

Terms of Reference

Preparation of Design and Environmental and Social Management Plans, and design author's supervision for the Blackspots improvement works under the LRNIP-AF 2 Project

A. Background

1. The Republic of Armenia has received a loan in amount of Euro 13.4 million financing from the World Bank and intends to apply part of the proceeds for the Preparation of Design and Environmental, Social Management Strategies and Implementation Plans, and design author's supervision for the LRNIP-AF 2 Project Black spots improvement works.
2. The Ministry of Territorial Administration and Infrastructure of Armenia (MoTAI) has the overall responsibility for implementation of the LRNIP-AF 2 and has delegated implementation functions to the Road Department SNCO (Client).
3. The Ministry of Territorial Administration and Infrastructure of Armenia (MoTAI) through the Road Department will hire a consultant firm based on the Consultant's Qualification Selection-CQS procedures described in the World Bank Procurement Regulations for IPF Borrowers" dated July 2016, revised November 2017 and August 2018 to consultancy services related to preparation of Design and Environmental, Social Management Strategies and Implementation Plans, and design author's supervision for the LRNIP-AF 2 Project Black spots improvement works.

B. Objectives

4. The main objectives for this assignment are:
 - Preparation of the Detailed Designs for improvement works of Black spots under LRNIP-AF 2 Project including Environmental and Social Management Plans;
 - Author supervision during construction period.

C. Scope of Services

Task 1. Preparation of Site-Specific Designs:

5. The Consultant should carry out necessary studies and prepare design documents for the "Blackspot" improvement works under the LRNIP-AF 2 Project. The Consultant should provide a detailed engineering design for the improvement of the selected road links, complete with cost estimates. The recommended technical option should be based on robust economic analysis and the final design should be based on the design standards.
6. The Consultant should review the Sites list of this ToR (Annex 1), present the technical, design, security issues or factors that can contribute to accidents. The accident data in mentioned sites collected by the RA Road Police on the list included to will be provided to the Consultant by the Client.
7. The consultant should carry out road-sites safety check, in line with international best practice, to identify potential problems and suggest remedial measures, along with cost estimates for each site. The results of the study will be reflected in the Sites Safety Inspection Report prepared by the Consultant.
8. The consultant should discuss with the Client sites- list and suggested remedial measurements in advance then prepare a Summary Table with all the suggestions and comments accepted by the Client.

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9. After discussion, the Consultant should submit a shortlist of Blackspots based on the Project budget. Before submitting a shortlist, information on available budget of the Project will be provided by the Client to the Consultant in advance

The shortlist is selected based on the following factors:

- Number of accidents
- Traffic Intensity
- Regional specificity (relief, climatic conditions, etc.)
- Number of beneficiaries
- Current condition of the road-sites.

Based on the above factors, the consultant should workout the Benefit-Cost Ratio (BCR) for all blackspot locations and prioritize them according to the BCR.

10. After receiving the Client's decision on the "shortlist", the Consultant should begin to develop design documentation for the LRNIP-AF 2 "black spot" improvement works.
11. The consultant should prepare a "Monitoring and Evaluation" (M&E) framework for blackspot locations so that the client can use the framework for effective M&E once the remedial measures are implemented for high priority blackspot locations.
12. Consultant should carry out the following activities during the development of the technical designs:

✓ ***Field surveys***

13. The Consultant should carry out the necessary field surveys, traffic studies, tests, etc. to secure preparation of appropriate designs.

✓ ***Design Standards***

14. European and AASHTO design standards in addition to the Armenian Standards should be used as basis for the design to get solutions appropriate for the current and forecast traffic volumes and local conditions. The Consultant should also, as far as possible, consider the Armenian standards and norms to ensure as many linkages as possible between the European and AASHTO design standards. The Consultant should economically justify and should be responsible for any design details within this framework.
15. The Consultant should carry out all the works necessary for the detailed design of the proposed works, for the estimation of quantities to an accuracy of +/- 10% of final quantities as measured on completion of the works; excluding any approved variations of the contract. Metric system should be used throughout.
16. Based on the studies and economic analyses, the Consultant should identify 2 versions the possible preliminary solutions for each of the road-sites.

