to households, infrastructure, and economic activities consistent with the project design and monitoring framework (DMF) and gender action plan (GAP) (see Sections VIII and IX below); and
- (ii) It will not finance deferred O&M activities.

Criterion 2: Quality Control Standards

17. Risk mitigation subprojects will incorporate (i) best practices in disaster risk reduction and management, (ii) multi-hazard resistance standards (as applicable), and (iii) lessons learned

from previous landslides and/or similar projects in the country or region. The PIU with support of the PIC will (i) consider a range of technical alternatives and select options based on life-cycle costs and economic viability; (ii) actively seek to maximize community consultation engagement in site selection, planning, design and construction, and subsequent O&M, with emphasis on the participation of women and female-headed households; (iii) minimize adverse environmental and social impacts including seeking to restore vegetation, land access, and land use to pre-mitigation conditions following subproject completion; (iv) optimize timescales for implementation within and across subprojects; and (v) ensure safe site handover and O&M including any subsequent third-party construction within the previously at-risk areas.

Criterion 3: Environmental and Social Safeguards

18. Subprojects will conform with ADB's SPS 2009 with respect to social and environment considerations. Subprojects with significant environmental and/or involuntary resettlement impact (category A) will be excluded. Subprojects with activities described in ADB's Prohibited Investment Activities List (Appendix 5 of ADB's SPS 2009) will also be excluded.

Environment

19. The following subprojects are not eligible for funding under the project:
- (i) Subprojects classified as Category A per ADB's SPS 2009.
 - (ii) Subprojects located in or with foreseeable adverse impacts on any critical habitat or legally protected area.
 - (iii) Subprojects that fall in part or in whole within an area supporting high biodiversity value.⁷
 - (iv) Subprojects associated with uranium mining sites.

20. Subprojects will be screened and assessed based on procedures defined in the Project's environmental assessment and review framework (EARF).⁸

Social Safeguards (Resettlement)

21. Involuntary resettlement is considered when the affected persons have no right to refuse the land acquisition by the government that result in their displacement. This occurs when land is acquired through (i) expropriation by invoking the eminent domain power of the state or (ii) land is acquired through negotiated settlement when the pricing is negotiated in a process where expropriation will be the consequence of a failure in the negotiation.

22. Subprojects with significant impacts classified as Category A for involuntary resettlement per ADB's SPS 2009 are not eligible for funding under the project. Significant impact is defined as 200 or more persons being physically displaced from housing; and/or 200 or more persons losing 10% or more of their productive (income generating) assets. Subprojects should avoid or minimize permanent land acquisition and resettlement as assessed at the time of subproject selection. In some instances, subprojects may feature loss of land (changes in land size) due to deep trenches, re-shaping, etc. to be assessed during subproject design and implementation.

23. Subprojects will be screened and assessed based on procedures defined in the Project's

⁷ Key Biodiversity Areas as defined in the World Database of Key Biodiversity Areas.

⁸ EARF (accessible from the list of linked documents in Appendix 2 of the Report and Recommendation of the President). Available online: <https://www.adb.org/projects/53022-001/main>

land acquisition and resettlement review framework (LARF).⁹

Criteria 4: Economic Viability and Financial Sustainability

24. Subprojects must be shown to be economically viable and financially sustainable. Economic viability and/or cost effectiveness should be assessed in line with the ADB *Guidelines for the Economic Analysis of Projects* (2017).¹⁰ Subproject economic internal rate of return should ideally be above 9%, minimum 6%. Benefits that cannot be adequately quantified in monetary terms should be well documented. Financial sustainability of the subproject O&M should be confirmed.

2. Prior Review and Approval by ADB

25. Subprojects to be undertaken under the project will be subject to prior review and approval by ADB.

26. Prior to conducting site specific feasibility studies, the PIU will submit for ADB review an initial assessment of prospective subprojects against the four eligibility criteria using best available information and/or informed estimates. The report will follow the general structure in Appendix 3 of this PAM.

27. Prior to conducting detailed engineering design and preparing bidding documents, PIU will submit for ADB review: (i) socio-economic baseline survey of target community; (ii) technical feasibility study with associated studies, cost estimates, and recommended safety measures; (iii) initial environmental examinations (IEE) and environmental management plan (EMP) as required; (iv) land acquisition and resettlement plan (LARP) and/or due diligence report as required; (v) economic and financial analysis; and (vi) reconfirmation of subproject eligibility against four eligibility criteria. The report will again follow the general structure in Appendix 3 of this PAM.

3. Procedures

28. Each selected subproject will be prepared and processed in accordance with the following procedures.

29. **Subproject preparation and implementation** including on-site monitoring and safety measures will (i) seek to incorporate best practice techniques and technologies, and (ii) follow the approach and guidance of the technical feasibility study for the Ayu Village representative subproject and the draft asset management and O&M plan prepared during project processing.¹¹ A summary of the approach and guidelines is provided in Appendix 4 of this PAM. The PIU with the support of the PIC will identify relevant studies and surveys to be undertaken for the technical feasibility study. The following process is expected to be implemented:

- (i) Geophysical, geological, topographical, and geotechnical surveys and investigations, including of the groundwater table.

⁹ LARF (accessible from the list of linked documents in Appendix 2 of the Report and Recommendation of the President). Available online: <https://www.adb.org/projects/53022-001/main>

¹⁰ Available online: <https://www.adb.org/documents/guidelines-economic-analysis-projects>

¹¹ Technical Feasibility Study: Ayusai Subproject and Asset Management and O&M Plan (accessible from the list of linked documents in Appendix 2 of the Report and Recommendation of the President). Available online: <https://www.adb.org/projects/53022-001/main>

- (ii) Laboratory testing of soil and rock samples, with international lab testing for complex sites where required.
- (iii) Installation of monitoring systems (e.g., piezometers) for monitoring of landslide site before, during, and/or after the works.
- (iv) Preliminary/concept design and detailed technical design considering future climate risks.
- (v) Environment and social safeguards due diligence.
- (vi) Preliminary preparatory works.
- (vii) Slope stabilization works with good and continuous site supervision by qualified experts.¹²
- (viii) Preparation and construction of soil disposal site, in the case of unloading.
- (ix) Regreening/revegetation of works site.
- (x) Monitoring and maintenance.

30. Prior to the completion of each landslide risk mitigation site, the PIU with support of the PIC will prepare an updated site-specific sustainable asset management and O&M plan and budget, to be adopted and implemented by MES. The plan will include, but not be limited to: (i) required near-term monitoring, physical remediation, and regreening activities; (ii) long-term O&M activities; (iii) acceptable timelines for subsequent third-party construction or land use within the previously at-risk areas; (iv) budget and cost-sharing; and (v) mapping of responsible agencies.

31. **Environmental and Social Safeguards** will be prepared in line with requirements outlined in Section VII below.

32. **Economic and Financial analysis.** The PIU, with support from PIC, will conduct economic and financial analysis of each subproject according to ADB *Guidelines for the Economic Analysis of Projects* (2017) and ADB *Preparing and Presenting Cost Estimates for Projects and Programs Financed by the Asian Development Bank* (2014). Feasibility-level economic and financial analysis has already been prepared for the Ayu Village subproject, which is among the largest of long-listed subprojects covering two landslides.¹³ The analysis is expected to include cost-benefit analysis, analysis of alternatives, sustainability analysis, risk and sensitivity analysis, analysis of distribution of project costs and benefits, and identification of indicators and baselines for project design and monitoring framework. The analysis will confirm that adequate funds are available for O&M of the various facilities created with project funds.

33. **Socio-economic and Gender Assessment** will be conducted to ensure appropriate alignment of the subproject with overall project objectives and targets, identify gender-disaggregated baseline indicators, and support community consultation process. The assessment should include, but may not be limited to: (i) demographic profile of communities and landslide vulnerability and exposure in the project area; (ii) gender differences in access to economic resources; (iii) mobility patterns of women and men, means of transportation used by women and men, girls and boys; (iv) women's community involvement and leadership, including in local governance and disaster risk management, if any, or in any civil society organization; and (v) mapping of stakeholders, identifying where women are and their extent of involvement as

¹² We cannot expect that a contractor will complete the works simply by "reading" the design. This will likely require the presence of an international expert, depending on level of expertise of local engineers.

¹³ Detailed Economic and Financial Analysis (accessible from the list of linked documents in Appendix 2 of the Report and Recommendation of the President). Available online: <https://www.adb.org/projects/53022-001/main>

stakeholders. Hazard mapping should include gender as one of the factors being considered, to identify where women and children are at certain times of the day.

4. Staffing Support

34. MES shall ensure that (a) all reports, standards, procedures, guidelines and training materials developed under the project are developed in a timely manner, and by integrating local and international learning and good practices; (b) the personnel nominated and appointed for the training and capacity building activities under the project are fully qualified and have the expertise to provide the requisite training and capacity building; and (c) each training and capacity building activity under the project is adequately staffed with qualified personnel.

35. MES shall ensure that all divisions, offices and units, including associated entities and centers, that receive and operate the equipment, platforms and databases, monitoring systems or warning systems installed, established or provided under the project are adequately staffed with personnel who have been fully trained for such operation and maintenance, in accordance with the requirements of the project.

IV. COSTS AND FINANCING

36. The project is estimated to cost \$39.0 million. The government has requested (i) a concessional loan of \$11.5 million from ADB's ordinary capital resources; and (ii) a grant not exceeding \$23.5 million from ADB's Special Funds resources (Asian Development Fund) to help finance the project.¹⁴ ADB will finance the expenditures in relation to: civil works, goods, consulting services, gross remuneration of PIU staff (inclusive of income and social tax), and land acquisition and resettlement.¹⁵ The government contribution is estimated at \$4.0 million equivalent for (i) exemptions of taxes and duties on civil works, goods, and services; (ii) cash contributions for non-resident income tax of international consultants; and (iii) in-kind contribution of houses for temporary resettlement.

A. Cost Estimates Preparation and Revisions

37. Cost estimates were prepared by the consultant financed under the project preparation transactional technical assistance.¹⁶ Cost estimates will be revised by the PIU with support of the PIC during feasibility study and/or preparation of bidding documents.

B. Key Assumptions

38. The following key assumptions underpin the cost estimates and financing plan:

- (i) Exchange rate: 82.84 som = \$1.00 (31 December 2020).
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

¹⁴ The grant is from the ADF-13 Thematic Pool for Disaster Risk Reduction and Climate Adaptation. The ADB financing will be disbursed on a pro-rata basis.

¹⁵ See para 72.

¹⁶ ADB. 2019. *Preparing the Landslide Risk Management Sector Project*. Manila. (TA 9726-KGZ).

Table 7: Escalation Rates for Price Contingency Calculation

Item	2020	2021	2022	2023	2024	2025	2026	2027	2028	Average
Foreign rate of price inflation	(0.5%)	1.6%	1.7%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%	1.5%
Domestic rate of price inflation	7.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.3%

Source: Asian Development Bank.

C. Detailed Cost Estimates by Expenditure Category**Table 8: Estimated Foreign and Local Costs by Expenditure Category**
(\$'000)

	Foreign Currency	Local Currency	Total
A. Investment Cost			
1. Civil Works	6,593	18,028	24,620
2. Equipment	1,908	467	2,375
3. Study, survey, design, and supervision ^a	479	2,345	2,823
4. Training and workshops	0	134	134
5. Consulting services ^b	945	467	1,411
6. Land acquisition and resettlement ^c	0	2,044	2,044
Subtotal	9,924	23,484	33,408
B. Recurrent Cost			
1. PIU salaries	0	861	861
2. Operation and maintenance ^d	19	194	213
3. PIU office equipment and vehicles	20	208	229
4. Audit	140	17	157
Subtotal	179	1,280	1,460
Total Base Cost	10,104	24,764	34,868
C. Contingencies			
1. Physical	449	1,100	1,549
2. Price	627	1,537	2,164
Subtotal	1,076	2,637	3,713
D. Finance Charges During Implementation			
1. Interest	419	0	419
2. Commitment	0	0	0
Subtotal	419	0	419
Total Project Cost (A+B+C+D)	11,598	27,402	39,000

^a Includes site investigations, design, and construction supervision.^b Consulting inputs for capacity building and due diligence.^c Government costs comprise in-kind provision of temporary houses.^d Includes environmental monitoring, grievance redressal, public communication costs, and software subscriptions.

Note: Amounts may not tally precisely due to rounding.

Source: Asian Development Bank.

D. Allocation and Withdrawal of Loan and Grant Proceeds**Table 9: Allocation and Withdrawal of Loan Proceeds**

Category			Percentage and Basis for Withdrawal from the Loan Account
Number	Item	Amount Allocated (\$)	
1	Civil Works ^a	9,923,343	45.16% of total expenditure claimed.*
2	Interest during implementation	418,876	
3	Unallocated	1,157,781	
	Total	11,500,000	

* Exclusive of taxes and duties imposed within the territory of the Borrower.

^a Cost is shared between loan and grant in a pro-rata arrangement.

Source: Asian Development Bank.

Table 10: Allocation and Withdrawal of Grant Proceeds

Category			Percentage and Basis for Withdrawal from the Grant Account
Number	Item	Amount Allocated (\$)	
1	Civil Works ^a	12,051,723	54.84% of total expenditure claimed.*
2	Goods (Equipment); Consulting Services; study, survey, design and supervision; audit services; PIU expenditures; Seminars and Workshops; O&M	7,414,948	100.00% of total expenditure claimed.*
3	Land acquisition and resettlement	1,862,582	100.00% of total expenditure claimed.
4	Unallocated	2,170,747	
	Total	23,500,000	

* Exclusive of taxes and duties imposed within the territory of the Recipient.

^a Cost is shared between loan and grant in a pro-rata arrangement.

Source: Asian Development Bank.

E. Detailed Cost Estimates by Financier

Table 11: Detailed Cost Estimates by Financier
(\$'000)

	ADB Loan		ADF Grant		Government		Total	Taxes and Duties
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category		
A. Investment Cost								
1. Civil Works	9,923	40%	12,052	49%	2,645	11%	24,620	2,645
2. Equipment	0	0%	2,120	89%	255	11%	2,375	255
3. Study, survey, design, and supervision ^a	0	0%	2,520	89%	303	11%	2,823	303
4. Training and workshops	0	0%	120	89%	14	11%	134	14
5. Consulting services ^b	0	0%	1,260	89%	152	11%	1,411	152
6. Land acquisition and resettlement ^c	0	0%	1,863	91%	181	9%	2,044	107
Subtotal	9,923	30%	19,934	60%	3,551	11%	33,408	3,477
B. Recurrent Cost								
1. PIU salaries	0	0%	861	100%	0	0%	861	163
2. Operation and maintenance ^d	0	0%	190	89%	23	11%	213	23
3. PIU office equipment and vehicles	0	0%	204	89%	25	11%	229	25
4. Audit	0	0%	140	89%	17	11%	157	17
Subtotal	0	0%	1,395	96%	64	4%	1,460	211
Total Base Cost	9,923	28%	21,329	61%	3,615	10%	34,868	3,688
C. Contingencies								
1. Physical	496	32%	886	57%	166	11%	1,549	166
2. Price	662	31%	1,284	59%	218	10%	2,164	226
Subtotal	1,158	31%	2,171	58%	385	10%	3,713	392
D. Finance Charges During Implementation								
1. Interest	419	100%	0	0%	0	0%	419	0
2. Commitment	0		0		0		0	0
Subtotal	419	100%	0	0%	0	0%	419	0
Total Project Cost (A+B+C+D)	11,500	29%	23,500	60%	4,000	10%	39,000	4,080

ADB = Asian Development Bank, ADF = Asian Development Fund.

^a Includes site investigations, design, and construction supervision.

^b Consulting inputs for capacity building and due diligence.

^c Government costs comprise in-kind provision of temporary houses.

^d Includes environmental monitoring, grievance redressal, public communication costs, and software subscriptions.

Note: Amounts may not tally precisely due to rounding.

Source: Asian Development Bank.

F. Detailed Cost Estimates by Output

**Table 12: Detailed Cost Estimates by Output
(\$'000)**

	Output 1		Output 2		Output 3		Total
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	
A. Investment Cost							
1. Civil Works	24,620	100%	0	0%	0	0%	24,620
2. Equipment	0	0%	2,375	100%	0	0%	2,375
3. Study, survey, design, and supervision ^a	2,130	75%	661	23%	32	1%	2,823
4. Training and workshops	34	25%	34	25%	67	50%	134
5. Consulting services ^b	693	49%	449	32%	270	19%	1,411
6. Land acquisition and resettlement ^c	2,044	100%	0	0%	0	0%	2,044
Subtotal	29,520	88%	3,519	11%	369	1%	33,408
B. Recurrent Cost							
1. PIU salaries	287	33%	287	33%	287	33%	861
2. Operation and maintenance ^d	56	26%	157	74%	0	0%	213
3. PIU office equipment and vehicles	76	33%	76	33%	76	33%	229
4. Audit	52	33%	52	33%	52	33%	157
Subtotal	472	32%	572	39%	416	28%	1,460
Total Base Cost	29,992	86%	4,092	12%	785	2%	34,868
C. Contingencies							
1. Physical	1,356	88%	174	11%	19	1%	1,549
2. Price	1,916	89%	217	10%	31	1%	2,164
Subtotal	3,272	88%	392	11%	50	1%	3,713
D. Finance Charges During Implementation							
1. Interest	419	100%	0	0%	0	0%	419
2. Commitment	0		0		0		0
Subtotal	419	100%	0	0%	0	0%	419
Total Project Cost (A+B+C+D)	33,682	86%	4,483	11%	835	2%	39,000

^a Includes site investigations, design, and construction supervision.

^b Consulting inputs for capacity building and due diligence.

^c Government costs comprise in-kind provision of temporary houses.

^d Includes environmental monitoring, grievance redressal, public communication costs, and software subscriptions.

Note: Amounts may not tally precisely due to rounding.

Source: Asian Development Bank.

