

Environmental Assessment Report

Environmental Assessment and Review Framework
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Georgia: Subregional Road Corridors Development Program

Prepared by Engconsult Ltd., Canada for Asian Development Bank.

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CURRENCY EQUIVALENTS

(as of 29 June 2009)

Currency Unit	–	lari (GEL)
GEL1.00	=	\$0.6047
\$1.00	=	GEL1.643

ABBREVIATIONS

ADB	–	Asian Development Bank
EA	–	executing agency
EARF	–	environmental assessment and review framework
EE	–	ecological expert
EEC	–	ecological expert conclusion
EIA	–	environmental impact assessment
EIP	–	environmental impact permit
EMP	–	environmental management plan
IEE	–	initial environmental assessment
MFF	–	multitranches financing facility
MOEPNR	–	Ministry of Environmental Protection and Natural Resources
MORDI	–	Ministry of Regional Development and Infrastructure
NGO	–	nongovernment organization
PMU	–	project management unit
RAMSAR	–	Ramsar Convention on Wetlands
RD	–	Roads Department
SEIA	–	summary environmental impact assessment
SIEE	–	summary initial environmental assessment
TOR	–	terms of reference

NOTE

In this report, “\$” refers to US dollars.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

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Environmental Assessment and Review Framework

A. Introduction

1. This environmental assessment and review framework (EARF) has been developed to guide the Roads Department (RD) of the Ministry of Regional Development and Infrastructure (MORDI) in carrying out the environmental assessment of the future projects to be financed under the multitranche financing facility (MFF): 'Subregional Road Corridor Development Program'. The EARF is based on the Georgia's Laws on Environmental Impact Permit and Ecological Examination (2007) and ADB's *Safeguards Policy Statement 2009 (SPS 2009)*.

B. Overview of the Subprojects to be Assessed

1. Identification of projects for MFF is under progress. So far, only one project (Project 1, Ajara Bypass Roads) has been identified and this project will be implemented in two tranches. The activities included in the Project 1 are construction of 42 km of new roads and widening of 6 km of existing roads along the Poti–Batumi–Sarpi road, bypassing Kobuleti and Batumi (Map 1). Construction of the project road will involve new construction and rehabilitation of bridges, culverts, and other associated drainage structures; tunnel construction; land acquisition and resettlement; site preparation; land clearing; disposal of gravel, soil, vegetation, and unstable material; construction of temporary access roads to construction sites; setting up of temporary construction camps to house workers; excavation and operation of borrow pits; operation of a boulder quarry; extraction of material for embankments using cut and fill procedures; protection of landslide, rockfall, and snowfall areas; measures to protect critical side-slopes; and extraction and cartage of sand for aggregate mixtures, cement works, and asphalt plants. An environmental impact assessment has been already carried out for the Project 1.

C. Country's Environmental Assessment and Review Procedures

2. The relevant national laws on environmental assessment are the '*Law on Environmental Impact Permit*' (dated December 14, 2007), the '*Law on Ecological Examination*' (dated December 14, 2007) and the '*Order No. 515 of the Minister of Environmental Protection and Natural Resources (MOEPNR) on Approval of Rules on Conduction of Ecological Examination*' (dated July 7, 2008). In accordance with these laws, all proposed subprojects require Environmental Impact Permits (EIPs) from the MOEPNR under a procedure including (i) Environmental Impact Assessment (EIA) Report, (ii) Ecological Expertise (EE), and (iii) Public participation. The steps included in securing the EIPs are:

- (i) The proponent will conduct environmental assessment study and prepare an EIA report
- (ii) The proponent will arrange a public hearing of EIA. The procedure involved in public hearing is
 - (a) Before one week of submitting draft EIA reports to the MOEPNR and MORDI, the proponent issue advertisement in regional and national news papers about the project, and date, time and place of public consultations; and send written invitations to the local government, MOEPNR and MORDI
 - (b) Arrange hearing within 50 to 60 days after publishing advertisement in the news paper

(iii) The proponent will submit an application with EIA report, minutes of meetings of public hearing and other required documents to the MOEPNR and MORDI for Environmental Impact Permit (EIP)

(iv) MOEPNR will carry out expert examination of the EIA report, known as State Ecological Expertise (EE) and issue positive EE Conclusion (EEC). Based on the positive EEC, the MOEPNR will issue EIP.

3. A brief summary of the relevant laws applicable for EIPs are described below:

(i) Determines the activities subject to mandatory EE and consequently to issuance of EIP, details the procedure for the issuance of EIPs, and defines the legal basis for public participation in the process of EE conduction, EIA preparation and decision making on EIP.

(ii) Activities subject to mandatory EE and consequently to issuance of EIPs *inter alia* include construction of automobile roads and railroads of international or inter-state importance, bridges and road tunnels thereon, as well as engineering protection structures of automobile roads, railroads and their respective territories.

(iii) View a positive EE conclusion (EEC) as mandatory for adoption of a positive decision on the issuance of an EIP. Conduction of EE and issuance of the EEC is the responsibility of the MOEPNR, which undertakes expert examination and the normative-technical and methodological guidance documents and the procedure established under law, through a special committee of experts established for each particular case.

D. Specific Procedures to be Used for Subprojects under MFF

1. Responsibilities and Authorities

4. Responsibilities of the implementing and executing agencies (RD and MORDI) include:

(i) Prepare environmental screening checklist and classify projects in consultation with MOEPNR and other departments.

(ii) Based on the environmental classification of projects, prepare terms of reference to conduct IEE or EIA studies.

