REPUBLIC OF LEBANON
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSEIL DE DEVELOPPEMENT
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ROADS AND EMPLOYMENT PROJECT (REP)

APRIL 2018

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

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Acronyms

ARAP	Abbreviated Resettlement Action Plan
CBO	Community Based Organisation
CDR	Council for Development and Construction
CFF	Concessional Financing Facility
COM	Council of Municipalities
CSO	Civil Society Organisation
DGA	Directorate General for Antiquities
DGUP	Directorate General of Urban Planning
E&S	Environmental and Social
EA	Environmental Assessment
EH&S	Environmental Health and Safety
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
ESMMF	Environmental and Social Management and Monitoring Framework
ESMP	Environmental and Social Management Plan
GBV	Gender Based Violence
GOL	Government of Lebanon
GRM	Grievance Redress Mechanism
HCUP	Higher Council of Urban Planning
ICRC	International Committee of the Red Cross
IEE	Initial Environmental Examination
ILO	International Labor Organisation
IRAP	International Road Assessment Program
MoE	Ministry of Environment
MoEW	Ministry of Energy and Water
MoIM	Ministry of Interior and Municipalities
MoL	Ministry of Labor
MoPH	Ministry of Public Health
MoPWT	Ministry of Public Works and Transport
MoSA	Ministry of Social Affairs
MSW	Municipal Solid Waste
NGO	Non-Governmental Organization
NSEQ	National Standards for Environmental Quality
PCR	Physical Cultural Resources
PDOs	Project Development Objectives
PMU	Project Management Unit
RAP	Resettlement Action Plan
RAP	Resettlement Action Plan
REP	Roads and Employment Project
RPF	Resettlement Policy Framework
SEA	Strategic Environmental Assessment
SNRSC	Secretariat of the National Road Safety Council
TOR	Terms of Reference
UNDP	United Nations Development Program
UNHCR	United Nations High Commissioner for Refugees
US$	United States Dollar
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization

Glossary

Accessibility	Refers to the identification and elimination of obstacles and barriers to provide access to the physical environment, to transportation, to information and communications and to other facilities and services.
Biodiversity	Is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems.
Chance find (procedure)	A chance find is archaeological material encountered unexpectedly during project construction or operation. A chance find procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. The chance finds procedure will set out how chance finds associated with the project will be managed. The procedure will include a requirement to notify relevant authorities of found objects or sites by cultural heritage experts; to fence off the area of finds or sites to avoid further disturbance; to conduct an assessment of found objects or sites by cultural heritage experts; to identify and implement actions consistent with the requirements of ESS8 and national law; and to train project personnel and project workers on chance find procedures.
Caza	Geographical subdivision of the territory equivalent to the district level in Lebanon
Critical habitat	Is defined as areas with high biodiversity importance or value, including: (a) habitat of significant importance to Critically Endangered or Endangered species, as listed on the International Union for the Conservation of Nature (IUCN) Red List of threatened species or equivalent national approaches; (b) habitat of significant importance to endemic or restricted-range species; (c) habitat supporting globally or nationally significant concentrations of migratory or congregatory species; (d) highly threatened or unique system; and (e) ecological functions or characteristics that are needed to maintaining the viability of the biodiversity values described above in (a) to (d).
Cultural heritage	Is defined as resources with which people identify as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions.
Disadvantaged or vulnerable	Refers to those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so. This will take into account considerations relating to age, including the elderly and minors, and including in circumstances where they may be separated from their family, the community or other individuals upon which they depend.
Environmental, Health, and Safety Guidelines (EHSGs)	Are technical reference documents with general and industry-specific statements of Good International Industry Practice (GIIP). The EHSGs contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable cost. For complete reference, consult the World Bank Group Environmental, Health, and Safety Guidelines, http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines
Good International Industry Practice (GIIP)	Is defined as the exercise of professional skill, diligence, prudence, and foresight that would reasonably be expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally or regionally. The outcome of such exercise should be that the project employs the most appropriate technologies in the project-specific circumstances.

Habitat	Is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the nonliving environment. Habitats vary in their sensitivity to impacts and in the various values society attributes to them.
Involuntary resettlement	Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, including those that lead to loss of income sources or other means of livelihood), or both. The term "involuntary resettlement" refers to these impacts. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement.
Khamsin	An oppressive, hot, dry and dusty south or south-east wind occurring in North Africa, around the East Mediterranean and the Arabian Peninsula intermittently in late winter and early summer, but most frequently between April and June.
Land acquisition	Refers to all methods of obtaining land for project purposes, which may include outright purchase, expropriation of property and acquisition of access rights, such as easements or rights of way. Land acquisition may also include: (a) acquisition of unoccupied or unutilized land whether or not the landholder relies upon such land for income or livelihood purposes; (b) repossession of public land that is used or occupied by individuals or households; and (c) project impacts that result in land being submerged or otherwise rendered unusable or inaccessible. "Land" includes anything growing on or permanently affixed to land, such as crops, buildings and other improvements, and appurtenant water bodies.
Livelihood	Refers to the full range of means that individuals, families, and communities utilize to make a living, such as wage-based income, agriculture, fishing, foraging, other natural resource-based livelihoods, petty trade, and bartering.
Natural habitats	Are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.
Pollution	Refers to both hazardous and nonhazardous chemical pollutants in the solid, liquid, or gaseous phases, and includes other components such as thermal discharge to water, emissions of short and long-lived climate pollutants, nuisance odors, noise, vibration, radiation, electromagnetic energy, and the creation of potential visual impacts including light.
Project	Refers to the activities for which Bank support through Investment Project Financing is sought by the Borrower and as defined in the project's legal agreement between the Borrower and the Bank. These are projects to which OP/BP10.00 Investment Project Financing, applies. The World Bank Environmental and Social Policy for Investment Project Financing does not cover operations supported by Development Policy lending (for which the environmental provisions are set out in OP/BP8.60, Development Policy Lending), or those supported by Program-for-Results Financing (for which environmental provisions are set out in OP/BP9.00, Program-for-Results Financing).
Qaemmaqam	Local Authority representative acting as the Head of the Caza or District
Replacement cost	Is defined as a method of valuation yielding compensation sufficient to replace assets, plus necessary transaction costs associated with asset replacement. Where functioning markets exist, replacement cost is the market value as established through independent and competent real estate valuation, plus transaction costs. Where functioning markets do not exist, replacement cost may be determined through alternative means, such as calculation of output value for land or productive assets, or the undepreciated value of replacement material and labor for construction of structures or other fixed assets, plus transaction costs. In all instances where physical displacement results in loss of shelter, replacement cost must at least be

	sufficient to enable purchase or construction of housing that meets acceptable minimum community standards of quality and safety. The valuation method for determining replacement cost should be documented and included in relevant resettlement planning documents. Transaction costs include administrative charges, registration or title fees, reasonable moving expenses, and any similar costs imposed on affected persons. To ensure compensation at replacement cost, planned compensation rates may require updating in project areas where inflation is high or the period of time between calculation of compensation rates and delivery of compensation is extensive.
Restrictions on land use	Refers to limitations or prohibitions on the use of agricultural, residential, commercial or other land that are directly introduced and put into effect as part of the project. These may include restrictions on access to legally designated parks and protected areas, restrictions on access to other common property resources, restrictions on land use within utility easements or safety zones.

EXECUTIVE SUMMARY

I. Background

Lebanon has a largely adequate extent and coverage of the road network, but a substantial percentage is in poor condition, hindering local and economic development particularly in rural and lagging regions where the condition of the main network is worse than the national average1. This situation was aggravated by the influx of Syrian refugees which has substantially increased traffic demand and the utilization of the road network. This is mainly due to years of underinvestment, inefficient spending, weak capacity in road agencies and absence of asset management tools.

The Roads and Employment Project funded by the World Bank and subject to the present manual, will be part of phase I of the US$510 million government's roads rehabilitation and upgrade program in Lebanon, which aims to improve the efficiency of road sector expenditures through the prioritization of road works and the improvement of road asset management techniques.

This report outlines the Environmental and Social Management Framework (ESMF) prepared for Lebanon Roads and Employment Project (REP) which is implemented by the Council for Development and Reconstruction (CDR) representing the Government of Lebanon (GOL) with support from the World Bank.

II. Project Description and Components

The Roads and Employment Project objectives are to: (i) improve transport connectivity along select paved road sections; and (ii) create short term jobs for Lebanese and Syrians.

The project beneficiaries consist of the following:

1. **Lebanese and Syrian low skilled labor force participants**. The project is expected to create about 1.5 million labor days of direct short-term jobs in the construction industry, most of it for low skilled Lebanese and Syrians. Substantial additional jobs will also be created in the supply chain industries as well as the engineering and consultancy services in Lebanon. The project will also encourage participation and broader benefits for women.

2. **Lebanese and Syrian households, particularly the poor and lower middle class.** The project will rehabilitate select road sections in all regions of Lebanon. The Lebanese population as a whole and the Syrians in Lebanon, including women, will benefit from the project through improved connectivity, lower transport costs, and improved road safety. Transport costs and poor road safety disproportionally affect the poor and lower-income groups.

3. **Local industries and economies.** The project will also benefit local industries supporting the construction sector (quarries, transportation, and cement). Local economies will also benefit from improved connectivity and increased demand for local goods and services.

4. **Medium and small contractors.** The project will benefit about 10 to 15 midsize

[1] 35% percent of the main network is in poor condition.

contractors for road rehabilitation works, and about 10 small contractors and SMEs all over Lebanon for routine maintenance works.

5. **Lebanese government agencies active in the road sector.** The project will significantly contribute to building the capacity of the MoPWT, the CDR, and the Secretariat of the National Road Safety Council (SNRSC) in the planning and management of road assets.

The Roads and Employment Project will support a combination of improving road conditions and building capacities in the road sector, through three main components, namely:

Component 1: Roads Rehabilitation and Maintenance (US$184.6 million)

This component will primarily finance works for the rehabilitation and maintenance of about 500 km of primary, secondary, and tertiary roads, including road safety and spot improvements; as well as supporting consultancy services. The investments under this component will improve transport connectivity and create direct and indirect jobs for Lebanese and Syrians. The works include asphalt overlays, drainage works, base and sub base reconstruction on selected sections, slope stabilization works, retaining walls, as well as roadside improvements on sections crossing towns (sidewalks, planting trees). Most road works will be within the existing right of way. Road rehabilitation activities are estimated at US$150 million and will be financed under about 15 different local contracts, ranging in value between US$5 million to US$15 million each, which will allow the participation of medium and small size contractors in the various regions of Lebanon. The component will also finance consultancy services for the design and supervision of the rehabilitation works described above, estimated at about US$8 million. This component will also finance the required safeguards instruments such as the Environmental and Social Management Plan (ESMP), Environmental and Social Impact Assessment (ESIA), and Resettlement Action Plan (RAP) estimated at about US$1 million. It will also finance the piloting of multi-year routine maintenance contracts (two or three-year contracts), estimated at a total of about US$15 million, to be undertaken by small local contractors on a select number of the newly rehabilitated road sections. Finally, this component includes US$10.6 million as price contingencies.

Component 2: Improving Road Emergency Response Capacity (US$7.5 million)

Lebanon is primarily a mountainous country and has been recently witnessing more extreme weather with shorter yet more severe winters and snow periods. MoPWT has currently insufficient number of vehicles particularly for snow removal, and most of the existing equipment is outdated with an average age of 20 years. MoPWT is having difficulty deploying them timely to all mountain roads and regions in Lebanon during extreme weather and snow events during winter, which can cover a large part of Lebanon's national and local road networks. This is resulting in some mountain villages and towns, primarily in lagging regions and including some with a significant number of refugees, being inaccessible for several days during the winter season with detrimental effects on livelihoods and services in these communities. In addition, some major highways, such as the one linking Beirut to the Bekaa, is often cut by snow resulting in large economic losses.

This component is therefore aimed at improving the capacity of the MoPWT to deal with road emergency works, especially those induced by snow and climate extremes. This component will finance the purchase of road vehicles and equipment, particularly those needed for snow removal and landslides repairs. This component will finance the purchase of 15-wheel loaders, 10 snow blowers, 5 salt spreaders, and 10 four wheel drive vehicles. This component will also assist in revising the existing emergency procedures of MoPWT, and its capacity to plan for extreme weather event, including the timely and proper mobilization and dispatching of its equipment.

Given its strong linkages to the climate change agenda, this component could also benefit at later stages from support from disaster risk management and climate adaptation funds.

Component 3: Capacity Building and Implementation Support (US$7.5 million)

This component is aimed at building the capacity of the Lebanese agencies in the planning and management of the road sector. It will also contribute to the training and capacity building of contractors and workers on new and improved road construction and maintenance techniques. This component will finance consultancy services and related software and IT equipment, to support the following subcomponents:

Subcomponent 1. Strengthen national road asset management (US$2 million). This subcomponent will finance the creation of a road asset database for the trunk network in Lebanon, the collection of the basic information for the database (such as road condition visual surveys, IRAP assessment of road safety, and traffic counts on select road sections), and the revision of design and maintenance standards to reflect changing climate conditions, particularly related to drainage and slope protection/stabilization. This subcomponent will also finance the preparation of bidding documents and training on performance-based contracts for road maintenance.

Subcomponent 2. Support the planning and implementation of road safety measures (US$2 million). This subcomponent will benefit the SNRSC and will primarily finance the elaboration of a national strategy and action plan on road safety, as well as the implementation of select priority road safety measures in collaboration with other interested donors. This subcomponent could also benefit at later stages from grants from the Global Road Safety Facility (GRSF) as well as other interested donors.

Subcomponent 3. Support planning and design studies (US$2 million). This subcomponent will finance studies undertaken by CDR to prepare the required planning and design studies for critical transport projects identified as priorities by the Lebanese Government.

Subcomponent 4. Support training activities (US$0.5 million). This subcomponent will support training activities to build the technical skills of MoPWT and CDR staff as well as workers and small contractors. It will support training on soft skills as well as technical skills related to the work to be carried out at selected project sites. In particular, this subcomponent will also support the training of small local contractors and microenterprises and their workers on proper routine maintenance requirements and techniques, environmental and social aspects, and health and safety aspects. The implementation of this subcomponent could be in collaboration with other interested donors such as the ILO.

Subcomponent 5. Support for project Implementation (US$1 million). This subcomponent will finance the hiring of required experts by the implementing agency to properly undertake the implementation and monitoring of the project.

III. Objectives and Methodology of the ESMF

Since neither municipalities nor exact roads are determined at the onset of the project and will be decided during project implementation based on demand and consultations with the Lebanese Government represented in the CDR, the instrument of OP 4.01 is determined as Environmental and Social Management Framework (ESMF).

The purpose of this ESMF is to ensure that environmental and social management is integrated into the entire development cycle of individual investments to be financed under the Project.

In sections below, a highlight of mitigation process at respective levels of the project cycle is provided. This ESMF is intended to serve as a practical tool to guide identification and mitigation of potential environmental and social impacts of proposed investments and a platform for consultations with stakeholders and project beneficiaries.

This ESMF has been prepared in compliance with the World Bank's Safeguard Policy OP 4.01 on Environmental Assessment and relevant Lebanese policies on environmental assessment and environmental protection laws. The ESMF identifies the policy triggers for the project, the screening criteria of components, sub-components or sub-projects, the environmental and social impacts and the mitigation measures to mitigate the identified risks, assessment of the institutional capacity of the implementing agency and measures for capacity-filling gaps, and an estimate of the budget needed for the implementation of the ESMF and related instruments.

Preparation of the ESMF employed the Economic and Social Impact Assessment of the Syrian Refugee Influx and the Initial Needs Assessment to provide an insight into the scope, design and was complemented by on-the ground observations and consultations with target unions of municipalities and the Implementing Agency (CDR). The core outcomes of the ESMF process were shared and consulted with key stakeholders, particularly, the governors, *qaemmaqam*s and unions of municipalities targeted by the project and impacted by the Syrian Refugees influx via consultation workshops organized in all governorates except Beirut between the 8th and the 17th of January 2018. Upon approval and clearance of the ESMF, it will be disclosed on the website of CDR and at the premises of the targeted municipalities. The ESMF will also be disclosed on the Bank Bank's external website.

IV. Environmental and Social Risks and Mitigation Measures

The Project is expected to result in realizing multiple important objectives as follows:

- Meeting the development needs of the Lebanese economy and of lagging regions and strengthening the government's presence and its commitments to these generally neglected regions;
- Providing substantial direct and indirect employment opportunities for low skilled Lebanese and Syrians in the poorer communities;
- Benefiting both the host communities and the Syrian refugees in term of improved access to markets and services;
- Can be prepared and disbursed quickly, therefore showing results on the ground and creating positive shock in the economy; and
- Can have a wide coverage in the different regions in Lebanon, therefore benefiting a wide spectrum of communities and easing social and political tensions.

The interventions for road rehabilitation and upgrade are expected to improve accessibility and road safety, reduce dust emissions and increase fuel efficiency.

Due to its rehabilitation nature, the negative environmental impacts anticipated for the project activities are expected to be minor during rehabilitation phase and of temporary nature including dust, noise, waste generation, disruption to traffic and movement and possible damages to existing utilities and networks. These impacts can be mitigated by implementing the environmental and social management plans (ESMPs). Environmental Health and Safety procedures (EH&S) during construction and operational phases will be also prepared as necessary.

Mitigation at construction stage will take place as part of the contracts for Civil Works which will therefore bear clauses binding respective contractors to undertake impact mitigation as per the Environmental and Social Management Plans as part of the bidding documents. CDR will monitor activities of construction contractors to ensure delivery as per contracts.

The negative environmental impacts during construction are expected to be air emissions, dust, noise, wastes and wastewater discharges. Impacts during operation are expected to be mainly air emissions and noise due to the expected increase in traffic flow and higher speeds after roads rehabilitation.

While implementation of mitigation measures of the ESMP during construction fall under the CDR responsibility, the implementation of mitigation measures during the operation phase of the project is the responsibility of the concerned municipalities. The ESMF includes generic tabular ESMPs for expected activities which include the environmental impacts, their mitigations, and responsibilities.

Negative social impacts may include dissatisfaction with the selection of roads, leading some social groups to believe that their geographic area has been excluded; dissatisfaction with the allocation of project-generated jobs between groups, poor labor conditions for workers, under-participation of women, increased rates of gender based violence, and institutional capacity risks. In addition, minor land acquisition or livelihoods impacts could result in negative impacts during the construction phase of the project.

The project will mitigate against negative social impacts by putting in place clear and transparent mechanisms for allocating project resources, including road selection. Negative impacts related to land and livelihoods will be mitigated through the implementation of the project's Resettlement Policy Framework.

V. Application of the ESMF

The ESMF will be applied to (i) ensure that environmental and social considerations are integrated upstream of the planning and design process, and (ii) ensure that investment in roads improvements streamline application of the ESMF which requires that ESMPs and RAPs will be developed for individual investments to ensure management of environmental and social impacts during planning, design, and implementation.

Since the project activities are focused mainly on road maintenance and rehabilitation activities, the project is classified as environmental category "B", in accordance with Operational Policy OP 4.01. No sub-components or sub-projects of category "A" will be eligible for funding under this project.

For procurement of goods under Component (2), guidelines for use and handling will be developed and applied within the provisions of the bidding documents and technical specifications.

No impacts on physical and cultural resources or natural habitats are anticipated under the project. However, a chance find procedure is included in the ESMF in case chance finds are encountered during project implementation.

Land requirements are expected to be of small nature and sub-project investments are expected to be carried out in state-owned lands. However, the project implementation might result in small scale land acquisition or impacts on squatters or encroachers approaching to government lands or involuntary taking of land; therefore, the project will trigger the Bank policy on Involuntary Resettlement OP 4.12. A resettlement policy framework (RPF) has been prepared according to the World Bank policy and relevant Lebanese laws and regulations as a guideline for resettlement preparation and implementation.

For all subprojects which may include civil works under component (1), a social and environmental safeguards screening tool will be applied, along with the specific sub-project level instruments that will be necessary to cover both social and environmental aspects, including sub-projects Environmental and Social Management Plan (and RAP if necessary). Studies will be prepared for eligible infrastructure sub-projects to assess and quantify the environmental and social impacts according to the provisions of the ESMF and RPF.

A generic ESMP version is outlined below which will be consulted with local communities and affected people, reviewed and cleared by the World Bank, and disclosed both locally and at the World Bank Bank's external website.

Additional measures will support the implementation, monitoring, and compliance to the ESMF, including; (a) site supervision by CDR environmental and social staff and consultants with respect to the implementation of ESMPs, and (b) project supervision missions by the World Bank which will include social and environmental implementation expertise to support the client during the entire project cycle.

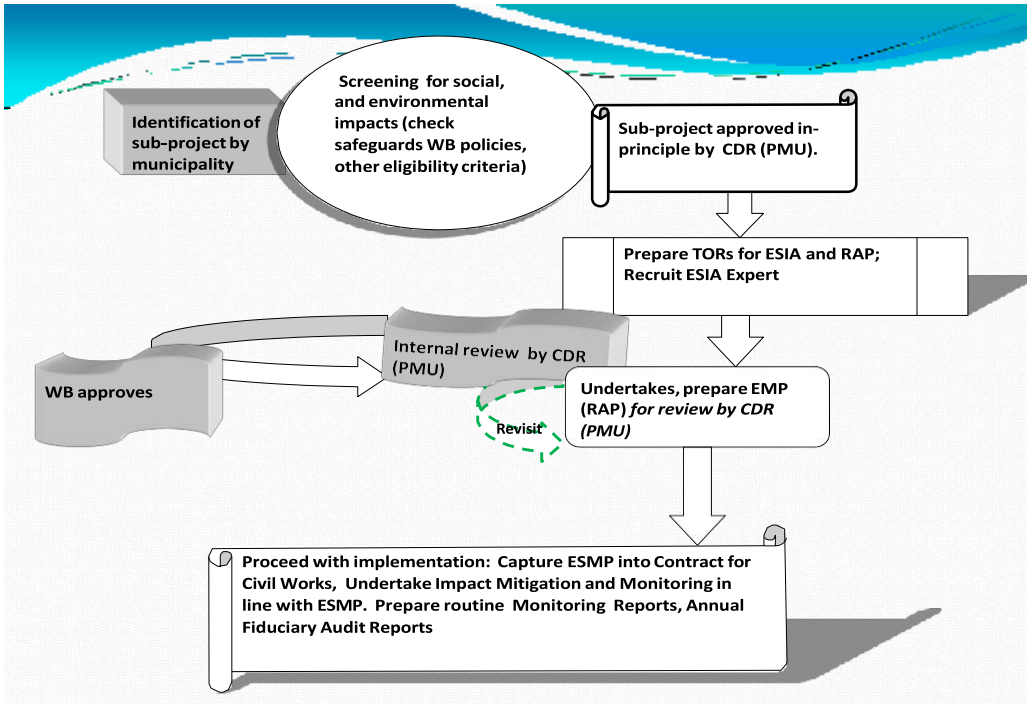


Figure 1: Schematic presentation of the ESMF management process

VI. Responsibility for Environmental Management and Monitoring

The parties involved in the environmental management are the environmental consultant at the PMU, the environmental/social focal point at the PMU and the environmental focal point of the contractor.

Monitoring will be largely carried out in the form of compliance monitoring through regular site supervision by the responsible officers. A general monitoring checklist and a specific construction safety monitoring checklist to be used and filled during site supervision is provided in Annexes 9 and 10**.**

VII. Cost Implications of the ESMF

The cost of Environmental Safeguards implementation is estimated to be US$ 1,035,000. This cost includes: ESMP Preparation, the cost of personnel, training and awareness and environmental monitoring.

CHAPTER ONE: INTRODUCTION

1.1 Project Background

The proposed World Bank and CFF-funded project of US$200 million will support Phase I of the US$510 million government's roads program. The first phase of the government program, estimated at US$300 million, is planned to be executed during three years and will focus on: (a) the rehabilitation and maintenance of existing roads, including road safety improvements; (b) the purchase of equipment for emergency roads works; and (c) capacity building in the sector. The

financing of Phase I will consist of a US$200 million financing from the World Bank (including an IBRD loan and CFF) and described here as "the project", and a US$100 million loan sought by the Government from other donors on concessional terms. The World Bank will coordinate the project implementation with parallel-financed projects under Phase I to ensure the overall success of the government program, although these projects will be executed separately.

The selection of the program's priority road sections is ongoing based on a number of criteria; meanwhile, part of the first year's work program have already been identified for timely project implementation. Given the important size and scope of the program, and in order to objectively prioritize and select the road sections to be rehabilitated under this project and the broader program, a number of criteria for selection was agreed that take into account the pavement and safety condition of the roads, the level of traffic, the balancing of roads between regions and communities, the balancing of road sections by categories (primary, secondary, and tertiary), and the labor creation potential and broader socioeconomic impacts. A visual survey is currently ongoing to assess the road condition of the network (about 6,000 km of primary, secondary, and tertiary roads covered), as well as to produce an assessment and rating of road safety condition of the network based on the methodology of the International Road Assessment Program (IRAP). The visual survey will also produce indication and/or verification of traffic volumes on the network. Meanwhile, the Lebanese authorities with assistance from the World Bank and the ILO, are producing estimates on the direct and indirect job creation potential of road investments for various road types, works, and categories; as well as the broader socioeconomic benefits of such investments. The finalization of the program's priority road sections is expected by the end of 2017.

The project design, undertaken under emergency conditions, combines good road rehabilitation and asset management practices while increasing the labor content of these projects. The project preparation was dictated by three main drivers, mainly i) a project design that allows speedy preparation and implementation, ii) a project that delivers good quality infrastructure and asset management practices, and iii) a project that creates a significant number of short-term jobs for Lebanese and Syrian communities. Below the main attributes of the project to balance these requirements.

Design for speedy preparation and implementation:

i. Prepare the project under emergency procedures while deferring exact projects/roads selection and associated safeguards to implementation;
ii. Agree on the first-year road works program to speed up implementation;
iii. Include the purchase of necessary equipment which can be implemented quickly; and
iv. Introduce retroactive financing to support timely project implementation and initiate procurement activities and required studies.