✓ ***Road Safety Audit, Road Safety and Disability Access.***

17. The Consultant should carefully consider road safety as a key part of the designing, in particular, speed management (speed-limit posting and required traffic calming), pedestrian crossings, sidewalks in urban areas, guardrails, signing, marking, geometric changes, and other road safety features).
18. The Consultant will review the road technical audit reports of the previous Projects (the Armenian version will be provided by the Client) and will use recommendations related to safety issues during the design preparation.

✓ ***Preparation of Detailed Design (Geometric Design) Requirements***

19. The horizontal alignment of the road centerline, tangent points and other critical points should be fully defined relative to stations on the baseline by coordinates and offsets suitable for setting out the centerline where necessary. All points should be length of the road centerline at 25-meter intervals and at any changes in the topography.
20. The vertical alignment should take into account the design standard adopted while minimizing the earth works required. There should be coordination between horizontal and vertical alignment to the extent possible. Consideration should be given to road safety standards.
21. The design should incorporate all the environmental and social aspects. The Consultant should investigate whether there will be any other possible impacts on the environment and local communities and make proposals for remedial measures.

✓ ***Soils and Materials Investigation***

22. A review should be made of all existing relevant data followed by a general study of the soils and materials along the route.
23. Investigation for sources of construction materials for pavement structures should also be carried out and the sources of suitable materials surveyed shown on the engineering plans. Analysis and testing should be carried out as required on the construction materials in accordance with the standard practice adopted by the Republic of Armenia.
24. Soil and material plans should be prepared showing exact locations of all construction materials available with an indication of their quantities.

✓ ***Earthworks and Pavements***

25. Engineering analysis should be undertaken using the results of the soils and materials tests to determine the gradients of the slopes, compaction requirements, pavement design, and other engineering factors dictated by available natural materials. The design of the pavement should conform to the agreed design standards.
26. The gradients of the cuts and fills slopes should be assessed to determine their possible impacts on the defects in the existing pavement.
27. All sidewalks should have sloped connections with access roads and entrances

✓ ***Engineering Investigations***

28. The following engineering investigations should be carried out:
 - ground reconnaissance survey to locate the position of the road and to indicate it on a plan;
 - concrete beacons firmly sited as agreed by the Client;
 - the geometric characteristics of the centerline of the road, defined and computed and taking data for points at regular interval along the curves and the longer tangent alignments.

✓ ***Preparation of Drawings, Specifications, Summaries, Explanatory Notes***

29. Each road section must have proper drawings and plans, cross-sections identifying the roads within property boundaries and staking out of center line and cross sections with new side drains and minor cut and fill.
30. The Consultant must tie the designs to existing benchmarks and survey beacons and create correct drawings for construction. Maps of boundaries should be prepared through detailed cross sections or plan and profile drawings in 1:1,000/100 scale. The design drawings should include typical cross-

sections, sidewalks (especially standard detail drawing for concrete sidewalks), intersections and minor structures.

31. The pavement sections should show clearly the lateral extent of various layers.
32. Where necessary (where earthworks are proposed) the following engineering plans should be prepared, using format and title sheets (which must be agreed with the Client in advance), the original becoming the property of the Client:
 - Plan and Profile, Scale 1:2,000 and 1:200;
Showing: natural ground levels; horizontal and vertical curve details, running chainages, cross-section chainages, side drain location description and references to all drainage and bridge works, locations of bench marks, locations of road furniture, contour lines superimposed on plans;
 - Typical Cross-Sections, Scale 1:100
Showing: all details of road cross-sections in cuts and fills, side drains, pavement thickness, camber, super-elevation, and pavement widening;
 - Cross-section, Scale 1:100
Showing: natural ground level and superimposed road prism;
 - Soils Plan. A soils plan should be produced showing the characteristics of soils for various sections of the route. Plans showing the locations of borrow and quarry sites should also be produced;
 - Ancillary Works.
33. The Consultant should introduce the Technical Specification of improvement works.

✓ ***Construction Quantities***

34. The calculated quantities for the improvement works should be based on the final design drawings.

✓ ***Cost Estimates***

35. In order to make a fair and reasonable estimate of the cost of the project, the Consultant should take into consideration the unit prices used in the similar contracts signed by the RD within last 6-12 months Consultant should show separately the cost of all taxes (direct or indirect). In addition, the cost of supervision of construction by the Consultant should be analyzed on a unit price basis and included in the overall cost estimates.
36. In order to assist in budgeting for the required construction period, the Consultant should prepare a construction schedule for the proposed construction contract showing the anticipated annual expenditure. Due account should be taken of the climatic and any other conditions of the area which may influence the construction schedule.