(iii) Hire an environmental consultant to prepare IEE or EIA reports including EMP and summary EIA/IEE for public disclosure.

(iv) Ensure that an IEE or EIA are prepared in compliance with the requirements of the Government and ADB, and that adequate consultation with affected people is undertaken in accordance with ADB requirements.

(v) Undertake review of the IEE or EIA, summary EIA/IEE, and EMP reports to ensure their compliance with the requirements of the Government and ADB.

(vi) Obtain necessary permits and/or clearance, as required, from MOEPNR and other relevant government agencies, ensuring that all necessary regulatory clearances are obtained before commencing any civil work on the relevant sections.

(vii) Submit to ADB the IEE or EIA, summary EIA/IEE, and EMP reports and other documents, as necessary.

- (viii) Ensure that any EMP including relevant mitigation measures needing to be incorporated during the construction stage by the contractor are included in the bidding documents.
- (ix) Ensure that contractors have access to the EIA or IEE and EMP reports of the projects.
- (x) Ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities.
- (xi) Ensure and monitor that an EMP including an environmental monitoring plan will be properly implemented.
- (xii) In case unpredicted environmental impacts occur during the project implementation stage, prepare and implement as necessary an environmental emergency program in consultation with MOEPNR, other relevant government agencies, and ADB.
- (xiii) In case a project needs to be realigned during implementation, review the environmental classification, revise it accordingly, and identify whether a supplementary IEE or EIA study is required. If yes, prepare the terms of reference for undertaking a supplementary IEE or EIA and hire an environmental consultant to carry out the study.
- (xiv) Submit semi-annual reports on implementing EMPs, including implementation of an environmental emergency program, if any, to MOEPNR and ADB.
- (xv) Submit project completion environmental monitoring report to ADB after three years of completion of construction summarizing the overall environmental impacts from the projects.

5. ADB is responsible for the following:

- (i) Review EIA and SEIA reports prepared under supervision of EA;
- (ii) Review of IEE and SIEE reports if it requires ADB's no objection approval;
- (iii) Undertake annual environmental review missions for Category A and B sensitive projects; and
- (iv) Public disclosure of SEIA and SIEE (for Category B sensitive projects) through ADB website.

2. Environmental Criteria for Subproject Selection

6. Considering the potential environmental impacts of the future subprojects and the relevant environmental requirements of ADB and the Government of Georgia, the following criteria was agreed upon (by the Government and ADB) for selection of the future subprojects to be included in the Subregional Road Corridor Development Program:

- (i) The subprojects shall only involve activities that follow all the government regulations;
- (ii) The subprojects should not pass through any wildlife sanctuaries, national parks, nature reserves, and protected areas designated by national and international regulations;
- (iii) The subprojects should not pass through any ecologically sensitive and significant as recognized by the Government or any area that is internationally significant (such as protected wetland and mangroves); and

- (iv) The subproject should as much as possible not include any stretch that passes through any cultural heritage and archaeological sites designated by UNESCO and Ministry of Culture, Monument Protection, and Sports.

3. Procedures for Environmental Assessment of Subprojects

7. ADB categorizes Road projects into two categories A and B. Projects with potential for significant adverse environmental impacts are classified into Category A. An EIA is required to address significant impacts. Project judged to have some adverse impacts, but of lesser degree and/or significance than category A is classified into Category B. An initial environmental examination (IEE) is required to determine whether or not significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report. The guidelines to prepare environmental assessment reports for a Category A project-EIA and for a Category B project - IEE in compliance with the ADB's *Safeguards Policy Statement 20092*) are given in the following sections.

a. Screening

8.

All future subprojects to be included in MFF will be screened to determine its environmental category based on the ADB's Rapid Environmental Assessment Checklist (REA). A template of the REA is given in Annex 1. Categorization is to be based on the most environmental sensitive component, which means that if one part of the project is with potential for significant adverse environmental impacts, then the project is to be classified as Category A regardless of potential environmental impacts of other aspects of the project. In general, a project will be classified as 'Category A' if the project:

- (i) is a new road alignment;
- (ii) requires a complex mitigation measure needing to be prepared through an in-depth assessment of the impacts and detailed study for preparing mitigation measures;
- (iii) will generate impact on an ecologically sensitive area, particularly if the project is located less than 500 meters from any designated wildlife sanctuary, national park, other sanctuary, botanical garden, or area of international significance (e.g., an IUCN or RAMSAR site) or cultural heritage and archaeological sites designated by UNESCO. and Ministry of Culture, Monument Protection, and Sports; and
- (iv) passing through any ecologically sensitive areas (hilly or mountainous, forested, nearby estuarine or other area with important ecological function).

9. Road upgrading and rehabilitation subprojects that do not fall into the above category are classified as B.

b. Scoping

10. Before conducting any environmental studies, a scoping document consists of the scope of the environmental surveys, methods of data collection and outputs anticipated from the study are to be prepared. In case of Category A projects, the scoping document is to be approved by the EA before taking up of detailed environmental studies. Scoping should focus on identifying those components of the environment likely significantly affected by the project based on project location, past documented experience, the potential likely geographic and time-related extent of the effects, and the measurements or thresholds to be used to assess significance. A map of

the study area with a clear topographic map showing the project road(s) in relation to topography, water courses, settlement areas and preferably landuse should be enclosed with the scoping document. A sample scoping document prepared for Project 1 of the MFF is enclosed in Annex 2.

c. Identifying Baseline Conditions and Impacts

11. With the screening and scoping results in hand, planning of the field program becomes relatively easy, however does need the involvement of an experienced environmental assessment practitioner.