Deliver good quality infrastructure and asset management practices:

i. Prepare procurement strategy and packages to ensure a wider participation of local contractors (hence, broader benefits in different areas/communities) while maintaining well qualified contractors to guarantee proper rehabilitation works in accordance with existing Lebanon's high road rehabilitation design standards;
ii. Introduce proper and objective road prioritization measures through the visual survey of the network's condition and safety, which will also later inform the creation of a new and integrated road asset management system for Lebanon;
iii. Introduce road safety and climate resilient improvements to improve existing road design and construction standards and practices in Lebanon; and

iv. Introduce routine maintenance contracts as an important and efficient asset preservation measure (including possibly the piloting of performance-based contracts).

Create a significant number of short term jobs for Lebanese and Syrian communities:

i. Select road sections with required civil works such as drainage and slope stabilization structures to increase the labor content of contracts;
ii. Include a larger number of tertiary roads, therefore providing a wider coverage of the network, particularly in rural areas as well as more kilometers of roads to rehabilitate;
iii. Introduce routine maintenance which is very labor intensive and will be undertaken by small local contractors;
iv. Include provisions to revise designs and technical specifications to increase labor content (such as use of concrete channels instead of pipes for drainage, use of masonry walls and/or vegetation on low volume tertiary roads);
v. Include training activities, particularly on new practices and maintenance techniques (such as slope stabilization and routine maintenance).

1.2 Project Development Objectives

The Project Development Objectives (PDOs) are to: (i) improve transport connectivity along select paved road sections; and (ii) create short term jobs for Lebanese and Syrians.

1.3 Rationale for ESMF

The objective of this ESMF is to provide an environmental and social management process for the design and implementation of the Roads and Employment Project. This ESMF is intended to be used as a practical tool during project formulation, design, planning, implementation and monitoring to ensure that environment and social aspects are duly considered and addressed in the planning and implementation process. It describes the steps involved in identifying and mitigating the potential environmental and social impacts of proposed investments. This ESMF has been prepared in recognition of the Lebanese EIA decree (8633/ 2012) that outlines the procedures, steps, scope and content of an EIA study. The provisions of the EIA decree will be complemented by those of the World Bank's OP 4.01.

According to Lebanese Environmental laws, specific investment activities (such as roads construction) require EIAs, whereas there are no clear EIA requirements for rehabilitation activities that are of a significantly smaller scale, but which might have negative localized impacts that would require appropriate mitigation. This is the reason why this project will use the environmental and social screening process outlined in this ESMF. This process will involve identification, assessment, and mitigation of potential negative environmental and social impacts at the conception and planning stages of investment activities as per World Bank Operational Policies. Once the project locations have been determined and that the sub-projects have been decided upon, a screening step will be carried out with the Ministry of Environment to determine whether an IEE, EIA or simply ESMP is required for the different sub-projects.

The ESMF will identify potential socio-economic impacts that will require mitigation measures and/or resettlement and compensation. As mentioned earlier, any resettlement and/or compensation measures will be implemented in accordance with the Resettlement Policy Framework (RPF), and will be implemented prior to commencement of any investment activities. The ESMF includes a template for an Environmental and Social Management Plan (ESMP) for the project's implementation. The ESMP summarizes institutional arrangements for the implementation of mitigation measures, the monitoring, through certain indicators of

the implementation of these measures, capacity building needs as well as cost estimates. The proposed screening process would also be consistent with the Bank's safeguard policy - OP 4.01 Environmental Assessment.

This ESMF has determined the responsibility for environmental and social management to rest with all stakeholders. However, CDR is responsible to plan for, implement and supervise environmental mitigation at the design and construction phases.

CHAPTER TWO: PROJECT DESCRIPTION

This section provides a summary of the project description. A more detailed description can be found in Annex 8.

2.1 Project Components

Component 1: Roads Rehabilitation and Maintenance (US$184.6 million)

This component will primarily finance works for the rehabilitation and maintenance of about 500 km of primary, secondary, and tertiary roads, including road safety and spot improvements; as well as supporting consultancy services. The investments under this component will improve transport connectivity and create direct and indirect jobs for Lebanese and Syrians. The works include asphalt overlays, drainage works, base and sub base reconstruction on selected sections, slope stabilization works, retaining walls, as well as roadside improvements on sections crossing towns (sidewalks, planting trees). Most road works will be within the existing right of way. Road rehabilitation activities are estimated at US$150 million and will be financed under about 15 different local contracts, ranging in value between US$5 million to US$15 million each, which will allow the participation of medium and small size contractors in the various regions of Lebanon. The component will also finance consultancy services for the design and supervision of the rehabilitation works described above, estimated at about US$8 million. This component will also finance the required safeguards instruments such as the Environmental and Social Management Plan (ESMP), Environmental and Social Impact Assessment (ESIA), and Resettlement Action Plan (RAP) estimated at about US$1 million. It will also finance the piloting of multi-year routine maintenance contracts (two or three-year contracts), estimated at a total of about US$15 million, to be undertaken by small local contractors on a select number of the newly rehabilitated road sections. Finally, this component includes US$10.6 million as price contingencies.

Component 2: Improving Response Capacity to Emergency Road Works (US$7.5 million)

This component will finance the purchase of road vehicles and equipment, particularly those needed for snow removal and landslides repairs. This component will finance the purchase of 15-wheel loaders, 10 snow blowers, 5 salt spreaders, and 10 four wheel drive vehicles. This component will also assist in revising the existing emergency procedures of MoPWT, and its capacity to plan for extreme weather events, including the timely and proper mobilization and dispatching of its equipment.

Component 3: Capacity building (US$7.5 million)

This component is aimed at building the capacity of the Lebanese agencies in the planning and management of the road sector. It will also contribute to the training and capacity building of contractors and workers on new and improved road construction and maintenance techniques. This component will finance consultancy services and related software and IT equipment, to support the following subcomponents:

i. Subcomponent 1. Strengthen national road asset management (US$2 million).
ii. Subcomponent 2. Support the planning and implementation of road safety measures (US$2 million).
iii. Subcomponent 3. Support planning and design studies (US$2 million).
iv. Subcomponent 4. Support training activities (US$0.5 million).
v. Subcomponent 5. Support for project Implementation (US$1 million).

2.2 Institutional Arrangements

2.2.1 Beneficiary communities, municipalities and unions

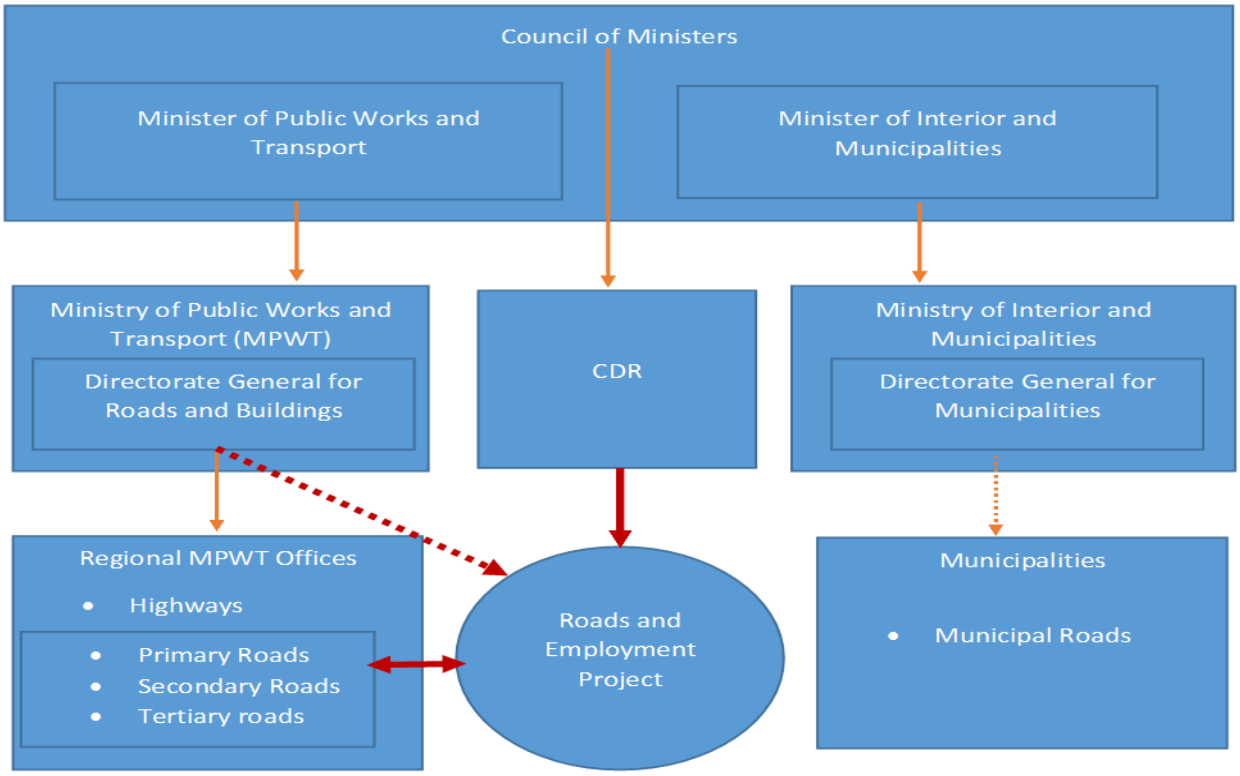
The project will ensure citizen engagement through multiple instruments. First, the project will ensure local participation in the selection of road priorities, and a simple questionnaire will be addressed by CDR to all unions of municipalities to consult with them on their priorities with regard to the rehabilitation of national roads crossing their respective towns/districts. The list of priority roads identified by municipalities will be checked against the results of the road condition survey and will be considered for selection under the project if justified on sound technical and economic basis. Second, the project will measure citizens' satisfaction with the implemented projects through a survey to assess the level of satisfaction of beneficiaries with the implemented projects; and third, the Grievance Redress Mechanism (GRM) will allow citizens to directly voice concerns or grievances to the implementing agency and ensure that these concerns are responded to and addressed in a timely manner.

The project will particularly encourage broader participation and benefits for women. The consultations will engage women in discussions on the types of jobs in construction or related supporting sectors they could most benefit from. Specific arrangements will also be made for women to be able to take on work directly and indirectly linked to the project activities.

2.2.2 Council for Development and Reconstruction (implementing agency)

The project works will be executed on the main road network which is under the jurisdiction of the MoPWT. The MoPWT is in charge of the construction and maintenance of the main road network, consisting of the primary, secondary, and tertiary roads. Local or municipal roads are under the responsibility of municipalities and are not included under this project. Given the MoPWT's lack of adequate resources and its little experience in implementing donor-funded projects, especially emergency projects, it is customary that donor-funded road works projects are implemented by CDR upon the request of the Council of Ministers. CDR has been in fact for many years the main government agency in charge of the implementation of donor funded projects, particularly in all infrastructure sectors. CDR will execute the project on behalf of the government/MoPWT and will "return" the rehabilitated roads for MoPWT's management upon the completion of the project. To ensure sustainability beyond the project's lifetime, MoPWT engineers will work closely with CDR during project implementation to ensure that important decisions (on road selection priorities, road designs, equipment specifications, and road asset management) are well coordinated, and that MoPWT has the adequate knowledge and expertise to continue the management of the network beyond the project life.

Figure 2.2-1: Road Sector Responsibilities and Project's Implementation Arrangements



The project implementation entity is CDR that will coordinate with relevant government agencies. This is a national project executed at the central level, and all technical, fiduciary, safeguards, and monitoring aspects will be executed directly by CDR, therefore avoiding the complication of multiple agencies' implementation. CDR has a long and well established cooperation with the World Bank and other donors, and its performance at project implementation has been generally satisfactory. CDR will ensure coordination with the relevant government agencies, particularly MoPWT, regarding roads priorities, technical aspects, and project's requirements. The selection of priority roads for the program will be undertaken in consultation with the MoPWT based on the results of the visual survey and the agreed criteria. MoPWT will also identify and submit its needs for emergency equipment and the desired technical specifications to CDR that will undertake the procurement of such equipment. Meanwhile, the SNRSC will be the technical lead agency on road safety aspects and the SNRSC will inform CDR about its capacity building needs and will draft and review terms of reference for the required services, with Bank support, before CDR proceeds with the procurement of such services. The road asset management system and its supporting consultancy services will be procured by CDR and will be installed within both CDR and MoPWT. The project will include capacity building of MoPWT and CDR staff on the utilization of the new road asset management system, therefore reinforcing project's sustainability. CDR will therefore be the project implementing agency, and will coordinate with MoPWT and SNRSC on various technical aspects as required.

2.3 Civil works under Component 1

The main civil works which are expected to take place under the road rehabilitation component 1 can be generally described as follows:

- Construction and reconstruction of retaining walls/footwalls;
- Pavement reconstruction (aggregate base course, bituminous base course, …);
- Pavement rehabilitation (Milling & Overlay, Deep & shallow pothole patching, crack sealing;
- Structural concrete repair;
- Sidewalk repairs and construction;

- Pedestrian Crossings (grade separation/At Grade);
- Improvement of the median barrier (construction and repairs);
- Median/Side lighting system and all related electrical and civil works;
- Road marking & signing;
- Storm water drainage improvement (construction and repairs);
- Safety barriers: New Jersey/ Texas barrier and steel guard rail;
- Relocation/Expansion of existing utilities as applicable;
- Other ancillary and associated works including traffic management during construction;
- Reinstatement of roads disturbed by the works and tapering to the existing roads as necessary.

The following are the types of construction equipment which may be used:

- JCBs
- Excavators with jack hammers
- Milling machines
- Bobcats
- Pavers
- Rollers
- Graders
- Shovels
- Soil Compactors
- Pickup trucks
- Trucks
- Pickup trucks with integrated small cranes
- Bitumen tanks with spreaders
- Air Compressors
- Power generators
- Asphalt saw cutters.

Other equipment may be added as needed by the site activities.

CHAPTER THREE: INSTITUTIONAL, POLICY AND LEGAL FRAMEWORK

The implementation of the proposed activities under the project must be consistent with all applicable laws, regulations of the GoL and the WB. It is the responsibility of the Implementing Agency (CDR) to ensure that project activities are consistent with the national and state or municipal/local regulatory/legal frameworks. Additionally, it is also to be ensured that activities are consistent with World Bank policies and guidelines. This section serves as guidance to the application of the legal and regulatory provisions to the current project context.

3.1 Institutional Framework

In 1981, a state Ministry of Environment was created for the management of environmental affairs such as the use of pesticides, deforestation and forest fires, solid waste disposal, protection of native biodiversity, etc.

In 1993, Law 216 established the Ministry of Environment (MoE) and defined its mandates and functions. Article 2 of this Law stipulates that the MoE should formulate a general environmental policy and propose measures for its implementation in coordination with the concerned government administrations. The article indicates that the MoE should protect the natural and man-made environment in the interests of public health and welfare, and fight pollution from whatever source by taking preventative and remedial action. The MoE is charged in particular with developing the following aspects of environmental management:

- A strategy for solid waste and wastewater treatment and disposal, through participation in appropriate committees, conducting studies for this purpose, and commissioning appropriate infrastructure works;
- Permitting conditions for new industry, agriculture, quarrying and mining, and the enforcement of appropriate remedial measures for establishments existing before promulgation of this law;
- Conditions and regulations for the use of public land, marine and riverine resources in such a way as to protect the environment; and
- Encouragement of private and collective initiatives that improve environmental conditions.

Law 216 was amended by Law 690/2005 and Decree 2275/2009 specifying the organization and mandates of the Ministry of Environment, its divisions and departments; these aim to strengthen the Ministry and reorganize its mission and prerogatives along four general policy principles;
1) Regionally balanced development, 2) Protection of the environment through preventative measures, 3) Adoption of the polluter pays principle and 4) Integration of environmental policies into other sectorial development policies.

In July 2002, a comprehensive environmental protection law – Law 444 - reflecting the policy principles mentioned above, was introduced. Law 444 sets the fundamental principles that govern the management of the environment and the use of natural resources.

The table below lists the main stakeholders concerned with the environment.

Public Administration	Prerogatives
Ministry of Environment (MoE)	MoE is the national competent authority responsible for the protection of the environment in Lebanon. MoE reviews, approves or refuses Environmental Impact Assessment reports prepared by engineering and/or consultancy firms

Public Administration	Prerogatives
	for existing or for potential projects, and is responsible for monitoring and enforcing the implementation of the Environmental Management Plan (EMP) during the construction and operation of projects.
Ministry of Energy and Water (MoEW)	MoEW monitors surface and groundwater quality. It also estimates water needs and uses in all the regions, and identifies the conditions and systems needed for surface and groundwater exploitation. It then develops the schemes for distribution of water (drinking and irrigation).
Ministry of Public Works and Transportation (MoPWT)	MoPWT manages, via its different directorates, roads, bridges and water channels. Through its different directorates, it manages land and maritime transportation as well as land use planning.
Higher Council of Urban Planning (HCUP), MoPWT	HCUP is responsible for urban and rural planning. In doing so, it reviews designs and plans of villages and towns, including zoning proposals for these areas. It also reviews project decrees aiming at expropriation.
Ministry of Public Health (MoPH)	MoPH is responsible for safeguarding and improving public health through for example setting allowable levels for contaminants in water, inspecting water quality in public beaches and tourist resorts and protecting water resources, specifically groundwater reservoirs.
Ministry of Interior and Municipalities (MoIM)	MoIM stops all kinds of infractions and violations and oversees local authorities' affairs and operations.
Council for Development and Reconstruction (CDR)	CDR prepares all construction and development plans in the country. It also suggests the economic, financial, and social policies needed for the implementation of these plans and accordingly sets the priorities and presents them to the CoM for approval.
Municipalities	Represent the level of local government with legal status, financial and administrative independence, which exercises powers and responsibilities over the territory they are granted by law. Municipalities manage complaints from local residents and may be involved if complaints are received during the implementation of Projects. They are also in charge of roads, parks and public places, urban planning (in coordination with the Directorate General of Urban Planning (DGUP)), as well as solid waste management within their jurisdiction.

3.2 Main Public Stakeholders

Several stakeholders play an important role in the management of natural resources and livelihood strategies within the Project area. These stakeholders and their mandate relevant to the project are presented in the sections below:

Ministry of Public Works and Transportation (MoPWT)

According to Decree 2872/1959 (Organization of the Ministry of Public Works and Transportation) and its amendments, the Ministry of Public Works and Transport is composed of five directorates having each its own prerogatives.

Out of the five directorates, the Directorate General of Roads and Buildings (Decree 13379/1998), is in charge of the design, execution and maintenance of roads, bridges, walls, and water channels. MoPWT is responsible for the management of all public roads, for developing a sustainable strategy for the transportation sector, road and street plans within cities and villages. It also provides approval for the issuance of construction permits by the concerned municipality(ies).

The Directorate also designs, expropriates, subcontracts and supervises works including maintenance of public buildings and assets. The presence of a Department of Environment and Traffic Safety within the Directorate General of Roads and Buildings should be noted, which should be responsible for assessing the environmental impact of projected roads, and recommending mitigation measures.

Ministry of Public Health (MoPH)

The Ministry of Public Health (MoPH) is responsible for safeguarding and improving public health, through the prevention of disease, supervision of health care institutions, suggestion of new legislation or modification of existing ones. The MoPH consists of Central and Regional Departments, as well as a Department of Projects and Programs. Besides suggesting the modification of laws and regulations relating to health prevention, as prompted by social and scientific developments; and preparing relevant project laws and decrees, MoPH is also responsible for setting allowable levels for contaminants in water, inspecting water quality in public beaches and tourist resorts and protecting water resources, specifically coastal groundwater reservoirs.

The Ministry is also in charge of:

- Conducting studies and suggesting protocols aiming at preserving the environment's safety from threats to public health;
- Formulating project decisions on sanitary and preventive guidelines for all kinds of classified establishments;
- Suggesting specifications and technical conditions required in the construction of sewage and potable water networks, and solid waste collection and disposal projects;
- Suggesting classification of new types of industrial facilities, and re-classifying those that need reconsideration;
- Approval of projects such as the establishment of slaughterhouses and construction of sewage networks.

With regards to the Regional Departments (or Public Health Services), they are distributed in all Governorates except in the Governorate of Beirut, and all districts. They are responsible for implementing health protocols in the Governorates, providing preventive and laboratory services. Sanitary Engineers in these services also give their opinion regarding the establishment of slaughterhouses and sewage networks in cities. As for the District Physicians, they monitor potable water quality, solid waste disposal, and sanitary guidelines in residential, recreational and occupational settings.

Council for Development and Reconstruction (CDR)

The CDR is a public institution that was created in 1977 - in partial replacement of the Ministry of Planning - to be the Government unit responsible for reconstruction and development. CDR has unprecedented powers to avoid any administrative routine that could slow down the reconstruction process, especially in the financial field. It is financially and administratively independent, and directly affiliated to the Council of Ministers (CoM). Decree 5/1977 specified CDR's responsibilities which are formulated around 4 main axes (i) Planning, (ii) Consultancy and Guidance, (iii) Financial, (iv) Implementation and Monitoring. These are to be implemented in cooperation with other ministries and stakeholders and can be summarized as follows:

Planning:

- Development of a general plan, consecutive plans and programs for construction and development activities; in addition to the suggestion of economic, financial, and social policy in line with the general plan. All of these plans and policies are submitted for approval to the CoM;
- Developing a budget for the implementation of the general plan;
- Suggesting project laws relating to construction and development and presenting them to the CoM;
- Developing a general guidance framework for urban planning and presenting it to the CoM for approval.

Consultancy and Guidance

- Giving opinion to the CoM on economic and financial relationships with other countries, foreign associations and organizations;
- Getting in contact with foreign associations and organizations for the purpose of seeking economic, cultural, technical and social assistance;
- Preparing and publishing statistical studies relating to economic and social activities and projects;
- Conducting the necessary studies in the developmental and construction fields, or designating qualified parties to conduct them, and suggesting the enhancement of the Council's scientific capabilities;
- Requesting ministries, public institutions, and municipalities to prepare projects in line with the Council's developmental and construction overall objectives;
- Providing relevant information for ministries, public institutions, municipalities, and the private sector;
- Giving suggestions on the creation, development and guidance of financial establishments and companies working on development issues.

Financial duties,

- Securing financing for the implementation of the various projects or programs, the source of funds being the CoM or international donors.

Implementation and Monitoring tasks

- Conducting feasibility studies for construction and developmental projects figuring in the general plan, or preparing programs required for the development of plans
- Executing the projects figuring in the general plan, consecutive plans and programs, in addition to any other construction/development project requested by the CoM. The CDR selects the appropriate public institution, municipality, or company for the execution of these projects, and the appropriate means (bidding, subcontracting, and partnership).
- The CDR is the exclusive party responsible for expropriation procedures, and issuing administrative authorizations and licenses, except in the case where the CoM issues them.
- Monitoring of all projects figuring in the plans and programs, and those referred by the CoM, and submitting relevant reports to the CoM
- Monitoring the proper allocation of economic and financial subsidies to their proper targets.

Municipalities

A municipality is the level of local government with legal status, financial and administrative independence, which exercises powers and responsibilities over the territory it is granted by law. The law grants municipal councils' decision-making powers and responsibilities relating to all activities of public interest within the municipal area based on a non-exhaustive list which sets out the relevant areas of public interest. According to Decree 118/1977, they are responsible for:

- Determining municipal taxes or fees;
- Developing TORs for services, works and supplies, or for selling municipal properties;
- Accepting or rejecting funds and donations;
- General programs of works, cleanliness, health, water and lighting projects, etc.;
- Planning, rectifying and enlarging roads, creating parks and public places;
- Formulating designs for the town and the master plan in cooperation with the Directorate General of Urban Planning (DGUP);
- Creating parks, courts, museums, hospitals, libraries, sewerage networks, and waste disposal options, etc.;
- Organizing transportation and specifying prices; and
- Approving permit applications for the exploitation of classified shops, restaurants, resorts, cafes, hotels, and all kinds of tourist and leisure facilities.

3.3 Legislative Framework

Table 3.3-1 presents an overview of the main environmental legislations found in Lebanon dealing with the management of water resources, solid waste and wastewater as well as air quality and pollution control; these legislations are listed in reverse chronological order.

Table 3.3-1 Overview of the main Lebanese environmental and social legislation

Year	Law / Decree	Relevant Provisions
2018	Decision 29/1	Restricts a substantive number of jobs to Lebanese citizens in order to protect the workforce and reduce unemployment. These consist of all jobs practiced by Lebanese citizens include tiling, plastering, gypsum board, iron, wood and aluminum profile installation and other decorative tasks. Engineering is also restricted to Lebanese citizens. On March 21, 2018, a clarification letter was issued by MoL regarding Decision 29/1, which states that Syrians are allowed to occupy jobs in the construction sector that are not restricted to the Lebanese as per Decision 29/1 of 2018.
2017	Abolishment of article 522 of the Penal Code that exempts a rapist from punishment if he marries his victim.	
2016	Decree 3791 (amending Decree 7426 of 2012)	Raises the minimum daily wage to US$20.
2015	MoL Decision 260/1	Defining the procedures for the review of IEE Reports
2015	MoE Decision 261/1	Defining the procedures for the review of Scoping Reports (SRs) and EIA Reports
2015	MoE Decision 262/1	Defining the procedures for filing and review of an objection on MoE Decisions related to EIAs
2015	MoE Circular 6/1	Defining EIA and Initial Environmental Examination (IEE) review fees and bank guarantees
2014	Law 293	Law on Protection of Women and Family Members from Domestic Violence - advances women's rights and safety. Establishes important protection measures and related policing and court reforms, but leaves women at risk of marital rape and other abuse.
2014	MoE Circular 9/1	Specifying documents to be submitted with IEE and SRs: • Easement and Planning document (ارتفاق وتخطيط) • Land ownership document (إفادة عقارية) • A final cadastral map (خريطة مساحة نهاية) • An aerial view of the property showing the plot's borders and its coordinates • A map showing the location of trees on site, and an overlay of the project footprint with the location of trees.
2012	Decree 8633	The EIA decree is under the Framework of Environmental Law. It stipulates the EIA procedures and regulations related to all development projects that have a potential impact on the environment. Annex I of the Decree lists high-risk projects requiring an EIA study including pubic consultation. Annex II of the Decree lists low-risk projects that require an Initial Environmental Examination (IEE) rather than an EIA.