G. Detailed Cost Estimates by Year**Table 13: Detailed Cost Estimates by Year**
(\$'000)

	Total	2021	2022	2023	2024	2025	2026	2027	2028
A. Investment Cost									
1. Civil Works	24,620	0	718	6,873	7,967	7,249	1,812	0	0
2. Equipment	2,375	0	215	869	645	645	0	0	0
3. Study, survey, design, and supervision ^a	2,823	34	1,062	1,308	148	125	92	55	0
4. Training and workshops	134	0	12	26	26	26	26	20	0
5. Consulting services ^b	1,411	98	279	261	261	243	145	123	0
6. Land acquisition and resettlement ^c	2,044	0	0	511	511	511	511	0	0
Subtotal	33,408	132	2,286	9,848	9,559	8,800	2,586	198	0
B. Recurrent Cost									
1. PIU salaries	861	0	151	135	135	135	135	135	36
2. Operation and maintenance ^d	213	0	14	39	39	39	39	39	5
3. PIU office equipment and vehicles	229	133	12	16	16	16	16	16	4
4. Audit	157	0	22	22	22	22	22	22	22
Subtotal	1,460	133	199	212	212	212	212	212	67
Total Base Cost	34,868	264	2,485	10,060	9,771	9,012	2,798	410	67
C. Contingencies									
1. Physical	1,549	11	107	462	447	410	102	9	1
2. Price	2,164	2	61	439	614	742	270	32	4
Subtotal	3,713	13	168	901	1,062	1,152	372	41	5
D. Finance Charges During Implementation									
1. Interest	419	0	0	8	41	81	103	106	79
2. Commitment	0	0	0	0	0	0	0	0	0
Subtotal	419	0	0	8	41	81	103	106	79
Total Project Cost (A+B+C+D)	39,000	277	2,653	10,970	10,873	10,245	3,273	557	152

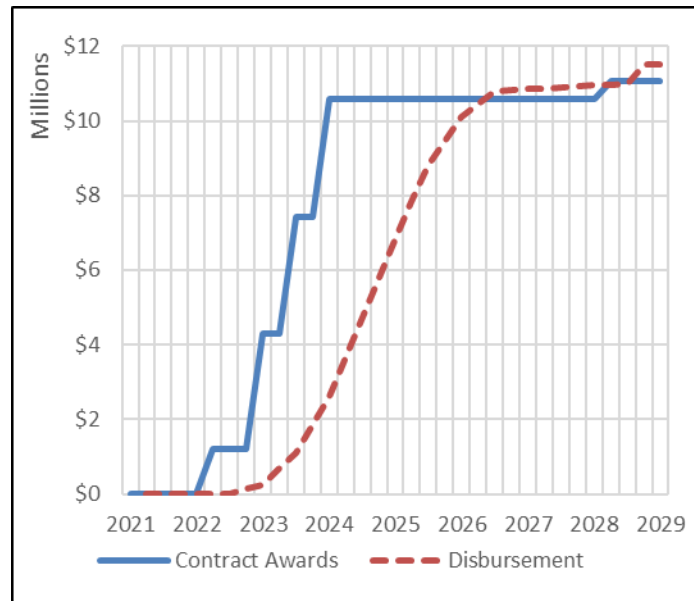
^a Includes site investigations, design, and construction supervision.^b Consulting inputs for capacity building and due diligence.^c Government costs comprise in-kind provision of temporary houses.^d Includes environmental monitoring, grievance redressal, public communication costs, and software subscriptions.

Note: Amounts may not tally precisely due to rounding.

Source: Asian Development Bank.

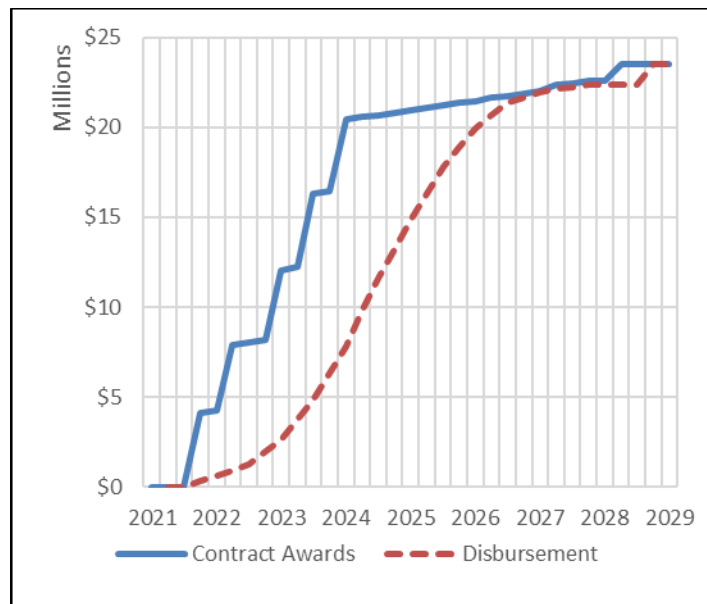
H. Contract and Disbursement S-Curve

Figure 2: Contract Award and Disbursement S-Curve (Loan)

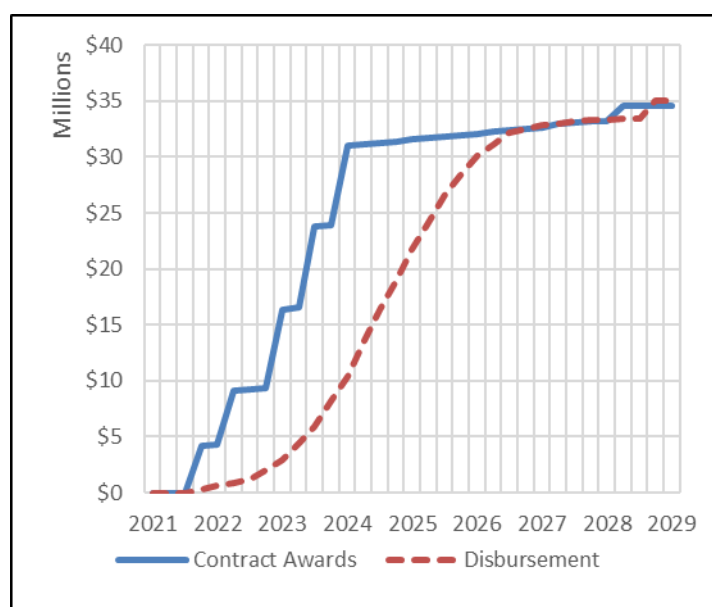


Source: Asian Development Bank.

Figure 3: Contract Award and Disbursement S-Curve (ADF Grant)



ADF = Asian Development Fund.
Source: Asian Development Bank.

Figure 4: Contract Award and Disbursement S-Curve (Loan and ADF Grant)

ADF = Asian Development Fund.

Source: Asian Development Bank.

Table 14: Quarterly Contract Award and Disbursements (Loan)

Projections for Contract Award (\$ million)						Projections for Disbursement (\$ million)					
Year	Q1	Q2	Q3	Q4	Total	Year	Q1	Q2	Q3	Q4	Total
2021	0.00	0.00	0.00	0.00	0.00	2021	0.00	0.00	0.00	0.00	0.00
2022	0.00	1.21	0.00	0.00	1.21	2022	0.00	0.00	0.00	0.12	0.12
2023	3.10	0.00	3.11	0.00	6.20	2023	0.12	0.43	0.43	0.75	1.73
2024	3.17	0.00	0.00	0.00	3.17	2024	0.75	1.07	1.07	1.07	3.96
2025	0.00	0.00	0.00	0.00	0.00	2025	1.08	0.96	0.96	0.65	3.64
2026	0.00	0.00	0.00	0.00	0.00	2026	0.65	0.34	0.34	0.03	1.36
2027	0.00	0.00	0.00	0.00	0.00	2027	0.03	0.03	0.03	0.03	0.11
2028	0.00	0.50	0.00	0.00	0.50	2028	0.03	0.03	0.03	0.50	0.58
Total					11.08	Total					11.50

Source: Asian Development Bank.

Table 15: Quarterly Contract Award and Disbursements (ADF Grant)

Projections for Contract Award (\$ million)						Projections for Disbursement (\$ million)					
Year	Q1	Q2	Q3	Q4	Total	Year	Q1	Q2	Q3	Q4	Total
2021	0.00	0.00	0.00	4.14	4.14	2021	0.00	0.00	0.00	0.29	0.29
2022	0.13	3.66	0.13	0.13	4.04	2022	0.31	0.31	0.31	0.71	1.64
2023	3.89	0.15	4.11	0.13	8.28	2023	0.71	1.11	1.09	1.49	4.40
2024	3.97	0.15	0.13	0.13	4.38	2024	1.49	1.90	1.88	1.62	6.89
2025	0.13	0.15	0.13	0.13	0.53	2025	1.62	1.50	1.47	1.07	5.67
2026	0.13	0.15	0.13	0.13	0.53	2026	1.07	0.72	0.69	0.31	2.79
2027	0.13	0.35	0.13	0.13	0.73	2027	0.31	0.15	0.13	0.13	0.71
2028	0.00	0.89	0.00	0.00	0.89	2028	0.00	0.03	0.00	1.08	1.11
Total					23.50	Total					23.50

ADF = Asian Development Fund.
Source: Asian Development Bank.

Table 16: Quarterly Contract Award and Disbursements (Loan and ADF Grant)

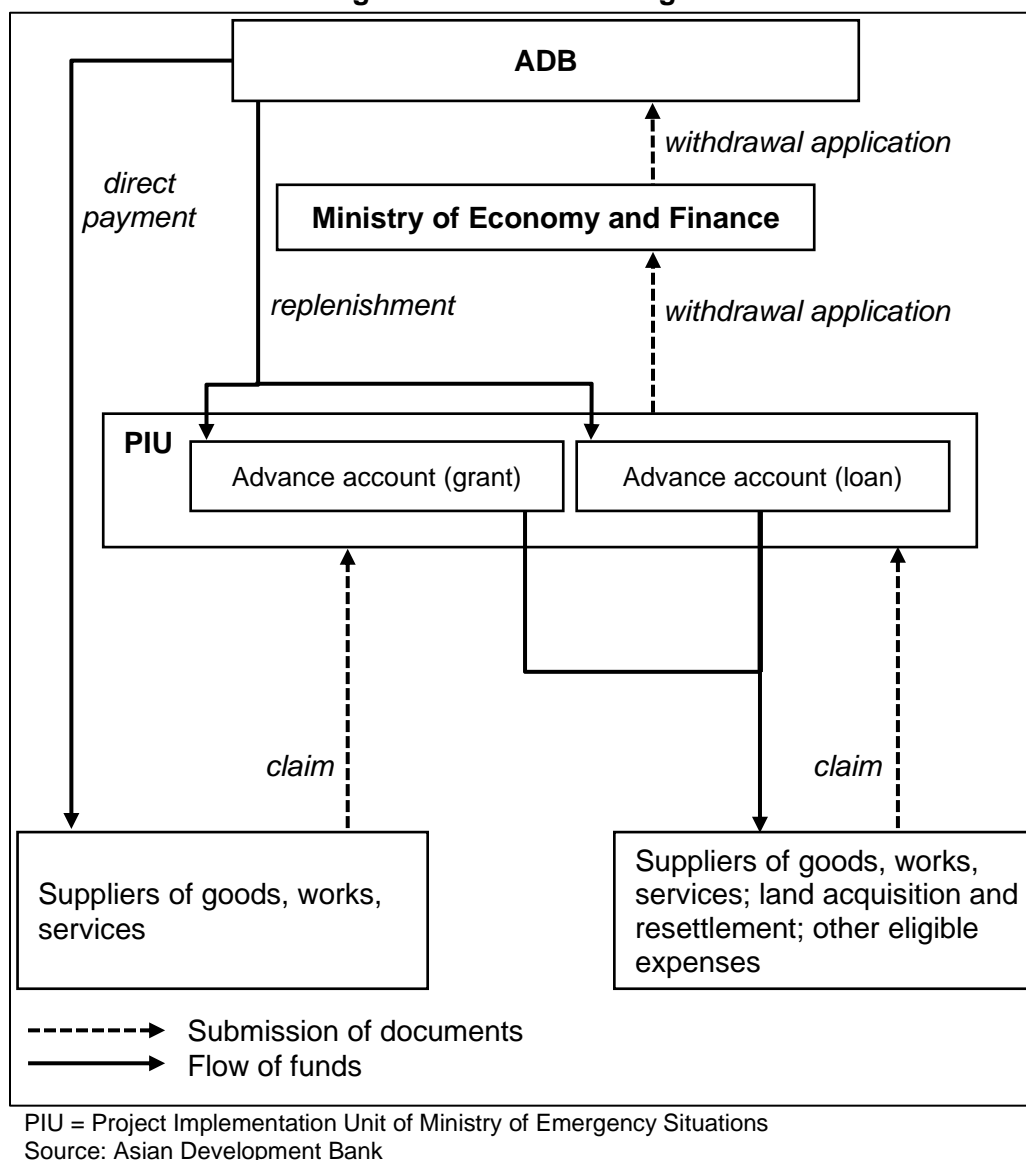
Projections for Contract Award (\$ million)						Projections for Disbursement (\$ million)					
Year	Q1	Q2	Q3	Q4	Total	Year	Q1	Q2	Q3	Q4	Total
2021	0.00	0.00	0.00	4.14	4.14	2021	0.00	0.00	0.00	0.29	0.29
2022	0.13	4.87	0.13	0.13	5.25	2022	0.31	0.31	0.31	0.83	1.76
2023	6.98	0.15	7.22	0.13	14.48	2023	0.83	1.54	1.52	2.24	6.13
2024	7.14	0.15	0.13	0.13	7.55	2024	2.24	2.97	2.95	2.69	10.85
2025	0.13	0.15	0.13	0.13	0.53	2025	2.70	2.46	2.43	1.72	9.31
2026	0.13	0.15	0.13	0.13	0.53	2026	1.72	1.06	1.04	0.34	4.16
2027	0.13	0.35	0.13	0.13	0.73	2027	0.34	0.18	0.15	0.15	0.82
2028	0.00	1.38	0.00	0.00	1.38	2028	0.03	0.05	0.03	1.58	1.68
Total					34.58	Total					35.00

ADF = Asian Development Fund.
Source: Asian Development Bank.

I. Fund Flow Diagram

39. The fund flow diagram in Figure 5 below shows how the funds will flow from ADB to implement project activities, and how documents for requests for disbursement will flow to ADB.

Figure 5: Fund Flow Diagram



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

40. The financial management assessment (FMA) was conducted in July and August 2020 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note. The FMA considered the capacity of MES, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. It is concluded that the overall pre-mitigation financial management risk of executing agency is *substantial*. The Financial Management Internal Control and Risk Management Assessment is found in Table 2 of the FMA linked document. The borrower and executing agency have agreed to implement an action plan as key measures to address the deficiencies. The financial management action plan is provided in Table 17. Taking into considerations the pre-mitigation risk and the financial management

action plan for risk mitigation, it is concluded that the capacity and suitability of MES through the PIU is adequate to utilize the advance fund and statement of expenditure procedures with the proposed ceilings described below, accompanied by the use of direct payment and reimbursement procedures.

Table 17: Financial Management Action Plan

Risks	Description	Rating	Actions	Responsibility	Timing
Staffing risk	Few professional accountants and staff who are trained in finance and accounting; limited opportunity for training.	S	PIU established with full-time financial management specialist and disbursement specialist. PIC will also be recruited under the project to support PIU staff in the conduct of financial management.	MES, PIC	Key PIU staff recruited within 15 days of loan and grant effectiveness. PIC mobilized within 30 days of loan and grant effectiveness.
Internal audit arrangements	Internal audit is with emphasis on investigation but without reviews of systems and processes.	S	MES to include the project in the annual internal audit plan and quarterly reports submitted to the Ministry of Economy and Finance. MES to promptly fill any future vacancies in the internal audit department with qualified staff.	MES, ADB	Quarterly basis from loan and grant effectiveness.
			ADB to recruit consultant to support MES to develop internal audit standard operating procedures prior to loan and grant effectiveness.	ADB	Prior to loan and grant effectiveness.
			Project implementation consultant to prepare quarterly review of project financial management systems.	MES, PIC	Quarterly basis starting second month after PIC mobilization.

Risks	Description	Rating	Actions	Responsibility	Timing
			ADB and PIC to provide training to MES internal audit staff to support long-term capacity.	MES, PIC, ADB	Ongoing
External audit	Auditing of financial statements is not fully compliant with ADB's requirements.	S	The project financial statements will be audited by an independent auditor in accordance with international auditing standards. The auditor's terms of reference will be prepared according to ADB's guidelines and approved by ADB before the engagement.	MES, ADB	The auditor's terms of reference will be prepared by MES and approved by ADB by 31 January of the year in which first audit is undertaken. The auditor to be recruited earlier for 3 years to ensure timeliness of compliance.
Financial and operational risk	Project financial management policies and procedures/financial covenants of the legal agreement are not fully followed.	S	ADB consultant will support MES to develop project financial management manual along with tools and templates, develop FM job descriptions, set up accounting software, and conduct FM trainings prior to loan and grant effectiveness.	ADB, MES	Prior to loan and grant effectiveness
			Project implementation consultant to prepare quarterly review of project financial management systems.	ADB, MES	Quarterly basis starting second month after PIC mobilization.
			PIC and ADB will provide financial management training on ADB's requirements on disbursement, financial reporting	MES, PIC, ADB	Ongoing basis

Risks	Description	Rating	Actions	Responsibility	Timing
			and audit requirements.		
			MES senior leadership and FM staff will maintain supervision and control over project bank reconciliation statements.	MES	Ongoing basis
Compliance risk	Project financial management policies and procedures/financial covenants of the legal agreement are not fully followed.	S	ADB consultant to prepare financial management manual along with tools and templates.	MES, ADB	Prior to loan and grant effectiveness.
			Project implementation consultant to prepare quarterly review of project financial management systems.		Quarterly basis starting second month after PIC mobilization.
Financial management for O&M.	Financial management of MES and budget allocation may be inadequate for optimal and sustainable O&M.	S	O&M plans and budgets, including identified roles and responsibilities, will be developed and refined during project implementation.	MES, PIC	Prior to completion of each subproject or site.
			PIC will provide training to MES staff on O&M and financial management of O&M to strengthen their internal asset management systems, records, and safeguards.	MES, PIC	Training commenced in Q1 2023 as part of output 3 capacity building program.
Budget execution risk	Possible delay in budget appropriation and actual expenditure deviating from budget	M	Expenditures against budget are monitored monthly. Any deviations from approved budget require justification	MES	Monthly basis during project implementation.