12. The first step is to establish the baseline conditions for the components of the environment likely affected by the project. This will be usually carried through site visits and review of spatial database for all available environmental parameters such as terrain, soils, geology, rivers, forest, protected areas and landuse. This also will include collection and analysis of background noise, air and water quality. This baseline will become the measure against which any change is measured. These data must be collected in such a manner that their source can be traced by anyone who picks up the document.

13. The second step is to predict likely change as a result of major construction activities and operation of the road, by relating cause and effect such as changes in traffic volume, fleet makeup and traffic patterns to air quality and noise effects. This will be carried out by thorough review of baseline environment and proposed civil works. The locations where based data were collected, where ongoing monitoring takes place and the timing of these activities should be remain uniform or at least easily traceable, permitting analysis of technical credibility. While following strict scientific method in EIA is far too costly and time consuming, every effort should be made make the entire study transparent and traceable.

d. Public Consultations Disclosure and Grievance Redress mechanism

14. The third step is to present the findings on impacts and benefits during a consultation and information session to inform key stakeholders and affected community of the issues identified and to invite comments and corrections. For a Category A project consultation is required at least twice during the EIA:

- (i) first as part of the scoping stage to define the project and to get feedback in options, and
- (ii) secondly after the draft EMP has been prepared.

15. Public consultations include news paper advertisement in the regional and national news papers before 50 to 60 days of the consultations giving brief project description, location and specific contact data (including telephone numbers). Often a project website is created and link information is provided. Further, the proponent, working with the consultant should prepare a list of important participants and send emails or letters of invitation providing details including dates for both consultations.

16. Consultation sessions must have minutes and attendance sheets prepared and included as part of the EIA documentation.

17. For Category B projects, nearly all conditions as defined above are the same except there is only 1 consultation session is needed. Often, the consultation session takes place as the EMP is being prepared.

e. Preparation of the Environmental Management Plan (EMP)

18. The Fourth Step is the preparation of the EMP, the most important output of an environmental assessment. The EMP must be practical, specific and systematic, such that it can be easily converted to mitigative and monitoring actions, proponents and contractors can undertake: activities that monitors can track and activities that can be translated or simply referenced in contract specification as environmental clauses. Therefore each mitigative measure needs to be matched with a monitoring activity.

19. Good EMPs not only identify the source of the impact, the effect in the biophysical environment and the monitoring action to be taken, but also where, how often, when and who should implement each mitigative and monitoring action and who is responsible. This is the same for both EIAs and IEEs.

20. Project Management Unit of RD is required to review and update the EMP as soon as the contractor has been appointed and the mobilization date is established.

f. Assessing Institutional Capacity for EMP Implementation

21. The Fifth Step involves the identification of the agencies and units at the national and provincial level that will likely be involved in the implementation and supervision of the mitigation and monitoring actions as well as the general management of the EMP from preconstruction through the operating period. The EMP is also useful in that it identifies the lead implementing and supervising agencies (RD, MORDI and MOEPNR and their provincial/regional departments) involved in all mitigation and monitoring actions. The analysis, using mostly the interview approach, should be short and focused, identifying needs based on obvious gaps, such as lack of experience in any international-level assessments or lack of experience with preparation and implementation of EMPs. Careful interviews will almost always result in those needing assistance identifying what they need. Finally the needs are assessed in terms of longer term capacity building and short term training and workshops in relation to realistic budgetary limits and a capacity building and training is proposed. Since the contractors play such an important role in EMP implementation, they must not be left out of the analysis and a general approach to strengthening their safeguards skills must be included in the analysis.

g. Estimating Mitigation, Monitoring and Training Costs

22. The Sixth Step involves costing of each of the mitigative and monitoring actions as well as the institutional capacity building. Costing details must be systematic and include rates and unit costs and an indication of actions that, while referred to as environmental, are normally found in other budget items, for example slope stabilization, revegetation, fuel handling and storage protocols and work camp waste management.

h. Reporting

23. The Seventh Step is preparation of the assessment document according to a prescribed format and level of details. The templates of the reports for preparation of EIA/IEE

reports are given in Annexes 3 to 6 and also can be found from ADB website.

E. Compliance with ADB's Environmental Policy—Due Diligence

24. RD, MORDI and MOEPNR have the responsibility to undertake environmental due diligence and monitor implementation of environmental mitigation measures for all projects under each respective responsibility. The due diligence report as well as monitoring of EMP implementation (described in the annual report) need to be documented systematically. ADB must be given access as needed to undertake environmental due diligence for all projects.

25. An EMP will be part of the overall project monitoring and supervision, and will be implemented by the contractor with oversight from the supervision consultant and PMU. Progress on the preparation and implementation of an EMP will be included in the periodic project progress reports. Specific monitoring activities defined in the IEEs or EIAs and EMPs will be carried out by the contractors and monitored by the PMU. RD will submit reports on EMP implementation to ADB for every six months to Category A and B sensitive projects and annually for Category B projects.

26. The PMU, with assistance of the international or national environmental consultants, will review the IEE or EIA and corresponding EMP for each project to ensure that mitigation measures and monitoring plans proposed in that document are in compliance with ADB's and national requirements. According to the reports and reviews during its missions, ADB, in consultation with the Government, will confirm compliance. For this purpose, the PMU will provide ADB with access to information on any projects. The information on implementation of an EMP, as well as that on environmental and social safeguard compliance, will be systematically documented and reported to ADB as part of the regular progress reports.