Year	Law / Decree	Relevant Provisions
		Road rehabilitation projects do not figure in either annex (only new road construction figures in Annex I). Upon project screening, MoE is expected to request IEEs for the REP individual sub-projects, and thus a public consultation is not expected to be required. Moreover, the Decree grants the right to access projects' IEE and EIA studies and MoE's related decision, but does not mandate disclosure of EIA and IEE studies.
2012	Decree 8213	The SEA decree is under the Framework of the Environmental Law. It stipulates the SEA procedures and regulations related to all development plans, policies and programs that have a potential impact on the environment.
2012	Decree 8987	Forbids the employment of adolescents and children under 18 years of age in jobs that pose a risk to their health, safety and behavior
2004	Decree 11802	Provides the general regulations for the prevention of occupational hazards and accidents, and the promotion of health and safety in all industrial establishments subject to the Labor Law. These cover prevention and safety, occupational health, the safe use of chemicals at work, as well as occupational noise standards.
2002	Law 444	Environment Protection Law. Sets the framework for environmental protection. Provides the principles and rules for protecting different environmental matrices (air, water, soil…) from pollution with wastewater, hazardous wastes, chemicals, and noise, etc.; and specifies the penalties for violating environmental laws.
2001	Decision 5/1	Environmental Guidelines for the Establishment and/or Operation of Stations Distributing Liquid Petroleum Products.
2001	MoE Decision 8/1	National Standards for Environmental Quality (NSEQ) relating to stack emissions and wastewater discharges
2001	Law 341	Reducing air pollution resulting from the transportation sector and encouraging the use of a 'greener' less polluting fuel.
1997	MoL Decision 49/1	Forbids the employment of adolescents and children under 18 years of age in non-industrial settings, unless a medical examination proves them apt to perform such work.
1996	MoE Decision 52/1	Specifying the National Standards for Environmental Quality and the Environmental Limit Values for Air and Water
1991	Law 58	Expropriation law which was amended later on by the Law enacted on 12/08/2006
1988	Law 64/88	Protection against hazardous wastes that could harm air, water, biodiversity, soil, and people.
1974	Decree 8735	Protection against pollution from solid and liquid waste (prohibiting the digging of wells for the disposal of raw

Year	Law / Decree	Relevant Provisions
		sewage, banning sewage infiltration from septic tanks and the use of untreated sewage for the irrigation of vegetables and some fruit trees), and assigning solid waste management to municipalities
1946	Labor Law and its updates	Sets the framework and rules governing the relationship between employers and employees, including: • Minimum age of employment: 13 years (if the candidate is in ggod health); subject to yearly medical examinations until the age of 18. • Minimum age for employment in industrial workplaces and tedious tasks and works requiring substantial physical effort, or those posing heath risks: 15 years • Minimum age for employment on tasks and works that pose risks or hazards to health and safety: 16 years • Employment record issued by the Ministry of Labor specific to every employee, comprising name, nationality, employer name, photograph, specialty, health consultations, and dates of joining and leaving each establishment. • Working hours for employees under the age of 18 years: ≤6 hours, including a one-hour break following 4 continuous working hours. Working hours must exclude the period between 7:00 pm and 7:00 am. • Adolescent employees must be given a resting period of at least 13 consecutive hours between two working shifts. Overtime work and work during breaks, on weekedns and holidays are forbidden for adolescents. • Minimum vacation days for adolescents: 21 days following employment for a complete year; 2/3 of which must be taken continuously. • No gender discrimination is allowed in the workplace regarding work type, remuneration, employment, promotion, training and clothing. Employment of women in indutrial settings and other tedious and risy works is forbidden • The right of women for a paid maternity leave (10 weeks according to the latest legislation) • It is forbidden to fire women during their maternity leave • Maximum weekly working hours: 48 hours with a 1-hour break (mid-day) • Working hours can be reduced based on the level of physical effort required by the job • Right of employees to a continuous 9-hour resting period during a working day • The right of employees for a continuous 36-hour break every week • The right of employees hired since at least 1 year to 15 days of vacation per year, without the right of employers to fire employees during their leave. • The right of employees to a paid occupational sick leave in case of occupational accident, the duration of which varies based on the case.

Year	Law / Decree	Relevant Provisions
1933	Decree 2761	Guidelines related to Wastewater Management and Disposal; related to the pollution caused by the discharge of liquid waste, emphasizes the prohibition of direct or indirect wastewater discharges and waste disposal into water streams.
1932	Decree law 16 L	Mandates the establishment of buffer zones for the protection of all surfaces and groundwater resources from any type of activity/potential source of pollution. Requirements for buffering are found in Decision 320/26.

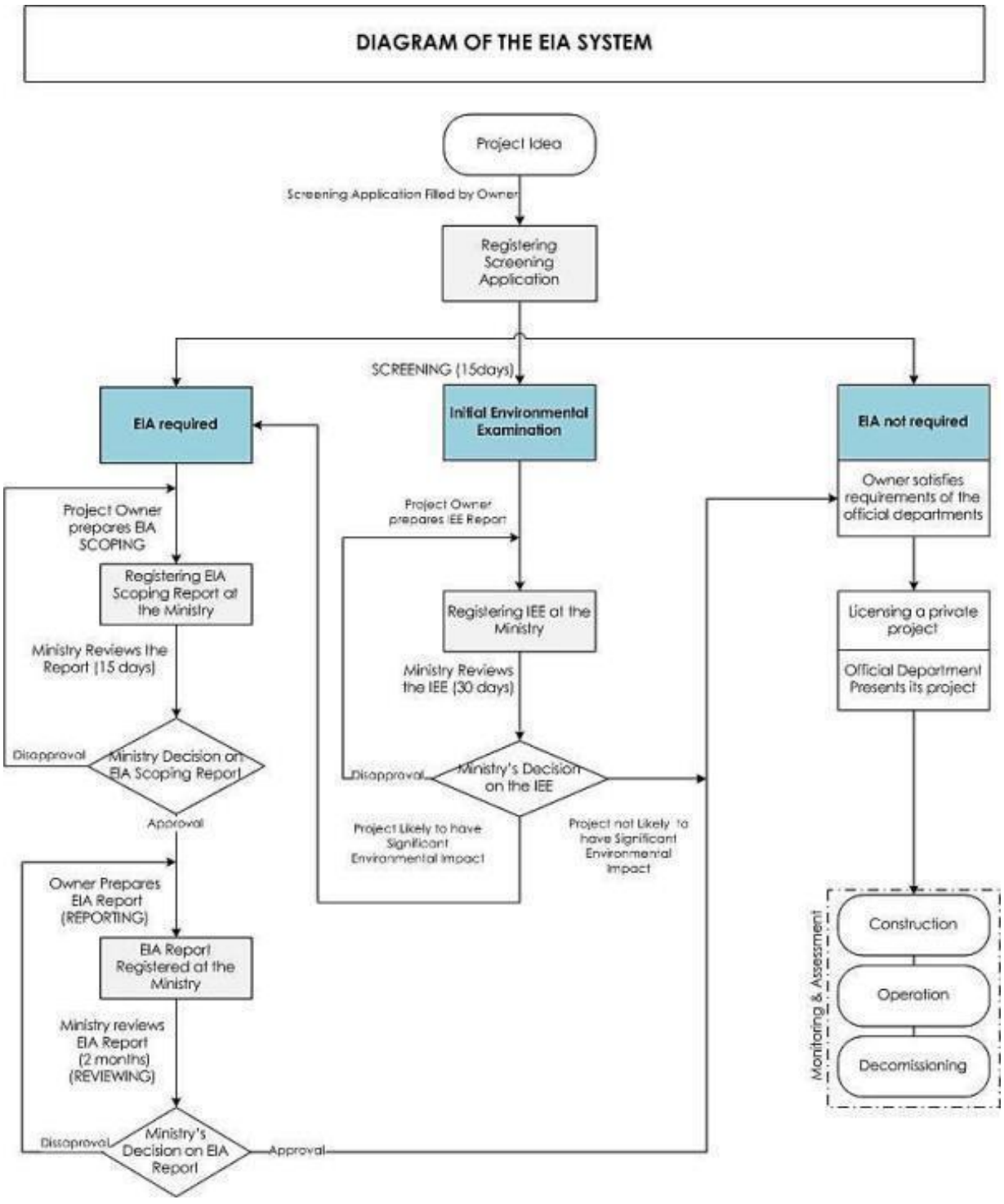
3.4 EIA Draft Decree and Project Relevance to Environmental Protection Law

The Project is governed by Lebanon's main Environmental Framework Law (Law 444/2002 on Environmental Protection). The proposed Project aims at rehabilitating roads throughout all Lebanese governorates except Beirut. Law 444 lists different environmental receptors and resources and proposes means for their protection.

The EIA Decree 8633/2012 sets principles and measures necessary to assess the environmental impact of development Projects. The EIA decree addresses the objectives of the regulation, definitions, as well as various stages of the national EIA process such as screening, scoping, implementation, and review of the EIA report, in addition to the period of validity, and the appeal process. The EIA Decree also lists all the activities for which EIA or permit conditions are mandatory, and those that require an IEE (refer to Appendices 1, 2 and 3 of the EIA Decree).

In reference to the planned Project activities and in compliance with the EIA Decree (Decree 8633/2012), the Project is not categorized under either Annex I or II of the EIA Decree. Thus, screening will be conducted with MoE to determine the type of environmental assessment required for each sub-project, while also ensuring the satisfaction of World Bank OP 4.01.

The main steps of the EIA Implementation Process in Lebanon are summarized in the schematic diagram of the following figure, as described in Appendix 9 of the EIA Decree.



3.5 Relevant Environmental Standards

There are two main legislative texts that set the environmental standards for Lebanon as shown in the table below.

Relevant Standards	Date	Relevant Provisions
Ministerial Decision No. 8/1, MoE	30/1/2001	Updates/complements Decision 52/1 by developing National Standards for Environmental Quality (NSEQ) related to air pollutants and liquid waste emitted from classified establishment and wastewater treatment plants
Ministerial Decision No. 52/1, MoE	29/7/1996	Environmental Quality Standards & Criteria for Air, Noise, Water and Soil

The maximum allowable limits of atmospheric ambient air pollutants (Decision 52/1) are shown in the following table:

Maximum Allowable Limits for Ambient Air Pollutants (MoE Decision 52/1)

Pollutant	Maximum Allowable Concentration (in µg/m^3)	Averaging Period
Sulfur Dioxide (SO_2)	350	1 hour
	120	24 hours
	80	1 year
Nitrogen Dioxide (NO_2)	200	1 hour
	150	24 hours
	100	1 year
Ozone (O_3)	150	1 hour
	100	8 hours
Carbon Monoxide (CO)	30,000	1 hour
	10,000	8 hours
Total Suspended Particulate (TSP)	120	24 hours
Particulate Matter (PM-10)	80	24 hours
Lead	1.0	1 year
Benzene	5 ppb	1 year

Decision 8/1 has assigned the particulate inorganic pollutants, gaseous inorganic pollutants and cancer causing pollutants into groups; as presented in the table below.

PARTICULATE INORGANIC POLLUTANTS			
Group I	**Group II**	**Group III**	**Group IV**
Cd, Hg, TI	As, Co, Ni, Se, Te	Sb, Pb, Cr, CN, F, Cu, Mn, Pt, Pd, Rh, V, Sn	-
GASEOUS INORGANIC POLLUTANTS			
Group I	**Group II**	**Group III**	**Group IV**
AsH_3, ClCN, $COCl_2$, HP	HBr, Cl_2, HCN, HF, H_2S	HCl not mentioned at Group I	SO_X, NO_X

CANCER CAUSING POLLUTANTS			
Group I	**Group II**	**Group III**	**Group IV**
Asbestos, Benzo(a)pyren, Beryllium and its breathable compounds calculated as Be, Dibenz(a,h) anthracen, 2-Napthylamin	Arsenic Oxides, several Chrome (VI) and Chrome (III). Combinations calculated as Cr, Cobalt, Nickel and its breathable compounds calculated as Co/ Ni, 3,3'-Dichlorbenzeden, Dimethylsulphate Ethylenimin	Acrylnitril, Benzene, 1,3-Butadien, 1-Chlor-2,3-epoxypropan (Epychlorhydrin), 1,2-Dibromethane, 1,2-Epoxypropane, Ethyleneoxide, Hydrazine, Vynilchloride	-

Ambient Air Quality Standards. The table below presents the maximum allowable limits for air emissions as set in Decision 8/1.

Maximum allowable limits for air emissions (Decision 8/1)

PARAMETER	EMISSION LIMIT VALUE	REMARK
Dust	200 mg/m^3 (for new facilities) 500 mg/m^3 (for existing facilities)	Non containing hazardous compounds
Particulate Inorganic Pollutants		
Group I	1 mg/m^3	Mass flow > 5g/h
Group II	10 mg/m^3	Mass flow > 25g/h
Group III	30 mg/m^3	Mass flow > 50g/h
Gaseous Inorganic Pollutants		
Group I	1	Mass flow > 50g/h
Group II	5	Mass flow > 300g/h
Group III	30	Mass flow > 1,000g/h
Group IV	500	Mass flow > 10,000g/h
Gaseous Organic Pollutants		
Group I	20	Mass flow > 500g/h
Group II	100	Mass flow > 4,000g/h
Group III	200	Mass flow > 6,000g/h
Cancer Causing Pollutants		
Group I	0.2	Mass flow > 5g/h
Group II	2	Mass flow > 10g/h
Group III	10	Mass flow > 50g/h

In addition to the above-mentioned, Decision 8/1 gives specific regulations for stack emissions. The Environmental Limit Values (ELV) for power generators operated with fuel

having a thermal capacity greater than 0.5 MW are presented in the following table:

Maximum Limits for Power Generation Emissions (MoE Decision 8/1)

Parameter	ELV for New Facilities	ELV for Existing Facilities	Remark
O_2 correction	5%	5%	
Dust (mg/m^3)	20 150 250	20 150 250	Using soot filter Diesel fuel Other fuel
CO (mg/m^3)	800	1,500	
NO_x (calculated to NO_2) (mg/m^3) <3MW/ > 3MW thermal capacity	4,000 / 2,000	6,000	
SO_x (calculated to SO_2) (mg/m^3) If diesel fuel (European standard) If other type of fuel	- To be determined in later stages	- To be determined in later stages	

3.5.1 Wastewater pollutants

Standards of pollutants being discharged into water bodies were set in Decision 52/1 and updated in Decision 8/1, as described in the table below.

Wastewater discharge standards into different media (Decision 8/1)

Substance	Limits for Water Bodies		
	Sewerage system	Surface water	Sea
Color	None	none	none
pH	6-9	6-9	6-9
Temperature	35ºC	30 ºC	35ºC
BOD (5 day, 20ºC)	125 mg/l	25 mg/l	25 mg/l
COD (dichromate)	500 mg/l	125 mg/l	125 mg/l
Total Phosphorus	10 mg/l	10 mg/l	10 mg/l
Total Nitrogen[2]	60 mg/l	30 mg/l	30 mg/l
Suspended solids	600 mg/l	60 mg/l	60 mg/l
AOX	5	5	5
Detergents	-	3 mg/l	3 mg/l
Coliform Bacteria 370 C in 100 ml[3]	-	2,000	2,000
Salmoellae	Absence	Absence	Absence
Hydrocarbons	20 mg/l	20 mg/l	20 mg/l
Phenol Index	5 mg/l	0.3 mg/l	0.3 mg/l
Oil and grease	50 mg/l	30 mg/l	30 mg/l
Total Organic Carbon			
Ammonia ($NH4^{+}$)	-	10 mg/l	10 mg/l
Silver (Ag)	0.1 mg/l	0.1mg/l	0.1 mg/l
Aluminium (Al)	10 mg/l	10 mg/l	10 mg/l
Arsenic (As)	0.1 mg/l	0.1 mg/l	0.1 mg/l
Barium (Ba)	2 mg/l	2 mg/l	2 mg/l
Cadmium (Cd)	0.2 mg/l	0.2 mg/l	0.2 mg/l
Cobalt (Co)	1 mg/l	0.5 mg/l	0.5 mg/l
Chromium total (Cr)	2 mg/l	2 mg/l	2 mg/l
Hexavalent Chromium (Cr^{VI+})	Chromium		
Copper total (Cu)	1 mg/l	0.5 mg/l	1.5 mg/l
Iron total (Fe)	5 mg/l	5 mg/l	5 mg/l
Mercury total (Hg)	0.05 mg/l	0.05 mg/l	0.05 mg/l
Manganese (Mn)	1 mg/l	1 mg/l	1 mg/l
Nickel total (Ni)	2 mg/l	0.5 mg/l	0.5 mg/l
Lead total (Pb)	1 mg/l	0.5 mg/l	0.5 mg/l
Antimony (Sb)	0.3mg/l	0.3mg/l	0.3mg/l
Tin total (Sn)	2 mg/l	2 mg/l	2 mg/l
Zinc total (Zn)	10 mg/l	5 mg/l	5 mg/l
Active (Cl_2)	-	1 mg/l	1 mg/l
Cyanides (CN^{-})	1 mg/l	0.1mg/l	0.1mg/l
Fluorides (F)	15 mg/l	25 mg/l	25 mg/l
Nitrate (NO_3^{-})	-	90 mg/l	90 mg/l
Phosphate (PO_4^{3-})	-	5 mg/l	5 mg/l
Sulphate (SO_4^{2-})	1,000 mg/l	1,000 mg/l	1,000 mg/l
Sulphide (S2-)	1 mg/l	1 mg/l	1 mg/l

[2] Sum of Kjeldahl-N(organic N + NH_3),NO_3-N, NO_2-N

[3] For discharges in close distance to bathing water, a stricter environmental limit value could be necessary

3.5.2 Noise Levels

The Tables below present respectively ambient noise standards and occupational Noise Exposure standards allowed for and set in Decision 52/1.

Region Type	Limit for Ambient Noise Level dB(A)		
	Day time (7 a.m. - 6 p.m.)	Evening time (6 p.m. - 10 p.m.)	Night Time (10 p.m.- 7 a.m.)
Commercial and administrative areas in town centers	55-65	50-60	45-55
Residential areas with some construction sites or along a main road	50-60	45-55	40-50
Urban residential areas	45-55	40-50	35-45
Residential suburbs with slight traffic	40-50	35-45	30-40
Industrial areas	60-70	55-65	50-60
Rural residential areas, public gardens and hospitals	35 – 45	30 – 40	25 – 35

National Occupational Noise Exposure Standards in Work Areas

Duration per Day (hours)	Allowed Sound Level Exposure, dB(A)
8	90
4	95
2	100
1	105
½	110
¼	115

3.6 World Bank Safeguard Policies and Emission Limits

3.6.1 World Bank Safeguard Policies

In addition to the Lebanese laws and regulations, the ESMF and subsequent safeguard instruments (e.g. ESIAs and ESMPs) should comply with the safeguards policies and procedures of the World Bank–specifically OP/BP 4.01 on Environmental Assessment and Involuntary Resettlement (OP/BP 4.12). Under the Bank's safeguard requirements, the REP has been assigned an EA Category "B" given that the nature of the proposed activities which will not have highly significant adverse environmental and social impacts.

The table below presents a synthesis of the Bank's safeguards policies and indicates which ones have been triggered by project activities funded under the REP.

Table 3.6-1: REP Applicable World Bank Safeguard Requirements

Yes	***If applicable, how might it apply***
[✓]	*Environmental Assessment (OP/BP/GP 4.01* Environmental Assessment should be conducted for projects which fall under World Bank Category B. OP 4.01 is triggered as the project could have impacts on the environment due to the rehabilitation of roads infrastructures and associated civil works. To identify and manage potential adverse impacts on the environment from project funded interventions –such as those mentioned above- the borrower will prepare an Environmental and Social Impact Assessment (ESIA)/ Environmental and Social Management Plan (ESMP) for site-specific schemes/activities. Where ESMF is applied, the ESMP will need to be prepared, approved, and disclosed before any construction works would start on the ground.
[✓]	*Involuntary Resettlement (OP/BP 4.12)* The need for involuntary resettlement or land acquisition in specific subproject areas will only be known during project implementation, when site-specific plans are available. Therefore, subprojects will be screened for applicability of the resettlement policy and any subprojects involving involuntary resettlement or land acquisition will only be approved after preparation of a resettlement plan acceptable to the Bank. Several issues will increase the complexity of land acquisition, such as the lack of reliable land record systems, and the inability of people losing land to either document ownership or be physically present to make their claims for eligibility. The safeguards framework will therefore include procedures for identifying eligible project-affected people, calculating and delivering compensation, and mechanisms for land dispute grievance redress. OP 4.12 covers those persons affected by involuntary taking of land. The other social dimensions including poverty impacts, gender, and civic engagement, etc. will be covered by ESIA of site-specific subprojects. The site-specific ESMPs will include measures to minimize and mitigate adverse social impacts, particularly on poor and vulnerable groups.

In view of this, the updated ESMF will address the requirements of the triggered policies.
Under the requirements of OP4.01, environmental screening enables project classification for proposed projects into three main categories, depending on the type, location, sensitivity and nature of environmental impacts.

- Category A: Significant adverse environmental impacts, broad, irreversible, major resettlement.
- Category B: The impacts are localized, short-term, and reversible and have no severe effects on the environment. Simple and low/moderate cost mitigation measures will be sufficient to restore the potential damage or keep it to the lowest possible.
- Category C: likely to have minimal or no adverse environmental impacts.

As earlier explained, REP has been classified as a **Category B project**.

In addition, due to the nature of the REP activities, the General and Industry guidelines on Environmental, Health and Safety Guidelines (EHSGs), in particular the General Guidelines and Sector Guidelines for Construction and Decommissioning should be used as appropriate[4].

[4] See ifc.org/ehsguidelines

Environmental Assessment (OP 4.01)

For all projects financed by the Bank, environmental screening is conducted according to the environmental impacts expected of the project, and all projects are assigned an environmental category, A, B, C, or FI, with a decreasing order of environmental impact severity. The instruments for this policy vary from a strategic environmental assessment, environmental and social management framework, environmental and social impact assessment, depending on the project specific circumstances. This project has been assigned environmental category "B" since the environmental impacts are expected to be minimal, during the construction phase, and can be mitigated via an environmental management plan.

Involuntary Resettlement (OP 4.12)

Significant efforts are to be made in the design and screening stages of the construction phase to avoid adverse impacts on people, land, property, including people's access to natural and other economic resources, as far as possible. The RPF sets the guidelines for the Resettlement and Compensation Plans (RAPs) that would have to be prepared when any program investment triggers this policy. The RAPs would also have to be approved by the Bank as a condition for a particular municipality to have its construction project financed.

Public Consultations and Disclosure Policy

Public Consultation: The Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project. Under the Bank's OP 4.01 Policy, for all Category A and B projects, during the EA process, the borrower consults project affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA related issues that affect them.

Disclosure: According to OP 4.01, for meaningful consultations between the borrower and project-affected groups and local NGOs on all Category A and B projects, the borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

For a Category A project, the borrower provides for the initial consultation a summary of the proposed project's objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA's conclusions. In addition, for a Category A project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs.

Any separate Category B report is made available to project-affected groups and local NGOs. Public availability in the borrowing country and official receipt by the Bank of Category A reports, and of any Category B EA reports, are prerequisites to Bank appraisal of these projects.

Once the borrower officially transmits the Category A EA report to the Bank, the Bank distributes the summary (in English) to the executive directors (EDs) and makes the report available through the Bank's external website. Once the borrower officially transmits any separate Category B EA report to the Bank, the Bank makes it available through the Bank's external website. If the borrower

objects to the Bank's releasing an EA report through the World Bank External Website, Bank staff submit the issue of further processing to the EDs.

Approval & Disclosure of Instruments

All safeguards instruments including the ESMF, ESIA, ESMP, RAP etc. will be approved/cleared by the World Bank and disclosed on the Bank's website as well as locally in a manner culturally appropriate and in a language understood by all affected Persons and stakeholders. For any changes made to these documents, the same approval and disclosure process will be followed".

3.6.2 WBG Emission Limits

The following tables present the WBG emission levels for ambient noise, effluent discharges and ambient air quality.

Table 3.6-2: Indicative Limits for ambient noise

WB Ambient Noise Limits		
Receptor	One hour L_{Aeq} (dBA)	
	Day 07:00– 22:00	Night 22:00 - 07:00
Residential; Institutional; educational	55	45
Industrial; commercial	70	70

*Table 3.6-3: Indicative Limits for discharge of liquid effluent into **sewer systems***

Parameters/pollutant	**Effluent pollutants threshold (WB requirements)**
pH	6 – 9 pH
BOD mg/l	30
COD mg/l	125
Total nitrogen mg/l	10
Total phosphorus mg/l	2
Oil and grease mg/l	10
Total suspended solids mg/l	50
Total coliform bacteria (Most Probable Number/100 ml)	400

Table 3.6-4: Indicative limits for air quality (WB Requirements µg/m³)

	Ambient air pollutants threshold			
Exposure period	1-hour	8-hour	24-hour	1-year
Carbon monoxide CO µg/m³	N/A	N/A	N/A	N/A
Sulfur dioxide SO_2 µg/m³	N/A	N/A	125	N/A
Nitrogen oxides NO_x µg/m³	200	N/A	N/A	40
Particulates PM_{10} µg/m³	N/A	N/A	150	70
Particulates $PM_{2.5}$ µg/m³	N/A	N/A	N/A	N/A
TSP µg/m³	N/A	N/A	230	80
Ozone	N/A	160	100	N/A

3.7 Gap Analysis:

As revealed in most legal texts, safeguards policies and emission standards, and based on the tables below, some of the World Bank's policies and emission limits are more stringent than those of the Lebanese Government:

- Road rehabilitation projects do not figure under any of the EIA Decree annexes, and thus do not require environmental assessment or public consultation;
- The EIA Decree does not mandate disclosure of EIA and IEE studies, but just grants right to access these studies without violating confidential information such as technology, industrial process and materials, financial information, etc.
- Lebanese wastewater emission standards are less stringent than World Bank standards, but more stringent for ambient air quality, and similar for noise.