Risks	Description	Rating	Actions	Responsibility	Timing
	estimates, especially due to negative effects on state budget revenues from COVID-19.		and approval within 15 days.		
Incomplete and inaccurate financial reporting and delay in financial reporting	Financial reports are not prepared properly and timely. Risk of pirated versions of 1C software being procured and installed, which increases the risk.	S	PIU to acquire off-the-shelf accounting software for the project. Licensed version should be procured from legitimate 1C software supplier who would provide maintenance of the software during specified period.	MES	Financial management system, including software installation, established within 1 month of effectiveness.
Asset control risk	Chances of fraud or misappropriation of assets. Malpractice and abuse of internal control procedures by employees.	M	Internal audit will cover the project. Timely annual external audit is mandatory for the project during implementation. Assets will be appropriately labelled and recorded. Fixed asset register will be maintained and updated regularly; regular physical counts will be conducted and reconciled with registers; only authorized personnel will be allowed access and use of the assets.	MES	Ongoing
			PIC will provide training to MES staff on O&M and financial management of O&M.	MES, PIC	Training commenced in Q1 2023.

ADB = Asian Development Bank, MES = Ministry of Emergency Situations, M = moderate, O&M = operation and maintenance, PIC = project implementation consultant, PIU = project implementation unit, S = substantial.

B. Disbursement

1. Disbursement Arrangements for ADB Funds

41. The concessional loan and ADF grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),¹⁷ and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.¹⁸ Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

42. The PIU will be responsible for (i) preparing disbursement projections; (ii) requesting budgetary allocations for counterpart funds from MOF; (iii) collecting and retaining supporting documents; and (iv) preparing and sending withdrawal applications to ADB.

43. **Advance fund procedure.** The PIU will establish and maintain a separate advance account for each the ADB loan and grant funds at a commercial bank. The currency of the advance accounts will be US dollar. The advance accounts are to be used exclusively for ADB's share of eligible expenditures. The MES is accountable and responsible for proper use of advances to the advance accounts.¹⁹

44. The total outstanding advance to the advance account should not exceed the estimate of ADB's share of expenditures to be paid through the advance account for the forthcoming 6 months. The PIU may request for initial and additional advances to the advance accounts based on an Estimate of Expenditure Sheet²⁰ setting out the estimated expenditures to be financed through the accounts for the forthcoming 6 months. Supporting documents should be submitted to ADB or retained by the borrower in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance account.

45. **Statement of expenditure procedure.**²¹ The SOE procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the advance accounts. The ceiling of the SOE procedure is the equivalent of \$50,000 per individual payment. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB.

46. Before the submission of the first withdrawal application, MOF should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should

¹⁷ The handbook is available electronically from the ADB website (<http://www.adb.org/documents/loan-disbursement-handbook>)

¹⁸ Disbursement eLearning. http://wpgr4.adb.org/disbursement_elearning

¹⁹ For certain local currency transactions, separate Kyrgyzstan Som accounts for each of the loan and grant funds may be opened. Such accounts are to be used exclusively for ADB's share of eligible expenditures and will be audited. The MES is accountable and responsible for proper use these accounts.

²⁰ Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),

²¹ SOE forms are available in Appendix 7B and 7D of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

be paid (i) by the executing agency and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. The use of ADB's Client Portal for Disbursements (CPD)²² system is encouraged for submission of withdrawal applications to ADB.

2. Disbursement Arrangements for Counterpart Fund

47. The government will provide (i) exemptions of taxes and duties on civil works, goods, and services; (ii) cash contributions for non-resident income tax of international consultants; and (iii) in-kind contribution of temporary houses for resettlement, collectively estimated at \$4.0 million equivalent. PIU will open a separate bank account for use only for the government's counterpart funding of eligible expenditures identified in (ii). The currency of the counterpart fund bank account is Som.

48. The PIU will be responsible for (i) projecting taxes to be financed by the government in the forthcoming 12 months, and (ii) requesting on a monthly basis budgetary allocation for the government counterpart funds. The MES will be accountable and responsible for proper use of counterpart funds.

C. Accounting

49. The MES through the PIU will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following International Public-Sector Accounting Standard for cash-based accounting. The MES through the PIU will prepare consolidated project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices. The PIU will purchase and install commercial accounting software for use under the project.

D. Auditing and Public Disclosure

50. **External Audit.** The MES through the PIU will cause the detailed consolidated project financial statements to be audited in accordance with International Standards on Auditing by an independent auditor acceptable to ADB. The MES through the PIU will submit the audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year.

51. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan and grant were used only for the purpose(s) of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements (where applicable).

52. Compliance with financial reporting and auditing requirements will be monitored by review

²² The CPD facilitates online submission of withdrawal applications to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

53. The government and the executing agency have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.²³ ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

54. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Access to Information Policy.²⁴ After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

55. All advance contracting and retroactive financing will be undertaken in conformity with ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017 as amended from time to time). The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower and executing agency have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

56. **Advance contracting.** Advance action may be undertaken on staffing of PIU, recruitment of project implementation consultant, and procurement of goods. All advance contracting will be undertaken in conformity with ADB Procurement Policy: Goods, Works, Non-consulting and Consulting Services (2017, as amended from time to time). The issuance of invitations to bid under advance contracting will be subject to ADB approval.

57. **Retroactive financing.** Retroactive financing will not be used under the project.

²³ ADB's approach and procedures regarding delayed submission of audited project financial statements:

(i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed; (ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months; and (iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan and grant.

²⁴ <https://www.adb.org/documents/access-information-policy>

B. Procurement of Goods, Works, and Consulting Services

58. All procurement of goods, works, consulting services, and non-consulting services will be undertaken in accordance with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017 as amended from time to time).²⁵ The project is expected to procure goods, works, and consulting service contract packages.

56. Before the start of any procurement, ADB and the government will review the public procurement laws of the central and state governments to ensure consistency with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

C. Procurement Plan

59. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and competitive bidding guidelines is provided in Appendix 5.

D. Consultant's Terms of Reference

60. A consultant firm led by international experts will be recruited to provide expertise that cannot be found in the local market to support implementation of the project. The consulting services are estimated to require 50 person-months of international specialists and 193 person-months of national specialists. The services will cover: overall project management, oversight, and coordination; design and procurement; financial management; monitoring and evaluation; construction supervision; and capacity building. All consultants will be recruited according to Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017 as amended from time to time). The firms will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality–cost ratio of 90:10.

61. The draft consultants' TOR is provided in Appendix 1.

VII. SAFEGUARDS

62. **Environment.** The project is classified as category B for environment. An EARP has been prepared in accordance with Kyrgyz Republic's applicable laws and regulations and ADB's SPS, and agreed with ADB to (i) guide selection, screening and categorization, environmental assessment, and preparation and implementation of safeguard plan of sub-projects to be prepared after ADB Board approval; and (ii) facilitate compliance with the requirements specified in ADB's SPS. Subproject selection criteria will rule out subprojects with significant environmental impacts (Category A), and IEE will be performed for each subproject and any civil works.²⁶ A sample IEE including an EMP, has been prepared for the representative subproject in Ayusai Village. It is expected the IEEs of subsequent subprojects will follow the sample IEE.

63. Project impacts during construction are expected to be site-specific and temporary. They are related to the construction of the representative subproject components and can be avoided and/or mitigated through measures identified in EMPs. Expected impacts include noise, dust and

²⁵ Available online: <https://www.adb.org/business/main>

²⁶ The subprojects (sites) may be grouped together as appropriate into individual civil works procurement packages. The IEE may be prepared per procurement package subject to concurrence of ADB.

exhaust emissions from equipment and construction vehicles; impacts on the river/ surface water, waste management, occupational health and safety, site accessibility, community health and safety, construction traffic. Adequate mitigation measures are included as part of the assessment and will be implemented through the EMP and contractors' site-specific Environmental Management Plans (SSEMP).

64. The PIU will ensure that the preparation, design, construction, implementation, operation and (as applicable) decommissioning of the project and all project facilities comply with (i) all applicable national laws and regulations relating to environment, health and safety; (ii) the environmental safeguards under ADB's SPS; and (iii) all measures and requirements set forth in the EARF and respective IEEs, and any corrective or preventive actions set forth in the safeguards monitoring report. The PIU will facilitate coordination with the construction supervision consultant and civil works contractors on the finalization of the project detailed engineering design to ensure the proper implementation of measures to avoid any adverse impacts. The PIU Environment Specialist/Coordinator will coordinate with design engineers and procurement officers in preparation of bid documents, pre-bid meetings and bid evaluation to ensure environmental safeguard requirements are adequately incorporated. The PIU Environment Specialist/Coordinator will (i) ensure all required statutory permits and clearances will be obtained prior to award of contract and the conditions set forth in the permits and clearances are communicated to the concerned PIU staff, design engineers, consultants, and contractors; (ii) pre-works documentation are conducted prior to start of civil works; (iii) the contractors prepare and submits SSEMPs before execution of works; and (iv) the contractors fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon completion of construction. For completed works, the PIU Environment Specialist/Coordinator will prepare a post-construction report prior to demobilization of contractors.

65. The cost for implementing the EMP will be financed by the grant and loan. Specifically, the costs of mitigation measures will be included in the contracts, and the cost for supporting environmental monitoring will be included in the consulting service of the project implementation consultant (PIC). The contractor is required to submit an SSEMP to PIU prior to start of works. The SSEMP will contain the method statement for construction, detailed mitigation and monitoring program, and other specific plans as required the IEE. The SSEMPs shall be endorsed by the PIC before submission to the PIU for approval. No works will be allowed until the PIU has approved the SSEMP.

66. The PIU will promptly inform ADB of the occurrence of any risks or impacts, with detailed description of the event and proposed corrective action plan. This is if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the project that were not considered in the initial environmental examination. The PIU will report any actual or potential breach of compliance with the measures and requirements set forth in an IEE and/or EMP promptly after becoming aware of the breach. The IEE/s will be updated to include corrective actions, associated costs and schedule. All IEEs, the EARF, environmental monitoring reports, and corrective action plans (if any) will be disclosed on ADB and the project's website. PIU shall likewise disclose the reports locally in a timely manner, an accessible place, and a form and language understandable to affected persons. Consultation and public participation will continue throughout implementation, and any environmental grievances will be handled in accordance with the grievance redress mechanism (GRM) developed for the project.

67. The PIC will assist the PIU in ensuring safeguard compliance, conducting tasks related to preparing/finalizing/updating IEEs, undertaking consultations, disclosing project information to

stakeholders, obtaining necessary clearances and permits, monitoring, compiling contractors' reports, and submitting semi-annual environmental monitoring reports (SAEMR) commencing 6 months after grant and/or loan effectiveness. The SAEMR will follow the suggested format in the EARF and will be submitted to ADB within one month after each reporting period. The PIU Environment Specialist/Coordinator will also provide updates on safeguards implementation in the quarterly progress report as required in Section IX. Environmental monitoring results and status of safeguards compliance will be included in the project quarterly progress reports and SAEMR. The submission of the monitoring reports is carried out on an ongoing basis until executing agency's project completion report is issued. This post-construction report is part of the monitoring report to be submitted to ADB. Environmental monitoring reports will be disclosed on ADB and project websites, and at project sites.

68. **Social Safeguards.** The project is classified as category B for involuntary resettlement impacts. A LARF has been prepared to guide the EAs to conduct screening, assessment, institutional arrangements, and processes to be followed for subsequent subprojects to be selected during project implementation. For all civil works sites, MES through the PIU will ensure that all requirements prescribed in the LARF will be complied with during subproject selection and preparation of relevant safeguard documents and implementation. Selection criteria and screening checklist in LARF will be used by MES to rule out subprojects with significant involuntary resettlement impacts (Category A). Subprojects will avoid or minimize permanent land acquisition and resettlement as assessed at the time of subproject selection. In some instances, subprojects may feature loss of land (changes in land size) due to deep trenches, re-shaping, etc. to be assessed during subproject design and implementation. The LARP has been prepared for the representative subproject in Ayusai Village to ensure that resettlement activities will be carried out in accordance with Kyrgyz applicable laws and regulations and ADB's SPS (2009).

69. Surveys carried out during the project preparation for the representative subproject. They identified 25 affected households (AHs), of which 11 AHs requiring temporary resettlement and compensation for restriction in usage of affected agricultural land during construction. The compensation for relocation and affected assets were calculated and budgeted as part of draft LARP. The draft LARP for the representative subproject will be updated upon completion of the detailed design. The civil works can only be commenced after full compensation payment to the affected households. The executing agency through PIU and the PIC will ensure that meaningful consultations are carried out with the project affected persons throughout the project cycle with attention to the needs of the vulnerable and the disadvantaged groups.

70. For implementing the LARPs, the PIU will ensure that:

- (i) The safeguards specialist recruited as part of the PIU and PIC team will conduct LARP implementation and monitoring, including facilitation of resolution of affected households' concerns and grievances;
- (ii) Continuous meaningful consultations with affected households, and no change is made on the entitlement matrix of the draft LARP and LARF that provides a clear guidance on entitlements for compensation;
- (iii) The final LARP is submitted to ADB for concurrence prior to implementation, as early as detailed design is available;
- (iv) The final LARP is disclosed through the project's and ADB's website;
- (v) LARP implementation compliance report is submitted to ADB's no objection prior the start of civil works; and

- (vi) Reports on monitoring of the social safeguards and LARP implementation including grievances is submitted to ADB on a semi-annual basis.

71. In case any changes, additional land acquisition and involuntary resettlement, or related unanticipated impacts will be subsequently identified, then addendum LARP (or Corrective Action Plan/CAP) will be prepared and implemented in accordance with approved LARF. The PIC will assist PIU in compiling and submitting semi-annual social monitoring reports (SSMR) commencing 6 months after grant and/or loan effectiveness. SSMR will be submitted to ADB within one month after each reporting period. The PIU Social Safeguards/resettlement Specialist will also provide updates on safeguards implementation in the quarterly progress report. The submission of the monitoring reports is carried out on an ongoing basis until executing agency's project completion report is issued. SSMRs will be disclosed on ADB and project websites, and at project sites.

72. Land acquisition and resettlement costs will be covered under the ADB financing and in-kind contribution from the government. An initial budget estimate of \$2.0 million has been set for all subprojects (see Table 11). ADB funds may be used to (i) provide payments to affected persons in line with the associated approved updated LARP and (ii) cover incremental expenses directly associated with implementation of the LARP and GRM (including by affected persons) excluding those already covered under the TOR of the PIC. Land acquisition costs are not anticipated to be financed by ADB, but as needed, specific due diligence will be conducted as per para. 6 of the ADB Operations Manual H3.²⁷ Payments will be disbursed from the advance account and liquidated through the SOE procedure with submission of (i) signed contract between PIU and affected persons based on results of the valuation survey; (ii) confirmation from bank that payment is transferred to affected persons' account; and (iii) written acknowledgment from affected persons of receipt of payment. ADB will also finance other resettlement costs as required including: (i) compensation to affected persons for income, social, and relevant land taxes associated with resettlement payments received under the project as applicable; (ii) the purchase or renovation of temporary housing units; and (iii) civil works and goods for site preparation, transport, installation, and connection to utilities (including furnaces) of temporary housing. The government will provide in-kind contribution of temporary houses, initially estimated at 50 units. Temporary houses required in excess of the government's contribution may be purchased or renovated using ADB finance.

73. The PIU will establish a GRM in accordance with the EARF, relevant IEE/EMP, LARF and LARP to receive and facilitate the resolution of the affected persons' concerns and grievances.

74. **Indigenous Peoples.** The country does not have indigenous people's communities as defined in the SPS for operational purposes. As such, the project is classified as C for indigenous peoples.

75. **Prohibited Investment Activities.** Pursuant to ADB's SPS (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the ADB SPS (2009).

VIII. GENDER AND SOCIAL DIMENSIONS

76. The project is categorized as effective gender mainstreaming (EGM). It will address gender issues such as women's limited representation and participation in disaster risk

²⁷ <https://www.adb.org/documents/operations-manual>

management because of conservative norms, limited availability of sex-disaggregated data on disasters and their impact on women and men, gender-specific exposure and vulnerabilities to landslides and other natural hazards, weak gender integration in disaster risk management policies and programs, and low capacity of MES staff and stakeholders to implement gender-sensitive standard procedures, landslide risk assessment, planning, mitigation, and resettlement. The project will protect approximately 4,700 people or about 950 households from landslides, with approximately 11% of these being households headed by women. MES will develop and adopt a landslide risk management roadmap that will include (i) activities and targets to improve women's representation in landslide risk management decision-making structures and mechanisms, as well as promote the role of women as technical specialists, and (ii) capacity building on gender-sensitive landslide risks and vulnerability assessment and planning. Sustainable asset management and O&M plans will be developed and implemented identifying roles and responsibilities of community representatives, at least a third of whom are women. The project will conduct gender-informed vulnerability mapping, collect sex-disaggregated data, and develop a web-based landslide risk database and maps. The project will also capacitate communities on gender-sensitive standard procedures and landslide risk mitigation. Women in the communities will participate in training on landslide risk mitigation, community risk assessment and planning, and on-site landslide monitoring.

77. The executing agency through the PIU will ensure that the project's gender targets are met during implementation, with resources allocated in the project implementation consultant for gender activity monitoring. The PIU Director is responsible for achievement of GAP targets and is supported by safeguards specialist in the PIU and gender and social development specialist in PIC.