F. Public Disclosure

27. RD is responsible for ensuring that all environmental assessment documents, including the environmental due diligence and monitoring reports, are properly and systematically kept as part of the project record of each project under its responsibility. All environmental documents are subject to public disclosure. These documents should be made available to the public, if requested. In case there are category A and B-sensitive projects, the summary EIA/IEE will be disclosed to the public through ADB's website 120 days before the project is approved. The EIA/IEE shall be reviewed by ADB before it is disclosed to the public. RD will also ensure that public consultations, particularly with project affected persons, are undertaken adequately during the IEE or EIA preparation in consistent with ADB requirements.

G. Grievance Redress Mechanism

28. In order to receive and facilitate the resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance an Environmental Grievance Redress Mechanism will be established for each of the projects. When and where the need arises, the mechanism will be used for addressing any complaints that arise during the implementation of projects. The grievance mechanism should be scaled to the risks and adverse impacts of the project. It should address affected people's concerns and complaints promptly, using an

understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism should not impede access to Georgia's judicial or administrative remedies.

H. Grievance Focal Points, Complaints Reporting, Recording and Monitoring

29. Environment complaints can be received through Grievance Focal Points (GFPs), these will be designated personnel at various levels who would be responsible for receiving the Environmental complaint, resolving it or ensuring that it reaches the right quarters where it may be resolved. These designated GFPs may be village level local leaders, or village elders. Affected people may lodge their complaint for registration through a personal visit, call or letter to any of the GFPs.

30. Each GFP will maintain a record of the complaints received and will follow up on their rapid resolution. The site team and the MORDI will enter and maintain a complete record of all environmental complaints received alongside the record-book that serves as the social complaints register. The MORDI will also keep track of their status and will ensure that they are resolved.

I. Staffing Requirements and Budget

31. RD and MORDI will recruit environmental consultants as a part of engineering design consultants to prepare environmental assessment reports for each subproject consistent with this EARF. Terms of reference for consultants along with the budget are given in Annex 7. The estimated cost for preparation of each IEE and EIA are US\$98,750 and US\$156,750, respectively. Adequate funding resources will be provided under each subproject for environmental monitoring and mitigation measures for each subproject.

Rapid Environmental Assessment (REA) Checklist

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES), for endorsement by Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Protected Area			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Buffer zone of protected area			
▪ Special area for protecting biodiversity			
B. Potential Environmental Impacts Will the Project cause...			
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?			
▪ encroachment on precious ecology (e.g. sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction? 			
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? 			
<ul style="list-style-type: none"> ▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation? 			
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 			
<ul style="list-style-type: none"> ▪ dislocation or involuntary resettlement of people? 			
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way? 			
<ul style="list-style-type: none"> ▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups? 			
<ul style="list-style-type: none"> ▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? 			
<ul style="list-style-type: none"> ▪ hazardous driving conditions where construction interferes with pre-existing roads? 			
<ul style="list-style-type: none"> ▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations? 			
<ul style="list-style-type: none"> ▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents? 			
<ul style="list-style-type: none"> ▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials? 			
<ul style="list-style-type: none"> ▪ increased noise and air pollution resulting from traffic volume? 			
<ul style="list-style-type: none"> ▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? 			
<ul style="list-style-type: none"> ▪ social conflicts if workers from other regions or countries are hired? 			
<ul style="list-style-type: none"> ▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			
<ul style="list-style-type: none"> community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning. 			

Climate Change and Disaster Risk Questions The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.	Yes	No	REMARKS
<ul style="list-style-type: none"> Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes (see Appendix I) 			
<ul style="list-style-type: none"> Could changes in temperature, precipitation, or extreme events patterns over the Project lifespan affect technical or financial sustainability (eg., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub0-grade). 			
<ul style="list-style-type: none"> Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (eg., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)? 			
<ul style="list-style-type: none"> Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future, or encouraging settlement in earthquake zones)? 			

Note: Hazards are potentially damaging physical events.

Appendix I: Environments, Hazards and Climate Changes

Environment	Natural Hazards and Climate Change	Example Impact
Arid/Semi-arid and desert environment	Low erratic rainfall of up to 500 mm rainfall per annum with periodic droughts and high rainfall variability. Low vegetative cover. Resilient ecosystems & complex pastoral and systems, but medium certainty that 10–20% of drylands degraded; 10-30% projected decrease in water availability in next 40 years; projected increase in drought duration and severity under climate change. Increased mobilization of sand dunes and other soils as vegetation cover declines; likely overall decrease in agricultural productivity, with rain-fed agriculture yield reduced by 30% or more by 2020. Earthquakes and other geophysical hazards may also occur in these environments.	Reduced availability during construction; carriageways reduced; alignment may need for example, agriculture are shifting.
Humid and sub-humid plains,	More than 500 mm precipitation/yr. Resilient ecosystems & complex human pastoral and cropping systems. 10-30% projected decrease in water availability in next 40 years; projected	Increased landslides; networks, Increased