✓ ***Independent expertise and Road Police consent***

37. According to the legislation of the Republic of Armenia an independent expertise and Road Police consent should be obtained by the Consultant for the final design. The Consultant is responsible for obtaining these consents once the final design is approved by the Client.

Task 2. Preparation of ESMPs

38. The works for improvement of black spots of LRNIP-AF2 project have been classified as a Category B for the environmental assessment purposes as set forth by the World Bank OP 4.01 Environmental Assessment and simplified checklist ESMPs for all financed subprojects should be prepared prior to tendering of these works.

39. Involuntary Resettlement. No activities requiring land take, or economic and/or physical displacement will be financed from the LRNIP AF 2 without a Land Acquisition Plan. The ESMPs will include measures to address expected temporary and permanent social impacts of subprojects such as restricted access, congestion or other disruption of traffic, increased risk for pedestrians, potential disruption of utility services, potential impact of labor influx, disruptions in local community life or supply of services etc.
40. The ESMPs will provide brief information on the physical and natural environment along the road sections, ecosystems, flora and fauna, hydrology and soils, land use, availability of construction materials and water, suggested locations for the disposal of construction and household wastes, proximity to objects of cultural heritage and infrastructure (settlements and communications).
41. The ESMPs will identify subprojects' potential negative environmental and social impacts and prescribe specific mitigation measures applicable for each identified impact. This would include, inter alia, measures required for ensuring work-site safety, COVID-19 workplace safety, acceptable living and working conditions for workers, adequate communication with project-affected people, and functioning of the Grievance Redress Mechanism. Monitoring plan should provide relevant and measurable indicators of successful application of mitigation measures, including location, timing and method of monitoring. Template for developing simplified ESMPs is attached to the present TOR (Annex 2).
42. Based on the ESMPs, the Consultant should define discrete mitigation measures, cost them and include into the BOQ as specific pay items, inclusive of specifications and units of payment. Where this is not possible, the Consultant should consider using part (percentage) of the civil works contract value for lump-sum payment for the Contractor for completed implementation of the ESMPs.
43. Upon approval by the Client, draft ESMPs will be disclosed and consulted with affected communities. The Consultant should assist the Client in the disclosure of draft ESMPs, holding public consultations, preparing minutes of these consultations, and will then be responsible for finalizing ESMPs based on the public feedback.

Task 3. Author supervision during construction period

44. Prior to start of construction jointly with the Client, Technical Supervisor (to be hired by Client under separate selection process) and civil works contractors surveying (including walk-over) actual condition of the construction sites in order to confirm the design appropriateness and/or identify any issues that may need to be addressed,
45. Regularly visiting construction site (at least on semi-monthly basis), participating in all working discussions with civil works contractors, Technical Supervisor and the Client,
If during the construction there is a need to revise the original designs and ESMPs, modifying them or add additional construction works, the Consultant is not additionally funded to review the original designs and ESMPs.

The Assignment will be split for two contracts as follows:

- (i) Lump-Sum for Task 1. "Preparation of Site-Specific Designs" and Task 2. "Preparation of ESMPs"; and
- (ii) Time-based for Task 3. "Author supervision during construction period";

D. Consultant's Team

a) The Consultant should provide a team comprising of qualified experts with duties and responsibilities described in this TOR and with satisfactory experience in implementing projects of similar nature and size.

b) The Consultants should prepare their own detailed organization and methodology in their Technical Proposals such that they fulfill the general requirements described in these Terms of Reference.

c) The Consultant's Team minimum composition would be a Team Leader, three Road Design Engineers, an Environmental/Social Specialist, Road Safety Specialist and other specialists and support/administrative staff as necessary (however, the Consultant is requested to organize his resources so as to deliver the assignment in the most effective way):

- **Team Leader (TL):** The TL should be a graduate senior highway/road engineer with at least 15 years professional experience with proven records of at least 8 years of managerial experience in projects of a similar nature and magnitude.
- **Road Design Engineers No 1, No 2 and No 3:** Road Design Engineers should be a graduate senior civil engineers with at least 10 years of professional experience, including at least 5 years of relevant experience in similar road design assignments.
- **Environmental/Social Specialist:** This expert should hold a university degree in natural or social science and have at least 5 years of professional experience, including at least 3 years of relevant experience in the infrastructure sector. S/he should have basic experience and knowledge of social and environmental issues associated with road construction.
- **Road Safety Specialist:** The team should include a road safety specialist/engineer with at least 5 years of professional experience of road safety issues in road design. He/she should have undertaken road safety audits (i.e. survey and evaluation of current road safety situation on site, identification of current problems and proposal for improvement of road safety on site) and be familiar with traffic calming and pedestrian safety measures.

d) The Consultant may propose additional not yet identified specialists to provide expert services as needed (these specialists will be not taken into consideration under evaluation criterion 'Key professional staff qualifications and competence for the assignment').