Table 3.7-1 Comparison of Allowed Noise Levels between Lebanese and WB Standards

Region Type (Receptor)	**Limit for Ambient Noise Level dB(A)**					
	Day time (7 a.m. - 6 p.m.)		**Evening time (6 p.m. - 10 p.m.)**		**Night Time (10 p.m.- 7 a.m.)**	
	Lebanese standards	**WB standards**	**Lebanese standards**	**WB standards**	**Lebanese standards**	**WB standards**
Commercial and administrative areas in town centers	55-65	55	50-60	55	45-55	70
Residential areas with some construction sites or along a main road	50-60	55	45-55	55	40-50	45
Urban residential areas	45-55	-	40-50	-	35-45	-
Residential suburbs with slight traffic	40-50	55	35-45	55	30-40	45
Industrial areas	60-70	70	55-65	70	50-60	70
Rural residential areas, public gardens and hospitals	35 – 45	-	30 – 40	-	25 – 35	-

Table 3.7-2 Comparison of Wastewater Effluent Discharge Limits between Lebanese and WB Standards

Parameters/pollutant	**Wastewater Effluent Pollutants Threshold**	
	Lebanese requirements	**WB requirements**
pH	6-9	6 – 9
BOD mg/l	125	30
COD mg/l	500	125
Total nitrogen mg/l	60	10
Total phosphorus mg/l	10	2
Oil and grease mg/l	50	10
Total suspended solids mg/l	-	50
Total coliform bacteria (Most Probable Number/100 ml)	-	400

Table 3.7-3 Comparison of Ambient Air Pollutants Permissible Levels between Lebanese and WB Standards

Pollutant	Maximum Allowable Concentration (in µg/m^3)		Averaging Period
	Lebanese standards	WB standards	
Sulfur Dioxide (SO_2)	350	N/A	1 hour
	120	125	24 hours
	80	N/A	1 year
Nitrogen Dioxide (NO_2)	200	200	1 hour
	150	N/A	24 hours
	100	40	1 year
Ozone (O_3)	150	N/A	1 hour
	100	160	8 hours
	N/A	100	24 hours
Carbon Monoxide (CO)	30,000	N/A	1 hour
	10,000	N/A	8 hours
Total Suspended Particulate (TSP)	120	230	24 hours
	N/A	80	1 year
Particulate Matter (PM-10)	80	150	24 hours
	N/A	70	1 year
Lead	1.0	N/A	1 year
Benzene	5 ppb	N/A	1 year

3.8 Closing notes

- Based on the safeguards policies and emission limits presented above for both the national requirements and the WBG requirements, the more stringent limits and policies will prevail.
- The Legal framework chapter in this ESMF is meant to shed some light on the most relevant environmental and social legislations and regulations which the project should adhere to and take mitigation actions to comply with. These should be revisited and updated in the site specific ESMPs according to the features, geographical locations and surrounding contexts of the sub-projects.

CHAPTER FOUR: ENVIRONMENTAL AND SOCIAL BASELINE

This chapter is concerned with presenting the environmental and social baseline and settings where the project activities will take place. However, since there are no defined roads or specific intervention areas finally determined yet, this Chapter will present general background information about the different regions in Lebanon except Beirut where no activities will take place. Therefore, baseline information specific to the targeted roads will be gathered at the early stage of project implementation once the specific roads are selected.

4.1 Environmental Baseline

The following is a general description about the state of the Environment in Lebanon.

4.1.1 Climate[5]

Lebanon has a Mediterranean climate characterized by a long, hot, and dry summer, and cool, rainy winter. Fall is a transitional season with a gradual lowering of temperature and little rain; spring occurs when the winter rains cause the vegetation to revive. Topographical variation creates local modifications of the basic climatic pattern. Along the coast, summers are hot and humid, with little or no rain. Heavy dews form, which are beneficial to agriculture. The daily range of temperature is not wide, although temperatures may reach above 38° C in the daytime and below 16° C at night. A westerly wind provides relief during the afternoon and evening; at night the wind direction is reversed, blowing from the land out to sea.

Winter is the rainy season, with major precipitation falling after December. Rainfall is generous but is concentrated during only a few days of the rainy season, falling in heavy cloudbursts. The amount of rainfall varies greatly from one year to another. Occasionally, there are frosts during the winter, and about once every fifteen years a light powdering of snow falls as far south as Beirut. A hot wind blowing from the Egyptian desert called the *khamsin* (Arabic for fifty), may provide a warming trend during the fall, but more often occurs during the spring. Bitterly cold winds may come from Europe. Along the coast, the proximity to the sea provides a moderating influence on the climate, making the range of temperatures narrower than it is inland, but the temperatures are cooler in the northern parts of the coast where there is also more rain.

In the Lebanon Mountains, the gradual increase in altitude produces colder winters with more precipitation and snow. The summers have a wider daily range of temperatures and less humidity. In the winter, frosts are frequent and snows heavy; in fact, snow covers the highest peaks for much of the year. In the summer, temperatures may rise as high during the daytime as they do along the coast, but they fall far lower at night. Inhabitants of the coastal cities, as well as visitors, seek refuge from the oppressive humidity of the coast by spending much of the summer in the mountains, where numerous summer resorts are located. Both the *khamsin* and the north winter wind are felt in the Lebanon Mountains. The influence of the Mediterranean Sea is abated by the altitude and, although the precipitation is even higher than it is along the coast, the range of temperatures is wider and the winters are more severe.

[5] Thomas Collelo, ed. *Lebanon: A Country Study*. Washington: GPO for the Library of Congress, 1987.

The Beqaa Valley and the Anti-Lebanon Mountains are shielded from the influence of the sea by the Mount Lebanon Mountains. The result is considerably less precipitation and humidity and a wider variation in daily and yearly temperatures. The *khamsin* does not occur in the Beqaa Valley, but the north winter wind is so severe that the inhabitants say it can "break nails." Despite the relatively low altitude of the Beqaa Valley (the highest point of which, near Baalbek, is only 1,100 meters), more snow falls there than at comparable altitudes west of the Mount Lebanon Mountains.

Because of their altitudes, the Anti-Lebanon Mountains receive more precipitation than the Beqaa Valley, despite their remoteness from maritime influences. Much of this precipitation appears as snow, and the peaks of the Anti-Lebanon, like those of the Mount Lebanon Mountains, are snow-covered for much of the year. Temperatures are cooler than in the Beqaa Valley.

4.1.2 Water Resources

Water supply and sanitation in Lebanon is characterized by a number of achievements and challenges. The achievements include the reconstruction of infrastructure after the 1975–90 Civil War and the 2006 war with Israel, as well as the reform of the water and sanitation sector through a water law passed in 2000. The law created four Regional Water Establishments to consolidate numerous smaller utilities.

The challenges include poor service quality, in particular intermittent water supply that persists despite the availability of relatively abundant water resources; poor information about water resources, sector performance and assets; a very low share of metering and the absence of volumetric water tariffs; a high level of water distribution losses; limited cost recovery for water supply; and no cost recovery for sewerage and wastewater treatment.

Because of limited and contradictory data, it is difficult to accurately assess water resources availability in Lebanon.[6] The country's per capita renewable water resources are below the threshold of water poverty set at 1,000 cubic meter per capita and year. Only part of the floodwater in rivers can be captured economically in dams, and some groundwater flows unused to the sea. Furthermore, 0.51 billion cubic meters of water flow to Syria in an average year, and 0.16 billion cubic meters to Israel. After subtraction of these amounts, 2.6 billion cubic meters of water are available in an average year, or about 600 cubic metres (21,000 cu ft) per capita.[13]. There are over 2,000 springs with a flow of 1.15 billion cubic meters, sustaining a perennial flow for 17 of the total of 40 major streams in the country.[14] Springs and groundwater are today by far the main sources for drinking water supply in Lebanon.

Figure 0-1: Rivers of Lebanon. The Litani River is shown in purple, the Lebanese capital Beirut in red. The Orontes River flows northwards to Syria and the Ibrahim River is the second river to the north of Beirut, flowing to the Mediterranean.

The main rivers that flow entirely inside Lebanon are the Litani river (average annual flow of 0.79 million cubic meter), the Ibrahim River (0.51), the Awali River and the Damour River (both 0.3). A large share of the Litani River is diverted through the Markaba tunnel for hydropower generation to the Awali River. Since the upper watershed of the Litani River is polluted and the Awali River is due to be tapped as a source of drinking water supply for Beirut, this water transfer has implications beyond its intended use for hydropower generation.

Two important rivers are shared with Syria and one with Israel. The Orontes River (0.48) that rises in Lebanon is shared with Syria. The El Kebir River (average flow of 0.19 million cubic meter per year) is also shared with Syria, the river itself forming part of the border between the two countries. The Hasbani River, a tributary of the Jordan River, also rises in Lebanon and is shared with Israel. Surface water flow into northern Israel from the Hasbani/Wazani complex is estimated at 160 million m3/year.[14] There is no agreement about the sharing of the Jordan River between the two countries.

4.1.3 Waste Water[6]

Due to the absence of institutional control of public authorities during the war period (1975-1990), domestic wastewater in Lebanon was discharged directly into the sea with no treatment prior to disposal. Environmental impacts associated with open sea disposal of untreated wastewater gained international and local concerns in recent years, particularly with the ever continuing increase of the population and the enlargement of coastal cities. In the post-war period, several actions have been undertaken by the Government to find out immediate short-run corrective solutions and long-run planning strategies for the whole country. The need for rehabilitating the already existing wastewater collection and disposal systems, and the construction of new treatment facilities were the Government's major concerns.

The disposal of sewage and industrial effluents into the sea and rivers is frequently practiced and followed by abstraction from the rivers at downstream level for irrigation uses. The latter are in some cases extended to salad vegetables. Discharge of untreated sewage water into the sea was the common practice being used (World Bank, 1994). Other sources of marine pollution included solid waste, industrial effluents and excessive levels of nutrients and agro-chemicals with irrigation waters.

Data of the World Bank (1994) focused on the construction of sewage treatment plants for cities with a population higher than 100,000 inhabitants as a solution to combat the continuous contamination of the sea and the groundwater. Figure 0-2 shows the distribution of wastewater outfalls into the Mediterranean Sea along the Lebanese coast. As indicated, there are approximately 53 outfalls along the coast, 16 of which are located in Greater Beirut between Dbayeh (Northern Beirut) and Ghadir (Southern Beirut).

[6] Karaa K., Karam F., Tarabey N. "Wastewater treatment and reuse in Lebanon: key factors for future agricultural uses." In: Hamdy A. (ed.), El Gamal F. (ed.), Lamaddalena N. (ed.), Bogliotti C. (ed.), Guellou bi R. (ed.). Non-conventional water use: WASAMED project. Bari: CIHEAM / EU DG Research , 2005. p. 215-225

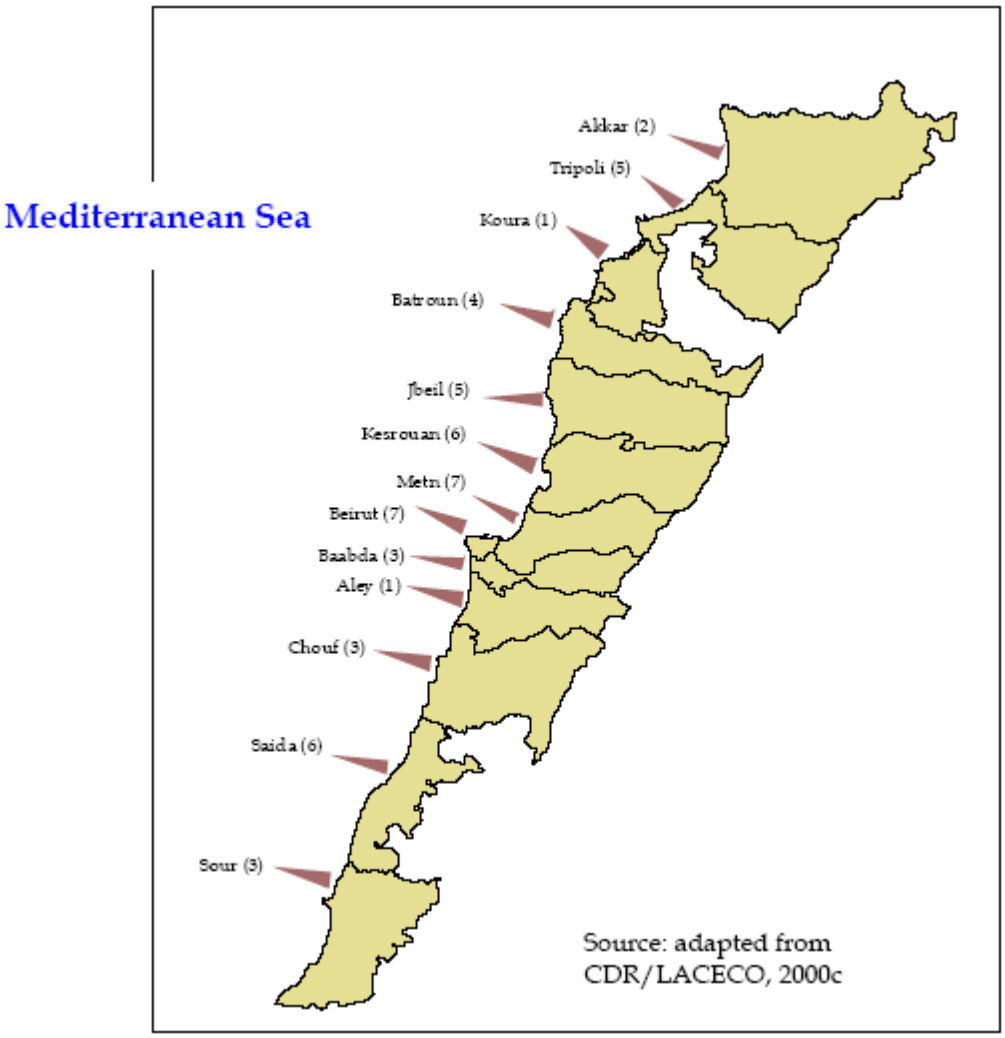


Figure 0-2: Distribution of wastewater outfalls into the Mediterranean Sea along the Lebanese coast

Lebanon generates an estimated 249 Mm^3 of wastewater per year, with a total BOD load of 99,960 tones. In addition, industries generated an estimated 61 Mm^3 of wastewater in 1994 and are expected to reach 192 Mm^3 by the year 2020. In the absence of waste surveys and industrial production statistics, it is difficult to estimate the composition and BOD load of the industrial wastewater.

4.1.4 Solid Waste Management

The yearly municipal solid waste (MSW) generation in Lebanon is approximately 2 million tons/year. Daily MSW generation is 1.05 kg/capita/day. Composition analysis shows that approximately 51% of this is organic, while the remaining is comprised of recyclables like paper and cardboard, plastic, glass, textiles, metals, demolition/construction waste and others.

The majority of this waste is collected and disposed of by landfilling/ dumping. The main service providers are Sukleen for Central Beirut only, while CityBlue is responsible for collection and treatment in the Greater Beirut Area and Mount Lebanon, and RAMCO is responsible for Metn and Kesrouan regions. Currently, there are Costa Brava and Bourj Hammoud Landfill sites where these

collected wastes are disposed of. Many of the remaining rural areas collect municipal solid waste and dispose of it by open dumping and burning.
The authorities in charge of solid waste management at the national scale include the Council for Development and Reconstruction (CDR), MOE, OMSAR and the concerned municipalities.
Waste incineration for municipal waste is considered as worth pursuing based on the latest studies; however, a waste incineration plant does not exist so far.

There is no legal reporting system concerning the waste generation or waste collection facilities in place. Some of the private sector companies provide periodic reports, next to data available from some regional projects with H2020 or SWEEP NET initiatives.

Such information is communicated to the municipalities and the union of municipalities or the CDR on a regular basis to issue payments to contractors. One should mention:
- Monthly and yearly reports for Beirut and Mount Lebanon (excluding the Jbeil district) used to be submitted to CDR& MoE by the Averda Group before the end of their contract in 2015;
- Periodic reports are submitted by BATCO-LAVAJET for Tripoli and its surroundings to CDR on one hand, and for the district of Jbeil to the Union of Jbeil Municipalities on the other hand.

4.1.5Air Quality and Noise

Air Quality

Air quality in general is influenced by climatic conditions and topography. Lebanon's climate is affected by its unique topography composed of the coastal strip, the Mount Lebanon and Anti-Lebanon mountains, and the Beqaa valley. The mountain range, West Lebanon and the coastal area have maritime characteristics, while East Lebanon exhibits a continental climate (MoE/UNDP, 2015). Steady winds originating from Eastern Europe as well as intense solar radiation during summer months contribute to the formation of high levels of secondary particles and ozone (Waked et al., 2013a), in addition to sulphur dioxide transport from Central Europe (Afif et al., 2008). Moreover, desert dust episodes in fall and spring contribute to elevated PM levels (Saliba et al., 2010). According to a WHO study, Lebanon is one of the countries in the Eastern Mediterranean being most affected by outdoor air pollution (WHO, 2013b).

In 2012, a temporally-resolved and spatially-distributed emission inventory for the year 2010 was developed for Lebanon by Saint Joseph University. It provides quantitative information for air pollution studies as well as an input to air quality models (Waked *et al*., 2012; Waked and Afif, 2012). This inventory covered major anthropogenic and biogenic sources in the region with 5 km spatial resolution for Lebanon and 1 km spatial resolution for its capital city Beirut and its suburbs. The results obtained for CO, NO_x, SO^2, NMVOC, NH_3, PM_{10} and $PM_{2.5}$ for the year 2010 were 563, 75, 62, 115, 4, 12, and 9 Gigagram (Gg), respectively. About 93% of CO emissions, 67 % of NMVOC emissions and 52 % of NO_x emissions are calculated to originate from the on-road transport sector, while 73 % of SO_2 emissions, 62 % of PM_{10} emissions and 59 % of $PM_{2.5}$ emissions are calculated to originate from power plants and industrial sources (Figure 0-3). The spatial allocation of emissions shows that Beirut city and its suburbs encounter a large fraction of the emissions from the on-road transport sector, while urban areas such as Zouk Mikael, Jiyeh, Chekka and Selaata are mostly affected by emissions originating from the industrial and energy production sectors.

In 2013, the MoE under the Environmental Resources Monitoring in Lebanon (ERML) project with the support of the United Nations Environment Programme (UNEP) and United Nations Development Programme (UNDP) launched real time air quality monitoring in five sites in Lebanon of which two are also equipped with meteorological stations. These stations use online analysers connected to a supervisory control and Data Acquisition System (DAS) located at MoE. The current network includes five urban background Air Quality Monitoring Stations (AQMS). This step constituted Phase 1 of the two-phase plan "Establishment of an AQMN in Lebanon" to implement a national Air Quality Monitoring Network (AQMN).

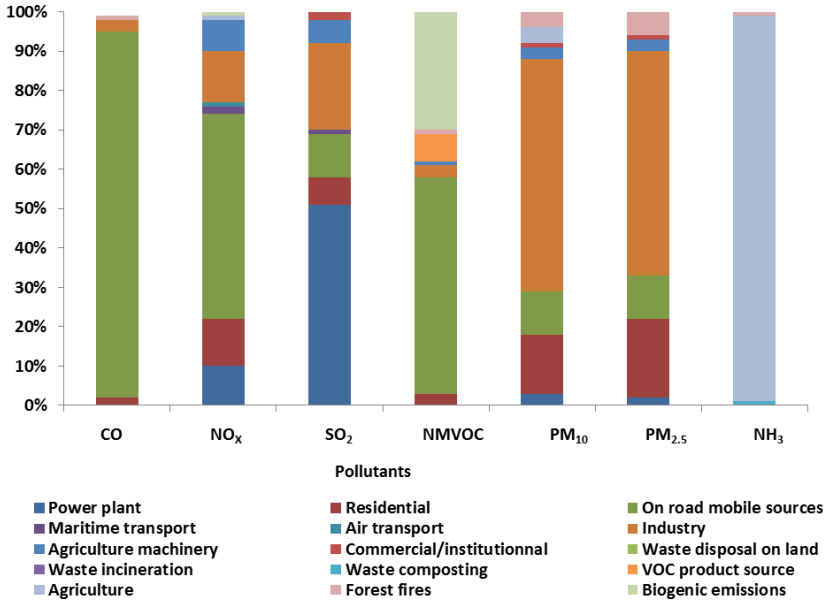


Figure 0-3: Emissions apportionment for the different pollutants for 2010 (Waked et al., 2012)

The air quality situation in Lebanon can be summarized as follows:
High concentrations of Ozone are not expected in urban areas unless special meteorological conditions occur (temperature inversion, etc.). Ozone monitored in Beirut Pine Forest from May 2004 to February 2006 (Afif, 2008) showed few exceedances during that period both for the 1-hour and 8-hour averaging periods with 135 and 18 exceedances respectively, while the monitoring results from the Phase I AQMS which started in September 2013 show few exceedances. However, for the same period, results show higher values in Baalbek than in Beirut with 44 and 116 exceedances for the 1-hour and 8-hour averaging periods respectively. Highest values are observed in the summer as meteorological conditions are more favourable for the formation of ozone far from the emission sources of its precursors (NO_x and VOCs).

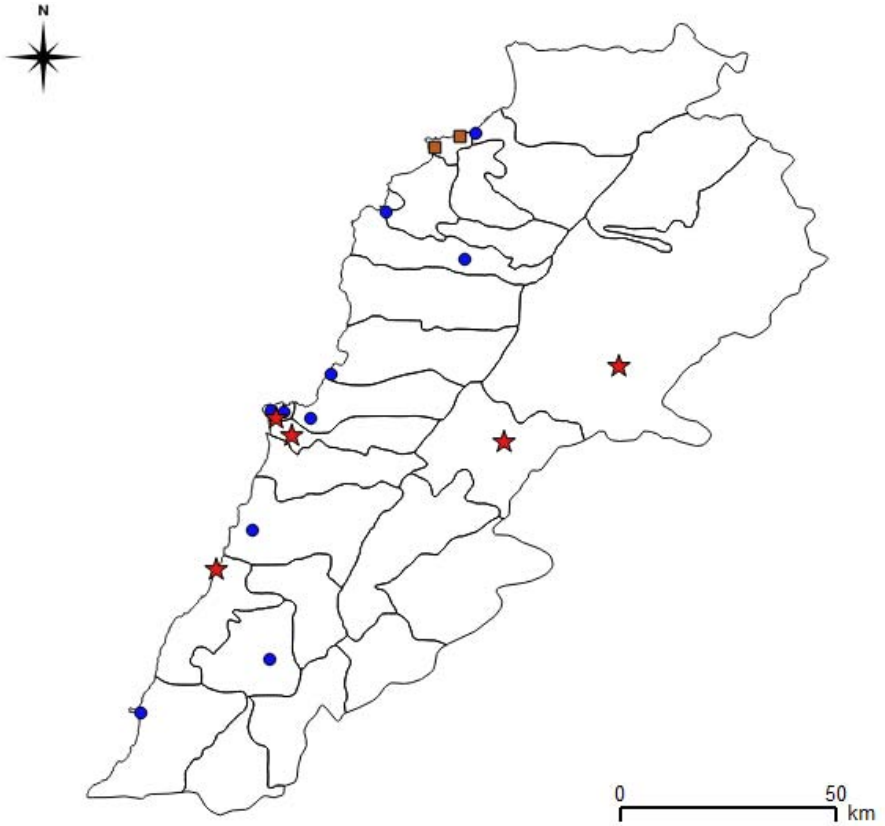


Figure 0-4: Distribution of some of the Air Quality Monitoring Stations (AQMS) in Lebanon

Other factors affecting Air Quality in Lebanon:

The Syrian crisis causing displacement of refugees to Lebanon was estimated to precipitate in an increase of up to 20% the emissions of air pollutants in Lebanon, leading to a degradation of air quality (MoE/UNDP/EU, 2014). The spatial distribution showed that main cities (other than GBA) such as Zahle, Baalbek, Tripoli and Saida witness a significant degradation in air quality (MoE/UNDP/EU, 2014).

The exploration and exploitation of offshore oil and gas resources in Lebanon are still underway as environmental impact assessment interventions and seismic surveys are carried out. The sector is foreseen to release petroleum associated air emissions such as methane, VOC, polycyclic aromatic hydrocarbons (PAH), CO, SO_2, and NO_x that would be dangerous to the environment and human health. As such, the Ministry of Energy and Water created the Petroleum Authority (PA) which is responsible for monitoring and enforcing the quality, safety, health and environment issues emanating from the oil and gas sector.

Noise

The main sources of environmental noise are traffic, industry, construction, public works and the neighborhood. The open-air electricity generators in Lebanon as well as the frequent use of car horns by drivers present a significant source of environmental noise pollution across the country.

4.1.6. Land and Geography[7]

The area of Lebanon is approximately 10,452 square kilometers. The country is roughly rectangular in shape, becoming narrower toward the south and the farthest north. Its widest point is 88 kilometers, and its narrowest is 32 kilometers; the average width is about 56 kilometers.

The physical geography of Lebanon is influenced by natural systems that extend outside the country. Thus, the Beqqa Valley is part of the Great Rift system, which stretches from southern Turkey to Mozambique in Africa. Like any mountainous country, Lebanon's physical geography is complex. Land forms, climate, soils, and vegetation differ markedly within short distances. There are also sharp changes in other elements of the environment, from good to poor soils, as one moves through the Lebanese mountains.

A major feature of Lebanese topography is the alternation of lowland and highland that runs generally parallel with a north-to-south orientation. There are four such longitudinal strips between the Mediterranean Sea and Syria: the coastal strip (or the maritime plain), western Lebanon, the central plateau, and eastern Lebanon.

The extremely narrow coastal strip stretches along the shore of the eastern Mediterranean. Hemmed in between sea and mountain, the *sahil*, as it is called in Lebanon, is widest in the north near Tripoli, where it is only 6.5 kilometers wide. A few kilometers south at Jounieh the approximately 1.5-kilometer-wide plain is succeeded by foothills that rise steeply to 750 meters within 6.5 kilometers from the sea. For the most part, the coast is abrupt and rocky. The shore line is regular with no deep estuary, gulf, or natural harbor. The maritime plain is especially productive of fruits and vegetables.