Environment	Natural Hazards and Climate Change	Example Impact
foothills and hill country	increase in droughts, heatwaves and floods; increased erosion of loess-mantled landscapes by wind and water; increased gully erosion; landslides likely on steeper slopes. Likely overall decrease in agricultural productivity & compromised food production from variability, with rain-fed agriculture yield reduced by 30% or more by 2020. Increased incidence of forest and agriculture-based insect infestations. Earthquakes and other geophysical hazards may also occur in these environments.	subsurface can result water into the fill, wh Reduced effectiveness in a reduction in the which become satur
River valleys/ deltas and estuaries and other low-lying coastal areas	River basins, deltas and estuaries in low-lying areas are vulnerable to riverine floods, storm surges associated with tropical cyclones/typhoons and sea level rise; natural (and human-induced) subsidence resulting from sediment compaction and ground water extraction; liquefaction of soft sediments as result of earthquake ground shaking. Tsunami possible/likely on some coasts. Lowland agri-business and subsistence farming in these regions at significant risk.	Same as above
Small islands	Small islands generally have land areas of less than 10,000km ² in area, though Papua New Guinea and Timor with much larger land areas are commonly included in lists of small island developing states. Low-lying islands are especially vulnerable to storm surge, tsunami and sea-level rise and, frequently, coastal erosion, with coral reefs threatened by ocean warming in some areas. Sea level rise is likely to threaten the limited ground water resources. High islands often experience high rainfall intensities, frequent landslides and tectonic environments in which landslides and earthquakes are not uncommon with (occasional) volcanic eruptions. Small islands may have low adaptive capacity and high adaptation costs relative to GDP.	Increased salinity inc materials which can by increased wave ac from overtopping of water intrusion in to
Mountain ecosystems	Accelerated glacial melting, rockfalls/landslides and glacial lake outburst floods, leading to increased debris flows, river bank erosion and floods and more extensive outwash plains and, possibly, more frequent wind erosion in intermontane valleys. Enhanced snow melt and fluctuating stream flows may produce seasonal floods and droughts. Melting of permafrost in some environments. Faunal and floral species migration. Earthquakes, landslides and other geophysical hazards may also occur in these environments.	Damage to infrastruc mudflows, permafros roads, glacial lake ou crossings.
Volcanic environments	Recently active volcanoes (erupted in last 10,000 years – see www.volcano.si.edu). Often fertile soils with intensive agriculture and landslides on steep slopes. Subject to earthquakes and volcanic eruptions including pyroclastic flows and mudflows/lahars and/or gas emissions and occasionally widespread ashfall.	Damage and loss of r roadworks crew and

SAMPLE SCOPING DOCUMENT

Scoping Framework for the Environmental Impact Assessment of 'Ajara Bypass Roads Development Project'

A. Introduction

1. This scoping framework has been prepared to carry out detailed environmental impact assessment (EIA) for the 'Ajara Bypass Roads Development Project' in accordance with ADB's Environment Policy (2002) and Environmental Assessment Guidelines (2003) and relevant laws and regulations in Georgia. The project involves new construction and widening of roads, bridges, overpasses, tunnels, and protection structures. The study will identify potential environmental impacts on physical, ecological, social, cultural, and economic resources of project areas during design (for different alignments), construction and operation. An EIA report will be prepared along with environmental management and monitoring plan to address all identified environmental impacts as per the work plan provided in Figure 1. The study will be carried out by Consultant and the draft EIA report will be submitted along with the Final Report of the Project.

B. Scope of Work

1. Baseline Studies

a. Output 1: Memo on Georgian Legal and Administrative Procedures

2. **Activity 1.1:** Collection and review of relevant information regarding environmental legislation, statutory orders, by-laws, etc. connected to preparation and approval of the EIA report by Georgian Authority, and draft the memo. The memo will also consider the requirements of ADB Guidelines for 'Category A' Project.

3. **Activity 1.2:** Conduction of a series of meetings with the Ministry of Environment Protection and Natural Resources, National Environmental Agency, and the Ministry of Culture (Center of Archeological Studies, Department of Monument Protection). During these meetings appropriate legal and administrative procedures has been discussed. Discussions also includes issues such as basis for further approval/ disapproval of EIA by Georgian authorities and on the issuance of "Construction Permit" along with "Environmental Impact Permit" (published in 2007 and entered in force in 2008) and 'State Ecological Examination' in accordance with Georgia's Law on Licenses and Permits (2005). Review of other relevant environmental laws, regulations, Norms, and Standards on Air, Noise, Water, Waste, and Wildlife.

4. **Activity 1.3:** Conduction of discussion meeting with the Road Department of the Ministry of Regional Development and Infrastructure on the issuance of "construction permit" and "environmental impact permit" in accordance with Georgia's Law on Licenses and Permits (2005).

b. Output 2: Preparation of Baseline Assessment

5. **Activity 2.1:** Review of reports and field data collected from the Project's pre-feasibility study; and other road projects carried out under the World Bank, JBIC, EBRD, and MCC's funding.

6. **Activity 2.2:** Collection of baseline information on existing environmental condition along the project road alignments and identification of the environmental components that need detailed further study. Baseline assessment will be done based on the available secondary information, field visits, sampling and environmental monitoring including but not limited to the following:

- (i) Physical resources: Topography, climate, soils, geology, landuse, coastal resources, and surface and groundwater resources;
- (ii) Natural hazards: Seismicity, floods, landslides, and volcanic activity;
- (iii) Ecological Resources: Landscape and natural ecosystem, flora and fauna, wildlife and wetland habitats, nature reserve and Protected areas;
- (iv) Environmental quality: Air quality (PM, CO, NO_x, SO_x etc.), noise quality and water quality (DO, TPH, pH, total nitrogen, BOD, total phosphorus, and suspended solid etc.); and
- (v) Cultural resources and Archaeological sites: Structures or sites that are of historical, archaeological, paleontological, or architectural significance.