E. Reports and Timeline

a) The Consultant will prepare and submit to the Client the **Design Assignment** deliverables as summarized in the table below both in the Armenian and English languages (4 hard copies and one electronic copy in Armenian and 1 hard copy and one soft copy in English). The electronic copy should contain the same information as the hard copy in one pdf-file:

#	Deliverable	Due date*
1.1	Sites Safety Inspection Report : <i>The report should include the analysis of the factors contributing to the accident, study results and "black spots" list of priorities: the "long list" with initial estimated values)</i>	D + 30
1.2	Draft Design Report , including: <i>Field Surveys, Studies, Investigations, Instrumental Tests and analyses, design solutions and ESMPs. Report should also include explanatory notes and the draft cost estimates used in the analyses.</i>	D + 80

1.3	Final Design Report , updated and incorporated with the comments received on the Draft Report, including: <i>Detailed Designs, Drawings, Specifications, Summaries, Explanatory Notes, Bill of Quantities, Cost Estimates, ESMPs, Economic Analysis Report, Independent expertise, Traffic Police and affected communities consent.</i>	D + 100
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* *Where D is the contract commencement date and the numbers reflect calendar days.*

- b) Each Black spot improvement works will have a separate design report including all details of the improvement works in that road-section.
- c) The Consultant will prepare and submit to the Client the **Author Supervision Assignment** deliverables as summarized below both in the Armenian and English (2 hard copies and one electronic copy in Armenian and 1 hard copy and one soft copy in English):
 - **Monthly Progress Reports:** No later than the 20th day of each month, one brief monthly progress report for all civil works contracts should be submitted summarizing the work accomplished by the consultant for the preceding month, including brief descriptions of design problems encountered and recommended solutions and other relevant information for e ongoing contract. The report should also contain the records of the Consultant’s work for the preceding month (copy of correspondence with the Client and contractors, etc.).
 - **Completion Reports:** A Completion Report should be submitted for all roads section. These reports must be submitted within two months after the Taking Over and summarize the design problems encountered and recommended solutions. The Completion Report should be accompanied by a Summary Completion Report summarizing for each road section the key information.

d) Assignment Administrative Arrangements

1. The Consultant is required to arrange and pay for appropriate offices space, travel expenses and vehicles for inspection and all other transport of his staff, equipment, supplies, surveys, investigations, testing, telecom equipment and services and consumables, secretarial services and all other input required for the purpose of the assignment proper delivery. The Consultant should provide all interpreters and/or translators that might be required to undertake the assignments (including at the works sites) and ensure consistency and accuracy of English and Armenian versions of the deliverables and reports. These costs should be included in the Consultant's Financial Proposal.
2. All information, data and reports to be provided by the Client in the execution of the services of the Consultant should be properly reviewed and analyzed by the Consultant. The responsibility for the correctness of using such data should rest with the Consultant. All such information, data and reports should be treated as confidential.

The Client will provide the following inputs and facilities: the FWD equipment for investigations and surveys (as needed), all available relevant documents.

The list of the road-sections where should be carried out Black spots improvement works under the LRNIP-AF 2 Project

Interstate Roads

№	Road	Total Length	Number of crashes					Marzes	Hazardous Locations	Number of crashes in hazardous locations
		km	2017	2018	2019	Total	Crashes pr. Km			
1	M4, Yerevan-Sevan-Ijevan	137,9	10	10	10	30	4,6	Gegharquniq	68-75 km, M4-M14, Tsovagyugh entrance and complex	30
2	M6, Vanadzor-Alaverdi-Georgia border	91,2	6	8	10	24	3,8	Lori	4,5- 6 km, c.Vanadzor	6