Table 18: Gender Action Plan

Activity	Performance Targets/Indicators	Responsibility	Time Frame
Outcome: Vulnerability and exposure of communities and infrastructure to landslide events reduced.			
Monitor population protected from landslides in resettlement areas	a. Risk of landslide decreased for approximately 4,700 people, of which at least 50% are women (2020 baseline: 0).	MES, PIU	Q4 2029
Output 1: Landslide mitigation engineering measures implemented			
1.1 Include women household members and female heads of households in the community consultations on the design, construction, and operation and maintenance (O&M) of the civil works	1.1.1 At least 45% of participants in the community consultations for engineering measures and on-site monitoring (including women-only consultations) are women, including female heads of households. 1.1.2 One women-only consultation conducted per site for engineering measures and on-site monitoring systems, in a safe and comfortable space and at a time suitable for working women and housewives.	PIU and PIC	Q4 2021 to Q1 2028
Output 2: Systems for on-site and national landslide monitoring improved			
2.1 Involve women in the design, installation, and O&M of the on-site landslide monitoring systems	2.1.1 Sustainable asset management and O&M plans for both the engineering and monitoring equipment and systems, implemented with identified roles and responsibilities performed by community representatives (of which 30% are women) (2020 baseline: not applicable)	MES, PIU and PIC	Q4 2021 to Q1 2027
2.2 Train MES staff and community members on on-site landslide risk monitoring	2.2.1 230 government staff and community members (including at least 30% women), report increased capacity for national and on-site landslide monitoring. (2020 baseline: 0)	PIU, PIC	Q2 2024 to Q4 2026
Output 3: Capacity for landslide risk management strengthened			
3.1 Integrate vulnerability and capacity of men and women of different ages, ethnicity, and ability in landslide risk database, risk maps, and online platform information on landslide exposure	3.1.1 Consolidated landslide risk database including sex-disaggregated data and a web-based risk assessment platform installed and operational (2020 baseline: database and platform incomplete and not integrated). 3.1.2 Landslide risk database, risk maps and web-based platform for landslide risk assessment integrated at least two data layers, one on exposure and one on vulnerability of men and women to landslides. 3.1.3 Risk assessment and mapping results identify risks for women and men in the households, women in markets, school children, and those in health facilities. ^a	MES, PIU and PIC	By Q4 2025
3.2 Mainstream gender in MES' roadmap, standard procedures and associated training materials on landslide risk assessment, landslide risk mitigation and resettlement	3.2.1 MES adopts a gender-sensitive landslide risk management roadmap. ^b (2020 baseline: not applicable) 3.2.2 The roadmap, standard procedures, and training materials on landslide risk assessment, landslide risk mitigation, and resettlement integrate information on (i) gender differences in hazard exposure, impact, vulnerability, and capacity; (ii) gender experiences and challenges in resettlement; and (iii) gender inclusion in disaster risk management.	MES, PIU and PIC	By Q3 2025
3.3 Increase capacity of MES staff, relevant local authorities, and community members on gender and landslide risk assessment and management ^c	3.3.1 All training materials on landslide risk assessment, landslide risk mitigation and resettlement reviewed for gender bias, are gender- and age-sensitive and appropriate for the local cultures. 3.3.2 At least 45% of participants in community consultations and exchange-visits on landslide risk assessment and planning are adult and young women, including female heads of households. 3.3.3 500 government staff (at least 30% women) report improved knowledge on landslide risk assessment and mitigation including resettlement (2020 baseline: 0)	MES, PIU and PIC	By Q4 2026

Activity	Performance Targets/Indicators	Responsibility	Time Frame
	<p>3.3.4 1,000 community members (at least 45% women) report an improved knowledge and action on gender-sensitive community landslide risk assessment and planning. (2020 baseline: 0)</p> <p>3.3.5 At least 4 training conducted for MES staff and relevant local authorities on gender differentiated hazard exposure, impact, vulnerability, and capacity, and on women's empowerment and gender equality in disaster risk management.</p> <p>3.3.6 At least three types of information campaign materials developed and disseminated, on landslide risks, with concrete steps, especially for women and children including on recognizing early signs of a possible landslide and what to do should this occur.</p>		
Project Management			
(a) Recruit women staff in PIU and PIC	<p>a.1. At least 30% of PIU staff are women and should abide to national labor standards and policies. Working conditions and facilities should promote women's dignity and safety.</p> <p>a.2. Mandatory key expert national gender specialist in PIC recruited to lead in the implementation, monitoring, and reporting on the GAP and in designing and conducting the gender sensitivity training.</p>	MES	Q4 2021
(b) Collect and utilize sex-disaggregated data for planning, implementation and monitoring.	b.1 Project monitoring and information system included gender indicators and regularly populated with age- and sex-disaggregated data.	PIU	Ongoing

GAP = gender action plan, MES = Ministry of Emergency Situations; PIC = project implementation consultant; PIU = project implementation unit.

^a The assessment will include among others, gender analysis of mobility patterns, access to resources, and participation in decision-making on disaster risk management.

^b The roadmap will be accompanied by procedures on risk assessment, risk mitigation measures, and resettlement and include targets and actions to: (i) strengthen women's representation in senior and technical positions and in landslide risk management decision-making positions and structures; and (ii) enhance capacity on gender assessment of landslide risks and vulnerabilities.

^c Activities will be designed based on the recognition that girls and boys engage in different tasks and activities that may expose them to different levels of risk.

Source: Asian Development Bank

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

Impacts the Project is Aligned with Human and material loss from climate- and geophysical-related disasters reduced (Development Program of the Kyrgyz Republic 2018–2022) ^a Level of protection of the population and territories from emergency situations increased for sustainable development (Disaster Risk Management Strategy of the Kyrgyz Republic 2018–2030) ^b			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Vulnerability and exposure of communities and infrastructure to landslide events reduced	By 2029: a. Risk of landslide decreased for about 4,700 people, of which at least 50% are women ^c (2020 baseline: 0) (OP 2.5; OP 3.2) b. Risk of landslides decreased for about 650 ha of land, 65 km of linear infrastructure, and 14 community buildings ^d (2020 baseline: 0) (OP 3.2.5)	a.–b Annual national and local statistics ^e	R: Major seismic or extreme weather event impacts target beneficiaries
Outputs 1. Landslide mitigation engineering measures implemented	By 2028: 1a. About 3.0 million m ³ of slope unloaded and reshaped for landslide risk reduction, including 100 ha of revegetated slopes (2020 baseline: 0) 1b. About 40 km of drainage conduits installed on slopes for landslide risk reduction (2020 baseline: 0) (OP 1.3.1; OP 5.1.1)	1a.–1b. Quarterly project progress reports	R: Major seismic or extreme weather event disrupts civil works and damage equipment installations A: Government priority towards strengthening landslide risk management systems remains high
2. Systems for on-site and national landslide monitoring improved	By 2026: 2a. On-site landslide monitoring systems installed in about 20 at-risk sites (2020 baseline: 0) 2b. One integrated IT system for real-time on-site and InSAR landslide monitoring operational (2020 baseline: 0) 2c. 230 government staff and community members (including at least 30%	2a.–2b. Quarterly project progress reports 2c. Surveys of workshop participants	

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
	women) report increased capacity for national and on-site landslide monitoring (2020 baseline: 0) (OP 3.2.2)		
3. Capacity for landslide risk management strengthened	<p>3a. By the end of 2025, a gender-sensitive landslide risk management road map adopted by the MES^f (2020 baseline: Not applicable) (OP 3.2.2)</p> <p>3b. By the end of 2025, consolidated landslide risk database (including gender-disaggregated data and a web-based risk assessment platform) operational (2020 baseline: database and platform incomplete and not integrated) (OP 3.2.2)</p> <p>3c. By the end of 2026, 500 government staff and community members (including at least 30% women) report improved knowledge on landslide risk assessment, mitigation, and resettlement (2020 baseline: 0) (OP 2.5.1; OP 3.2.2)</p> <p>3d. By the end of 2026, 1,000 community members (including at least 45% women) report improved knowledge and action on gender-sensitive community landslide risk assessment and planning (2020 baseline: 0) (OP 2.5.1; OP 3.2.2)</p>	<p>3a.–3b. Quarterly project progress reports</p> <p>3c.–3d. Surveys of workshop participants</p>	

Key Activities with Milestones

1. Landslide mitigation engineering measures implemented

- 1.1 Complete advanced design for first subproject by Q3 2021.
- 1.2 Complete construction for all subprojects by Q1 2027.
- 1.3 Update estimated long-term O&M costs and plan for all works by Q1 2027.

2. Systems for on-site and national landslide monitoring improved

- 2.1 Complete surveys and studies for on-site monitoring equipment by Q3 2021.
- 2.2 Design the landslide monitoring system with InSAR during Q1–Q2 2023.
- 2.3 Prepare procedures and associated training materials on landslide monitoring from Q3 2023 to Q4 2024.

Key Activities with Milestones

2.4 Conduct stakeholder training for integrated landslide monitoring and early warning systems from Q2 2024 to Q4 2026.

2.5 Conduct regional study tour on integrated landslide monitoring and early warning systems by Q4 2026.

2.6 Update estimated long-term O&M costs and plan for all sites by Q4 2026.

3. Capacity for landslide risk management strengthened

3.1 Commence O&M training program for the MES staff by Q1 2023.

3.2 Design the landslide database and geographic information system platform by Q2 2023.

3.3 Develop and disseminate risk maps, including community risk maps, by Q3 2025.

3.4 Prepare road map and associated procedures and training materials on landslide risk assessment, mitigation, and resettlement by Q1 2026.

3.5 Conduct stakeholder training for landslide risk database and platform by Q4 2026.

3.6 Conduct community awareness, planning, exchange visits, and stakeholder training by Q4 2026.

Project Management Activities

Procure PIU office and IT equipment and vehicles by Q4 2021.

Mobilize PIU and PIC by Q1 2022.

Procure first works package by Q2 2022.

Procure first goods contract by Q2 2022.

Procure second works package by Q1 2023.

Procure third works package by Q3 2023.

Procure fourth works package by Q1 2024.

Inputs

Asian Development Bank:	\$23.50 million (grant)
	\$11.50 million (concessional loan)
Government of the Kyrgyz Republic:	\$4.00 million (indicative estimate)

A = assumption, ha = hectare, IFB = invitation for bids, InSAR = interferometric synthetic aperture radar, IT = information technology, km = kilometer, m³ = cubic meter, MES = Ministry of Emergency Situations, O&M = operation and maintenance, OP = operational priority, PIC = project implementation consultant, PIU = project implementation unit, Q = quarter, R = risk.

^a Government of the Kyrgyz Republic. 2018. *The Development Program of the Kyrgyz Republic for the Period 2018–2022: Unity. Trust. Creation*. Bishkek.

^b Government of the Kyrgyz Republic. 2018. *Concept of Comprehensive Protection of Population and Territory of the Kyrgyz Republic from Emergency Situations for 2018–2030*. Bishkek.

^c This is a combined estimate of people directly benefiting from landslide engineering works under output 1 (about 2,550) and improved landslide monitoring under output 2 (about 2,150). These and the related output indicators will be reviewed and updated during project implementation upon subproject selection and implementation.

^d This is a combined estimate of land and infrastructure benefiting from landslide engineering works under output 1 (about 300 ha of land, 30 km of linear infrastructure, and seven community buildings) and improved landslide monitoring under output 2 (about 350 ha of land, 35 km of linear infrastructure, and seven community buildings). These and the related output indicators will be reviewed and updated during project implementation upon subproject selection and implementation.

^e Indicative sources: National Statistical Committee of the Kyrgyz Republic and the MES.

^f The road map will be accompanied by procedures on risk assessment, risk mitigation measures, and resettlement and include targets and actions to (i) strengthen women's representation in senior and technical positions and in landslide risk management decision-making positions and structures and (ii) enhance capacity on gender assessment of landslide risks and vulnerabilities.

Contribution to Strategy 2030 Operational Priorities

Expected values and methodological details for all OP indicators to which this operation will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 2).

Source: Asian Development Bank

B. Monitoring

78. **Project performance monitoring.** The executing agency will ensure that PIU, with support of the project implementation consultant, undertake monitoring project performance using the targets, indicators, milestones/activities, assumptions, and risks in the DMF and GAP, and establish an adequate project performance monitoring system within 3 months of project effectiveness. The project performance monitoring system will assess the following outputs and indicators (i) progress of planned activities according to the milestones, (ii) progress in achieving each project output and project outcome according to the performance targets and indicators indicated in the DMF and GAP, (iii) safeguards compliance, and (iv) social and economic benefits with focus on the poor and women. Gender-disaggregated baseline data for output and outcome indicators gathered during project processing will be updated and reported quarterly through the executing agency's quarterly progress reports and after each ADB review mission. These quarterly reports will provide information necessary to update ADB's project performance reporting system. The project performance monitoring will involve a participatory approach, including inputs from local government and stakeholders facilitated by the project implementation consultant and community development teams to ensure timely collection of quality data.

79. **Compliance monitoring.** All project assurances including policy, legal, financial, economic, physical, environmental, gender, and other safeguard measures will be monitored through quarterly progress reports, and twice a year, during ADB loan review missions. ADB will also monitor the progress of achievement of each output and outcome based on performance indicators with targets, and each activity based on milestones indicated in the DMF through a project management information system (i.e., e-Ops).

80. **Safeguards monitoring.** The monitoring and reporting of the activities identified in the environment and resettlement action plans is discussed in Section VII.

81. **Gender and social dimensions monitoring.** The PIU, with support of the PIC, will be responsible for monitoring the implementation of the GAP and other social dimensions as identified by the SPRSS under Addressing Other Social Risks through the preparation of the monitoring reports that will be submitted to ADB.²⁸ Periodic review and consultations on the progress of achievement of gender targets of the project will be done. Monitoring and evaluation of the GAP will be incorporated in overall project reporting.

C. Evaluation

82. **Inception Mission.** ADB will conduct an inception mission within 3 months of loan and grant signing to assess project readiness and implementation arrangements. This will include establishment of PIU, opening of advance accounts, progress of recruitment of consulting services, status of the development of the project performance monitoring system, potential implementation issues that may affect the achievement of targets, and progress of advance procurement actions.

83. **Review Missions.** ADB will field review missions at least twice a year to (i) assess the progress of project activities and outputs and effectiveness of implementation arrangements, (ii) monitor the implementation of GAP and safeguard compliance with ADB Safeguard Policy Statement (2009), (iii) review compliance with loan and grant agreements and related matters,

²⁸ ADB's Handbook on Social Analysis: A Working Document, is available at: <http://www.adb.org/Documents/Handbooks/social-analysis/default.asp>, *Staff Guide to Consultation and Participation*: <http://www.adb.org/participation/toolkit-staff-guide.asp>, and, *CSO Sourcebook: A Staff Guide to Cooperation with Civil Society Organizations*: <http://www.adb.org/Documents/Books/CSO-Staff-Guide/default.asp>

(iv) follow up on decisions and actions agreed during previous review missions, and (v) resolve any project implementation issues that may arise. ADB will conduct a midterm review in the third year of project implementation. The midterm review will (i) assess the project performance and achievement against targets and milestones in the DMF and GAP; (ii) review the initial outcomes, benefits, and impact of the project, and (iii) identify gaps, if any, and recommend necessary changes to strengthen implementation arrangements or modify project design.

84. **ADB's Project Completion Review (PCR).** Within 6 months of physical completion of the project, the executing agency and ADB will field a project completion review mission to commence preparation of ADB's PCR. The mission will (i) assess the project performance against all targets, indicators, and benchmarks (including any revised at the midterm review); (ii) evaluate initial benefits, and outcome of the project across outputs, and (iii) identify any incomplete activities and agree on the necessary actions.

D. Reporting

85. The executing agency will ensure that the PIU provides ADB with:

- (i) Quarterly progress reports in a format consistent with ADB's project performance reporting system (see template in Appendix 6);
- (ii) Consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, (d) updated GAP, and (e) updated implementation plan for the next 12 months;
- (iii) Bi-annual reporting of environmental safeguards due within 30 days of end of each half-year period;
- (iv) Bi-annual reporting of social safeguards due within 30 days of end of each half-year period; and
- (v) A project completion report within 6 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and the executing agency audited financial statement together with the associated auditor's report, should be adequately reviewed.

86. The PIU will establish a project website with suitable domain and email address within three months of project effectiveness. The PIU will ensure that the website, presented in English and Russian (and optionally Kyrgyz language), is periodically updated with (i) general information on the project objectives including links to project documents; (ii) summary updates on project progress including summary quarterly reports; (iii) procurement plans and advertisements; and (iv) other relevant project information.

E. Stakeholder Communication Strategy

87. Project information will be strategically disseminated through media at main milestones including loan signing, contract awards and project completion. A GRM will be established at the PIU, by phone and email, and through public consultation events.

Table 19: ADB Public Communications Strategy

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
Project data sheet (PDS)	ADB's website	ADB	Initial PDS posted on the website no later than two weeks after approval of the concept paper; updated at least twice a year	General Public
Design and Monitoring Framework (DMF)	ADB's website	ADB	Key information from the draft reflected in project data sheet; final version posted on the website at the same time it is circulated to the Board for approval, subject to the concurrence of the government	General Public
Initial Environmental Examination	ADB's website	ADB	Post fact-finding mission	General Public, project-affected people in particular
Land Acquisition and Resettlement Documents	ADB's website	ADB	Post fact-finding mission	General Public, project-affected people in particular
Report and Recommendation of the President	ADB's website	ADB	Posted on the website within two weeks of Board approval of the loan and grant	General Public
Legal and Grant Agreements	ADB's website	ADB	No later than 14 days of Board approval of the project	General Public
Summary of Poverty Reduction and Social Strategy	ADB's website	ADB	Posted on the website at the same time it is circulated to the Board for approval, subject to concurrence of the government	General Public
Documents Produced under Technical Assistance	ADB's website	ADB	within 2 weeks of completion	General Public
Project Administration Manual	ADB's website	ADB	Posted on the website at the same time it is circulated to the Board for approval, subject to concurrence of the government	General Public
Social and Environmental Safeguard Monitoring Reports	ADB's website	ADB	Within 1 month after each 6-month monitoring period	General Public, project-affected people in particular
Audited project financial statements and the auditors' report	ADB's website	ADB	Within 30 days of receipt	General Public
Project Completion Report	ADB's website	ADB	Within two weeks of circulation to the Board for information	General Public
Evaluation Report	ADB's website	ADB	Within two weeks of circulation to Management and the Board	General Public
Project progress information	Project's website	PIU	Quarterly	General Public

Source: Asian Development Bank.