2. Detailed Field Investigation to Screen Environmental Impacts

c. Output 3: Field Investigation and Analysis of Results

7. **Activity 3.1:** Preparation of layout plan of the project road consisting of, but not limited to, the following information:

- (i) Road alignments
- (ii) Sampling location for environmental parameters (air, noise, water)
- (iii) Construction camp including storage of petroleum products and explosives
- (iv) Asphalt and batch mixing plants, Construction sites and camps, Quarry sites and borrow pits
- (v) Water sources, Waste disposal sites, Environmentally sensitive areas

8. **Activity 3.2:** Collection of a cadastral land use map showing the project locations and descriptions of the surrounding activities. This is to ensure that the project road is compatible with the national regulation specified for construction sites.

9. **Activity 3.3:** Initiation of necessary investigations and fieldwork for gathering of following additional information about ecological and environmental parameters in the project area.

(i) Landscape, Geohazards and Slope Stability. Identification of natural landscape along the project road. Assessment of geological and geomorphologic features of the project area, as well as any violent interference in the natural processes. Investigation and evaluation of results to predict rock falls, landslide, mudflow and debris flow, erosion, ground subsidence, floods, and banks washing-off (lateral erosion) and seashore erosion.

(ii) Soil Erosion and Slope Stability. Analysis of soil characteristics, moisture contents, vegetation cover etc., in conjunction with the above activity, to predict possible soil erosion and landslides due to project activities.

(iii) Terrestrial Flora and Fauna. Investigation of the composition of plant

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species and migratory birds in the Project area. Attention should be paid to the distribution of protected plant and animal/birds species in order to ensure favorable conservation status for these species.

(iv) Wetland habitats and Aquatic Flora and Fauna. Investigations of occurrence of species (flora and fauna) in the identified wetlands along the project area and assess the potential influence of the proposed road alignment. Attention should be paid to the distribution of protected species in order to ensure favorable conservation status for these species.

(v) Protected Areas and Sensitive Environmental Receptors. Collection of protected and sensitive area maps and exact coordinates showing the boundaries and buffer zones of protected areas and project alignments and descriptions of the habitats. This is to ensure that the locations of sensitive areas and project alignment are sufficiently distant enough to maintain harmonization and avoid any potential disturbances on the habitats. Investigation will also be done for other sensitive sites along the project alignment, viz. wetlands, seashore, tourism, etc.

(vi) Traffic Flow. Traffic counts and historical traffic flow to predict the future traffic growth and the load on the project road.

(vii) Air Quality and Noise Level. Collection and analysis of air (PM, CO, NO_x, SO₂) and noise quality along the project road.

(viii) **Water Quality.** Collection and analysis of water quality (DO, turbidity, pH, TOC, and dissolved solid) of the major rivers along the project road. Investigation of water quality impacts during construction and operations stages in selected river sites.

(ix) Monuments and Archaeological Site. Investigation of the impact of the project on monuments and archaeological sites along the project corridor.

(x) Quarry and Borrow Sites. Estimation of effects on the ecological resources in the area connected to quarry and borrow pit operations needed for construction.

3. Analysis of Alternatives and Economic Assessment

d. Output 4: Analysis of Alternative Options

10. **Activity 4.1:** Comparative environmental analysis of all available project alignments, including “No Project” scenario.

e. Output 5: Economic Assessment

11. **Activity 5.1:** Economic analysis of all alternatives in accordance with ADB’s Handbook on Economic Evaluation of Environmental Impacts for: (i) costs and benefits of environmental impacts; (ii) costs, benefits, and cost-effectiveness of mitigation measures; and (iii) discussion of impacts that have not been expressed in monetary values, in quantitative terms where possible.

4. Forecast Future Impacts and Mitigation Measures

f. Output 6: Forecast of Impacts

12. **Activity 6.1:** Forecasting of air and noise quality based on predicted traffic estimates using computer modeling software and recommendation of mitigation measures.

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13. Activity 6.2: Evaluation of the project impact on all physical and ecological resources described in Activity 3.3 and recommendation of mitigation measures.

14. Activity 6.3: Evaluation of socio-economical and cultural impacts, such as:

- (i) Assessment of the status of livelihoods (agriculture, business, etc.) in the context of socio-economical impact.
- (ii) Assessment of the impact on objects or areas with known archeological values in the project area.
- (iii) Assessment of impacts on culturally and religiously sensitive locations (church, cemetery, etc.)
- (iv) Assessment of impacts in tourism sector in Kobuleti and Batumi resort areas
- (v) Assessment of traffic safety.

15. **Activity 6.4:** Assessment of impact on human health and estimation of possible health impacts on construction workers and roadside residents (such as safety, HIV/AIDS, STDs, human trafficking) due to construction camps and other project activities.

g. Output 7: Environmental Management and Monitoring Plan

16. **Activity 7.1:** Preparation of Environmental Management and Monitoring Plan (EMMP) for all phases of the Project for effective implementation of environmental protection and mitigation measures and monitoring of significant environmental impacts. Preparation of environmental protection measures to (i) mitigate environmental impacts, (ii) provide in-kind compensation for lost environmental resources, or (iii) enhance environmental resources. Prepare cost estimates for each mitigation measure proposed in the EMP and include all the mitigation measures in the engineering design of the Project.

17. **Activity 7.2:** Setting up of environmental criteria for several variables such as:

- (i) Air quality, Noise level, Water quality, Accidental spills of hazardous substances; and
- (ii) Naturally protected areas.

5. Institutional Assessment and Monitoring Mechanism

h. Output 8: Institutional Assessment

18. **Activity 8.1:** Assessment of institutional capacity of the implementing agencies for effective implementation of environmental management and monitoring plan. Identification of responsible institutes for implementation and supervision of the EMMP. Assess training needs of these agencies and propose capacity building measures and institutional arrangements to strengthen these agencies along with the cost estimates.

i. Output 9: Monitoring Mechanism

19. **Activity 9.1:** Elaboration and specifying of “feed back monitoring” program, a tool to be used by implementing authorities in order to be able to interfere and respond quickly to activities, which during the construction and operation turn out to have a negative effect to the environment. The tool will specify the parameters, location, frequency and means of monitoring.