Republic Roads

№	Road	Total Length	Number of crashes					Marzes	Hazardous Locations	Number of crashes in hazardous locations
		km	2017	2018	2019	Total	Crashes pr. Km			
1	H-2 H1-Abovyan-Arzni-Nor Geghi	8	1	11	9	21	2,63	Kotayq	0-8 km	21
2	H-10M2-M8-Vosketap-Vedi-Lanjar-M2:	43,6	14	10	7	31	0,71	Ararat	0-11km	22
3	H-13 Vagharshapat-Masis-M2	18	16	12	10	38	2,11	Armavir	10-18km	24
4	H-15M5-Armavir-Argavand-Margara	20	4	6	13	23	1,15	Armavir	1-10km	22

5	H-17M5-Armavir-M9 - 22.8 km	22,8	29	32	35	96	4,21	Armavir	0-10km	51
6	H-75M9-Isahakyan-Gyumri-M7-73.2 km	73,2	10	7	0	17	0,23	Shirak	0-15km	6
								Aragatsotn		
7	H-21 H75-Horom-Artik-Alagyaz	53,2	9	18	8	35	0,66	Shirak	0-10km	23
8	H-29San-Tsaghkunq-Zovaber	18,2	1	1	1	3	0,16	Gegharquniq	11-12km	
9	H-30 M4-Chambarak-Drakhtik-M14 - 55.2 km, approach to Goshavank - 3.9 km	55,2	8	7	1	16	0,29	Gegharquniq	1-6km, c.Chambarak	16
10	H-32M1-Gyumri-Kaps-Amasia-M1:	31,2	3	4	2	9	0,29	Shirak	1-10 km	6
11	H-36M4-ljevan-Navur-Berd-Aygepar	66,8	9	5	5	19	0,28	Tavush	30-40 km	15

**Environmental and Social Management Plan Checklist
for improvement works**

General Guidelines for use of ESMP checklist:

For low-risk construction projects, an alternative format is suggested for developing Environmental and Social Management Plan (ESMP), which provides an opportunity for a more streamlined approach to mainstreaming the World Bank's environmental safeguards requirements into projects which (a) are small in scale or by the nature of the planned activities have a low potential environmental impact, (b) are located in countries with well-functioning country systems for environmental assessment and management. This checklist-type format has been developed to ensure that basic good practice measures are recognized and implemented, while designed to be both user friendly and compatible with the World Bank's safeguards requirements.

The ESMP checklist-type format attempts to cover typical key mitigation measures to civil works contracts with small, localized impacts or of a simple, low risk nature. This format provides the key elements of an ESMP to meet the minimum World Bank Environmental Assessment requirements for Category B projects under OP 4.01. The intention of this checklist is that it offers practical, concrete and implementable guidance to Contractors and supervising Engineers for simple civil works contracts. It should be completed during the final design phase and, either freestanding or in combination with any environmental documentation produced under national law (e.g. Environmental Impact Assessment reports), constitute an integral part of the bidding documents and eventually the works contracts.

The checklist ESMP has the following sections:

Part 1 includes a descriptive part that characterizes the project, specifies institutional and regulatory aspects, describes technical project content, outlines any potential need for capacity building and briefly characterizes the public consultation process. This section should indicatively be up to two pages long. Attachments for additional information may be supplemented as needed.

Part 2 includes a screening checklist of potential environmental and social impacts, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking "yes", a reference to the appropriate section in the table in the subsequent Part C can be followed, which contains clearly formulated environmental and social management and mitigation measures.

Part 3 represents the environmental and social mitigation plan to follow up proper implementation of the measures triggered under Part B. It has the same format as required for MPs produced under standard safeguards requirements for Category B projects.

Part 4 contains a simple monitoring plan to enable both the Contractor as well as authorities and the World Bank specialists to monitoring due implementation of environmental management and protection measures and detect deviations and shortcomings in a timely manner.

Part B and C have been structured in a way to provide concrete and enforceable environmental and social measures, which are understandable to non-specialists (such as Contractor's site managers) and are easy to check and enforce. The ESMP should be included in the bill of quantities and the implementation priced by the bidders. Part D has also been designed intentionally simple to enable monitoring of key parameters with simple means and non-specialist staff.