The western range, the second major region, is the Lebanon Mountains, sometimes called Mount Lebanon, or Lebanon proper before 1920. Since Roman days, the term Mount Lebanon has encompassed this area. *Antilibanos* (Anti-Lebanon) was used to designate the eastern range. Geologists believe that the twin mountains once formed one range. The Lebanon Mountains are the highest, most rugged, and most imposing of the whole maritime range of mountains and plateaus that start with the Amanus or Nur Mountains in northern Syria and end with the towering massif of Sinai. The mountain structure forms the first barrier to communication between the Mediterranean and Lebanon's eastern hinterland. The mountain range is a clearly defined unit having natural boundaries on all four sides. On the north it is separated from the Nusayriyah Mountains of Syria by An Nahr al Kabir (the great river); on the south it is bounded by Al Qasimiyah River, giving it a length of 169 kilometers. Its width varies from about 56.5 kilometers near Tripoli to 9.5 kilometers on the southern end. It rises to alpine heights southeast of Tripoli, where Al Qurnat as Sawda (the black nook) reaches 3,360 meters. Of the other peaks that rise east of Beirut, Jabal Sannin (2,695 meters) is the highest. *Ahl al Jabal* (people of the mountain), or simply *jabaliyyun*, has referred traditionally to the inhabitants of western Lebanon. Near its southern end, the Lebanon Mountains branch off to the west to form the Shouf Mountains.

The third geographical region is the Beqaa Valley. This central highland between the Lebanon Mountains and the Anti-Lebanon Mountains is about 177 kilometers in length and 9.6 to 16 kilometers wide and has an average elevation of 762 meters. Its middle section spreads out more than

[7] Thomas Collelo, ed. *Lebanon: A Country Study*. Washington: GPO for the Library of Congress, 1987.

its two extremities. Geologically, the Beqaa is the medial part of a depression that extends north to the western bend of the Orontes River in Syria and south to Jordan through Al Arabah to Al Aqabah, the eastern arm of the Red Sea. The Beqaa is the country's chief agricultural area and served as a granary of Roman Syria. Beqaa is the Arabic plural of *buqaah*, meaning a place with stagnant water.

Emerging from a base south of Homs in Syria, the eastern mountain range, or Anti-Lebanon (Lubnan ash Sharqi), is almost equal in length and height to the Lebanon Mountains. This fourth geographical region falls swiftly from Mount Hermon to the Hawran Plateau, whence it continues through Jordan south to the Dead Sea. The Barada gorge divides Anti-Lebanon. In the northern section, few villages are on the western slopes, but in the southern section, featuring Mount Hermon (286 meters), the western slopes have many villages. Anti-Lebanon is more arid, especially in its northern parts, than Mount Lebanon and is consequently less productive and more thinly populated.

4.2 Social Baseline

Annex 7 provides generic terms of reference for conducting a social assessment of the individual projects once they are identified.
The following sections present the socio-economic baseline of the Lebanese territory and an overview of the crisis incurred by war refugees.

4.2.1 Demographic Profile

The number of resident Lebanese saw an increase of 9.95% in recent years to go from 3,961,820 in 2010 to 4,355,913 in 2016[8]. The rural population represents 12.69% of the population, while the remaining 87.31% choose to reside in urban areas[9]. According to the Lebanon Crisis Response Plan (2017-2020) report published by the UN, almost 1.5 million resident Lebanese people can be considered as vulnerable[10]. Table 1 1 includes the number of resident Lebanese population by Governorate and Caza between the years 2010 and 2016.
The gender distribution among the Lebanese resident population indicates that 49.4% of the population consists of males, compared to 50.6% of females. Furthermore, the highest percentage of residents are between the ages of 15-24 with a combined percentage of 19.6% of the population as shown in Table 1 2.

[8] (Ministry of Public Health, 2016)
[9] (WHO/GLAAS, 2014)
[10] (United Nations, 2018)

Table 0-1 Resident Lebanese Population Distribution by Governorate and Caza from 2010 to 2016[1]

Governorate	Caza	2010	2011	2012	2013	2014	2015	2016
North	Akkar	249,642	258,788	268,191	277,260	286,866	296,757	306,733
	Minieh-Danniyeh	121,722	125,429	129,116	132,482	136,249	139,887	143,897
	Tripoli	267,159	272,162	276,827	280,993	285,081	289,136	293,571
	Zgharta	58,479	60,331	61,570	62,520	63,437	64,458	65,555
	Koura	56,384	57,186	57,629	57,679	57,839	58,138	58,734
	Bcharreh	21,559	22,626	23,587	24,139	24,686	25,070	25,370
	Batroun	41,793	42,569	43,108	43,603	44,166	44,662	45,094
Total		**816,739**	**839,092**	**860,029**	**878,677**	**898,325**	**918,109**	**938,955**
Beqaa	Hermel	53,052	54,577	56,212	57,541	58,854	60,297	61,955
	Baalbek	218,285	226,566	231,648	240,242	247,533	254,375	261,928
	Zahleh	154,642	157,894	160,925	163,841	166,841	169,903	172,950
	Rachaiya	32,617	33,657	34,466	35,107	36,020	36,751	37,629
	West Beqaa	74,709	76,917	78,916	80,803	82,684	84,408	86,501
Total		**533,305**	**549,611**	**562,167**	**577,534**	**591,932**	**605,734**	**620,963**
Nabatieh	Nabatiyeh	116,703	117,871	119,214	120,352	122,345	125,176	128,345
	Hasbaiya	26,070	26,944	27,988	28,866	29,685	30,463	31,266
	Marjaayoun	59,676	63,037	66,441	68,771	71,128	73,349	75,739
	Bent Jbayl	75,237	79,038	82,345	85,512	88,444	91,279	94,453
Total		**277,686**	**286,890**	**295,988**	**303,501**	**311,602**	**320,267**	**329,803**
South	Saida	210,190	217,616	224,624	230,653	235,037	237,979	241,017
	Sour	211,601	216,368	221,040	225,539	230,247	234,509	238,789
	Jezzine	25,178	25,826	26,380	26,860	27,346	27,775	28,189
Total		**446,969**	**459,810**	**472,044**	**483,052**	**492,630**	**500,263**	**507,995**
Mount Lebanon	Jbayl	86,659	87,770	88,650	89,591	90,432	91,179	92,016
	Keserwan	164,489	165,216	165,875	166,480	167,039	167,584	168,176
	Matn	479,510	480,197	480,936	481,535	482,535	483,352	484,138
	Baabda	481,423	482,690	483,777	484,861	486,312	487,166	488,417
	Aaley	132,503	133,651	134,791	135,865	137,065	138,099	139,254
	Chouf	164,074	166,799	169,331	171,794	174,181	176,401	178,744
Total		**1,508,658**	**1,516,323**	**1,523,360**	**1,530,126**	**1,537,564**	**1,543,781**	**1,550,745**
Beirut	Beirut	378,464	384,725	390,238	394,880	399,304	403,381	407,453
Total		**378,464**	**384,725**	**390,238**	**394,880**	**399,304**	**403,381**	**407,453**
Total Population		**3,961,820**	**4,036,450**	**4,103,825**	**4,167,769**	**4,231,356**	**4,291,534**	**4,355,913**

Table 0-2 Lebanese Resident Population Distribution by Age Group and Gender in 2016

Age Groups	Percentage			Population 2016		
	M	F	Total	M	F	Total
0-4	3.6	3.3	6.9	156,813	143,745	300,558
5-9	4.3	4.1	8.3	185,126	176,414	361,541
10-14	4.9	4.5	9.4	213,440	196,016	409,456
15-19	5.2	4.5	9.8	227,814	196,887	424,702
20-24	5.1	4.7	9.8	222,152	204,728	426,879
25-29	3.9	4.2	8.1	169,881	182,948	352,829
30-34	3.5	3.8	7.4	154,199	166,396	320,595
35-39	3.0	3.7	6.7	130,677	161,169	291,846
40-44	2.7	3.5	6.2	118,916	152,457	271,373
45-49	2.5	3.0	5.6	110,205	130,677	240,882
50-54	2.2	2.5	4.8	97,137	108,898	206,035
55-59	1.8	2.0	3.8	78,406	87,118	165,525
60-64	1.7	2.0	3.7	74,051	87,118	161,169
65-69	1.6	1.7	3.2	69,695	74,051	143,745
70-74	1.4	1.4	2.8	60,983	60,983	121,966
75-79	1.0	0.9	1.9	43,559	39,203	82,762
80-84	0.6	0.6	1.2	26,135	26,1135	52,271
85+	0.3	0.2	0.5	13,068	8,712	21,780
Total	49.4	50.6	100.0	2,152,257	2,203,656	4,355,913

4.2.2 Access to Public Utilities

Access to Water

The available water in Lebanon which includes rivers, springs, storage dams and groundwater are estimated at 2,000-2,700 million m^3 per year, which exceeds the water demand. However, widespread pollution and substandard infrastructure are restricting the Government's ability to meet projected water demands[11]. In addition, usable groundwater is over-extracted with 700 million cubic meter being removed against a total recharge of 500 million cubic meter[12].

The distribution of water usage in Lebanon is illustrated in Figure 2 1.

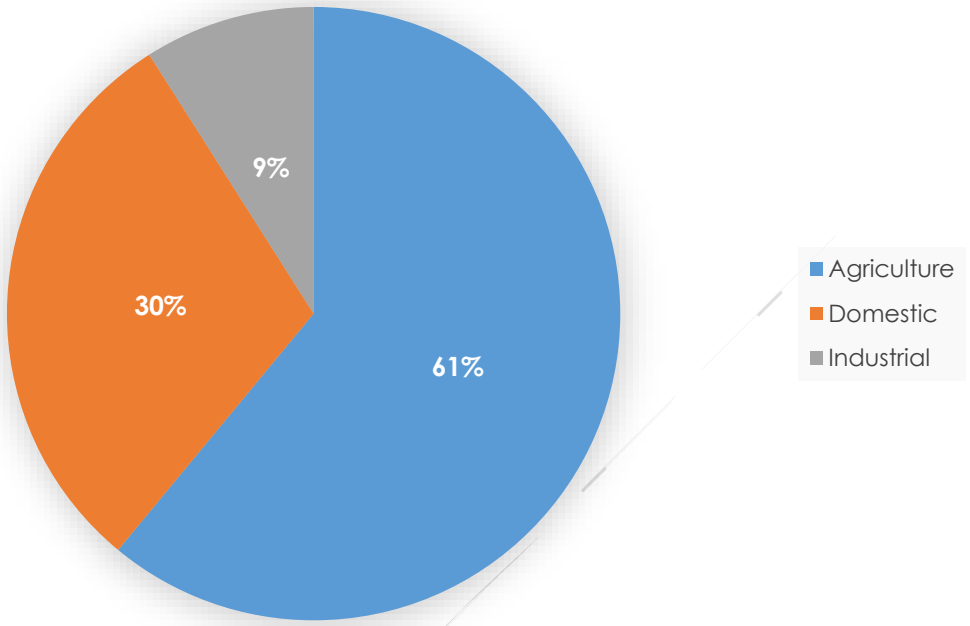


Figure 0-5 Water Consumption Across Different Sectors[12]

At the national level, the rate of household connections to the public water supply network is around 79% with discrepancies at the national level. In the Beirut and Mount Lebanon area where roughly half of the population resides, water scarcity is further exacerbated by poor public water networks as well as severe water rationing (water is only available for 3 hours during the summer)[12].

Wastewater and Drainage

The wastewater sector in Lebanon is deemed a high priority concern for the Government. In 2010, wastewater generation was estimated to be 248 million m^3, which is equivalent to 119,348 tons of BOD_5. The situation is exacerbated when only 8% of the wastewater at the national level is being treated. Table 2 1 lists the percentage of households connected to a wastewater treatment/disposal network throughout different Lebanese regions.

Table 0-3 Wastewater Treatment/Disposal Methods in Different Lebanese Regions4

Region	WW network connection (%)	Septic Tanks (%)	Other (%)
Beirut and Mount	79.2	21.1	0.7

[11] (MoE/UNDP/ECODIT, 2011)

[12] (MoE/EU/UNDP, 2014)

Region	WW network connection (%)	Septic Tanks (%)	Other (%)
Lebanon			
South Lebanon	50.1	45.9	3.9
North Lebanon	67.4	27.3	4.8
Beqaa	49.3	50.5	0.2

Electricity

As Lebanon is unable to cover all the electricity demand at the national level, private generators are mainly used to respond to electricity shortage. Daily average power supply provided by Electricité du Liban in 2010 was 18.4 hours[12]. Starting 2010, several projects have been commissioned to increase the power supply in Lebanon, these include:

- The upgrade and rehabilitation of the Deir Ammar and Zahrani power plants which resulted in an additional capacity of 63 MW; and
- The addition of stand-by capacity through rented power barges, providing 380 MW.

Although an estimated 100% of the population have access to electricity[13], power rationing across Lebanon occurs daily with outages reaching up to 3 hours in Beirut and 12 hours across the rest of the Lebanese territory[14].

Roads

The road network condition in Lebanon is considered to be fair to poor with a length of 21,705 km^2. In addition, the high population density in Lebanon, increased motorization and the increased income levels lead to an over-saturation on the transport network and causes an increase in traffic volume. The problem is further exacerbated by the fact that most of MoPWT's capital expenditures on the road sector are allocated to the rehabilitation and reconstruction of the existing network resulting from years of poor maintenance and neglect, instead of building new roads[15]. The latter is highlighted by Table 2 2.

Table 0-4 MoPWT Yearly Expenditures on Roads (Maintenance and Reconstruction/New Constructions)[15]

	2008	2009	2010	2011	2012	Total
Maintenance (in millions of USD)	39	50	117	120	175	501
Construction (in millions of USD)	41	54	78	81	69	323
Total (in millions of USD)	80	104	195	201	244	824

4.2.3 Educational Attainment

The number of students in Lebanon is estimated to be around 1,219,052 distributed according to **Error! Reference source not found.**. A relatively small percentage of the population remains lliterate with 17% of households including one illiterate person whereas only 6% and 4% of

[13] (The World Bank, 2016)
[14] (Blominvest Bank, 2013)
[15] (The World Bank, 2013)

households two or three illiterate members respectively[16]. Furthermore, only a small percentage of the population carries a university degree as illustrated in **Error! Reference source not found.**.

Table 0-5 Distribution of Students According to Types of Educational Institution[16]

Type of Educational Institution	Number of Students
Schools	942,391
Universities	180,850
Vocational and Technical Schools	95,811

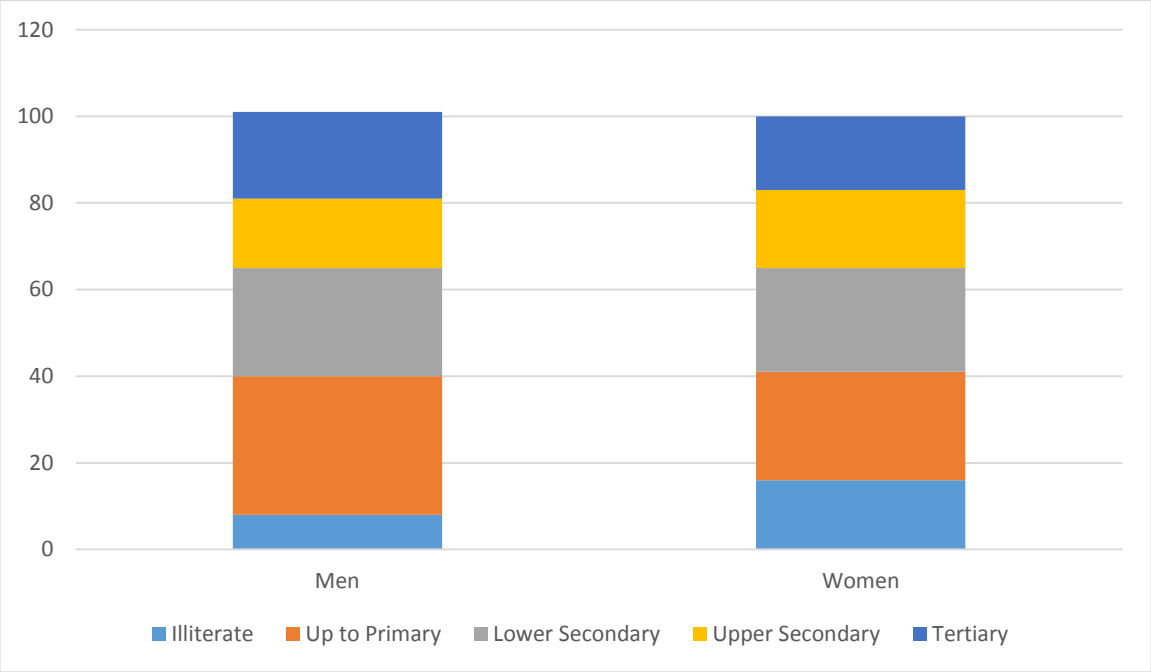


Figure 0-6 Gender Distribution of the Different Levels of Educational Attainment[16]

4.2.4 Employment and Income Generating Activities

The Lebanese market is encountering significant challenges. Currently, the unemployment rate is set at 10%[17] . Unemployment rates are particularly high among women (18%) and youth (34%)[18]. The labor market in Lebanon is particularly characterized by:

- Low levels of job creation, resulting in shortage of available jobs;
- Important in-migration and forced displacement from other parts of the Arab region, particularly from Syria;
- Out-migration of young Lebanese skilled workers; and
- Strong occupational segregation and mismatch.

The active population of Lebanon is estimated to be around 1.23 million, 15.7% of those employed are working in the public sector whereas the remaining 84.3% have found jobs in the private sector[19].

Figure 4 1 shows the distribution of the employed work force by sector.

[16] (Central Administration of Statistics, 2012)

[17] [17] (Central Administration of Statistics, 2018)
[18] (International Labour Organization, 2016)
[19] (Central Administration of Statistics, 2011)

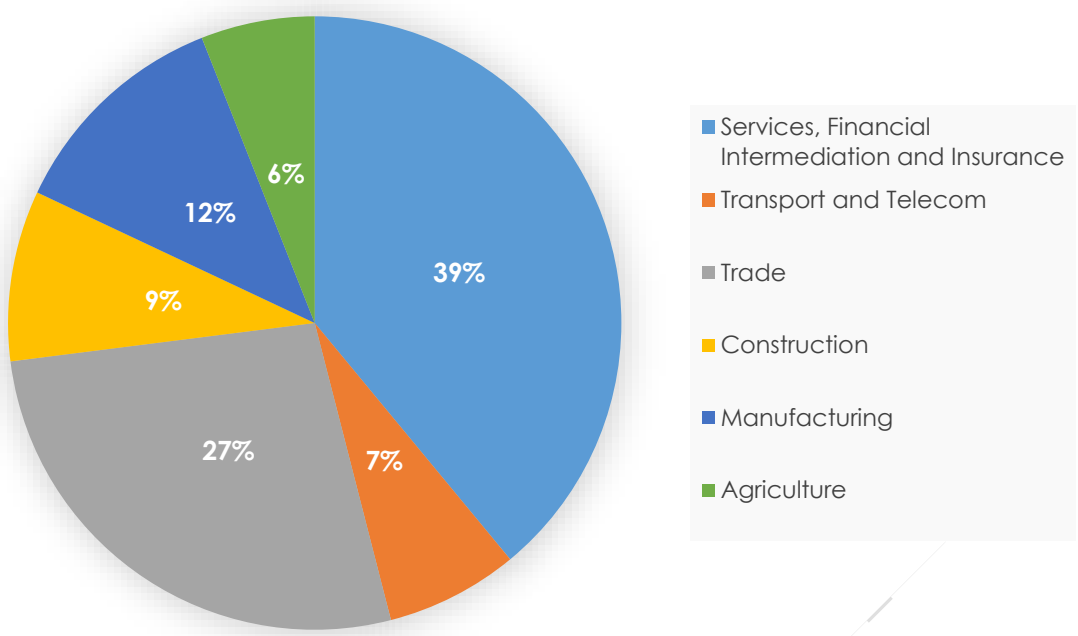


Figure 0-7 Distribution of the Employed Workforce by Sector

4.2.5 Standards of Public Health

The Lebanese population has access to healthcare services through the Ministry of Public Health's network of 220 primary health care centers, the Ministry of Social Affairs' 220 Social Development Centers in addition to an estimated 700 health outlets/dispensaries, most of which are NGO clinics[10]. Figure 5 1illustrates the number of MoPH contracting hospitals by governorate and type.

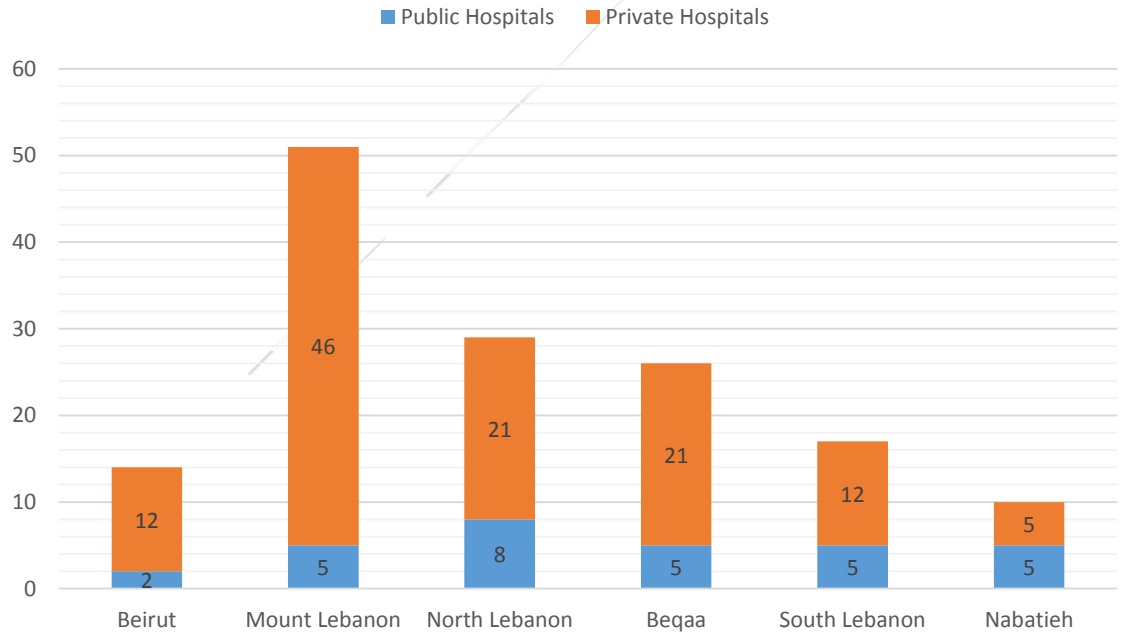


Figure 0-8 Distribution of Contracting Hospitals with MoPH by Governorate and Type

The life expectancy at birth for Males and Females in 2012 is estimated to be around 80.27 and 82.11 years for males and females respectively[20]. These figures are relatively high when compared to the WHO life expectancy estimates of 68 years for the Eastern Mediterranean region[21], which can be considered a sign of a high standard in the provision of healthcare services. Furthermore, Table 5 1 lists the main causes of mortality in Lebanon.

Table 0-6 Mortality by Causes in Lebanon[22]

	Percentage (%)	**Men (%)**	**Women (%)**
Maternal and Child Mortality			
Maternal Mortality Rate (by 100,000 population)	23	-	-
Infant Mortality Rate (by 1,000 live births)	9	-	-
Under-five Mortality rate (by 1,000 live births)	12	-	-
Hospital Mortality			
Circulatory System Diseases	22.1	21.7	22.8
Neoplasms	18.7	18.1	19.8
Cardiac Arrest	16.9	16.9	16.9
Respiratory System Diseases	9.5	9.4	9.6
External Causes of Morbidity and Mortality	6.9	8.9	4.4
Genital Urinary System Diseases	4.8	4.2	5.7
Digestive System Diseases	3.7	3.6	3.8
Some Affections Originating in the Perinatal Period	3.4	3.6	3
Traumatic Lesions, poisoning and Other Consequences of External Causes	1.9	2	2
Congenital Malformation and Chromosome Anomalies	1.2	1	1.4
Nervous System Diseases	1	1	1
Endocrinal, nutritional and metabolic diseases	0.9	0.8	1
Blood diseases	0.5	0.4	0.7
Diseases of osteo-articulatory system, muscles and conjunctive tissues	0.1	0.1	0

4.2.6 Land Ownership and Utilization

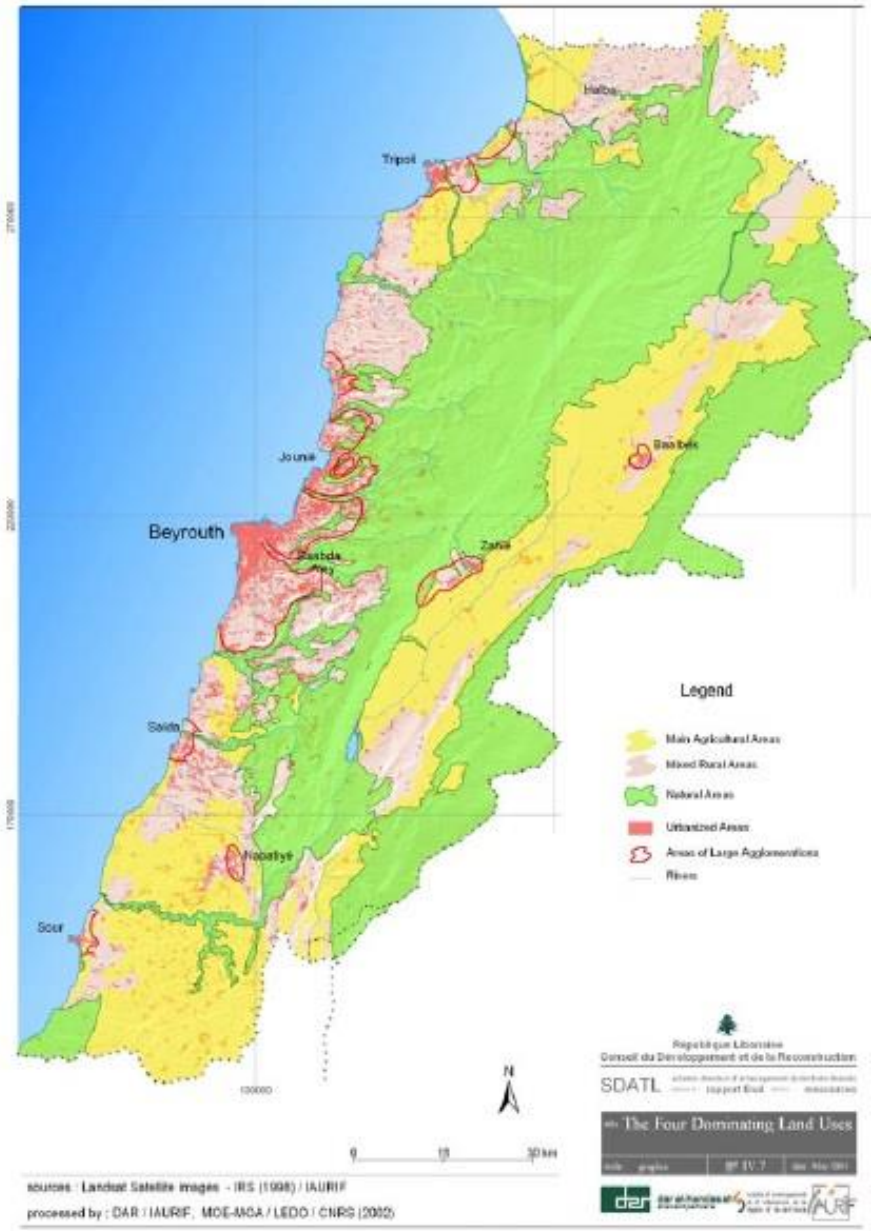
Land ownership in Lebanon is complex. Lands where roads are established fall into one of the categories shown in Table , and in case of land acquisition would necessitate either expropriation (in case of private ownership) or designation (in case of ownership by the GoL).