6. Public Consultations and Disclosure Plan

j. Output 10: Conduct Public Consultations and Document them

20. Activity 10.1: Assisting Department of Road to conduct two public consultations (one during the inception stage and the second one after finalization of EIA report) according to ADB's Public Communications Policy (2005) for Category A projects and the 6th Clause of the Law of Georgia on the Environmental Impact Permit. This will ensure that the consultation process will involve affected people, key agencies, NGOs, and other stakeholders and they are provided with opportunities to participate in the decision-making process and to influence decisions that will affect them. Address all the comments in the engineering designs.

21. Activity 10.2: Agreement by the appropriate authorities of specific zones where minor temporary and/or permanent impacts to the environment can be accepted during the construction and operation phase of the bypass road. The ranges of the zones will be determined on the basis of results of investigations and local conditions.

k. Output 11: Disclosure Plan

22. Activity 11.1: In consultation with the stakeholders, preparation of information disclosure plan for dissemination of safeguard documents to the affected community and general public.

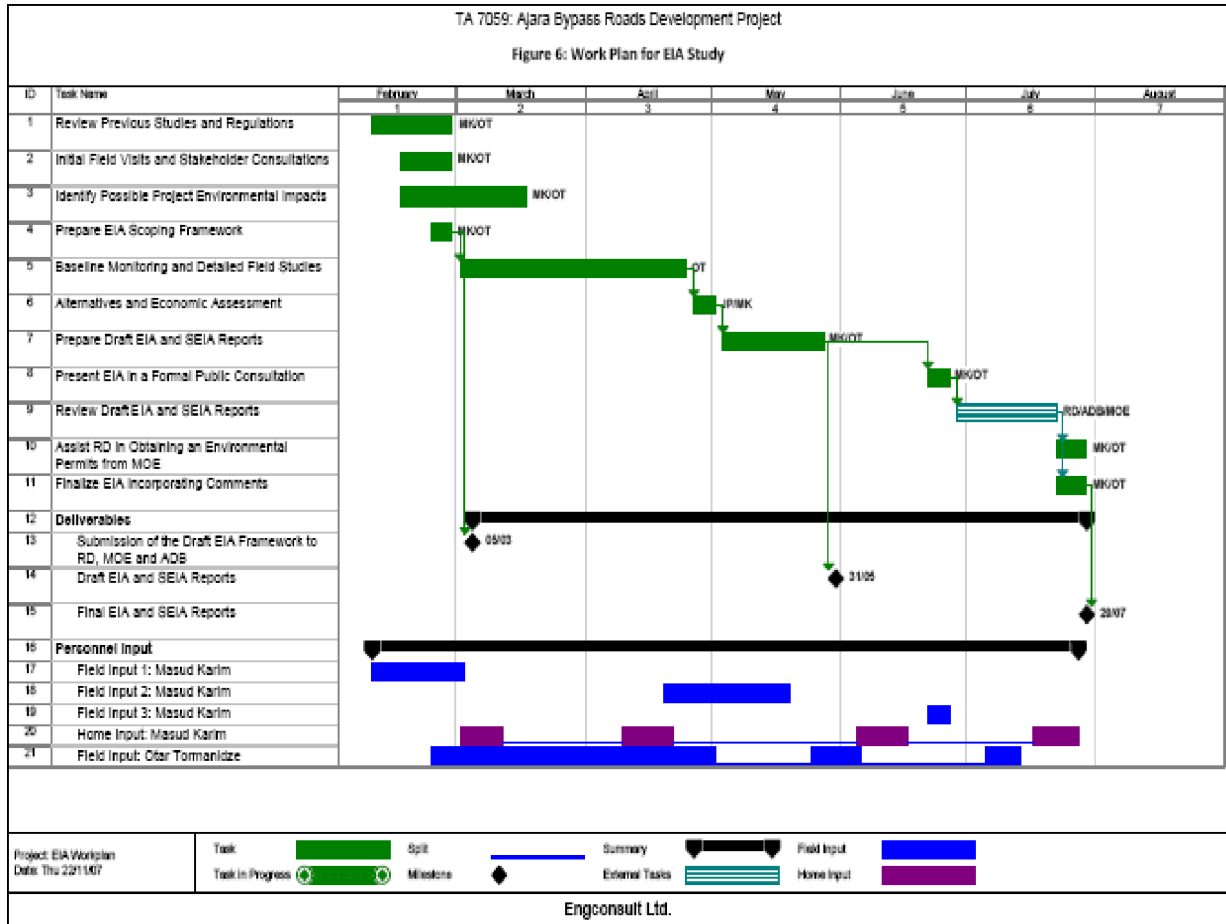


Figure 1: Work Plan of Proposed EIA Study

OUTLINE OF AN ENVIRONMENTAL IMPACT ASSESSMENT REPORT

This outline is part of the Safeguard Requirements 1. An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical EIA report contains the following major elements, and an IEE may have a narrower scope depending on the nature of the project. The substantive aspects of this outline will guide the preparation of environmental impact assessment

reports, although not necessarily in the order shown.

A. Executive Summary

This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework

This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project

This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)

This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability,

and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures

This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media [Appendix 2, para. 6]), and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, transboundary, and cumulative impacts as appropriate.