CONTENTS

- A) **General Project and Site Information**
- B) **Safeguards Information**
- C) **Mitigation Measures**
- D) **Monitoring Plan**

PART 1: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE				
Country				
Project title				
Sub-Project title (if applicable)				
Scope of activity				
Institutional arrangements (World Bank)	Task Team Leader(s)		Safeguard Specialists	
Institutional arrangements (Borrower)	Implementing Entity	Implementing Unit (if other than entity)	Safeguards Supervisor (if external)	Works Contractor
SITE DESCRIPTION				
Name of site				
Visual description of site (type of landscape: urban or rural? flat or hilly? within or outside a settlement? type of buildings, communication or other type of infrastructure in the vicinity? any water body nearby?)				
Who owns the land?				
Biophysical and socio-economic context (climate, geology and geohazards, vegetation, occurrence of wildlife, road use by				

<p>local communities and for transit, road use for access to agricultural/industrial producers and to the markets, availability of local temporary labor force for road construction purposes)</p>	
<p>Locations of and distance to the operating sources of natural construction materials (aggregates, water, etc.)</p>	
<p>LEGISLATION</p>	
<p>Permits/licenses required for project activities and references to applicable national legislation</p>	
<p>PUBLIC CONSULTATION</p>	
<p>When / where the public consultation process will take/took place</p>	
<p>ATTACHMENTS</p>	
<p>Site plan/maps/photo material Records of public consultation; Project support/consent/donation letters from authorities and stakeholders; Licenses/permits/agreements (for material extraction, waste disposal, emissions, etc.); Other (as applicable)</p>	

PART 2: SAFEGUARDS SCREENING AND TRIGGERS

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	2.		
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		
	9.		
	10.		

ENVIRONMENTAL /SOCIAL SCREENING FOR SAFEGUARDS TRIGGERS

	Activity/Issue	Status	Triggered Actions
Will the site activity include/involve any of the following?	1. Roads rehabilitation	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section A below
	2. New construction of small traffic infrastructure	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section A below
	3. Impacts on surface drainage system	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section B below
	4. Historic building(s) and districts	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section C below
	5. Acquisition of land ¹	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section D below

¹ Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

	6. Hazardous or toxic materials ²	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section E below
	7. Impacts on forests and/or protected areas	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section F below
	8. Risk of unexploded ordinance (UXO)	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section G below
	9. Traffic and pedestrian safety	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section H below
	10. Social risk management	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes", see Section I below

² Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

PART 3: MITIGATION MEASURES

		(a)
		(a)
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ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
O. General Conditions	Notification and Worker Safety	<ul style="list-style-type: none"> (a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works). (c) All legally required permits have been acquired for construction and/or rehabilitation. (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' PPE will comply with international good practice (hardhats, as needed masks and safety glasses, harnesses and safety boots). (f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
A. General Rehabilitation and /or Construction Activities	Air Quality	<ul style="list-style-type: none"> (a) During excavation works dust control measures should be employed, e.g. by spraying and moistening the ground. (b) Demolition debris, excavated soil and aggregates should be kept in controlled area and sprayed with water mist to reduce debris dust. (c) During pneumatic drilling or breaking of pavement and foundations dust should be suppressed by ongoing water spraying and/or installing dust screen enclosures at site. (d) The surrounding environment (sidewalks, roads) should be kept free of soil and debris to minimize dust. (e) There will be no open burning of construction / waste material at the site. (f) All machinery will comply with the national emission regulations, will be well maintained and serviced and there will be no excessive idling of construction vehicles at sites.
	Noise	<ul style="list-style-type: none"> (b) Construction noise will be limited to restricted times agreed to in the permit. (c) During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed, and equipment placed as far away from residential areas as possible.
	Water Quality	<ul style="list-style-type: none"> (b) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in canalization and nearby streams and rivers.
	Waste management	<ul style="list-style-type: none"> (b) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities. (c) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (d) Construction waste will be collected and disposed properly by licensed collectors. (e) The records of waste disposal will be maintained as proof for proper management as designed. (f) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except when containing asbestos).
B. Impacts on surface drainage system	Water Quality	<ul style="list-style-type: none"> (b) There will be no unregulated extraction of groundwater, nor uncontrolled discharge of process waters, cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers; the Contractor will obtain all necessary licenses and permits for water extraction and regulated discharge into the public wastewater system. (c) There will be proper storm water drainage systems installed and care taken not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes by construction activities. (d) There will be procedures for prevention of and response to accidental spills of fuels, lubricants and other toxic or noxious substances. (e) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
C. Historic building(s)	Cultural Heritage	<p>(b) If construction works take place close to a designated historic structure, or are located in a designated historic district, notification should be made, and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation.</p> <p>(c) It should be ensured that provisions are put in place so that artifacts or other possible “chance finds” encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.</p>
D. Acquisition of land	Land Acquisition Plan/Framework	<p>(a) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank’s Task Team Leader should be immediately consulted. No construction activities will occur with our preparation, approval and implementation of the Land Acquisition Plan.</p> <p>(b) The approved Land Acquisition Plan/Framework (if required by the project) will be prepared/implemented.</p>
E. Toxic materials	Asbestos management	<p>(b) If asbestos is located on the project site, it should be marked clearly as hazardous material.</p> <p>(c) When possible, the asbestos will be appropriately contained and sealed to minimize exposure.</p> <p>(d) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust</p> <p>(e) Asbestos will be handled and disposed by skilled & experienced professionals.</p> <p>(f) If asbestos material is stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site.</p> <p>(g) The removed asbestos will not be reused.</p>
	Toxic / hazardous waste management	<p>(b) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information.</p> <p>(c) The containers of hazardous substances should be placed in a leak-proof container to prevent spillage.</p> <p>(d) The wastes should be transported by specially licensed carriers and disposed in a licensed facility.</p> <p>(e) Paints with toxic ingredients or solvents or lead-based paints will not be used.</p>
F. Affected forests, wetlands and/or protected areas	Ecosystem protection	<p>(b) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities.</p> <p>(c) A survey and an inventory should be made of large trees in the vicinity of the construction activity, large trees should be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided.</p> <p>(d) Adjacent wetlands and streams should be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences.</p> <p>(e) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.</p>
G. Risk of unexploded ordinance (UXO)	Hazard to human health and safety	<p>(b) Before start of any excavation works the Contractor will verify that the construction area has been checked and cleared regarding UXO by the appropriate authorities.</p>
H Traffic and pedestrian	Direct or indirect hazards to	<p>(a) In compliance with national regulations the Contractor will insure that the construction site is properly secured, and construction related</p>