Table 0-7 Different types of ownership of land where road projects are usually constructed or present

Type of ownership of land	**Land acquisition procedure**
Private ownership	Expropriation
Public ownership	Land designation (transfer of ownership)
Amiri (owned by the GoL with right of exploitation by an individual)	Expropriation
Public domain	Not applicable
Mshaa (owned by a community)	Can be exploited without expropriation

[20] (Ministry of Public Health, 2012)
[21] (World Health Organization, 2012)
[22] (USJ/WHO/MoPH, 2012)

Land usage in Lebanon can be classified into four main categories: agricultural areas, urban areas, natural areas and mixed rural areas. As such, Figure 6 1 represents the distribution of these four uses over the Lebanese territory. Lebanon is mostly covered by natural and agricultural areas with the latter expanding mostly over the Beqaa Valley, the South, Nabatieh, Akkar, Zgharta, Koura, and Minieh Dannieh. Mixed rural areas are found mainly along the Lebanese coastal line. The highest concentrations of urban areas are found in Tripoli, Beirut and the coastal line of Mount Lebanon to the North of Beirut, Saida, Nabatieh, Tyre, Zahle and Baalbek[23].



Source: National Physical Master Plan for the Lebanese Territory (CDR, 2005)

Figure 0-9 The Four Dominant Land Uses in Lebanon

4.2.7 Access to Community Services

Schools

[23] (CDR, 2005)

As of 2009-2010, the Lebanese territory accounted for 2,882 schools in total evenly distributed between public and private. Parents opt to enlist their children in private schools, as 66% of school pupils in Lebanon are getting their education at a private institution[24]. Figure 7 1 illustrates the distribution of schools per Lebanese region.
In addition, the total number of school pupils in Lebanon reached 942,391 in 2009-2010. Their distribution across the Lebanese territory is illustrated in Figure 7 2. The highest percentage of pupils existed in Mount Lebanon, while the lowest presented in Nabatieh.

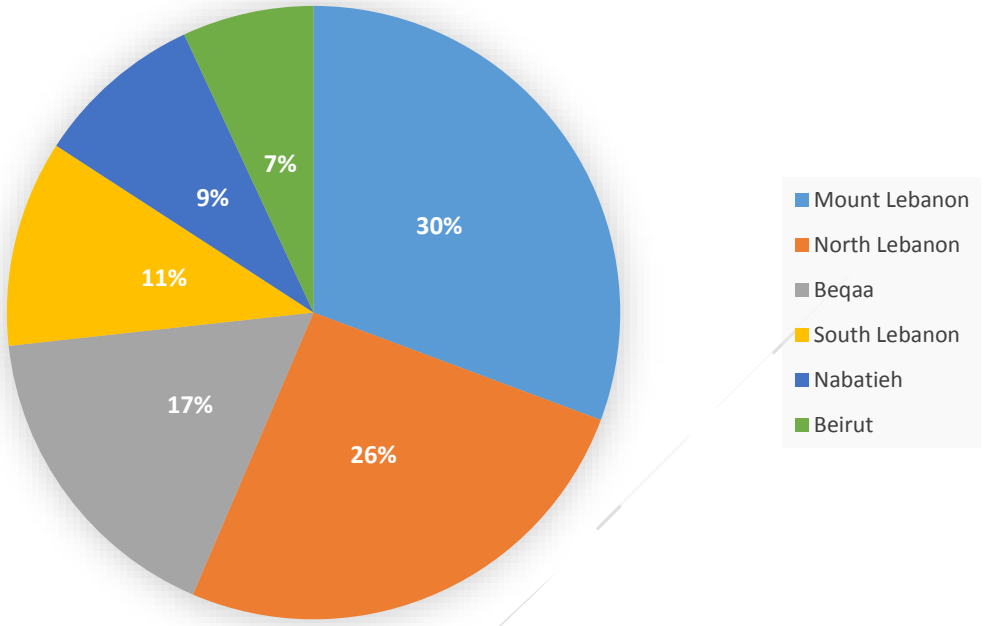


Figure 0-10 The Distribution of Schools across Different Lebanese Regions[24]

[24] (DAR/IAURIF, 2005)

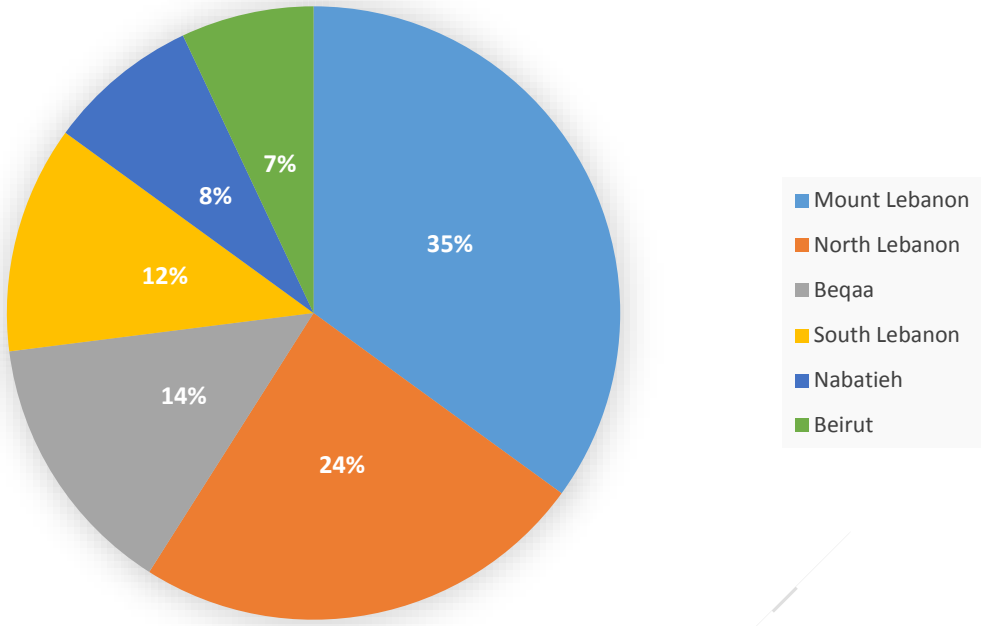


Figure 0-11 The Distribution of School Pupils across Different Lebanese Regions[24]

Health Care Services

According to the MoPH, there are 2.73 hospital beds available per 1,000 people in Lebanon1. This figure is well below the European average of 5.62 beds per 1,000 people[25]. Table 7 1 lists some indicators that reflect access to healthcare services in Lebanon relative to Europe. Lebanon falls below the European average for the number of physicians per 1,000 population by small extent. The number of nursing and midwifery personnel in Lebanon falls well below the European average which suggests the need to address this issue by promoting nursing and midwifery programs in colleges and vocational schools.

Table 0-8 Basic Health Services Access Indicators in Lebanon and Europe

	Lebanon[1]	**Europe**
Physicians (per 1,000 population)	3.10	3.88[26]
Nursing and Midwifery Personnel (per 1,000 population)	3.42	9.272[27]
Hospital Beds (per 1,000 population)	2.73	5.62[17]

NGOs

There are roughly 316 NGOs currently active across the Lebanese territories[28]. Their activities vary between different sectors which include but are not limited to the environmental, social, economic, refugees/displaced, educational, health and cultural sectors.

[25] (The World Bank, 2011)
[26] (The World Bank, 2013)
[27] (The World Bank, 2013)
[28] (UNESCO, 2018)

Recreational facilities

Lebanon's services sector is rich with establishments that provide recreational activities. Due to its lengthy mountainous range, the country offers several ski resorts mainly in Kfardebian, Zaarour, Bsharri (Cedars' mountains) and Laqlouq. The Lebanese coastline offers access to a number of summer resorts that offer their customers access to the beach, pools, sport facilities and spas. However, these numerous facilities obstruct public access to the beachfront, contrarily to the principle of free access that the law protects. In addition, the country is home to a number of malls such as ABC, Le Mall, Beirut City Center, Citymall, The Spot and Cascada that host retail shops, restaurants offering different cuisines, cafes and cinemas. These are still proliferating throughout the country.

Public Open Spaces

The Lebanese coastline offers its residents and tourists a number of public beaches mainly in Chekka, Anfeh, Palm Islands in the North, Ramlet el Bayda, and Tyre beach in the South. Furthermore, the country's landscape is rich with natural attractions and nature reserves such as the Cedars natural reserve, Qadisha Valley, Horsh Ehden, Tannourine and Barouk Cedars Forests, the Beqaa Valley, Chouane Lake, Jezzine waterfall among others.

4.2.6 War Refugees

The Syrian conflict has caused a significant influx of displaced Syrians into Lebanon, which affected the demographic and labor market figures in different Lebanese regions. The 2015 Statistical Bulletin published by the Ministry of Public Health (MoPH)[29] showed that the Lebanese population is estimated to be around 4,291,534 (excluding displaced Syrians and Palestinians). The number of registered displaced Syrians is estimated to be around 1,058,420 (excluding 10,691 displaced Syrian whose location is unaccounted for) (UNHCR, 2016). Combined, the total number of residents in Lebanon is approximately 5,349,954. The distribution of residents throughout different governorates is listed in
Table 0-9. Moreover, the International Labour Organization's Assessment of the Impact of Displaced Syrians in Lebanon and their Employment Profile published in 2013[30] showed that the employment rate of Syrian refugees in Lebanon is estimated to be 70%. Whereas the latest employment rate figures, reported in 2009 by the European Training Federation (ETF)[31], estimate that only 43.6% of Lebanese are employed (ETF, 2013). Unemployment figures in Lebanon vary according to different sources from 6% (CAS, 2011) to 20-25%, leading to controversy (NEO, 2011[32]).

Table 0-9 Distribution of Lebanese Nationals and *Displaced* Syrians in Different Lebanese Governorates

	Mount Lebanon	Bekaa	North	Baalbek/ Hermel	Akkar	South	Nabatiyeh	Beirut	Total

[29] MoPH, 2015. Statistical Bulletin 2015, available online: https://www.moph.gov.lb/en/Pages/8/327/statistical-bulletins

[30] International Labour Organization (ILO), 2013. ASSESSMENT OF THE IMPACT OF SYRIAN REFUGEES IN LEBANON AND THEIR EMPLOYMENT PROFILE – 2013 (http://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_240134.pdf)

[31] ETF, 2015. LABOUR MARKET AND EMPLOYMENT POLICY IN LEBANON. Available online: http://www.etf.europa.eu/webatt.nsf/0/33A1850E6A358308C1257DFF005942FE/$file/Employment%20policies_Lebanon.pdf

[32] National Employment Office (NEO), 2011. Employment needs assessment for the hospitality sector: Hotels and Restaurants in Lebanon, 2011.

Lebanese 1	1,543,781	291,062	621,352	314,672	296,757	500,263	320,267	403,381	4,291,534
Displaced Syrians2	277,969	245,896	160,367	128,293	96,220	74,838	42,764	32,073	1,058,420
Total	1,821,750	536,958	781,719	442,965	392,977	575,101	363,031	435,454	5,349,954

1 MoPH, Statistical Bulletin, 2015

2 UNHCR, Syrian Refugees Livelihoods, Inter-Agency Information Unit, 2016

Prior to the onset of the Syrian conflict and the inflow of large numbers of Syrians, poverty in Lebanon was significant and regional disparities in living conditions were acute. The 2011-12 Household Budget Survey shows that poverty in Lebanon was 27 percent (pre-Syrian crisis), which implies that about one million people had levels of consumption below the annual poverty line set at 4,729 thousand LBP per capita per year (US$3,150). Poverty is the lowest in Beirut (16%), followed by Mount Lebanon (22%) and Nabatiyeh (25%). The poorest regions are North Lebanon (36%) and the Beqaa (38%).

The Syrian conflict is estimated to have increased poverty in Lebanon, pushing an additional 170,000 people into poverty in 2014 and making those already poor even poorer. According to the 2015-16 Lebanon Crisis Response Plan (LCRP), the total vulnerable population in Lebanon today is approximately 3.3 million, of which 1.5 million Lebanese, 1.5 million Syrians and 300,000 Palestinians. According to a joint Feb 2016 report from Saferworld and Conciliation Resources, lack of authorization for the opening of official refugee camps has meant that Syrians have settled in urban areas with host communities who already face acute socio-economic challenges, thereby putting excessive strains on existing infrastructure and services within these communities.

The Syrian conflict has also exacerbated the labor market situation in Lebanon. Since the refugee influx, the labor force in Lebanon increased by as much as 35 percent. Because of the low level of education of the Syrian refugees (87 percent of working age refugees have less than a secondary level education), the refugee crisis has also led to an oversupply of low skilled workers and to an increase in informality. Almost all Syrian refugees are working informally. The construction sector is the second largest employer of Syrian refugees in Lebanon (24.1 percent), after household work (26.5 percent), and is followed by wholesale/retail (11.1 percent), manufacturing (10.6 percent), agriculture (9.1 percent), food and beverages (4.9 percent), and others. The lack of opportunities for unskilled and low-skilled Lebanese and refugee workers is important, given that unemployment that affects specific social groups more than others (in this case refugees and lower-skilled Lebanese males, and youth within both groups) can lead to inter-group grievances that in turn fuel tensions and conflict.

The lack of legal frameworks for Syrians in Lebanon's labor market makes them particularly vulnerable to exploitation through irregular working arrangements, driving down wages and contributing to social tensions with host communities. As noted above, in most cases, many Syrian refugees are working in informal, low-paid work, and while this has generated a degree of economic growth, it has also had negative effects on the formal labor market, driving down wages and creating tensions with host communities.

Syrian influx has also contributed to a situation of rapid, unsustainable urbanization in an already vulnerable and fragile context, in turn contributing to increased social tensions/decreased social cohesion in Lebanon. A 2015 World Vision Int'l (WVI, 2015) report notes that Syrian influx has exacerbated existing vulnerabilities and increased pressure on provision of basic urban services on under-funded and under-equipped local municipalities. Notably, because the urban context is characterized by complex, fluid, diverse and interconnected communities, underlying structural vulnerabilities can intensify inequality, resource scarcity, competition, social conflict and protection challenges during crises. Importantly, identities themselves between and within diverse communities are multiple, fluid and highly dependent on context. WVI 2015 cites research on threat perceptions in Lebanon that suggests that tensions exist among Lebanese nationals as a function of political affiliation and religious identification. The Syrian refugee crisis thus complicates an

already fragile confessional and political balance at the national level, entangling Syria and Lebanon in a complex web of alliances and rivalries.

Tensions have emerged both between Syrian and Lebanese host communities, as well as between the local communities and those who administer them. Building on the foregoing, WVI 2015 analyzes some of the drivers of tensions between Syrian refugee and Lebanese host communities to include structural, socioeconomic, and proximate causes as follows:

- ***Structural vulnerabilities*** pre-date the Syrian crisis and include high levels of poverty, resource scarcity, lack of effective governing institutions (or support for institutions).
- ***Socioeconomic causes*** include differences in religious, cultural and social norms between refugee and host communities and lack of social networks.
- ***Proximate causes*** include:
  - Access, affordability and quality of housing (rapidly rising rental prices, poor quality of living conditions and the perception of exploitation).
  - Economic competition over jobs (formal and informal employment) and livelihood opportunities.
  - Access to and quality of basic education (concerns of overcrowded classrooms and lack of quality or access) and basic public goods and services (such as water and electricity, solid waste collection, healthcare).
  - The role of international aid (in terms of perceptions of fairness of distribution, availability and perceptions of inequity, unfairness and even corruption).
  - The role of social, local and international media and the framing of issues.

Rising social tensions (decreasing social cohesion) between communities have the potential to generate secondary conflict in the country. A 2015 International Alert report focusing exclusively on the impact of Syrian refugees on security threat perceptions in Lebanon illustrates that Lebanese nationals are concerned about becoming victims of crime, risk of falling into poverty, threats to sectarian balance, service shortages, radicalization of refugees, and increasing terrorism (WVI 2015). In some cases, tensions, resentment, animosity, hostility and frustration have already manifested into physical forms of violence toward refugees. This includes scapegoating, harassment, discrimination, demonstrations, protests, road blockages, curfews, and vandalism. These forms of violence reportedly increase vulnerability, hinder the enjoyment of public spaces, and reduce mobility within cities, further compromising social cohesion.

Rising tensions and secondary violence also have consequences on equitable access to public spaces, urban governance, basic services, livelihood opportunities and development assistance, especially for already vulnerable groups like women and children. For example, according WVI 2015, as tensions rise, so too does isolation of refugee families from the fabric of urban social life. Syrian women, preferring to avoid harassment or negative stereotyping in public spaces, reportedly remain at home – an unfortunate coping mechanism that reduces access to social capital in the community. Children are also adversely affected, as families prefer not to send their children to school for fear of discrimination or harassment (which in turn increases segregation and furthers social tensions). As frustration and scapegoating become common, discrimination may reduce access to employment and livelihood opportunities for young Syrian refugee men. This may increase domestic violence, drug abuse and participation in radical collective action in this demographic.

Weak institutional capacity and the absence of asset management tools can both undermine intended project outcomes and exacerbate social risks. As noted in the project appraisal document, the selection and prioritization of road construction and maintenance in Lebanon is generally done based on political preferences, rather than adequate road asset management. While an advanced asset management system was installed in the 1990s, it was not used since year 2001 for road works prioritization. Government agencies generally do not have the capacity or in-house equipment to directly undertake road works, with the exception

of a small number of equipment used by Ministry of Public Works and Transport (MoPWT) for emergency repairs and for snow removal. This applies to both maintenance and new construction, which are instead executed by local contractors under the supervision of CDR and/or MoPWT's offices in the regions (Mohafazat or governorates). While the capacity of local contractors is generally adequate, the works are rarely executed to high quality standards due to the lack of financial resources (which oblige to build to lower standards and subsequently do more repairs), poor design and supervision, political interference and procurement inefficiencies. The substantial lack of resources, the lack of incentives, and the strong political interference in the road sector have largely limited the capacity of MoPWT and CDR to properly manage the road network and prioritize investment resources. Given the fragile social situation summarized above, fortified institutional capacity and better management will be needed to properly tackle social risks in project design and implementation.

CHAPTER FIVE: ENVIRONMENTAL AND SOCIAL SCREENING

Screening is the first step in the ESMF process. The purpose of pre-ESIA/ESMP screening is to get an overview of the nature, scale and magnitude of the issues in order to determine the scope of the Environment and Social Impacts Assessment (ESIA) or the Environmental and Social Management Plan (ESMP) to be subsequently undertaken towards preparation of Project reports for review by CDR (PMU). As well, pre- ESMP screening will determine and establish applicability of the Bank's environment and social safeguard policies and will therefore influence development of Terms of Reference for follow up ESMP and RAP studies along with Government of Lebanon regulatory requirements. Pre- ESMP Screening will be based on a Checklist to be completed by respective Municipalities in respect of individual sub- projects. Table 5.1 below provides a pre- ESMP Screening Checklist developed for this ESMF and associated RPF. This process is detailed in sections below where the sequence of events is schematically presented in the Figure below.

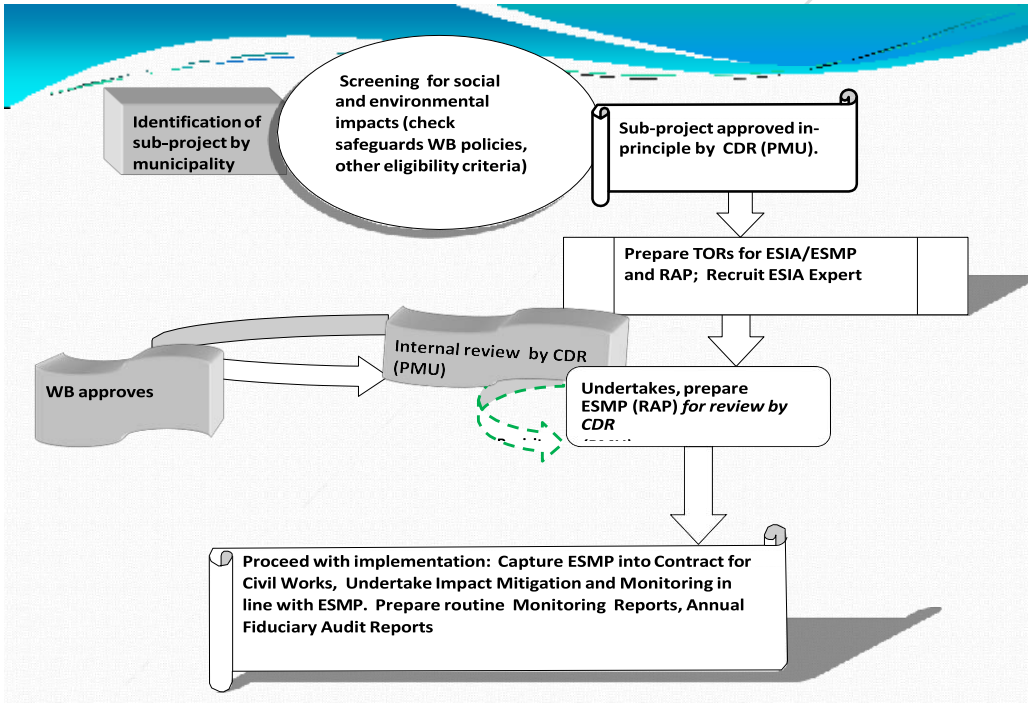


Figure 0-1: Schematic presentation of the Environmental and Social Process.

The following screening table is designed to help the CDR to identify whether a sub-project is eligible or ineligible for financing through this project based on its environmental and social impacts and risks.

Table 0-1: Exclusion Criteria for Sub-Projects

Criteria	YES / NO	Description
Subproject is classified as Category A according to World Bank classification.		
Subproject activities have significant adverse environmental or social impacts that are sensitive, diverse, or unprecedented.		
Activities affect an area broader than the sites or facilities subject to physical works		
Subproject will result in conversion/alteration of natural habitats		
Generation of significant quantities of hazardous waste		
Will the sub-project trigger a new World Bank Policy other than OP4.01 and OP4.12?		
Will the sub-project increase the footprint or includes new construction of roads?		

Sub-projects which has any of the above aspects as "YES" and supported by clear description is considered ineligible for financing and shall be excluded from the overall project.

Additional screening criteria is presented in Annex 6 to assess potential environmental and social risks, and applicable GoL regulations and World Bank safeguard policies and impacts associated with project activities on a particular site. The findings will facilitate scoping of Impacts and drafting of TORs for both the ESIA/ESMP and RAP studies. The worksheet therefore will have to be completed by the CDR for each proposed sub-project at the Screening Stage immediately after project identification.

Additional screening forms are provided in Annex 6 relating to:

- Checklist of Possible Environmental and Social Impacts of Projects;
- Site characteristics;
- Protection of cultural property;
- Codes of Practice for Prevention and Mitigation of Environmental Impacts; and
- Safeguards Procedures for Inclusion in the Technical Specifications of Contracts.

Each of these documents should be used at the proper stage and timing of the project as appropriate.

Important notes for the environmental and social officers conducting the screening:

1. The entity conducting the screening should take adequate steps to ensure that there are no adverse impacts on the environment within 1 km radius of the listed protected areas during investment /sub-investment implementation. The Environmental Officers at the PMU need to ensure that the required avoidance, minimization and mitigation measures are taken care of during site selection, preparation of feasibility studies detailed engineering designs and implementation/construction stages of a sub-project. This will help facilitate project supervision and monitoring during the implementation stage as well.
2. Once applicability of GoL and WB policies has been established, ensure appropriate regulatory action and/or clearance.
3. Ensure that mitigation measures identified in the above matrix are translated to detailed mitigation measures in the Environmental management plans for the particular investment.
4. Ensure that each ESMP and RAP (if required) is integrated in the feasibility and detailed engineering drawings for the investment.

In line with this requirement, the PMU will prepare and submit Project Reports to CDR.

Screening must develop an ESMP for each investment. This is the tool that will guide identification, mitigation and monitoring of impacts during the development cycle of each investment. While a generic ESMP for the project is provided in Chapter Seven, those developed for respective investments will be actually based on identified impacts. The ESMP should include a set of mitigation, monitoring, and institutional measures to eliminate adverse environmental impacts to offset or reduce them to acceptable levels. The plan should also include actions needed to implement these measures. Specifically, the ESMP:

- Identifies and summarizes all anticipated significant adverse environmental impacts (including those involving indigenous people or involuntary resettlement);
- Describes--with technical details--each mitigation measure, including the type of impact to which it relates and the conditions under which it is required, together with designs, equipment descriptions, and operating procedures, as appropriate;
- Estimates any potential environmental impacts of these measures; and
- Provides linkage with any other mitigation plans (e.g., for involuntary resettlement, indigenous peoples, or cultural property) required for the project.
- Identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the EA report and the mitigation measures described in the EMP.