F. Analysis of Alternatives

This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental

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impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

This section:

- (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;
- (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and
- (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism

This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan

This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the

project's impacts and risks):

(i) Mitigation:

- (a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
- (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
- (c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

(ii) Monitoring:

- (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations,

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frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and

- (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements:

- (a) specifies the implementation schedule showing phasing and coordination with overall project implementation;
- (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
- (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.

- (iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation

This section provides the conclusions drawn from the assessment and provides recommendations.

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Outline Terms of Reference for Consulting Services for Environmental Assessment

A. Objectives

1. The objective of the services are (a) to conduct environmental impact assessment (EIA)/ initial environmental examination (IEE) of the proposed subproject to identify potential environmental impacts on physical, environmental, ecological, social, cultural and economic resources, and (b) to prepare EIA/IEE report along with environmental management plan. The duration of an EIA study is 5 months and an IEE study is 3 months.

B. Scope of Work

2. The consultant's scope of work will include the following tasks:

- (i) reviewing prevailing government regulations and donor guidelines governing the assessment and management of environmental impacts of road projects;
- (ii) prepare a scoping document for the environmental studies to be carried out under the project;
- (iii) undertake the EIA/IEE study to assess the direct and in-direct environmental impacts of the Project such as: (a) ecological impacts (plants and wildlife); (b) soil erosion and desertification; (c) protection of wetland habitat; (d) impact of quarry sites; (e) impact of construction camps on local environment (natural and social); (f) operational traffic safety measures; (g) areas with known archeological value; and (h) potential spills of hazardous or toxic chemicals and an appropriate response plan for the Project;
- (iv) prepare the EIA/IEE report and its summary in accordance with ADB's Safeguards Policy Statement 2009 and ADB's Public Communications Policy (2005);
- (v) the EIA/IEE study should address all potential direct and indirect environmental impacts of the project. The assessment of environmental impact should be presented in the order of project cycle: pre-construction, construction and operation. This EIA/IEE report should include the detailed environmental management plan that should be included in the bidding document; Analyze the likely impacts during construction and operation and suggest appropriate mitigation measures;
- (vi) conduct formal public consultations with affected people (two consultations for EIA and one consultation for IEE). The first consultation aims to gather environmental concerns from affected people and the final consultation aim to share the result of the assessment and the proposed mitigation measures. The list of people attended the consultation, time and locations; subject discussed during consultation should be recorded in systematic manner and should be attached in the EIA/IEE report as an appendix;
- (vii) solicit and incorporate comments on the draft EIA report from ADB, MPW, NGOs, civil society, and other stakeholders. Finalize the report to accommodate

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inputs from all the stakeholders; and
(viii) submit the reports to MOEPNR and make presentation as required by MOEPNR to obtain a environmental impact permit.

C. Organization and Staffing

3. The services are expected to be provided a team comprising one international and one national consultant.

4. **The International Environmental Specialist** shall have at least 15 years experience and familiarity with all aspects of environmental management and with significant experience in environmental management and monitoring of projects, environmental assessment and / or implementation of environmental mitigation measures on construction projects. The specialist shall also have experience working in teams of multi-discipline experts and leading a national team of consultants. Candidates with higher degrees in environmental engineering or environmental science or environment management are preferred.

5. **The National Specialists** shall at least be graduates in environmental science, environmental engineering, geological science, engineering hydrology, biology or related discipline with significant experience in environmental management and monitoring of projects, environmental assessment and/or design and implementation of environmental mitigation measures.

D. Budget

6. The estimated cost for preparation of each IEE and EIA are provided in Table 1 and Table 2, respectively. A team of International and national specialists are recommended for these studies. Generally for government funded projects, the environmental assessment team would include an environmental specialist, a geologist, and a biologist.

Table 1: Estimated Cost of IEE Preparation for each Subproject

Item	Unit	Quantity	Unit Cost	
			USD	Total
International Environmental	Person-month	3	25,000	75,000
National Environmental Specialist	Person-month	3	3,500	10,500
Land Transportation	Months	3	1,250	3,750
Data collection, sample analysis	Lumpsum	1	4,000	4,000
Communication	Months	3	500	1,500
Report production and distribution	Lumpsum	1	2,000	2,000
Public Consultation	Lumpsum	1	2,000	2,000
Total				98,750

Table 2:

Estimated Cost of EIA Preparation for each Subproject

Item	Unit	Quantity	Unit Cost USD	Total
International Environmental	Person-month	4	25,000	100,000
National Environmental Specialist	Person-month	4	3,500	14,000
National Hydrologist	Person-month	2	3,500	7,000
National Geologist	Person-month	2	3,500	7,000
National Biologist	Person-month	2	3,500	7,000

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Land Transportation	Months	5	1,250	6,250
Communication	Months	5	500	2,500
Data collection and sample analysis	Lumpsum	1	7,000	7,000
Report production and distribution	Lumpsum	1	2,000	2,000
Public Consultation	Lumpsum	2	2,000	4,000
Total				156,750

E. Supervision

7. The team will work in association with the PMU/RD, reporting to the project director of the PMU/RD on a day-to-day basis.

F. Outputs

8. The team's outputs will include: (i) an inception report reviewing the available environmental reports and prepare preliminary assessment of impacts associated with the proposed project, (ii) an interim report; (iii) a draft final report, containing a description of project

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environment, anticipated environmental impacts for various alternatives and proposed environmental management, monitoring and mitigation plan, and (iv) final report incorporating comments from ADB and other stakeholders.