safety	public traffic and pedestrians by construction activities	<p>traffic regulated. This includes but is not limited to:</p> <ul style="list-style-type: none"> ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible, and the public warned of all potential hazards, ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes, ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement, ▪ If required, active traffic management by trained and visible staff at the site for safe passage for the public, ▪ Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction.
I. Social Risk Management	Public relationship management	<p>(a) Assign local liaison person within Contractor's team to be in charge of communication with and receiving requests/ complaints from local population</p> <p>(b) Consult local communities to identify and proactively manage potential conflicts between an external workforce and local people</p> <p>(c) Raise local community awareness about sexually transmitted disease risks associated with the presence of an external workforce and include local communities in awareness activities.</p> <p>(d) Inform the population about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate.</p> <p>(e) Limit construction activities at night. When necessary ensure that night work is carefully scheduled, and the community is properly informed, so they can take necessary measures.</p> <p>(f) At least five days in advance of any service interruption (including water, electricity, telephone, bus routes), advice community through postings at the work site, at bus stops, and in affected homes/businesses.</p> <p>(g) Address concerns raised through Grievance Redress Mechanism established by the Employer within the designated timeline within the scope of Contractor's liability</p> <p>(h) To the extent possible, work camps should not be located in close proximity to local communities</p> <p>(i) Siting and operation of worker camps should be undertaken in consultation with neighboring communities</p>
	Labor management	<p>(a) Recruit unskilled or semi-skilled workers from local communities to the extent possible. Where and when feasible, worker skills training, should be provided to enhance participation of local people.</p> <p>(b) Provide adequate lavatory facilities (toilets and washing areas) in the work site with adequate supplies of hot and cold running water, soap, and hand drying devices. A temporary septic tank system should be established for any residential labor camp and without causing pollution of nearby watercourses</p> <p>(c) Raise awareness of workers on overall relationship management with local population, establish the code of conduct in line with international practice and strictly enforce them, including the dismissal of workers and financial penalties of adequate scale</p>

PART 4: MONITORING PLAN

No	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When /How Often (is the parameter to be monitored?)	Why (Is the parameter to be monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
CONSTRUCTION PHASE							
1.							
2.							
3.							
...							
n.							
OPERATION PHASE							
1.							
2.							
3.							
...							
n.							