X. ANTICORRUPTION POLICY

88. ADB reserves the right to investigate, directly or through its agents, any violations of the

Anticorruption Policy relating to the project.²⁹ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.³⁰ To support these efforts, relevant provisions are included in the loan and grant agreements and shall be included in the bidding documents for the project.

XI. ACCOUNTABILITY MECHANISM

89. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.³¹

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

90. All revisions of the PAM will be recorded in this section.

²⁹ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

³⁰ ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

³¹ Accountability Mechanism: <http://www.adb.org/Accountability-Mechanism/default.asp>.

APPENDIX 1: DRAFT TERMS OF REFERENCE OF PROJECT IMPLEMENTATION CONSULTANTS

I. INTRODUCTION

1. These terms of reference (TOR) provide specific details of the project which are relevant to the assignment, implementation arrangements, and objectives of the consultancy. The TOR also provide specific details on the scope of the consultancy and the composition, roles, and responsibilities of the consulting team.

A. BACKGROUND

2. The Kyrgyz Republic is in a seismically active area with highly variable weather patterns and is at a high risk of the impacts of geophysical disasters and climate change. Disasters triggered by natural hazards such as landslides and earthquakes are frequent and estimated to cost the country approximately 1%–1.5% of the gross domestic product annually.³² Landslides triggered by snowmelt, precipitation, and seismic activity are a frequent occurrence particularly in the Fergana Valley in the south west of the country. They cause injury and loss of life, destroy productive land, damage infrastructure and settlements, and disrupt basic services, transport, and logistics.

3. The proposed project will reduce the risks of landslide events in the Kyrgyz Republic. The project will take a comprehensive approach combining structural (including civil works and equipment) and non-structural (including monitoring, technology, training, and strategy) interventions. The project will integrate the use of advanced ground-based and remote-sensing technologies and techniques for risk identification, monitoring, and early warning of landslides. The project will create opportunities for community participation (particularly of women) for the planning and maintenance of landslide risk reduction measures.

4. The project executing agency (EA) is the Ministry of Emergency Situations (MES). A single project implementation unit (PIU) will be established within MES, delegated to implement the entire project on behalf of MES.

B. OBJECTIVES AND SCOPE OF THE PROJECT

5. The project will reduce the vulnerability and exposure of communities and infrastructure to landslide events by: (i) reducing direct landslide risks; (ii) improving landslide monitoring systems; and (iii) strengthening capacity for landslide risk management. The impacts the project is aligned with is (i) reduced human and material loss from climate- and geophysical-related disasters; and (ii) increased level of protection of the population and territories from emergency situations to create conditions for the sustainable development of the country.³³

6. Further details of project scope and implementation procedures are provided in the project administration manual (PAM).

³² Global Facility for Disaster Reduction and Recovery. 2015. Country Profile: Kyrgyz Republic. Available online: <https://www.gfdr.org/sites/gfdr/files/region/KG.pdf>.

³³ Government of the Kyrgyz Republic. 2018. *Concept of Comprehensive Protection of Population and Territory of the Kyrgyz Republic from Emergency Situations for 2018-2030*. Bishkek; and Kyrgyz Republic. 2018. *Development Program of the Kyrgyz Republic for 2018-2022, Unity, Trust, Creation*. Bishkek.

II. SCOPE OF SERVICES

7. The project implementation consultant (PIC) will support MES and the PIU to manage project implementation. The scope of services and detailed tasks of the PIC are given in the following paragraphs.

8. The PIC will support the PIU in the efficient and timely implementation of the key project components for landslide risk mitigation civil works; development, installation, and integration of on-site monitoring and a pilot national-level interferometric synthetic aperture radar (InSAR) landslide monitoring system with associated capacity building; and review, development, and mobilization of roadmap, procedures, and training program on landslide risk management for stakeholders agencies, organizations and communities in line with the project design and monitoring framework (DMF) and gender action plan (GAP). The services will cover: overall project management, oversight, and coordination; preparation of feasibility study, due diligence, and design for civil works subprojects; financial management and procurement support; project monitoring and evaluation (including safeguards compliance); construction supervision; and capacity building. For indicative purposes only, this package of consulting services is estimated at 50 person-months of international consultants and 193 person-months of national consultants.

III. KEY EXPERTISE REQUIRED

9. The consultant team will be led by an international firm with preferably 15 years' experience in designing and preparing similar externally financed projects in disaster risk management and related sectors, preferably with ADB and in the Central Asia region. It is expected that the lead firm would partner with a local firm or entity with long-standing experience in landslide risk assessment and management.

10. The TORs are prepared on a performance (output) basis and detailed tasks and deliverables for the assignment are presented below. Firms will in their proposal identify their approach, methodology, and the number and the nature of experts they will require to achieve them. However, MES requires a minimum number of key experts, including a Team Leader, as tabulated in Table 1 below. The responsibilities and qualification requirements of the key experts are presented below in Section V. A time-based contract will be awarded to the winning firm with provisional sums for (i) workshops and training; and (ii) studies, surveys, and design.

11. In addition to the required key experts, the proposing entities should also include in their technical proposal, in the personnel work plan, and in their financial proposal all other "non-key experts" required in accordance with their proposed approach and methodology. The proposing entity must also determine and indicate the number of person-months for which each key or non-key expert will be required. The non-key experts might include: remote sensing and GIS specialists, land reclamation specialist, financial management specialist and procurement specialist. Administrative and support roles (e.g., firm's own financial and contract management) should not be included as non-key experts. Such costs should instead be factored into the overall bid price.

Table 1: Required Key Experts

Position	Specialist	
	International	National
Geotechnical Engineer ¹	✓	
Landslide Engineer/Deputy Team Leader		✓
Landslide Risk Assessment Specialist	✓	✓
Economist	✓	
Environment Specialist	✓	
Social Safeguards (Resettlement) Specialist	✓	
Gender Specialist		✓

¹ The Geotechnical Engineer is expected to be Team Leader. Firms may, if they wish, indicate an alternate key expert to serve as team leader, who will be evaluated against the team leader's qualification requirements.

IV. DETAILED TASKS

12. The PIC tasks are expected to include, but not be limited to:

A. Project Management

- (i) Review and familiarize with project objectives, activities, and outputs as detailed in the project administration manual (PAM) and its appendices available on the project website.
- (ii) Support PIU in planning, implementing, and monitoring project activities in line with the PAM and DMF targets and indicators, and periodically estimating the financial requirements for these activities.
- (iii) Support implementation, monitoring, and reporting on progress and achievements of the GAP and/or other actions integrated in the project design that addresses the gender issues.
- (iv) Assist in coordinating all matters related to project implementation including procurement and safeguards with relevant authorities of the government, the local administration, ADB, and other organizations.
- (v) Subcontract necessary local resources for studies, surveys, and design activities for civil works and monitoring systems including related to environment and social safeguards and community engagement.

B. Financial Management

- (i) Conduct quarterly review of FM systems and provide documented assurance to the Project Focal Point in MES that PIU's financial management and reporting systems are appropriately designed and operating effectively to meet MOES and ADB's requirements.
- (ii) Support PIU in ensuring that the financial management and accounting standards for the project meet ADB requirements and that the withdrawal applications sent to ADB are complete, accurate and are sent on a timely basis.
- (iii) Support PIU in maintaining complete, accurate and sufficient accounting records and other project records as required by MES, PIU, and ADB.
- (iv) Support PIU in the hiring of external auditors and the conduct of annual external audits of project financial statements. This shall include supporting the PIU in ensuring that the audited project financial statements meet all ADB requirements regarding timeliness and completeness.
- (v) Conduct periodic financial management training for MES and PIU staff as required.

- (vi) Any other task assigned by the PIU Director in relation with the performance of project financial management activities.

C. Capacity Building and Community Engagement

- (i) Support effective stakeholder (including local community) communication and engagement on all project areas and particularly on the design, implementation, and operation and maintenance (O&M) of landslide mitigation engineering subprojects and on-site monitoring installations in line with DMF and GAP targets.
- (ii) Develop and mobilize planned capacity building program on landslide risk management for MES, community members, and other stakeholders including preparation of landslide risk management roadmap, standard procedures, and training materials. The roadmap, materials, and training will embed community-based disaster risk management principles and considerations for future climate change.
- (iii) Support preparation, updating, training, and implementation of asset management and plans for all project sites and installations. The plans should include budget estimates and assigned roles and responsibilities including for community representatives.
- (iv) Mobilize planned training and awareness programs on landslide risk assessment, mitigation and resettlement for MES, government, and community stakeholders in line with DMF and GAP targets.
- (v) Provide training to MES staff on O&M and financial management of O&M to strengthen their internal asset management systems, records, and safeguards.
- (vi) Prepare information announcements for local media.

D. Feasibility Study, Due Diligence, and Design for Civil Works Subprojects

- (i) Review the feasibility-level studies and designs prepared under project preparation and a support preparation of feasibility studies for additional subproject and civil works identified during implementation. Where necessary, revise or elaborate to incorporate any newly introduced operational procedures, changes in the design of the project works, and additional data that may have become available after the preparation of the original documents.
- (ii) Support selection of additional subprojects in line with established project criteria and procedures. Selection of subprojects should seek to avoid significant and/or complex environment issues and complex land acquisition and resettlement issues.
- (iii) Support preparation of feasibility study and due diligence of subprojects in line with ADB and government requirements. The feasibility study will include, but not be limited to: (i) topographic, geological, geophysical, and geotechnical surveys subcontracted through local firm; (ii) socio-economic baseline survey of target community; (iii) feasibility-level design for subprojects incorporating climate change considerations; (iv) cost estimates and economic and financial analysis in line with ADB guidelines and requirements; and (v) project environmental and social safeguards in line with ADB and government requirements.
- (iv) Prepare and review detailed engineering design of civil works through a subcontract with a local design firm. The detailed design will include the standard package of documents required for civil works, including specifications, works method, technical solutions, bill of quantities with costs, drawings, etc.
- (v) Nature-based solutions such as introducing vegetation, soil bioengineering and agroforestry for slope stabilization, reduced filtration, and greening should be applied where appropriate and based on technical investigations.

E. Monitoring and Evaluation of Project Progress and Safeguards

- (i) In coordination with MES and the PIU develop a project monitoring and evaluation system covering but not limited to the DMF, summary poverty reduction and social strategy (SPRSS) and the GAP targets, including responsibilities and mechanisms for periodic project reporting. System should be in line with MES's existing systems so that the independent monitoring of the project impact can be performed effectively after project completion.
- (ii) Support PIU to ensure that all periodic reports (quarterly, semi-annual, and annual) are prepared systematically, submitted on time, reflect the real picture of project implementation, and that major issues relating to project implementation and the necessary remedial measures are brought to the attention of the concerned parties.
- (iii) Support PIU to update DMF and GAP targets as appropriate considering subproject baselines and targets.
- (iv) Prepare the project completion report at the end of project implementation for finalization by the PIU and MES.

F. Environment and Resettlement Safeguards

- (i) Ensure the project (including civil works and equipment installation) is implemented in line with project environment and social safeguards requirements, laws of the Government of Kyrgyz Republic, and ADB's Safeguards Policy Statement (SPS).
- (ii) Prepare appropriate environment and social safeguards screening and reporting for on-site landslide monitoring equipment installation prior to any works.
- (iii) Assist the PIU in conducting meaningful public consultation with the project affected community men and women and relevant national authorities throughout project preparation and implementation and getting necessary government environmental approval and permissions.
- (iv) Assist PIU to (i) prepare and/or update initial gender inclusive environmental examinations (IEEs) and/or environmental monitoring plans (EMPs) for subprojects including cost estimates of environmental monitoring and mitigation measures; (ii) ensure bidding documents adequately address the cost and tasks for EMP implementation; and (iii) monitor and review the contractors' site-specific EMPs in line with ADB's SPS and as provided in the bidding document; (iv) effectively implement and carry out activities related to safeguards requirements including but not limited to implementation of the EMPs, compliance with relevant Government of Kyrgyz Republic regulations and ADB's SPS. It is critical that the IEE be provided in English and Russian.
- (v) Assist the PIU to monitor and assess the environmental impacts of all works under the project in line with relevant ADB guidelines and prepare the semi-annual environmental monitoring reports for submission to ADB.
- (vi) Assist PIU in updating, reviewing, preparing, implementing, and disclosing the social safeguards due diligence report (SDDR) and/or Land Acquisition and Resettlement Plans (LARP) for all subprojects including formulation of corrective actions for activities or land acquisition assessment in accordance with the ADB's SPS and following the provisions set in Project's Land acquisition and resettlement (LARF). It is critical that the LARP be provided in English and Russian.
- (vii) Assist in preparing Environment Health Safety Plan, Change Management Statement if required and Resettlement Plans for all locations where project civil works will involve land acquisition and/or livelihood disruption on rights of way.

- (viii) Support PIU in monitoring and carrying out activities related to implementation of the LARP including subcontracting necessary services for valuation and training (as applicable) and prepare the biannual social safeguards monitoring report for submission to ADB.
- (ix) Support PIU in LARP implementation monitoring and preparation of Compliance Report for each subproject (as applicable) and its approval by ADB prior the commencement of civil works.
- (x) Ensure bidding documents adequately address social safeguards related requirements and mitigation measures.
- (xi) Develop and deliver safeguards capacity development programs including but not limited to hazard identification, risk assessment, environmental audits, impacts avoidance and mitigation, environmental monitoring and reporting, corrective action planning, health and safety, emergency response, and complaints resolution/grievance redressal.
- (xii) Develop and deliver safeguards capacity development programs, guidelines, and training materials on how to conduct (temporary and permanent) resettlement, monitor and evaluate resettlement outcomes, and complaints resolution/grievance redressal in resettlement.
- (xiii) Assist the PIU to establish and implement grievance redress mechanism, including development of consolidated database for recording, monitoring and reporting of grievance redress mechanism cases throughout the project implementation.

G. Procurement support

- (i) Assist PIU in preparing and periodically updating detailed procurement plans and packages, and determine realistic time-bound schedules for procurement, including parallel and sequential steps for completing procurement activities from initial planning to delivery of goods and services.
- (ii) Prepare draft bidding documents for procurement of works, goods and services, in consultation and coordination with the PIU.
- (iii) Assist PIU procurement specialist conduct of prequalification (as required), issuance, bid opening, and evaluation of bids, leading to the award of contracts, in line with relevant ADB guidelines and project procedures.
- (iv) Assist the PIU procurement specialist in preparing: high quality bid evaluation reports in line with ADB guidelines, discussions during pre-contract award meetings, and finalization of the contract for ADB's approval.

H. Construction Supervision

13. The PIC will administer the civil works and equipment installation contracts and ensure that the project is constructed in accordance with the provision and intention of these contracts and the site is handed back to local communities in safe and sustainable condition. Subject to the value and complexity, works may be executed under the International Federation of Consulting Engineers (FIDIC) Conditions of Contract for Works of Civil Engineering Construction. Accordingly, MES will be the Employer and the PIC will function as the Engineer. The PIC will nominate supervision representative(s) for each construction site.³⁴ nominate supervision

³⁴ If the primary representative is a local engineer, it is anticipated they would be closely assisted by the international expert(s). An international expert would be expected to visit each site monthly, possibly more frequently depending on construction progress or issues with site. This task will be strongly influenced by the "capacity" of the contractor to conduct the works with an acceptable degree of "autonomy".

representative(s) who will be a full-time resident near the works areas. The responsibility of the PIC includes, but is not limited to, the following tasks:

- (i) Give the order to commence works. If applicable this should only take place upon ADB's approval of validation report (Compliance Report) of LARP execution and/or approval of SDDR in case of no impacts.
- (ii) Review and approve proposed personnel for positions nominated in the Contract.
- (iii) Review and approve Contractor's assurances to: (a) hire local labor, with gender targets, (b) employ gender core labor standards and non-use of child labor and forced labor (c) provide gender-sensitivity training to workers and other staff to ensure women-friendly working conditions for female workers.
- (iv) Inspect and approve all material sources identified by the Contractor.
- (v) Review and approve the Contractor's implementation schedule and supervise the progress of construction works. The Consultant will keep the Employer informed of any delay or potential delays in the work schedule of the Contract, and will take all necessary actions to prevent potential delays.
- (vi) Review, approve and monitor the construction plan to ensure the un-interrupted flow of traffic during construction, and to ensure that construction activities do not endanger safety of the public.
- (vii) Review and approve pre-works documentation, contractors' site-specific EMP and subplans such as health and safety plan, emergency response and contingency plan, resources (personnel and budget) for safeguards implementation.
- (viii) Regularly monitor and inspect the contractor's quality control and assurance program to ensure that quality of the finished works meet the contract standards and specifications. This includes regular checking of the materials testing program.
- (ix) Advise and assist the Employer with respect to requirements per statutory environmental clearances and permits.
- (x) Monitor the compliance of civil works with social safeguards requirements and mitigations measures and adequately assess and address any grievance, damage or unanticipated impacts caused due to civil works.
- (xi) Ensure that pre-construction public consultations and regular consultations/meetings with project stakeholders are conducted throughout the project implementation. Advise and assist the Employer with respect to arbitration or litigation relating to the works, whenever required.
- (xii) Monitor progress of the construction works through computer- aided project management techniques.
- (xiii) Convene regular site meetings with the Contractor to discuss issues and problems affecting the progress, and brief the Employer.
- (xiv) Coordinate with the relevant local government authorities / agencies to minimize disruption to the works program, as required by the Contractor.
- (xv) Review the contractor's insurance cover to ensure that the contractor has provided all the insurance required by the contract and such insurance are maintained throughout the contract period.
- (xvi) Prepare any required variation orders requested by the Employer and review any variation order proposed by the contractor and provide their advice to the Employer in accordance with the contract.
- (xvii) Review all claims submitted by the Contractor and provide advice to the Employer of the validity of the claim, the effect of such claim on the construction schedule and the cost of the project.
- (xviii) Review and comment on the monthly progress reports submitted by the contractor detailing the work undertaken during the previous month, the progress of the work against

- the approved schedule, the problems and difficulties encountered by the contractor and other issues requested by the Employer.
- (xix) Issue completion certificate after satisfactory completion of the works in accordance with the contract provisions.
 - (xx) Prepare detailed social screening and mitigation plans, if necessary, and develop poverty monitoring impact systems.
 - (xxi) Ensure that the construction methods as proposed by the contractor for carrying out the works are satisfactory, with particular references to the technical requirements of (a) the EMP, (b) inspection of contractor's construction equipment, (c) safety of the works, property, personnel, and general public.³⁵
 - (xxii) Assess and check the laboratory and field tests carried out by the contractor and carry out independent tests.
 - (xxiii) Issue orders to the Contractor to remove or improve any works that are not in accordance with the drawings and/or specifications.
 - (xxiv) Maintain records of all testing work, including cross-referencing of items of work to which each test refers and location from which any samples were obtained for testing.
 - (xxv) Prior to completion of the contract, support preparation of an updated asset management and O&M plan and budget for each site, including acceptable types and timelines of subsequent third-party construction and land use within the previously at-risk areas.
 - (xxvi) At the completion of the contract, verify the contractor's "as-built drawings" as a true record of the works as constructed.
 - (xxvii) Measure the completed works and keep detailed records, including the measurement books.
 - (xxviii) Prepare quarterly cash flow projections for the Employer in an acceptable format, in which cash flow should identify budget estimates for all outstanding works.
 - (xxix) Maintain records of all plant, labor and materials used in the construction of the works.
 - (xxx) Process interim and final payments to the Contractor (interim monthly payment shall be based on interim payment certificate processed by the Consultant following claims filed by the Contractor).
 - (xxxi) The Consultant will be responsible for checking and monitoring the performance requirements in the Contract and ensuring the criteria and limits are met.
 - (xxxii) Maintain a day-to-day diary, which shall record all events pertaining to the administration of the contract, request forms, and order given to the contractor, and any other information which may at a later date be of assistance in resolving queries which may arise connecting execution of the works.
 - (xxxiii) Develop and implement training programs for MES staff at the site on project management including quality assurance and contract administration.