- The recommended monitoring program should provide a specific description and technical details of monitoring measures including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and
- Monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.
- The ESMP should also provide a specific description of institutional arrangements stating persons responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental management capability in the agencies responsible for implementation, ESMPs may suggest (a) technical assistance programs, (b) procurement of equipment and supplies, and (c) organizational changes.
- For all the above three aspects (mitigation, monitoring, and capacity development), the ESMP should provide (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) capital and recurrent cost estimates (c) sources of funds for implementing the ESMP. All these cost estimates should be integrated into the total project cost estimates.
- The ESMP should be integrated into the project's overall planning, design, budget, and implementation by including the ESMP into project contracts and establishing the ESMP within the project plan to receive funding and supervision along with the other components.

The record of stakeholder consultation carried out during the ESMP process shall be provided in the report along with the minutes of these meetings, views of stakeholder agencies, affected people and local nongovernmental organizations (NGOs).

For each Investment, the ESMP prepared will further be applied as follows:

(i) The ESMP will be captured and integrated into the Final Design Report to ensure that impact mitigation is built into the Project Design. The ESMP will also be captured into the Bills of Quantities to ensure that impact mitigation is provided for in the budget for each investment.

(ii) The ESMP will be captured and integrated into the Contract for construction to ensure that the Contractor is bound in contract to implement the impact mitigation program.

(iii) The ESMP will be reviewed during periodic reporting as a mean to monitoring compliance.

CHAPTER SIX: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS FRAMEWORK

This chapter maps out potential impacts of the project expected activities and investments to ensure that design and implementation of investments remain sensitized to local baseline challenges and remain focused towards their solution.

6.1 The Generic Impacts of the Project

Each of the roads to be rehabilitated under the proposed project will be assessed for general impacts of roads rehabilitation. The magnitude, significance, and acceptability of predicted impacts are evaluated with a view to determining whether observed adverse impacts are significant enough to warrant mitigation. To achieve this, predicted impacts are analyzed against parameters such as geographic spread, persistence, potential for reversibility, cumulative tendency, and potential to trigger secondary impacts, among others. Impacts were weighted on the scale of P, 2P, O, N, 2N to signify Positive, strongly Positive, Neutral, Negative, and Strongly Negative impacts respectively.

6.2 Potential Positive Environmental and Social impacts

Positive impacts of the project at the design and construction stage are summarized below:

Improvement of road condition: The rehabilitation of roads will improve local economic development in the areas the roads are servicing due to reduced trip times and less traffic congestion. Other benefits include increased access to remote rural areas and enhanced livelihood opportunities.

Reduction in traffic accidents: Investment to improve and rehabilitate roads will reduce the incidence of traffic accidents. In addition, road safety design review which will take place at the early stages of the project will enhance safety measures and will transfer knowledge to CDR and local authorities as well as raising awareness among road users.

Creation of employment and business opportunities for local residents: Construction projects are labor intensive and it is expected that the local residents and Syrian refugees who seek jobs will have opportunities of working in these projects. Consultants will also benefit from the short-term opportunities occasioned by the design and supervision work. Additionally, there will be business opportunities in the supply of construction material and provision of food to the construction workers. Given the current market condition, the unskilled/ low skilled labor market is dominated by Syrian workers, while a significantly higher share of the higher skilled labor market is made up of Lebanese workers who aim at higher positions and pay. Based on the past experience of construction work in the country, there is a higher probability of Syrians/refugees to apply and work in unskilled and low-skilled labor positions. Nonetheless, the contractors should highly advertise the need for laborers and they should aim to hire nationals as per Decision 29/1 dated January 29, 2018. Efforts shall be made to include women in the project activities. Regarding skilled workers, contractors should ensure that there is a competitive and transparent process used with equal opportunity to Lebanese, refugees, and women. The project monitoring will ensure that this process is implemented.

Broader participation and benefits for women and youth. Consultations will engage women in discussions on the types of jobs in construction or related supporting sectors they could most benefit from. Specific arrangements will also be made for women to be able to take on work directly and indirectly linked to the project activities. It is important to note, however, that among some social groups in Lebanon, including large segments of the refugee population, women's engagement in construction-related labor is not encouraged according to social and cultural norms. Changing these norms goes beyond the scope of the project, but these norms could in fact change due to measures put in place to encourage women's labor, if these measures are determined by women themselves. The project will also track the differential impacts of its activities on men and women. Results will be disaggregated by gender whenever feasible and reporting will look at whether gender gaps narrow throughout project implementation. Data on women's participation and benefits from this project will be widely shared so that information can be used by other donors and agencies supporting the transport sector or otherwise aiming to promote gender equality in Lebanon.

Better understanding of the baseline environment: CDR has been sensitized on the potential impacts of proposed investments, as a result of which there is better awareness and understanding of issues of concern.

6.3 Preliminary Assessment of Environmental and Social Impacts of REP

In general following is the list of broad positive and negative impacts that are very likely to arise from the sub-projects funded under the REP.

6.3.1 Overall positive impacts of the project

The proposed project and its subcomponents are expected to have major positive environmental and social benefits which will contribute to the improvement of the living conditions of the Lebanese people in addition to improvement in the overall environmental status in the project areas. The following is a list of key economic, environmental and social benefits which will result from REP activities:

- Improved accessibility of people, goods and services;
- Economic and social development of rural areas;
- Reduced air pollution and traffic congestions
- Job creation and local economic development

6.3.2 Overall negative impacts of the project

The preliminary assessment of impacts that can be linked to the REP can be generalized under (i) typical construction/rehabilitation impacts which can be mitigated with good construction practices and (ii) specific impacts that can arise due to engineering interventions proposed for some sub-projects and hence require more detailed analysis at later stages.

In general, following is the list of broad negative impacts that are very likely to arise from the sub-projects funded by the REP. These impacts though occurring in most of the sub-projects will vary in extent and significance **hence individual assessment for each subproject is of utmost importance**. However, for ease of presentation and reference typical construction impacts related to the project have been discussed under the following thematic categories.

Table 0-1: Preliminary Identification of Potential Impacts during Construction

Receptor/EHS Aspects	**Related Potential Impacts**
Environmental Impacts	

Receptor/EHS Aspects	Related Potential Impacts
Air, Noise & Vibration	This will emanate from operation of the construction equipment, vehicles used to transport materials, the labor force, etc. which, unless managed, can cause inconveniences to homesteads, commercial and recreational establishments, etc.
Soil, subsoil and land	**Sanitation concerns from construction worker camps:** Concentration of humanity in the construction activity will of necessity be accompanied by increased demand for sanitation which if not provided could see build—up of human waste in any bushes within vicinity of the construction site resulting in soil contamination and pollution of subsurface waters.
Solid and hazardous waste	The rehabilitation activities will involve removal of old asphalt layers, shallow excavations, clearing of culverts; and other road rehabilitation and maintenance activities will result in generation of solid and hazardous wastes. Poor management of these wastes will have negative impacts on the human health and the surrounding environment
Water resources	• **Accumulation of waste spares and oils:** Activities in the maintenance of plants and equipment will lead to generation of special wastes in form of waste spares, used oils, packaging, etc. which is especially hazardous to surface waterImproper disposal of debris or construction wastes on river banks • Improper discharge of domestic sewage from construction camps/offices into surface or subsurface water bodies • Water consumption for construction works
Biodiversity and sensitive habitats	• Removal of trees or green cover for rehabilitation or construction purposes may result in loss of habitats • Pollution of rivers or waterways may negatively affect the aquatic ecosystem,
Health and Safety	Construction works will involve use of heavy equipment and other construction tools and materials. Contactors and subcontractor worker crews are normally exposed to occupational safety and health hazards with the risks of suffering from injuries, fatalities and illnesses related to the work environment. Safety hazards will mainly be encountered during the use of the equipment, and occupational hazards though inhalation of dust, exposure to high noise level, and poor ergonomics. These hazards, especially dust and noise are also likely to impact on persons not directly working on the project sites. In addition, other health and safety concerns are: • Falling from moderate heights; • Vehicle/pedestrian accidents; • Falling into trenches; • Being buried in tunnels/excavations; • Breathing dust and other air pollutants; • Back aches caused by handling heavy material;

Receptor/EHS Aspects	Related Potential Impacts
	• Suffering hearing loss from noise
Potential damage/ interference with existing infrastructure:	Quite frequently, the site targeted for civil works could also be serving as the transmission area for other infrastructure such as underground cables, pipelines, sewer lines, etc. which are not apparent on the ground. Careless implementation of civil works has often led to damage or interference with such structures, thus causing disruption in services. Where infrastructure for water supply and sewage are involved, the destruction causes untold damage and discomfort in the surrounding communities and can trigger incidence of waterborne disease, and must therefore be avoided at all costs.
Impacts at material borrow and transport areas:	Stripping, quarrying, lasting and trampling at material borrow and transport routes has a diversity of impacts such as degradation of biodiversity and wildlife habitat, creation of open craters which pose health and safety hazards, creation of nuisances (noise, dust and vibrations), interference with public transport routes, posing hazards to other road users (the case of non-secured building stones in transit), degradation of water catchments, etc., all of which will require resolution through careful planning of operations
Socio-economic impacts	
General impacts	• Temporary nuisance and inconvenience as a result of the construction activities including noise, emissions. • Influx of workers and the potential implications on communities' privacy. • Employment, working conditions and safety of workers at the construction site • Disturbance of public health and quietness due to construction/rehabilitation activities; • Land acquisition or obstructing access to amenities due to construction/rehabilitation activities.
Obstruction of temporary access	it is possible that temporary obstruction of access routes to peoples' businesses, homes and institutions will take place during the construction.
Labor Influx and Worker Camps	Small worker camps may be established along roads, leading to small but manageable amounts of labor influx, although defining labor influx in this project is difficult, as the project is expected to employ mostly labor from surrounding communities.
Potential social tensions and conflict over job-sharing / dissatisfaction with allocation of project-generated jobs.	Opportunities for employment are always associated with influx of speculative job seekers who would normally be resented by the local labor force. Unless this is properly handled, conflicts and confrontation can ensue, especially at the level of skilled labor positions, leading to negative publicity to the sub-projects, delays, and political interference.

Receptor/EHS Aspects	Related Potential Impacts
	Additionally, the project is expected to create 1.5 million labor-days in jobs for both Syrians and low-skilled Lebanese in host communities. Syrians already tend to work in informal, low-paid work, often driving down wages in the formal labor market and creating tensions within host communities, besides being exploited. Such tensions risk exacerbation if beneficiary targeting mechanisms, road selection, and labor processes are not managed properly. Furthermore, potential perceptions that project employment ratios unfairly favor Syrian communities (or any one group over another) might further exacerbate resentment and social tensions between non-homogenous groups, especially if information-sharing and conciliatory dialogue between all stakeholders is not adequately managed.
Poor Labor Conditions and Lack of Labor Law Protections for Workers	The project expects to create about 1.5 million labor days of jobs for already vulnerable Lebanese and Syrian communities (who are considered project beneficiaries), many of whom might not have work authorizations or contractual protections with contractors. Wages are to be set by the market. According to the implementing agency, contractors are expected to follow local labor laws, but there is usually no monitoring of whether local labor laws are followed. This being the case would mean that the large, vulnerable population of beneficiaries may be at risk of working for wages that are less than those established by the law and may be forced into agreements that do not respect established work schedules or rest periods.
Risk of Child Labor	In addition to the foregoing, the immense needs of vulnerable communities may result in underage workers making themselves available for work, and could result in the project employing child laborers
Risk of under-participation/ underemployment of women	The project aims to target a specific percentage of females as direct beneficiaries but, as the bulk of the work is either manual labor in construction to rehabilitate and maintain roads, or indirect employment for suppliers of building materials, it is not clear whether women will be able to benefit from these job**s**. While adult, working age women outnumber adult working age men in Syrian communities, many agencies have noted that women are frequently responsible for providing for their families. Without in-depth analysis and catering to the distinct employment needs of men and women in the target Lebanese and Syrian communities therefore, women risk reduced benefits from the project overall.
Increased Risk of Gender-Based Violence	While road construction can provide employment for women in some rural areas, men are still the main beneficiaries of these jobs. Women who do benefit from these employment opportunities often face a double burden, with responsibilities to both work and family. In some cases, family tensions related to women's work outside the home can increase

Receptor/EHS Aspects	Related Potential Impacts
	their risk of intimate partner violence. In this local context particularly, there has been widespread reporting of high levels of harassment, sexual assault, and threats that women in Syrian communities' experience. This gender-based violence risks being exacerbated by the other above-mentioned risks.
Incidence of HIV/AIDS	The presence of construction crews, particularly in the case of migrant labor, typically leads to an increase in the incidence of HIV/AIDS. There are also associated safety concerns for girls and women living around the construction areas or working on the construction sites which, if left ignored, can result in serious consequences such as physical and sexual violence, exploitative sex, and increased HIV transmission.
Accountably & Transparency risks	Lack of transparency in the project processes could exacerbate existing conflict dynamics and could also lead to reduced confidence in the state. The project implementing agency currently implements several Bank-funded projects, yet it does not currently implement a project with such a large-scale focus on vulnerable populations or which will need such a large number of laborers. The implementing agency does not have a social specialist for this sector and does not have in-house capacity to carry out a social assessment or to develop terms of reference for such a task.
	Global experience suggests that employment generation and public works programs can be quite susceptible to corruption and leakage (e.g. over-reporting of payments, appropriation of assets, ghost workers, and favoritism in beneficiary selection). While currently missing, political economy analysis of employing workers from vulnerable communities of Lebanese and Syrian could provide a better sense of a number of key risk drivers, including: the performance of the smaller contractors in the road sector in Lebanon; the incentives for private contractors to hire Syrians; the wage levels workers will be paid; the sustainability of such wages; work authorization issues; security concerns; and legal protections available to Syrian communities.
Cultural heritage	• During rehabilitation, sites or structures of cultural significance may be negatively affected from construction works.
Traffic Congestion and Detours	• Traffic impacts due road blockages for construction purposes and detours. This may be associated with traffic congestions, increasing commuting time and creating inconvenience to roads users.
Potential physical displacement (title-holders, squatters, and vulnerable groups)	The project will require little or no Land Acquisition. The project will rehabilitate and maintain roads on the existing right of way. Hence, land requirements, if any, are expected to be small scale in nature. Minor realignments or other small-scale construction may require land, however, and could impact squatters or

Receptor/EHS Aspects	Related Potential Impacts
	encroachers on government-owned lands or otherwise result in the involuntary taking of land. Therefore, the Bank policy on Involuntary Resettlement OP 4.12 has been triggered in this project and a Resettlement Policy Framework (RPF) has been prepared, as a precautionary measure to address unanticipated impacts as per the principles of the Bank's policy on OP 4.12. In such an event, Resettlement Action Plans will be prepared to address any adverse impacts that may arise as per OP 4.12. However, every effort will be made to avoid or minimize the need for land acquisition and resettlement. .
Potential economic displacement and potential loss of assets / infrastructure	As the project locations have not yet been determined, it is difficult to estimate the number or likelihood of people to be economically displaced by the project at this stage. Reference should be made to the RPF which establishes the mechanisms by which the appropriate tools, screening checklists and Resettlement Action Plans (RAPs), will be implemented as per OP 4.12 to mitigate potential social and economic impacts once project locations have been identified •
Potential livelihood impact of non-titled persons and vulnerable groups	Specific attention should be paid to the potential livelihood impacts of non-titled persons and vulnerable groups, including: • Those who have no recognizable legal right or claim to the land they are occupying • Persons below the poverty line, the landless, and other very poor groups; • Elderly, women and children, indigenous peoples, ethnic minorities, and so on; • Project affected persons who may not be protected through national land compensation legislation (including refugees, displaced persons, or other non-Lebanese citizens). Non-titled and vulnerable groups will be identified at the socio-economic survey stage of the RAP. As per the RPF for this project, each RAP developed under the sub-project will make precise provisions with respect to identifying and assisting non-titled and vulnerable groups

6.3.2 During Operation

The following Table presents the main impacts expected during operation.

Table 0-2: Preliminary Identification of Potential Impacts during Operation

Receptor/EHS Aspects	Related Potential Impacts
Air	• Emission of pollutants due to increased traffic and mobility on the rehabilitated roads •
Noise and Vibration	• Increase in noise emission due to increased traffic and mobility on the rehabilitated roads • Increase in vibration levels due to heavy load vehicles
Soil, subsoil and land	• • Accidental spills and leaks from vehicles
Water resources	• Potential contamination of surface and groundwater by runoff coming from roads containing hydrocarbons
Biodiversity and sensitive habitats	• Not applicable
Cultural heritage	• Not applicable
Socio-economic	• Positive Social amenities and social benefits from improved roads status

6.4 Net Social and Environmental Impacts before Mitigation

Based on the potential impacts above, the net social and environmental impact of REP project is as follows:

- REP is likely to confer an overwhelmingly net positive socioeconomic impact if immediate and long-term risks are well managed. Investment will trigger numerous positive socio-economic impacts; several of which are deemed to be long-term in prevalence.
- Construction phase activities are expected to have several low to medium severe negative environmental impacts. Social risks are substantial, on the other hand. These impacts can however be systematically mitigated through specific actions and measures to be implemented during design and construction.
- A generic Environmental and Social Management and Monitoring Framework (ESMMF) is provided in the following chapter with general guidelines. Detailed site-specific Environmental and Social Management Plans (ESMPs) will have to be undertaken with respect to each road site.

Table 0-3 below presents a summary of the main primary and secondary impacts of the project activities, their expected duration, reversibility and severity.

In the next section, proposed measures to mitigate potential environmental and non-resettlement impacts of the REP are highlighted.

Table 0-3: Prediction of potential adverse social and environmental impacts from the REP

Activity	Primary Impact	Secondary Impact	Duration	Feasibility of mitigation	Severity	Weighting
Environmental Impacts						
Roads Rehabilitation activities	Generation of nuisances-noise, air emissions, dust and vibrations at construction sites	Hazards to human health are a nuisance to the neighborhoods	Short-term	Reversible	Medium	0
	Generation of solid and hazardous wastes such as rubble, debris, empty fuel drums or chemical containers, etc.	Negative impacts on human health and ecological system	Short-term	Reversible	Medium	N
	Generation of waste oil, filters and spare parts maintenance of machine / equipment	Contamination of the ground, water resources, etc.	Short-term	Reversible	Medium	N
	Impacts in material borrow and transport areas	Quarrying for hard stone, soil and sand has potential to degrade the land, destroy biodiversity and habitats.	Long-term	Reversible	Low to Medium	N

Activity	Primary Impact	Secondary Impact	Duration	Feasibility of mitigation	Severity	Weighting
	Damage to existing infrastructure (water, electricity)	Interruption of supply	Short-term	Reversible	Medium	N
	Stripping the land of vegetation and top soil.	Loss of standing biodiversity and soil-borne genetic reserve in form of seeds	Long-term	Irreversible	Low	N
	Obstruction to access routes, visual intrusion	Loss of business, inconveniences to access premises	Short-term	Reversible	Medium	N
Social Impacts						
Roads Rehabilitation Activities	Sanitation concerns for construction crew	Concentration of workers can generate both solid and sanitation waste, which poses hazards to human	Short-term	Reversible	Low	N
	Occupational Health and Safety Concerns for construction crew and others	Injuries to workers, either due to long term exposure or accidents, which reduces their productivity and	Can be long-term or shorter, or both	Can be reversible or irreversible	Low to High	2N
	Proliferation of social concerns such as commercial sex, alcoholism, drug abuse, multiple homes	Social decadence, increased hazard of transmission of STDs, HIV/AIDS, crime, etc.	Short-term but impacts, can be long-term	Reversible	High	N

Activity	Primary Impact	Secondary Impact	Duration	Feasibility of mitigation	Severity	Weighting
	Displacement of human settlements	Destabilisation of livelihoods and loss of assets and lands	Long-term	Has irreversible aspects	High	2N
	Displacement of non-titled persons and vulnerable groups	Loss of livelihood and shelter	Long-term	Has irreversible aspects	High	2N
	Labor Influx and Worker Camps	Small worker camps may be established along roads, leading to small but manageable amounts of labor influx	Short-term	Reversible	High	2N
	Potential social tensions and conflict over job-sharing / dissatisfaction with allocation of project-generated jobs	Conflicts and confrontation can ensue, leading to negative publicity to the sub-projects, delays, and political interference.	Short-term	Reversible	Medium	N
	Poor Labor Conditions and Lack of Labor Law Protections for Workers	Large, vulnerable population of beneficiaries may be at risk of working for wages that are less than those established by the law	Short-term	Reversible	High	2N
	Risk of Child Labor	Immense needs of vulnerable communities may result in underage workers making themselves available for work therefore could result in the project employing child laborers	Short-term	Irreversible	High	2N

Activity	Primary Impact	Secondary Impact	Duration	Feasibility of mitigation	Severity	Weighting
	Increased Risk of Gender-Based Violence	In some cases, family tensions related to women's work outside the home can increase their risk of intimate partner violence	Can be long-term or shorter, or both	Can be reversible or irreversible	High	2N

2P=High positive impact, P= moderate positive impact, 0=low impact, N=moderate adverse impact, 2N severe adverse impact.

CHAPTER SEVEN: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING FRAMEWORK

7.1 Objective of the ESMMF

The objective of this Environmental and Social Management and Monitoring Framework is to outline a mechanism for analyzing and mitigating potential negative impacts and for monitoring the application and performance of mitigation measures. The ESMMF identifies roles and responsibilities for different stakeholders for implementation and monitoring of mitigations.

This section also presents an assessment of the institutional capacity for implementing this ESMMF, along with recommendations for improving capacity and resources.

As explained previously, the proposed project is to be nationally implemented in all governorates with the exception of Beirut. Institutional and technical capacities, as well as physical and social environments may vary between them. Identical mitigation measures for all governorates may not provide the flexibility required for dealing effectively with some of the negative impacts which require taking the local context into account. Wherever applicable, the ESMMF is designed to accommodate alternative context-specific mitigations.

7.2 General Mitigation Measures

The following are general mitigation measures that need to be detailed according to each subproject and in relation to the site-specific baseline conditions.

Attachment 5 of Annex 6 provides codes of practice for the prevention and mitigation of environmental impacts.

7.2.1 Before and During Construction

With the purpose of reducing the impacts related to emissions of gaseous pollutants from construction equipment, as well as reducing the impact of substantial social risks, the following mitigation measures and good practices are to be taken into account:

7.2.1.1 Environmental Risk Mitigation Measures

Air

- Employ construction machines with low emissions to reduce pollution, arranging sources of emission far from people's houses and public places
- All construction machines and vehicles should meet the standard on emissions and have passed the emission test
- No burning of wastes on site
- Limit traffic congestion through proper planning and operation of traffic diversions
- Do not let machines idle when not necessary.

Concerning dust control methods and measures, the following actions are to be taken into account to reduce the generation of dust:

- Regular watering of roads for dust suppression in urban, residential areas and in areas with sensitive receptors
- Covering of excavated soil temporarily stored on site
- Daily cleaning of tires of vehicles
- Covering up any vehicle transporting materials and spoil to and from construction sites
- Daily cleaning of streets and pathways in vicinity of construction site that are affected by soil and dust
- Imposing speed controls for construction vehicles.

Noise and vibration

Mitigation measures foreseen to minimize the impact related to noise emissions during the construction phase are:

- Apply appropriate schedule to avoid any works that may cause noise and vibration between 10 pm and 6 am, especially near inhabited areas. Any nighttime activities should be carried out using noise reducing means or low-noise technologies
- Use vehicles and equipment that meet national standards for noise and vibration.
- Publishing and registering working time of construction machines with local authorities and strict compliance therewith.
- Restricting the use of noisy machines near sensitive receptors such as schools and hospitals; using noise-reducing means for construction machines, if required.

Soil, subsoil and land

- Earthwork should be carried out during dry weather periods;
- Stockpiling of earth should be done at safe distance away from waterways;
- Other construction materials containing small/ fine particles should be stored in a place not subjected to flooding;
- Ensure sourcing of construction materials from quarries having a permit from MoE;
- If necessary, silt/sedimentation traps should be used to prevent soil particles from getting into drains and canals.

Solid and hazardous waste

- Work sites should be cleared of residual solid waste and wastewater before work commences;
- Temporary storage of solid wastes shall be done with appropriate containment to avoid spreading of waste, odor and avoid dust;
- Temporary storage of solid waste should be done to avoid interfering with traffic obstacles and aesthetics;
- Sites for collecting solid waste in each sub-project area should be determined prior to commencement of construction. These sites must be suitable for the transport, in order not to obstruct the activities of human beings, and the waste must be transported during the day;
- Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety in urban areas;
- All waste should be collected and disposed of in compliance with the local and national laws, in sites identified by the respective local authorities;
- Excavated soil, if suitable, should be used for leveling and backfilling;

- No solid waste should be burned at the site;
- Clean the construction site of solid wastes, wastewater, etc. before its closing.

Domestic waste

- Construction camps should be sited appropriately with consent from the necessary public authority or the implementing agency;
- Labor camps shall be provided with adequate and appropriate facilities for disposal of sewage and solid waste;
- Domestic solid waste shall be collected and disposed of daily at the local authorities' designated site or given for collection by the local authorities;
- Discharge and disposal of domestic waste from worker camps into water sources should be strictly avoided;
- Burying and burning domestic waste in the project site should also be strictly avoided;
- Avoid construction workers staying overnight at the construction sites.

Hazardous waste

- Wastes identified as "hazardous" will need special handling, storage, transportation and disposal. For contaminated sites, a hazardous waste disposal plan will need to be prepared.
- The contractor should be trained and made aware of the requirements prior to commencement of the sub-project. Special guidelines for handling of contaminated soils or hazardous wastes should be prepared and published by the PMU.
- Hazardous waste and contaminated soils should not be dumped on-site but stored in a designated, labelled site until removal to a landfill/dumpsite designated by the local authority or the Ministry of Environment becomes possible as appropriate;
- Oil and lubricant waste should not be buried or burnt in the project site, but collected and stored in proper oil-cans for re-use or disposed of in local authority approved designated sites.