V. KEY (REQUIRED) EXPERTS

14. The expected detailed tasks of the key experts are presented below. It should be stressed, however, that these reflect the broad area of activities and are not exhaustive. In its proposal, the firm is expected to present how the scope of activities detailed tasks presented above have been mapped to their proposed key and non-key experts.

15. In addition to the technical inputs specified below, each expert will support the team leader in (i) identifying relevant developments in government strategy, policy, and legislation; (ii) identifying best-practice techniques and lessons learned from previous and ongoing studies

³⁵ This includes effective COVID-19 health and safety plans.

and projects³⁶ of the relevant sectors as well as options to improve the project design; (iii) identifying capacity building requirements specific to his/her field of expertise; and (iv) preparing relevant sections in the reports.

1. Geotechnical Engineer/Team Leader (International)

a. Key Responsibilities

The Geotechnical Engineer will act as the Team Leader for the Project and will report to the Project Director MES and PIU Director. The specific tasks of the specialist are expected to include but not be limited to:

Team Leadership

- (i) Coordinate and lead the activities of the international and domestic consultants as part of the team leadership group and ensure the consultants achieve their respective deliverables.
- (ii) Cooperate with other international consultants to ensure that appropriate project management systems are established for financial management (budgeting, withdrawals, disbursement, and reporting), procurement, monitoring and evaluation (including environmental and social) and reporting in accordance with ADB guidelines.
- (iii) Coordinate closely with other agencies and international donors in the strategic and day to day activities of the project.
- (iv) Prepare regular progress and final reports in English and Russian.

Geotechnical Specialist

- (i) Provide technical advice to facilitate informed collective decision-making, by PIU MES and key stakeholders, and achievement of the project outcome performance indicators.
- (ii) Lead preparation and review of feasibility study and detailed design for landslide risk mitigation incorporating environmental, social safeguards, and climate change considerations.
- (iii) Facilitate and support the development and mobilization of capacity building activities for improved landslide risk management including preparation of manuals, training materials, and training.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in geotechnical engineering, civil engineer, or related field.
- (ii) Preferably 10 years' experience in implementing similar projects in landslide risk management and mitigation in similar settings.
- (iii) Experience with development projects, ideally with Asian Development Bank.
- (iv) Preferably 5 years' experience as Team Leader.
- (v) Experience in transitional economies such as Central Asian region preferred.

³⁶ Documentation from recent ADB studies and projects is available on request.

2. Landslide Risk Assessment Specialist (International)

a. Key Responsibilities

The Landslide Risk Assessment Specialist will report to the Team Leader and will work closely with the project team. The specific responsibilities of the specialist are expected to include but not be limited to:

- (i) Lead and review geological, site, and lab testing; geophysical assessment; and related surveying of subproject sites under Output 1.
- (ii) Lead and oversee and support components related to monitoring of landslides and capacity building under Outputs 2 and 3.
- (iii) Support planning and monitoring of overall phased approach to subprojects.
- (iv) Support diagnostic, feasibility study, and detailed design activities for subproject sites.
- (v) Support monitoring of project progress and report preparation.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in geology or related fields;
- (ii) Preferably 7 years' experience in similar projects, ideally in a development setting, for landslide risk management; and
- (iii) Experience in transitional economies such as Central Asia region preferred.

3. Economist (International)

a. Key Responsibilities

The Economist will report to the Team Leader and will work closely with the project team. The specific responsibilities of the specialist are expected to include but not be limited to:

- (i) Support phased preparation and implementation of phased project approach including project selection and feasibility study, and oversee necessary data collection.
- (ii) For each subproject, the Economist will prepare and/or update for each subproject: (i) estimated subproject costs; (ii) estimated subproject benefits; (iii) economic analysis of the project; (iv) sensitivity analysis using various scenarios of costs, benefits, and implementation schedules; and (v) assessment of financial sustainability of the project to confirm that adequate funds are available for maintenance of the various facilities created with project funds.
- (iii) Support monitoring of project progress and report preparation.

b. Qualifications

- (i) A relevant graduate degree (preferably post graduate) in economics, business administration, or related fields;
- (ii) Preferably 7 years' experience in similar development projects and preferably with ADB; and
- (iii) Experience in transitional economies such as Central Asia region preferred.

4. Environment Specialist (International)

a. Key Responsibilities

The Environment Specialist will report to the Team Leader and will work closely with the project team. The specific responsibilities of the specialist are expected to include but not be limited to:

- (i) Lead the preparation, implementation, and monitoring of environmental management of civil works subprojects and on-site monitoring activities.
- (ii) Oversee associated gender inclusive public consultation, stakeholder consultation, data collection, and approvals.
- (iii) Support monitoring of project progress and report preparation.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in environmental management or related fields;
- (ii) Preferably 7 years' experience in similar development projects;
- (iii) Experience in construction supervision and occupational health and safety preferred; and
- (iv) Experience in transitional economies such as Central Asia region preferred.

5. Social Safeguards (Resettlement) Specialist (International)

a. Key Responsibilities

The specialist will report to the Team Leader and will work closely with the project team. The specific responsibilities of the specialist are expected to include but not be limited to:

- (i) Lead the preparation, implementation, and monitoring of social safeguards/resettlement for civil works subprojects and on-site monitoring activities.
- (ii) Lead the capacity building activities for resettlement procedures and training under Output 3.
- (iii) Oversee associated gender inclusive public consultation, stakeholder consultation, data collection, and approvals.
- (iv) Support monitoring of project progress and report preparation.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in social development, gender, sociology, anthropology, or related fields;
- (ii) Preferably 7 years' experience in similar development projects with physical and economic displacement planning, implementation and monitoring components; and
- (iii) Experience in transitional economies such as Central Asia preferred.

6. Landslide Engineer/ Deputy Team Leader (National)

a. Key Responsibilities

The specialist will act as the Deputy Team Leader for the Project and will report to the Team Leader. The Deputy/Team Leader is expected to take responsibilities of Team Leader when

the International Team leader is away. The specific tasks of the specialist are expected to include but not be limited to:

- (i) Coordinate and lead the activities of the domestic consultants as part of the team leadership group and ensure the consultants achieve their respective TOR.
- (ii) Cooperate with other international and national consultants to ensure that appropriate project management systems are established for financial management (budgeting, withdrawals, disbursement and reporting), procurement, monitoring and evaluation (including environmental and social) and reporting in accordance with ADB guidelines.
- (iii) Coordinate closely with other agencies and international donors in the strategic and day to day activities of the project.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in geotechnical engineering, civil engineering, or related field;
- (ii) Preferably 5 years' experience in similar development project and ideally 3 years' experience as Team Leader or Deputy Team Leader;
- (iii) Ideally good communication skills in English; and
- (iv) Experience in externally funded projects is an advantage.

7. Landslide Risk Assessment Specialist (National)

a. Key Responsibilities

The Landslide Risk Assessment Specialist will report to the Team Leader and will work closely with the project team. The specialist will support the activities of the Landslide Risk Assessment Specialist and overall team. Specific responsibilities of the specialist are expected to include but not be limited to:

- (i) Support and coordinate planning, testing, assessments, surveys, study, and design activities for subproject sites under Output 1.
- (ii) Support components related to monitoring of landslides and capacity building under Outputs 2 and 3.
- (iii) Support monitoring of subprojects and project progress and report preparation.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in geology or related fields;
- (ii) Preferably 5 years' experience in similar development projects;
- (iii) Ideally good communications skills in English; and
- (iv) Experience in externally funded projects is an advantage.

8. Gender Specialist (National)

a. Key Responsibilities

The Gender Specialist will report to the Team Leader and will work closely with the project team to ensure that gender is mainstreamed all throughout project implementation. The specialist will oversee the quality implementation of the gender action plan whose responsibilities include, but are not limited to:

- (i) Conduct gender orientation/training of the project staff to ensure sensitivity to, and incorporation of, gender considerations in every phase of project/subproject design, implementation, and monitoring;
- (ii) Work with relevant project experts to incorporate gender fair messages, in the development of manuals, awareness campaign materials, contracts, and training modules, and ensure equitable gender representation in project consultations, project grievance mechanisms, coordination committees, and other bodies, as well as in community trainings on DRM, among others;
- (iii) Conduct gender orientations and trainings for MES and other relevant community groups;
- (iv) Lead the incorporation of gender indicators including core labor standards in the project monitoring system, and ensure regular monitoring of gender targets and collection of sex-disaggregated information; and
- (v) Lead the monitoring of GAP implementation, ensuring accurate data collection and proper documentation, and lead the report preparation on gender equality results at every project progress review.

b. Qualifications

- (i) A graduate degree (preferably post graduate degree) in gender and development, sociology, anthropology, or related field with short gender courses;
- (ii) Preferably 5 years' experience in gender mainstreaming in internationally-funded and/or government-managed development projects;
- (iii) Ideally good communication skills in English; and
- (iv) Experience in externally funded projects is an advantage.

VI. PREPARATION OF PROPOSAL

16. Shortlisted entities are requested to prepare a proposal. The proposal should include a detailed description of how they propose to deliver on the outputs of the contract in the section of their proposal called "Approach and Methodology". In this narrative, entities should be explicit in explaining (i) how they will achieve the outputs and include any information on their existing activities upon which they may eventually build; (ii) the details of what experts will comprise the project team; and (iii) the mapping of the detailed assignment tasks (Section IV) against the identified key and non-key experts.

17. Entities must also describe their experience in Kyrgyz and Central Asia, and their ability to operate in Russian language.

18. Only one curriculum vitae (CV) must be submitted for each key and non-key expert included in the proposal. Only the CVs of key experts will be scored as part of the technical evaluation of proposals. The CVs of non-key experts will not be scored, however ADB will review and individually approve or reject each CV for each non-key expert position in the proposal.

19. All positions under the contract, both key and non-key experts, must be included and budgeted for in the financial proposal in accordance with the person-month allocation required for each as defined by the proposing organization.

VII. TRAINING

20. The consultants will work very closely with the PIU and MES and prepare and provide training on project implementation including on project financial management and procurement

requirements. The consultants will interact frequently with the project beneficiaries. The consulting team will organize and participate in meetings and workshops with ADB, the government counterparts, local community organizations and other stakeholders, and development partners in order to foster quality project outputs and stakeholder ownership.

VIII. DATA, LOCAL SERVICES, PERSONNEL, AND FACILITIES TO BE PROVIDED BY THE CLIENT

21. The Government of Kyrgyz Republic via the EA/PIU will provide the consultants with: (i) adequate office accommodation in Bishkek and Osh with basic facilities; (ii) will assist with coordination with other government agencies and with obtaining all data.

IX. DURATION

22. Experts will mainly be based in Bishkek for the duration of the assignment. The expected duration of the assignment is 66 months from the start date, expected to be in XXX 2021, and the assignment of experts is intermittent in nature. The terms will be revised based on consultations between the parties involved in the assignment per changes and/or additional requirements identified during implementation.

X. REPORTING

23. In the course of the assignment, the consulting firm must submit the following reports and materials:

- *Initial report* must be submitted within 6 weeks after commencement of assignment.
- *Progress reports* including site supervision report(s) must be submitted at the end of each month of the assignment.
- *Interim report* must be submitted in the middle of the assignment which shall include preliminary outcomes and results achieved within the project, shortages and proposals to address them.
- *Draft final report* must be submitted at the end of the assignment which shall cover analysis of the achievements and progress made under the project, project impact on beneficiaries etc. Draft final report shall be submitted to all stakeholders for comments and notes.
- *Final report* must be submitted after incorporation of all comments and notes made by stakeholders, including Asian Development Bank, MES, and PIU.
- All consultants will prepare separate reports at the end of each input.

24. All reports to ADB shall be produced in English. Reports shall be provided in both printed and electronic form. The consulting firm shall provide to each the two project implementing agencies 3 copies of each report in Russian and 1 copy in English. The consulting firm shall provide to ADB with electronic versions of the reports and associated outputs/deliverables/analysis. All handouts, slide presentations, and related material for meetings and workshops must be in both English and Russian. The consulting firm will be expected to procure all interpretation and translation services.

APPENDIX 2: SUMMARY DESCRIPTION OF LANDSLIDE MONITORING AND LANDSLIDE RISK DATABASE

1. The project will establish an integrated multi-level landslide monitoring system, comprised of on-site, Oblast and national-level landslide monitoring components. The monitoring system will be integrated with the already established national early warning system 'OKSION' and the network of crisis management centers and the national call center. Government standards or procedures, guidelines and associated training materials on landslide monitoring will also be developed to ensure institutionalization.

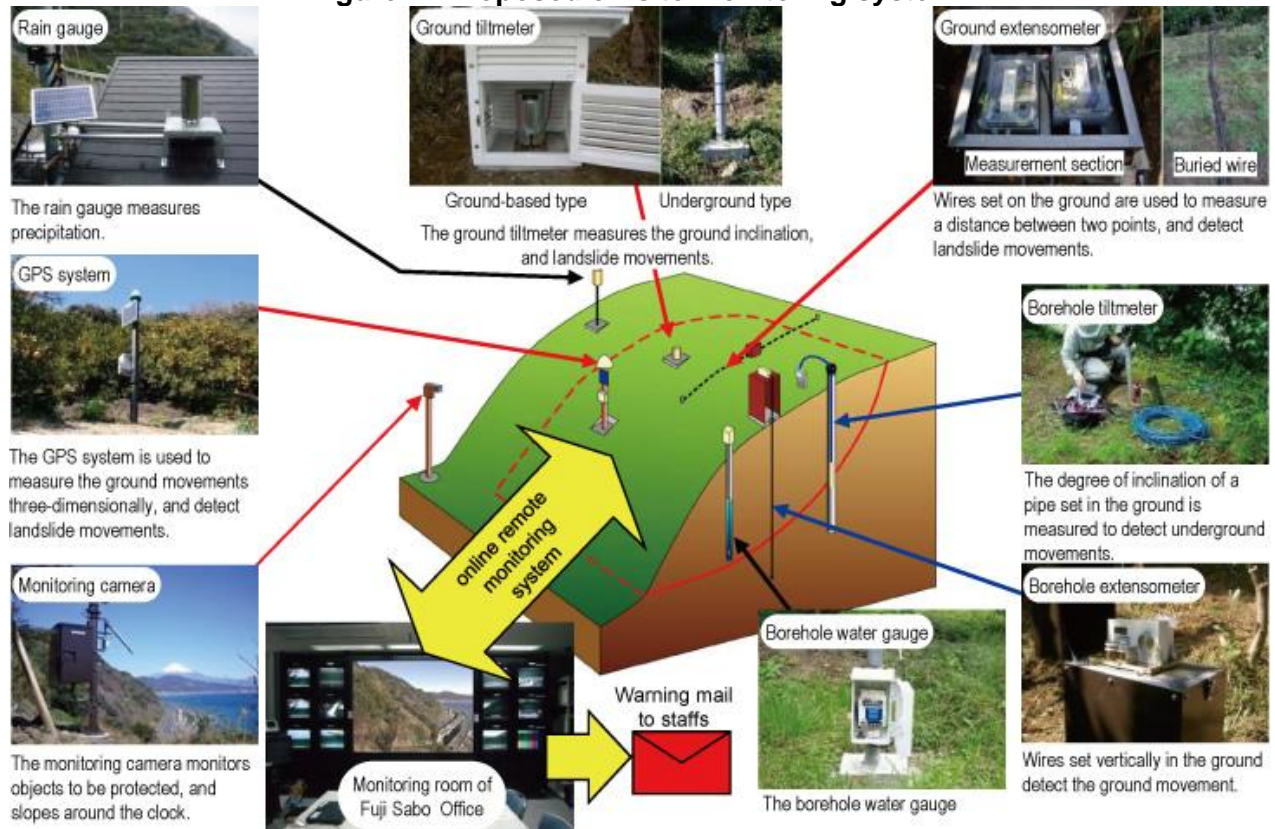
On-site monitoring

2. An on-site landslide monitoring system will be installed in approximately 20 subprojects not covered under output 1. Components of the monitoring systems are expected to consist of:

- i. Devices and sensors to measure the landslide slope stability, including ground-based and underground extensometers, TDRs, inclinometers/tiltmeter and geotesters;
- ii. Instruments to monitor changes in groundwater levels such as piezometers and groundwater level sensors;
- iii. Instruments to monitor landslide triggering variables such as precipitation and seismic activity, for example rain gauges, automated weather stations or seismic intensity meters;
- iv. Data registration and transmission systems, such as supervisory control and data acquisition (SCADA), GPS receivers, data recorders/data loggers, radio transmitters, antennas and repeaters.

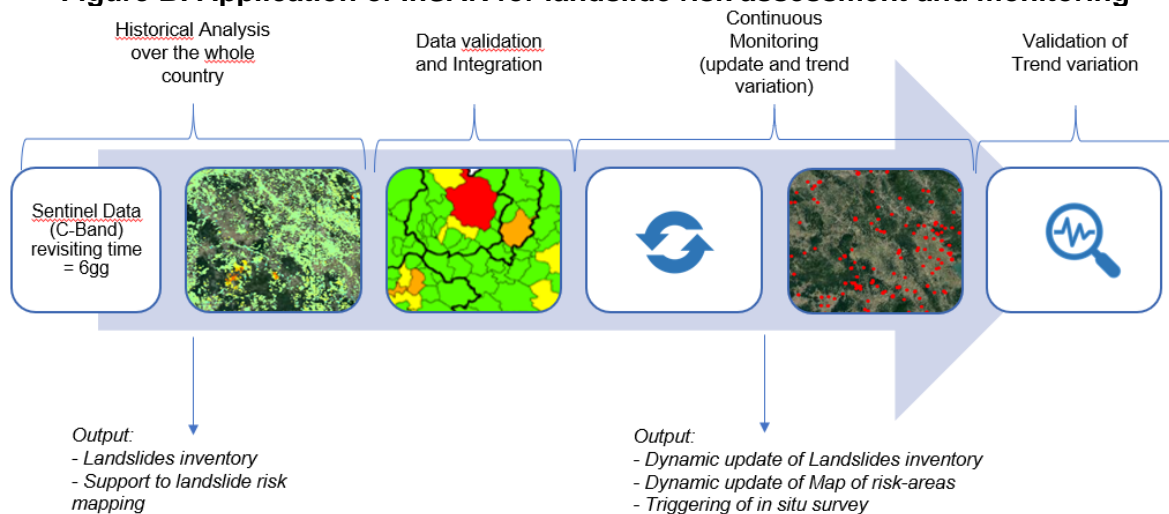
3. A list of tentative sites and list of instruments are provided below respectively. Geophysical surveying will be carried out to select the appropriateness of each site and customize the system for each site. All sites must undergo due diligence to confirm compliance with eligibility criteria detailed in Section III (D) prior to implementation.

4. A sample site-level landslide monitoring system is shown in the Figure A below.

Figure A: Proposed on-site monitoring system

National-level monitoring and risk assessment

5. The project will build national capacity on the application of multi-image (InSAR) for national-level monitoring of surface displacements and analysis of historical slope instability, as a compliment to on-site monitoring and more conventional site-based studies. InSAR data and analysis will also be used for updating the Ministry of Emergency Situations (MES) landslide inventory and a series of multi-scale landslide risk assessments (Figure B).

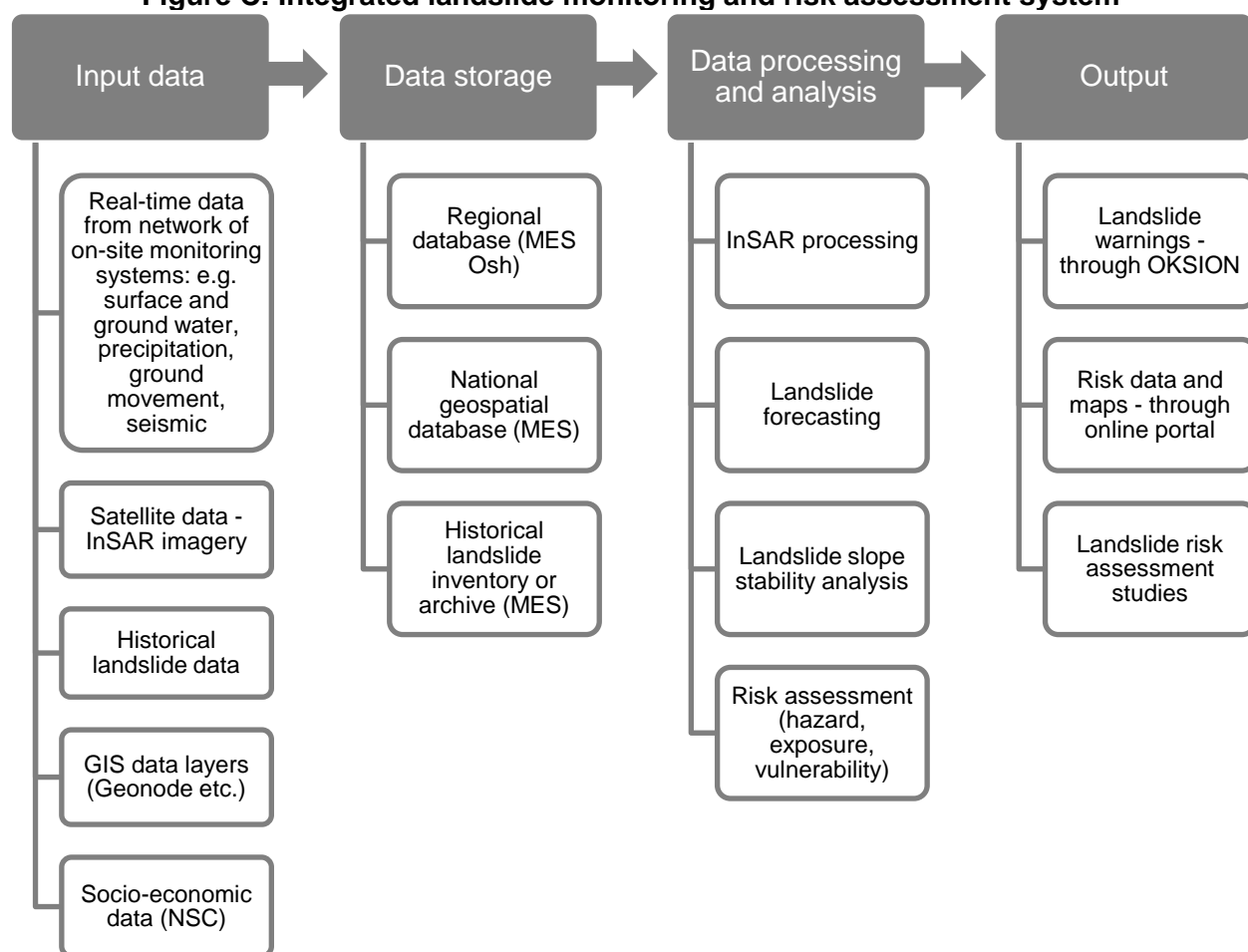
Figure B: Application of InSAR for landslide risk assessment and monitoring

6. The application of InSAR for landslide monitoring requires the following ICT equipment:

- A dedicated geospatial database linked to an online GIS-based portal to deliver, visualize and manage InSAR results;
- SAR processor and interferometry software packages;
- Computer workstations; and
- Computer server with sufficient storage capacity

Integrated landslide monitoring and risk assessment

7. The project will establish a system at site, regional and national level, and manage the network of on-site monitoring systems, data transfer and storage systems, improved databases, software systems and the online portal, and the integration of landslide early warnings with the existing OKSION system. MES will closely collaborate with local and government stakeholders on the data processing and analysis, including InSAR processing, landslide slope stability analyses and landslide risk assessment studies. The integrated landslide monitoring and risk assessment system to be implemented by the investment project is envisaged as shown in Figure C.

Figure C: Integrated landslide monitoring and risk assessment system

Sites proposed for installation of the on-site landslide monitoring system

8. The list below has been developed at the project preparation stage and needs further adjustment based on in-depth technical investigation of each site.

DATASHEET	AREA	VOLUME	AYIL_AIMAK	VILLAGE
I2	34700	381700	Soghondu	Murdash
II2	20000	100000	Turban	Alcha
II3	29000	145000	Sary Bulak	Kyloozhun
II5	15900	111300	Kara Guz	Altyn-Kurok
III1	54700	136750	Papan	Kyzyl-Tuu
III2	82700	330800	Papan	Ak-Terek
IX1	75000	525000	Kashka-Su	Olon bulak
IX3	29400	205800	Ak Zhol	Raykomol (Katkan-Aniz part)
IX6	77000	385000	Ak Zhol	Chalk oido
V1	47900	239500	Zerger	Kairat
V3	32800	164000	Zhalpak-Tash	Ak-Terek
I6	11,845	94,760	Zerger	Nichke-Sai
V8	78500	392500	Zhalpak-Tash	Kara-Taryk

DATASHEET	AREA	VOLUME	AYIL_AIMAK	VILLAGE
VI2	150	540	Coc art	Zhalgyz-Zhangak
VI3	88000	880000	Kyzyl-Tuu	Ak-Bulak
VI4	16000	192000	Kyzyl-Tuu	Alchaluu
VI7	30000	360000	Kyz-Kol	Caramart
VI9	28000	196000	Kyzyl-Tuu	Soku Tash
VII1	2E+05	1000000	Arstanbap	Humkana
VII4	56000	392000	Mogul	Chkalov U.Korovnik

Proposed list of landslide monitoring equipment for on-site monitoring

9. The following instruments will be procured for landslide monitoring in the 20 sites. The precise combination of instruments and technical specifications per site will need to be determined after in-depth surveying of the respective sites.

1. Surface extensometer
2. Crackmeter
3. Inclinator (for building, structures, etc.)
4. Topographic benchmark
5. Periodical topographic campaign (total station/GNSS)
6. Automatic GNSS station (low cost, L1 only, no internal memory)
7. Automatic GNSS station (dual frequency, internal memory)
8. Robotic Total Station
9. Topographic prism
10. Borehole extensometer (4 points)
11. Borehole inclinometric casing
12. Borehole inclinometer (biaxial)
13. TDR cable
14. Periodical inclinometric reading (manual)
15. Periodical TDR reading (manual)
16. TDR datalogger (automatic measurement)
17. Piezometric casing
18. Piezometer
19. Monitoring camera
20. AWS (Automatic Weather Station) sensors
21. AWS (Automatic Weather Station) datalogger
22. 4 pairs signal cable
23. 10 pairs signal cable
24. 1/2" plastic-metal conduit
25. overvoltage protections
26. cellular router with antenna
27. Data Acquisition and Transmission Unit

10. In addition to the above list, one SCADA system will be installed at the regional MES office for automatic data acquisition and processing and automatic generation of alert messages

Landslide Risk Database (Output 3)

11. Extensive work on mapping and assessing landslide hazard and risk in the Kyrgyz Republic has been done through collaboration between national and international academic institutions, with the most notable work undertaken by research institutes such as the Kyrgyz Integrated Hydrogeological Expedition, the Institute of Seismology (under National Academy of Science), SEC GEOPRIBOR, Central-Asian Institute for Applied Geosciences (CAIAG), GFZ Potsdam and the University of Liège (Belgium). In addition to national- and regional-scale hazard and risk assessments, detailed site-specific studies have also been undertaken.

12. Building on the work carried out by the Agency of Geology during the Soviet times, MES maintains an annually updated register of natural hazards throughout the country, which includes a landslide inventory. The inventory includes survey results, geological, geomorphological and topographical maps and site-specific recommendations for risk reduction and monitoring. The extensive database is only available in Russian.

13. In addition to this database, since 2011, the World Bank Global Facility for Disaster Reduction and Recovery, through its *Open Data for Resilience Initiative*, has supported the establishment and operation of an open-source national disaster risk data sharing platform: <http://geonode.mes.kg/>. This platform is the main MES platform for storage, retrieval, distribution and display of geospatial hazard data and maps. Currently, the database has over 157 data layers, mostly on geo-hazards (e.g. landslide, mudflow, flood, seismic hazard assessment), and spatial administrative, social, economic, environmental and demographic information (e.g. settlements, population, roads). This platform is mainly storing data, rather than integrating the data through interactive functionalities.

14. Nonetheless, there are several challenges when it comes to hazard and risk assessment in the Kyrgyz Republic. There is limited standardization and consolidation of the risk assessment methodologies, data, maps and results, with limited application by government for strategy, investment and planning. There is a strong focus on assessing and quantifying landslide risk from a geophysical point of view, with limited assessment of exposure, vulnerability, capacity and the integration of hazard information with gender-disaggregated socio-economic data and data on critical infrastructure. There is a clear need to systematize landslide risk assessment processes and outputs and build the respective government capacity.

15. Output 3 will include the establishment of one improved online GIS platform and database, integrating information on landslide hazard, exposure and vulnerability, results from updated risk assessments, risk maps and real-time landslide monitoring data. The platform will expand and improve the existing MES open-source national disaster risk data sharing platform, as supported under the World Bank *Open Data for Resilience Initiative*. Using the database and platform, the investment project will conduct a number of national-, oblast- and site-specific landslide risk assessments (integrating climate change, mudflows and seismic risk), prioritizing assessments at national level, for Osh and Jalal-Abad Oblasts and from the long list of landslide sites to be covered under output 1. The assessment results, including risk maps, will be integrated into the GIS platform. In addition, the investment project will develop national standards or guidelines and training materials on multi-hazard and multi-scale risk assessments.

APPENDIX 3: OUTLINE SUBPROJECT SUMMARY REPORT

EXECUTIVE SUMMARY

GENERAL

Project Background
Objectives and Scope of the Project
Objective and Scope of the Subproject
Information Basis

PROFILE OF PROJECT AREA IN THE PRESENT SITUATION

General
Geology, Geophysical, and Geotechnical Aspects
Hydrology
Soil and Land Use
Infrastructure
Socio-Economic and Gender Aspects
Climate Change
Determination of Landslide Risk

WORKS PROPOSED UNDER THE PROJECT

Project Objective
Scope of Work
Civil Works
Non-Civil Works
Estimated Construction/Implementation Cost of the Proposed Works
Project Implementation

PROJECT IMPACT

Future "Without-the-Project" Situation
Project Beneficiaries
Project Benefits
Direct Benefits
Indirect Tangible Benefits
Intangible Benefits
Summary of Project Benefits
Social Impact and Safeguards
Environmental Impact and Safeguards

ECONOMIC ANALYSIS

Cost-Benefit Analysis
Project Economic Costs and Benefits
Economic Evaluation
Sensitivity Analysis

CONFIRMATION OF PROJECT ELIGIBILITY

Eligibility against Four Criteria

CONCLUSIONS AND RECOMMENDATIONS

APPENDIX 4: APPROACH AND GUIDELINES FOR TECHNICAL FEASIBILITY STUDY

Overview

1. Output 1 will reduce the landslide risks of infrastructure through the implementation of landslide risk mitigation engineering measures such as unloading, reshaping of bulging areas and opening cracks and drainage of underground and surface water. Nature-based solutions such as introducing vegetation, soil bioengineering and agroforestry for slope stabilization, reduced filtration and greening – for the stabilized slope as well as the soil disposal site - will be applied where appropriate and based on extensive technical investigations. These risk mitigation measures are site specific and therefore require in-depth investigation, design, and monitoring. Involvement of the State Agency on Environmental Protection and Forestry is recommended for the revegetation/greening aspects of the civil works.
2. Through a combination of quantitative and qualitative assessment and prioritization, the MES has assembled a list of 46 landslide prone sites in Jalal-Abad and Osh Oblasts to be targeted as potential sites for the implementation of slope stabilization measures. Each of these sites has a datasheet containing information on geography, geology, landslide volume and area, landslide history and stages of landslide development, landslide susceptibility and exposed assets. Preliminary runout analysis is also available for each of the sites.³⁷
3. The following process is expected to be implemented for each site or group of sites:
 - (i) Geophysical, geological, topographical, and geotechnical surveys and investigations, including of the groundwater table.
 - (ii) Laboratory testing of soil and rock samples, with international lab testing for complex sites where required.
 - (iii) Installation of monitoring systems (e.g. piezometers) for monitoring of landslide site before, during, and/or after the works.
 - (iv) Preliminary/concept design and detailed technical design considering future climate risks.
 - (v) Environment and social safeguards due diligence.
 - (vi) Preliminary preparatory works.
 - (vii) Slope stabilization works with good and continuous site supervision by qualified experts.³⁸
 - (viii) Preparation and construction of soil disposal site, in the case of unloading.
 - (ix) Regreening/revegetation of works site.
 - (x) Monitoring and maintenance.
4. Output 1 will be implemented in a cascading approach, starting with the implementation of the works in the selected representative subproject and gradually increasing the number of sites. Landslide sites can be combined based on geographical proximity, similar geomorphological conditions or priority based on stage of landslide development. This gradual implementation process will ensure learning, capacity building and adaptive management.
5. Prior to the completion of each landslide risk mitigation site, the PIU with support of the PIC will prepare an updated site-specific sustainable asset management and O&M plan and

³⁷ Landslide Risk Assessment Report is available online as a supplementary document to the report and recommendation of the President: <https://www.adb.org/projects/53022-001/main#project-documents>

³⁸ We cannot expect that a contractor will complete the works simply by “reading” the design. This will likely require the presence of an international expert, depending on level of expertise of local engineers.

budget, to be adopted and implemented by MES. The plan will include, but not be limited to: (i) required near-term monitoring, physical remediation, and greening activities; (ii) long-term O&M activities; (iii) acceptable timelines for subsequent third-party construction or land use within the previously at-risk areas; (iv) budget and cost-sharing; and (v) mapping of responsible agencies.

Approach for Ayusai Representative Subproject

Concepts and Principles

6. A number of fundamental concepts and principles are taken as the basis for selecting and specifying the slope stabilization works:

- (i) The slope geology is such that relevant movements are taking place, particularly after heavy rains, snowmelting season, and major earthquakes or even a prolonged sequence of smaller tremors.
- (ii) Like in any other case where relevant movements are expected, the use of rigid structures (like reinforced concrete walls for example) should be avoided in principle (oftentimes they are also not environmentally friendly).
- (iii) Flexible structures capable of withstanding relevant movements (even up to 20 cm to 40 cm) should be adopted: this will guarantee a longer durability and efficiency of the measures undertaken.
- (iv) The same concepts will apply to the drainage system, particularly for any underground work aimed at keeping the slope dry.
- (v) Unfortunately, there is no way to avoid water infiltration and seepage within the landslide mass: a surface water intercepting network of ditches on its own would have a limited effect on the final mass stability: this is confirmed by the lack of natural runoff erosion channel on the slope.
- (vi) Underground drainage with trenches is instead necessary and will be part of the mitigation project.
- (vii) Flexible works are, generally, easier to build and do not require sophisticated technologies or equipment: they can often be executed with standard equipment which can be used by local people, helping in this way the local economies by hiring local labor.
- (viii) Nature based measures can be used in these difficult geological conditions for limited small stabilization works but likely not for the full complete stabilization of the landslide.
- (ix) In a case like this one, it is worth mentioning the fact that relocation would a feasible alternative to protect the people who are living at the slope toe in the landslide potential runout area.

Nature Based Solutions

7. Nature based solutions are becoming more and more popular for landslide slope stabilization and in some Western countries they have, under certain geological and geometrical conditions, fully obliterated other more traditional solutions. Nature based solutions present the following advantages:

- (i) They are environmentally friendly.
- (ii) They are built with natural “materials”, like wood, stones, boulders, live vegetation, etc., which “partially regenerate” themselves without creating further pollution.

- (iii) By avoiding the use of steel and concrete a relevant positive environmental impact is created: steel and concrete production is generating a huge quantity of CO₂ emissions in the atmosphere. They also generally come from very far away with expensive and polluting transportation.
- (iv) Nature based solutions are coming from the traditional works of country areas: they can generally be built by local people, creating a significant boost in the local economies of remote villages.
- (v) Under certain conditions they have been used to stabilize very big landslides in environmentally sensitive areas.

Further Study for Detailed Design

8. The further stages towards a completed detailed design will require the execution of a number of studies to improve the degree of knowledge of the slope:

- (i) Further specifically dedicated geophysical investigations aimed at the detection of ground water levels and wet areas within the slope.
- (ii) A proper geological study to identify all the geomorphological features on the slope aimed at detailing the design and the mitigative works on the slope itself. Given the agricultural conditions in the area, with very tall grass, the geomorphological study should be executed in very early spring or very late summer when the vegetation will be in a resting period.
- (iii) Trial pits with excavators, to a depth of 4 m to 5 m, are always a very good way of investigating wide areas with difficult or limited access. They are quick and cheap but, on the other side, can only allow for visual inspection (even if disturbed samples can be collected for speditive laboratory testing) and can reach a limited depth. They are in any case always recommended thanks to their speed of execution and the trial pit investigation campaign can be conducted by the Contractor itself during the very first stages of the work under the guidance of the Engineer.
- (iv) A detailed slope survey walk to help identify areas of potential water accumulation. It is recommended to detect areas with changes in vegetation since ground water accumulation is often recognizable by these sorts of signs.

Design Concepts

9. Given the particular characteristics of the slopes, the design approach will have to be based on the following general principles:

- (i) Avoid rigid structures which are attracting heavier than normal stress states in highly deformable soils.
- (ii) Collect and intercept as much water as possible on the slope, particularly at underground level at the base contact between the loess and the rock below. The slope does not have erosion gullies on surface, so it is understood that most of the water quickly infiltrates underground.
- (iii) Reprofile the original slope profile by unloading the material in those areas where the geomorphology\geometry is unfavorable, the gradients are too steep or the maximum drainage trench depths are too big to be reached by normal excavators from the original ground surface.
- (iv) The 3-4 critical spots in terms of surface water (springs) must be treated separately and independently by collecting and draining their flows.

- (v) Considering the climatic conditions in the area and the fact that the project does not include any hydrological calculations (only for the soil disposal sites in the river bed with their hydraulic protections) the expected climate changes previously are not directly affecting the design process for the mitigation works of this landslide.
- (vi) The area must be returned to the local people in the same conditions as it was before the works: environmental rehabilitation will be a design “must”, with the proposed replanting of the same grass species and/or crops that we can find today in the area.

Preliminary Preparatory Works

10. The preliminary preparatory works will consist of the following activities:

- (i) Construction of an office area near the slopes. The number of workers involved in the project will probably not be significantly high (depending on the schedule, but expected to be not higher than around 20 units) so that there is not a strict need for a dedicated accommodation area for them. It would be, if conditions allow, preferable to host the workers in local guesthouses or similar (if any), to allow the local economy some source of extra income thanks to the construction operations.
- (ii) The office area will have a clean draining surface (compacted 30cm layer of sand and gravel) to avoid muddy conditions during rain and will be big enough for office facilities, equipment parking at night or during holidays and supplied material storage.
- (iii) Preparation of the temporary access roads. As shown in the Technical Feasibility Study Report, existing roads will be mostly used for this scope, but they will still need some preliminary stabilizing works considering the very heavy traffic involved by the unloading operations (tens of 30-40 t trucks every day).
- (iv) If existing roads are used, they will have to be adequately prepared and strengthened with the formation of a 30 cm thick layer of well compacted gravel and material to sustain the heavy trucks.
- (v) Dedicated water drainage works will be built to avoid damages from the runoff water, which is naturally collected and concentrated by a road on a slope. This will be achieved by constructing water ditches on the upward site of the road with water transversal cutoff at regular spacings, depending on the steepness and length of the road between curves (approximately 30-50m).

Stabilization Works

11. The landslide(s) will be mitigated with the following works (the Technical Feasibility Study Report shows a series of graphs and sketches which illustrate them):

- (i) Unloading of the areas where the loess layer is thicker, by excavating the material in excess and transferring it to soil disposal site area(s).
- (ii) Reshaping of other areas where the local morphology and the geometrical and geological conditions (bulging, opening cracks, etc.) are suggesting that a potential future issue could arise.
- (iii) Drainage of the underground water and lowering of the ground water pressure by excavating trenches which will have to reach, as much as possible, the base contact between the unstable loess and the rock underneath. A minimum of 3-4 lines of drainage, parallel to the contour lines, will be realized on the slope in places where the loess is thinner, to minimize the excavated volume. All the drainages

- will be collected to a network of underground pipes which will bring the water to the Ayusai stream in the valley bottom (in addition some of the drained water could be collected in small tanks on the slope and used for irrigation at higher elevation).
- (iv) Spring catchment and collection in those limited areas where there are water springs or simply where the ground appears to be wet.
 - (v) Revegetation of the entire excavated area by sowing (or, better, hydroseeding) local grasses/crops to restore the original landscape aspect and allow cultivation, grazing and hay/wheat growth for the local people. Some trees could well be planted on the slope to add some added value in terms of visual landscaping, but it is reminded that too many grown trees represent a negative driving force for a slope like this one (and at the same time their roots are not deep enough for a complete and full stabilization contribution) because of their weight. We recommend, if trees are planted, to avoid concentrations and rather adopt a more widespread spacing geometry.
 - (vi) Preparation of the soil disposal site areas.

12. We note that other flexible methods for landslide stabilization – namely gabions and reinforced earth with geogrids and geotextiles - could be used in these slope conditions, depending on their availability in the country. Reinforced earth embankments could be particularly useful because they could be built by using some of the excavated material, then limiting the amount to be stockpiled in the dumpsite area. They are very environmentally friendly, since they can be fully regreened with a minimum visual impact on the area. However, it must be noted that geogrids and geotextile materials are highly sophisticated products (often also expensive) which should probably come from far away (we are not aware of any national Kyrgyz manufacturer of these products) and, as such, would probably be much costlier than the unloading process suggested in this document. Given the dimension of the two landslides to treat in this project, the overall quantity of reinforced earth would be very relevant. These are options to be considered for other sites in the investment project.

Design Framework for a Landslide Stabilization Project

13. This section provides a non-exhaustive list of documents and actions to be undertaken for the detailed design of a major landslide stabilization project in loose soil. The document's list and content are similar for cases of rock slopes, but the engineering aspects and calculations will be those typical of rock materials and differ from those of this case study.

Recommended process for detailed design of a landslide slope stabilization project

Activity or report:	Details:
Site investigation	Design report of the site investigations. Penetrometric tests (standard and cone), trial pits with excavators, boreholes, piezometers, permeability tests, etc..
Laboratory tests	Grain size distribution, Atterberg limits, water content, unit weight, drained and undrained shear stress, CBR, Proctor, porosity, elastic modulus, etc..
Preliminary studies	Review of any previously available documentation on the site: historical photos, past satellite observation data, etc..
General report	A report which describes all the aspects of the project and summarizes the main issues: works description, costs, H&S, monitoring plan, geological and hydrological conditions, geotechnical testing and assessment, etc. Technical standards for design and calculations.
Geological report	Review of the site visits, past studies, detailed geological and geomorphological description of the area, including hydrogeological aspects.
Geotechnical report	Geotechnical assessment of the site investigation and laboratory tests, soil parameters, bearing capacity design, retaining structures, pilings, earth structures (reinforced earth and embankments), slope stability analyses with

Activity or report:	Details:
	Limit Equilibrium method or more advanced numerical methods techniques (FEM, DEM, etc.), seepage analyses, etc. In static and seismic conditions.
Hydrological report	Required if the landslide area is interested by relevant water courses: rain data analyses, flow estimate for different return periods.
Hydraulic report	Design of protective works for cases where the landslide is interacting with a river course. Design of the drainage pipe network. Problems of slope toe excavation and erosion by water flow.
Structural report	Full design and calculation of any major structural work required for slope stabilization. In static and seismic conditions.
Climate report	Analysis of all the available data on climate in terms of precipitation, snow pack duration, average melting season, ice depth during Winter, temperatures, etc. Must include and address comments and recommendations related to future climate changes.
Seismic report	Analyses of the seismic conditions regionally and at the site. Parameters assessment of design accelerations and PGA for geotechnical and structural design. All geotechnical and structural calculations to be conducted in both static and seismic conditions.
Technical specifications	Detailed technical specification for each activity included in the design. Must include a description on how each work has to be concluded with reference to any regulations that has to be complied. For third party supplied materials certificates of testing according to international standards must be included. List of tests (and related procedures) to be conducted during construction.
Drawings	Geomorphological and geological map with clear indications of all the points where some testing has been done on site, use clear crisp colored symbols to make the document well readable (1:1000); topographic survey (1:5000\2000) with contour maps, detailed works sections (1:1000\1500), details of specific works (1:50, 1:20), drainage maps (1:1000), greening and environmental restoration plan and details (1:1000, 1:50), monitoring plan (1:1000).
Monitoring report	Detail and scope of the instruments to be installed on the slope, technical specifications, certifications requirements, expected measure frequency.
Bill of quantities	Must include detailed activity quantity estimates, unit prices, total prices for each activity, design and site supervision costs, taxes and H&S costs, total project cost.
Environmental reports	Inclusive of all the recommendations and design of the revegetation and greening works to be conducted on site after works (both on the unloaded slopes and on the dumpsite areas). Inclusive of mitigative environmental actions during construction (i.e. dust and noise control, etc.).
H&S report	Detail project of the health and safety issues that are foreseen during the construction process. List of potential hazards for workers, protective measures to be adopted on site, PPE list, etc. H&S costs.
Others	Social, economics, etc..

APPENDIX 5: PROCUREMENT PLAN

Basic Data

Project Name: Landslide Risk Management Sector Project	
Project Number: 53022-001	Approval Number: XXXX
Country: Kyrgyz Republic	Executing Agencies: Ministry of Emergency Situations (MES)
Project Procurement Classification: B	
Procurement Risk: Medium	
Project Financing Amount: \$39.0 million ADB Financing: \$35.0 million Government: \$4.0 million	Project Closing Date: 31 August 2028
Date of First Procurement Plan: 20 May 2021	Date of this Procurement Plan: 20 May 2021

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods

Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods and works.

Procurement of Goods and Works	
Method	Comments
Internationally-advertised open competitive bidding (IA-OCB) for Works	\$5,000,000 and above
IA-OCB for Goods	\$1,000,000 and above
Nationally-advertised open competitive bidding (NA-OCB) for Works	Beneath that stated for IA-OCB, Works and above that stated for Shopping, Works
NA-OCB for Goods	Beneath that stated for IA-CB, Goods and above that stated for Shopping, Goods
Shopping for Works	Below \$100,000
Shopping for Goods	Below \$100,000

Note: Refer to Guidance Note on Open Competitive Bidding (<https://www.adb.org/documents/open-competitive-bidding>).

Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	90:10 quality to cost ratio will apply
Quality Based Selection	
Consultants' Qualifications Selection	
Least-Cost Selection	

Note: Refer to Guidance Note on Consulting Services (<https://www.adb.org/documents/consulting-services>).

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
G-I-1	Landslide monitoring and early warning	\$2.0 million	IA-OCB	Prior	1S2E	Q4 2021	Goods bidding documents
W-N-1	Landslide mitigation civil works for Ayusai subproject	\$2.7 million	NA-OCB	Prior	1S2E	Q3 2021	Small works bidding documents

Note: Estimates exclude taxes and duties. Bidding document templates and guidelines available online: <https://www.adb.org/site/business-opportunities/operational-procurement/goods-services/documents>

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
PIC-1	Project implementation consultant	\$4.0 million	QCBS 90:10	Prior	Q2 2021	Full technical	Estimate includes provisional sums for studies, survey, design; and workshops and training.

Note: Estimates exclude taxes and duties.

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

The following table groups smaller-value goods works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Package Number	General Description	Estimated Value (cumulative)	Number of Contracts	Procurement Method	Review [Prior / Post/Post (Sampling)]	Bidding Procedure	Advertisement Date (quarter/year)	Comments
VE-1	Vehicle for PIU	\$67,000	1	Request for quotations	Prior	N/A	Q4 2021	Two 4x4 vehicles
SOF-1	Accounting software for PIU	\$10,000	1	Request for quotations	Prior	N/A	Q4 2021	Licensed "1C" software or equivalent
OFF-1	Office equipment for PIU	\$32,000	2-3	Request for quotations	Prior	N/A	Q4 2021	Chairs, tables, computers, printers, scanners, office consumables

Note: Estimates exclude taxes and duties.

Consulting Services								
Package Number	General Description	Estimated Value (Cumulative)	Number of Contracts	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
AU-1	External audit services	\$60,000	1	CQS	Prior	Q1 2022	BTP	External audit services (3-year contract)

Note: Estimates exclude taxes and duties.

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Review [Prior / Post/Post (Sampling)]	Bidding Procedure	Comments
G-I-2	SCADA and IT system for monitoring and database	\$0.2 million	1	IA-OCB	Prior	1S2E	Goods bidding documents
W-OCB-X	Landslide risk management subprojects	\$20.7 million	4-6	NA-OCB	Prior	1S2E	Sub-projects to be selected during implementation.

Note: Estimates exclude taxes and duties.

Consulting Services							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Review (Prior / Post)	Type of Proposal	Comments
AU-2	Audit services	\$80,000	1	CQS	Prior	BTP	Remainder of annual audit contracts.

Note: Estimates exclude taxes and duties.

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts and completed contracts.

1. Awarded and On-going Contracts

Goods and Works							
Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments

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Consulting Services							
Package Number	General Description	Estimated Value	Awarded Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments

2. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

APPENDIX 6: OUTLINE QUARTERLY PROJECT PROGRESS REPORT

All information will be provided for quarter preceding issuance of report.

Section A: Implementation Progress

1. General data on progress in implementation
2. Problems encountered and resolved
3. Other issues pending
4. Other information or data relevant for project
5. Safeguard compliance on projects
6. Gender-related implementation progress
7. Risk mitigating action plans implementation progress
8. Updated implementation plan

Section B: Procurement Information

1. Detailed report on procurement activities
2. Status of bidding documents
3. Status of bids in progress
4. Contracts awarded
5. Contracts closed
6. Contracts with issues
7. Procurement plan for next quarter (updated procurement plan table)

Section C: Financial Information

1. Disbursement status
2. Special account status
3. Loan and grant commitments
4. Contract payments
5. Status of audits
6. Other financial management issues

Section D: Other Information

1. Major/minor change in scope
2. Cost escalations
3. Revision in cost category
4. Change in implementation procedures
5. 2 Major activities planned for next quarter

Attachments:

1. **PPR:** The quarterly report will be accompanied by an updated Project Performance Review (PPR) spreadsheet comprising (i) updated project implementation plan, (ii) contract awards and disbursement graphs and (iii) contract awards and disbursement plan.
2. **DMF:** DMF monitoring will accompany the quarterly report and provide information on progress achieved to meet each target identified in the DMF and expected end of project final achievements.
3. **GAP:** GAP monitoring will accompany the quarterly report and provide information on progress achieved to meet each target identified in the GAP and expected end of project final achievements.
4. **Stakeholder Communication Strategy:** At inception, the government and ADB will agree on a strategy and action plan to disseminate information on the project's objective, outcome, and outputs. The quarterly report will provide details on communication activities.

5. **Safeguards:** Safeguards monitoring will accompany the quarterly report and provide information on progress of subproject selection per EARF and LARF, preparation and submission of IEEs/LARPs/DDR, and highlights of safeguard-related issues and concerns during the reporting period and how these are addressed or being addressed.
6. **Loan and Grant Covenants:** The report will tabulate current status of compliance with covenants of the loan and grant agreements.