Water resources

- Identification of the reliable water resources and obtainment of the necessary approvals and permits from the relevant authorities to extract water prior to commencement of construction works;
- Contractor should not obstruct or prevent water flow when working closer to water bodies;
- Silt traps and erosion control measures should be used where construction works are carried out in close proximity to the water bodies, to avoid entrainment of construction materials which cause turbidity and sediments;
- Construction material and stock piles should be covered to avoid wash off to water bodies;
- Water conservation practices should be in place in construction offices and camps;
- Camps should not be located near waterways, human settlements, or near drinking water intakes.

Biodiversity and sensitive habitats

- A compensatory tree planting program should be developed to replant native species wherever space is available beside the proposed project;
- Workers should be instructed to protect flora and fauna, including aquatic life, as well as their habitats;
- Hunting and pouching should be strictly prohibited;

- Washing, maintenance and service of vehicles and machinery should not be conducted close to freshwater habitats;
- Solid waste and construction debris should not be dumped into wetlands or natural habitats.

Cultural heritage

Infrastructure Development

The initial impact assessment on physical cultural resources (PCRs) from infrastructure development interventions under the project will be undertaken as part of the environmental screening. This would involve a site inspection and reference to maps of heritage buildings, property and landscapes prepared by the competent authority[33]. The goal of environmental screening is to:

- Determine the presence or absence of PCR sites within the project boundary and its area of influence
- If yes, to describe the extent, character and ownership of the PCR and investigate the significance of it
- Evaluate the scope for impacts on each site in the event of project proceeding and document them.

Depending on the significance of the PCR, its ownership and location, EMPs may need to be reviewed and cleared by the DGA.

Chance find procedures

Contracts for civil works involving earth moving and excavation activities, especially in known archaeological and heritage areas, should normally incorporate procedures for dealing with situations in which buried PCRs are unexpectedly exposed.

Recognition of unknown PCRs

For REP contracts, an initial consultation with the Directorate General of Antiquities should be held before work commencement to identify the likelihood of such material being uncovered, especially where trenching work is expected for pipe laying, etc. Upon discovery of such material during execution of work, the contractor should carry out the following;

- Immediately stop construction activities.
- With the approval of the resident engineer, delineate the discovered site area.
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.
- Through the Resident Engineer, notify the responsible authorities (DGA and local authorities) within 24 hours.
- Submit a brief chance find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented.
- Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out.

[33] State Board of Antiquities & Heritage (SBA&H)

- An evaluation of the finding will be performed by the DGA who may decide to either remove the PCR deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor, etc.
- Construction work could resume only when permission is given from the DGA after the decision concerning the safeguard of the heritage is fully executed.

Health and Safety

The proposed project interventions will mostly involve small to medium scale construction sites. As such, extreme dangers posed by working in environments such as great heights, deep water and involving dangerous chemicals and radioactive material will not be present. Health and safety of workers and the public should be designed into constructions, before, during and after the building phase. The following safety measures can be used as general guidelines:

Environmental Assessment for each site should include an occupational/community health and safety assessment as to what are the hazards involved in/nearby the work site, who might be harmed and how seriously, how likely this harm might happen and what actions are required to eliminate or reduce the risk and incorporate such measures in the ESMP and clearly set out in the tender documents. All sub-projects must observe health and safety regulations, hence during implementation it is important to check if these control measures are put in place and are meeting the legal requirement.

Training (see also for Labor Influx risks)

- Ensure contractors carry out suitable training programs on occupational health and safety for workers prior to commencement of construction.
- Ensure only experienced and well-trained workers are used for the handling of machinery, equipment and material processing plants.
- Ensure all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves, other workers or the public.

Personal Protective Equipment

- Ensure appropriate safety equipment, tools and protective clothing are provided to workers and that safe working methods are applied. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored.
- Any person who works or operates in an area where there is a risk of flying objects, such as splinters, should wear safety goggles at all time. These should be securely fitted to the face. Welders should protect the entire face from hot sparks and bright rays by using a welding mask.
- Any person exposed to high levels of dust or hazardous gases (when working in tunnels) should wear respiratory protection in the form of disposable masks or respiratory masks which fit more snugly around the nose and mouth.
- Any person working in an area where there is a risk of being struck on the head by a falling or flying object should wear a hard hat at all times. These should be well maintained in order to be fully effective, and any helmets or hard hats that are damaged or cracked should immediately be replaced.

- All workers will be required to wear shoes or strong boots to prevent sharp objects from penetrating or crushing the foot. Those working in muddy conditions and in canals with polluted water should avoid hand/foot contact with water and should never wear slippers.
- Road workers should wear reflective vests to avoid being hit by moving vehicular traffic.

Site Delineation and Warning Signs

- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform oncoming vehicular traffic and pedestrians in the area about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps during nighttime.
- Ensure danger warning signs are raised to inform the public of particular dangers and to keep the public away from such hazards.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

Equipment safety

- Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if the equipment malfunctions. Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured. Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems.

Traffic management

- Ensure traffic control plans and procedures are in place when work zone is set up and how to handle full or partial road closure, blocked intersections, sidewalk closure, etc.
- Ensure installation of transport signs and lighting systems in conspicuous places to assure transport safety. Transport signs should be installed at places where accidents may easily happen (populated centers, schools, hospitals, commercial areas, etc.).

Material management

- Ensure easily flammable materials are not stored in construction sites and that they are transported out of project site.

Emergency Procedures

- Ensure an emergency aid service is in place in the work zone.
- Ensure all site staff is properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble for a head count. This information must be conveyed to employees by the site manager on the first occasion a worker visits the site.

Construction camps (see also for Labor Influx risks)

- Ensure installation of adequate construction camps and sanitation facilities for construction workers – if applicable – to control the transmission of infectious diseases.

Information management

- Provide advance notice to local communities by way of information boards about the schedule of construction activities and temporary road closure.
- Develop and establish contractor's own procedure for receiving, documenting and addressing complaints that is easily accessible, culturally appropriate and understandable to affected communities.

Worker consultation

- Consulting the workforce on health and safety measures is not only a legal requirement, it is an effective way to ensure that workers are committed to health and safety procedures and improvements. Employees should be consulted on health and safety measures before the introduction of new technology or products.

7.2.1.2 Social Risk Mitigation Measures

Land Acquisition and Resettlement risks

- In case of temporary or permanent land acquisition, apply the Resettlement Policy Framework (RPF)[34] and then implement a Resettlement Action Plan (RAP).
- Mobilize maximum capacity of skilled and unskilled labor force from the area surrounding the project;
- Identify the location of camps after consultation with the local community and local authority;
- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control the transmission of infectious diseases.

Labor Influx and Worker Camp risks

- As noted in other sections, provide regulated camp accommodation for workers;
- Provide information and awareness-raising campaigns for workers on labor influx issues;
- Introduce labor contract provisions to create disincentives for deviant behavior (even after working hours);
- Enact and enforce a strict policy, included in the project implementation manual, to cooperate with law enforcement in dealing with perpetrators;
- Provide opportunities for home leave;
- Deploy female police officers and law enforcement;
- Ensure working GRM (grievance redress mechanism).

Risk of social tensions and conflict over job-sharing / dissatisfaction with allocation of project-generated jobs.

- Develop and communicate clear criteria for job selection and allocation, with attention to

[34] A Resettlement Policy Framework (RPF) is separately prepared which outlines the necessary procedures to be followed in case of involuntary resettlement.

ratio of Syrian and Lebanese community workers, types of positions and jobs restricted to Lebanese citizens, and consideration also for sub-group allocations within these different communities.

- Generally, the better a resource management plan is in recognizing major stakeholders, the better equipped it is to resolve conflict between parties. Hence, conduct independent consultations with host communities and Syrian communities to better understand their concerns and interests in order to identify the basis of mutually beneficial "win-win" cooperation. It is important to acknowledge that both the Lebanese and Syrian communities might not be homogenous groups and should therefore be disaggregated accordingly. Additionally, any kind of interaction process needs to be done sensitively and slowly: delving too quickly into sensitive discussions with both Lebanese and Syrian communities may create more tension, particularly if host communities feel that Syrian communities are increasingly being involved in local decision-making around issues of resource allocation.

- Consultations should include local organizations that are familiar with the political and security context, who can also provide inputs about how to distribute resources and conduct implementation.

- Sharing information and research between stakeholders can often diminish tension and promote the idea of a common problem with a solution lying in cooperation instead of conflict. Thus, in order to dispel misinformation and reduce mistrust, the project should plan periodic meetings between all stakeholders where issues are discussed dispassionately and solutions found. Such meetings could help eliminate doubts regarding the source of development assistance to Syrian communities and outline areas where Lebanese communities are likely to benefit from the program operations.

- The project administration needs to be clear on its stance towards local economic integration and not give off mixed messages in this regard. In particular, clear guidelines for implementing local integration, including readily available information for Syrian and Lebanese communities, is vital.

- Plan periodic events between communities in non-political spaces such as sports events, youth programs, theatre, culinary/cultural events, etc. in order to boost social capital, interpersonal relationships, and social cohesion as a whole. A holistic, conflict-sensitive, community-driven approach based on sound context analysis and tailored to the specific dynamics of each community is necessary to avoid worsening tensions or conflict. Such an approach would also be useful to overcome resistance to the inclusion of Syrian voices in efforts by promoting better relations between the two communities in safe, non-political spaces.

- Leverage and high publicize the institutional GRM as a streamlined complaint handling mechanism for reporting and obtaining redress to issues stemming from social tensions.

Lack of Labor Law Protections and Poor Labor Conditions for Workers:

- In order to counter irregular working arrangements that would make both Syrian and low-skilled Lebanese communities more vulnerable to exploitation, a hybrid set of rules should be considered and enforced in order to protect these communities and ensure that

they can sustain their livelihoods while contributing positively to the larger host communities. It is important to note that a formal system for Syrian communities, perhaps with fewer entitlements than for Lebanese communities, would be preferable to turning a blind-eye to irregular work arrangements that are exploitative and drive down wages for all. Contractors should be forced to abide by the minimum wage as per the Lebanese Law, and to comply with minimum working age for children, working conditions and hours (as specified in the legal section). This can be ensured through regular inspection of worker files and logs comprising nationality, age, sex, working hours, etc.

- The Ministry of Labor's Decision 29/1 must be enforced whereby contractors can hire Syrians merely for the positions and jobs for which Lebanese workforce is absent (unskilled construction labor), while the higher skilled positions and jobs listed in the Decision should be kept for Lebanese candidates.

- With strategic and effective regulation done in close coordination with local municipalities and CSOs, the presence of Syrian communities could be utilized to boost the labor market, for example, by creating more opportunities for Lebanese and Syrians to learn from each other. At the same time, vocational training and business incentives for low-skilled Lebanese workers should be provided, particularly for youth and women who are most vulnerable to being 'squeezed out' of the labor market (e.g. through falling wages resulting from informal work).

- Such a formal system for effectively regulating labor conditions should necessarily involve training and sensitization of contractors and sub-contractors, covering serious repercussions for noncompliance, heightened monitoring and evaluation during site visits, and a streamlined complaints handling mechanism for effectively managing noncompliance and protecting these vulnerable communities.

Risk of Child Labor

- Protections against child labor should be built into the above recommended formal system for preventing/mitigating poor labor conditions.
- The system should include clear screening criteria and identification measures for workers, training and sensitization of contractors and sub-contractors, heightened emphasis on the issue during supervisory site visits, a streamlined highly visible and accessible complaints mechanism, and serious repercussions for noncompliance with rules against child labor.

Risk of underemployment / under-participation of women

- To ensure that the project delivers as planned on a critical mass of direct female beneficiaries, it would be important to conduct in-depth analysis of, and then cater to, the distinct employment needs (challenges and constraints) as well as possibilities for addressing these needs within the context of the REP for both women and men in the target Lebanese and Syrian communities. This analysis should be conducted in close consultation and coordination with women and their communities, including especially

their families, as well as local CBOs/CSOs and municipalities. The analysis should necessarily inform and result in consensus around the type of roadwork that will employ women, as well as identify specific employment opportunities for women in indirect employment generated by the project.

- Based on global lessons learned from similar rural roads projects, the following strategies for meeting the project's goals to foster women's participation should be considered wherever applicable or adaptable to the local context:

    - **Strategies to address barriers *to* participation**

        - ***Deploy a variety of recruitment strategies*** such as recruitment through community leaders, using fliers, radio/other media, periodic and informal community gatherings, etc. Consider and balance the pros and cons of each recruitment strategy in terms of time, costs and ability to reach the most women in a manner that minimizes elite capture and reaches the most vulnerable groups such as illiterate or more secluded women. Including women in social mobilization teams and information campaigns could also be devised. Additionally, women who might currently participate in road works or other productive activities can share their experience with potential new recruits.

        - ***Consider providing child-care and part-time/flexible work arrangements*** to address key binding constraints of women's participation in productive activities. As work outside the home can place overly strong burdens on women, particularly those with child care duties, project activities can include the provision of on-site child care facilities, preferably run by senior women experienced in child care and paid as workers under the project. Other measures that can be considered are flexible scheduling, piece-rate wages, and part-time work to allow women to combine work and family care/household responsibilities. A known example of flexible scheduling is to schedule certain work tasks in a flexible manner, e.g. between certain hours, so that women can still tend to their daily domestic duties. As noted beforehand, these options are ideally explored and agreed upon through consultations with female beneficiaries and their families, for example, as part of community outreach efforts.

        - ***Community outreach and awareness/sensitization campaigns*** to reduce potential spousal and community resistance to women's participation, as well as to alleviate women's double burden of household work and employment. In line with the consultative process, sensitization campaigns directed towards men (husbands, fathers, brothers, sons, male community leaders, etc.) extending to women's families and communities regarding women's participation in road works could be helpful to alleviate women's double burden. Community outreach activities can encompass a range of interventions and approaches, including: community meetings; training or sensitization sessions with traditional authorities, community or religious leaders; street theatre and other cultural activities or events. In such

sessions, partners and families can be encouraged to elaborate on their initial hesitations about supporting their wives/daughters/female family members in their participation. Encouraging those who might have overcome such initial hesitations and digging deeper into the reason for such changes in attitude (e.g. economic needs that might require alternative arrangements for division of labor within households) would be important to inform project outreach strategies.

- ***Affirmative action and related measures*** can be critical to increase women's employment in rural roads projects. Given the project's specified number of direct beneficiaries who are women, some affirmative measures to achieve this depending on the contextual applicability and project arrangements could include:
  - *Setting a quota at the recruitment stage for a minimum percentage of women in the program*. Such a quota would need to be monitored regularly with sanctions applied to contractors who fail to deliver on these contracted "social deliverables". However, it must not be assumed that the existence of a quota will of itself necessarily encourage women's participation in the absence of other measures (such as those outlined above) undertaken simultaneously.
  - *Integrate a gender component in the training of contractors*, and stress the principles of gender equality in access to jobs and in wage levels.
  - *Ensure that productivity norms in the contracts recognize women's capabilities*, such as women's experience in participating in social organizations, and managing their household.
  - *Encourage women entrepreneurs to participate* in training and tendering.
  - *Include requirements in performance contract for activities that promote women's economic empowerment* (increasing number of women in road works staff and managerial positions).

- **Strategies to address barriers *in* program participation.** These strategies benefit both men and women and can include:

  - *Finding ways to improve working conditions* through, for example, providing covered rest areas (for protection against the sun), the provision of sun-blocking devices such as hats, providing drinking water to ensure workers are not dehydrated on the job, enforcing rest periods during the work day, and providing separate toilet facilities for men and women at worksites.

  - *Addressing gender-segregation of tasks by sensitizing construction unit staff, and expanding options in the project operational manual for women*

to perform a variety of tasks. The project can achieve this by:

- Maximizing women's employment in jobs that are deemed more appropriate for women (with informed analysis from prior consultations), but without precluding future entry into new areas of work.
- Leaving the choice to women (in negotiation with their families) on what operations women can undertake, as opposed to setting limits based on project staff's own perceptions and reservations. The REP operations manual should be carefully reviewed and modified in order to open up opportunities for women to perform a variety of tasks. As noted earlier, gender sensitization training can be provided to roads construction management and staff.

- *Understanding and incorporating domestic violence sensitivity up front for activities that generate women's employment and/or income* (discussed below in a separate section on mitigating gender based violence risks).

- **Strategies to enhance women's voice and agency *during* program participation.** In order to multiply the benefits to women's participation in the REP, the following strategies could be considered:
  - *Combine technical and life skills training for women participants*, as training can benefit women in enabling them to take on more challenging and better paid functions, achieve greater self-confidence and self-esteem, and in some cases, establish their own construction enterprises and become sub-contractors for maintenance works. REP activities could therefore provide both types of training opportunities for women workers so that increased take-up of opportunities can be granted.

  - *Provide leadership training and open opportunities for women to exercise leadership*. In line with the preceding strategy on training, REP can also provide rural women with training and skills to take on supervisory and managerial functions. In other projects that have implemented this leadership-building strategy, women were able to establish their own roads maintenance micro-enterprises and become sub-contractors for maintenance works.

  - *Develop group formation and mentorship activities to enhance agency*. Because women in rural communities can often be more socially isolated, perhaps exacerbated in this context by social tensions between different communities, the project should consider creating a 'safe space,' or providing a place where women can gather regularly (at least weekly) to meet peers, consult with mentors, acquire skills, and deal with personal problems. Mentoring may be an effective program component within rural roads projects, with mentors fulfilling a variety of roles, including:

    - Acting as advisors by sharing their knowledge and experience with mentees;

- Providing advice on employment, business start-up, as well as other issues affecting women's development
- Serving as role models by demonstrating appropriate and positive behavioral choices;
- Following-up with women in their daily lives to motivate and guide them in making good choices;
- Serving as resource helpers;
- Referring mentees to services (e.g. business advisory services, education and training opportunities, health services, etc.);
- Serving as educators even if equipped with the appropriate training and capacity-building.

▪ *Disseminate examples of women role models in roads work and other traditionally male jobs*. Especially in traditionally male-dominated jobs like road works, women need female models to follow and as such, women's talents need to be disseminated so that other women can see them. In a similar road works project for example, peer admiration was a key enabling factor for women's participation in road works. Female workers reported feeling inspired to continue learning new skills by female engineers leading road works.

- REP could therefore increase the visibility of experiences of women already working in rural road projects –for example: by collecting and sharing their successful stories, displaying photos of women performing roads work, and highlighting the number and percentage of women working in the sector.

▪ *Disseminate the community benefits of labor participation in roads work and associative activities*. Select case studies have revealed that some women seem to value jobs in which they can contribute to their community. Therefore, by emphasizing the community benefits of rural road projects in community outreach (see above), some women might find these types of jobs even more attractive given the changes their contribution can bring to their communities.

▪ *Provide support for women to open savings accounts*. Opening saving accounts for women has been identified as a proven intervention to increase women's economic empowerment, and as such should be considered for multiplying the benefits of the REP.

o **Strategies to increase sustainability and scale-up benefits of women's participation in the long-term.** To extend and scale-up the benefits of women's participation long-term, the project should consider the following:

▪ *Introducing measures to institutionalize the participation of women in roads staffing and in managerial positions* through, for example, incorporating tested strategies and lessons learned on enhancing women's participation in the project operational manual.

▪ *Taking a long-term perspective (as opposed to focusing only on women's*

participation during project implementation) when considering and implementing interventions that seek to enhance women's agency and economic empowerment, as equipping women with tools to develop longer term initiatives will sustain project gains in a much more effective way.

- *Developing graduation strategies to improve participants' chances of obtaining employment after exiting from the REP programs*. Such strategies could include providing women with training on financial literacy, job search, business development skills and access to credit to improve participants' chances of obtaining permanent employment or of becoming self-employed once they exit the project.
- *Building the evidence base on the benefits of women's participation* in rural roads and development schemes to use in outreach to key stakeholders.

Tackling Increased Risk of Gender-Based Violence (see also for Labor Influx risks)

To counteract the increased risk of gender-based violence (GBV) that already vulnerable Lebanese and Syrian women might face in the context of the REP, a number of mitigation strategies both at the sectoral level and the community should be deployed. For consideration, these include:

At the Sectoral Level—

- **Include construction staff and contractors in training sessions and awareness campaigns on GBV.** Training and awareness raising should also be targeted toward construction staff to ensure they are aware of women's concerns, including issues of sexual harassment in the construction site and the underlying gender inequality and social norms that perpetuate the acceptability of violence.
- **Establish and enforce codes of conduct** for project staff, contractors and sub-contractors both during construction and operation. Codes of conduct can be developed and implemented in close collaboration with construction contractors to promote shared responsibility. Having all staff (including contracted workers) sign and agree to uphold codes of conduct can then be an effective strategy for mitigating GBV risks. The code of conduct should clearly outline unacceptable behavior and consequences for harassment and any other type of gender violence.
- **Create a mechanism for the community to report cases of abuse by staff**. The Inter-agency Standing Committee's Codes of Conduct on Protection from Sexual Abuse and Exploitation in Humanitarian Crisis (available in English, French, and Arabic) has general guidance and core principles that may be useful when preparing institutional codes of conduct.
- **Establish feedback and grievance mechanisms for road workers and the community at large both during construction and operation/maintenance.** This would help to ensure that women and girls especially have a voice when they experience any kind of violence during the project implementation, and also while using completed roads. One option for setting up these mechanisms could be to use existing infrastructure to give women and girls easier and safer access to response services. This could include leveraging the project-level grievance redress system which in itself can encompass gender-sensitive channels of uptaking complaints, as well as installing "safe space" kiosks

around work sites where women and other persons can choose to report violence to trained staff and to file a complaint against the perpetrator, even anonymously. Furthermore, work supervisors can be trained to help survivors and provide information on how and where to report incidents of violence.

- **Improving infrastructure to reduce and prevent violence against women and girls.** Both during REP construction works and while operating/maintaining the roads, improving public infrastructure such as lighting and the appearance of stations/stops and adjacent streets (through routine maintenance, trash collection, elimination of graffiti, etc.), as well as increasing visibility within any planned stops/stations, amplifying video surveillance wherever applicable, and policing, all can contribute to help women feel safer and can reduce the probability of all forms of crime, including violence against women and girls.

At the Community Level—

- **Involve communities in <u>road selection and improvement/design</u> by inviting public participation in planning meetings.** Communities can have an important role in transport improvement. Through participatory processes, people can feel a sense of ownership and help take care of public spaces when project staff engage them and hear their voices. Such processes have helped identify the main community demands that can contribute to reducing violence against women in public spaces, such as having more lights in certain spaces. The project should use a gender-sensitive approach to consultations which in turn should include discussions (including not only with parents/community members, but others like headmasters in schools, and area clinics) about potential risks for increased GBV and appropriate preventative measures.

- **Include communities and particularly women in <u>implementation, monitoring and evaluation</u> of road initiatives to address violence against women and girls.** Planning transport systems in a way that includes women through participatory processes will increase awareness of the vulnerabilities women face in those systems. As such, the implementing agency should work throughout the project cycle with women, men, their communities, municipalities, CBOs/CSOs, and networks with strong institutional capacity to monitor the impact of the implemented road works and maintenance.

- **Encourage community members to report cases of violence they witness in or around work sites and related public spaces.** Where applicable, this can be done by raising awareness of safe and anonymous mechanisms that *anyone* can use to report GBV and harassment, as well as awareness on the redress mechanisms offered through the program and other institutions such as law enforcement and the health sector.

Incidence of HIV/AIDS. *See "Construction Camps" section above.*

Accountably & Transparency risks.
To ensure transparency in project processes, adequately manage social risks, and promote confidence in the state, the implementing agency should undertake a number of steps:

- Hire a social specialist and requisite staff to conduct and coordinate stakeholder analysis, political economy analysis, consultations, social assessments, and routine monitoring and evaluation by site.

- Political economy analysis should cover in-depth analysis of employing Lebanese and Syrian workers from vulnerable communities so as to provide a better sense of a number of key risk drivers, including:
    - The performance of the smaller contractors in the road sector in Lebanon;
    - The incentives for contractors to hire Syrians;
    - The wage levels workers will be paid;
    - The sustainability of such wages;
    - Work authorization and contract enforcement issues;
    - Security concerns; and
    - Legal and/or contractual protections available to Syrian and vulnerable Lebanese communities.

- In conducting the above political analysis, the relationship between municipalities and host communities needs to be evaluated and taken into consideration. Effective coordination with and between municipalities and CSOs is a crucial factor in successful initiatives, therefore meaningful consultation and close coordination with these key stakeholders—especially in the road selection process—would be helpful for designing and implementing transparent processes, thereby overcoming mutual suspicion and promoting accountability.

- As lack of accountability can challenge existing governance mechanisms and contribute to tensions between communities and their representative municipalities (e.g. where communities feel like they have been excluded/not consulted in needs assessment and project design), the implementing agency should strive to be transparent with all local actors and encourage local ownership in project conception, design and implementation. Greater engagement could also play a role to overcome mistrust and foster strengthened relations between local authorities and CSOs/CBOs.

- Another important mitigation measure to promote accountability would be to train potential construction companies on the specifics of the project level operational manual, contractual principles, and other mitigation measures as identified.

- An integral aspect of social cohesion and local integration involves changing the narrative between communities (Syrians, Lebanese, and sub-groups), for example, from how to ease the burden of Syrian influx in host communities to how Syrians could be an asset to the growth and development of host communities. This can be done through media, community-level sub-projects, national campaigns, and conflict sensitivity training for media and journalists reporting on REP. Such action could include home visits, town hall meetings and feedback mechanisms at all stages of the project cycle. Importantly, any tension mitigation actions must come with an awareness that there is no single homogenous ‘community’ of either Syrians or Lebanese. Rather, Syrians and Lebanese are made up of diverse communities with their own unique perspectives and needs, and

further work needs to be done to identify and consult with the wide range of their respective perspectives. Wherever possible, common traits between communities such as language and cuisine should be leveraged to reduce tensions and promote cohesion.

Table 0-1 presents a proposed environmental monitoring plan for the construction phase of the project.

Table 0-1 Proposed Environmental Monitoring Plan for the Project Construction Phase

Impact	Monitoring indicators	Responsibility of monitoring	Frequency of monitoring	Location of monitoring	Methods of monitoring	Estimated Cost of monitoring
Air pollutant emissions (Dust and fugitive air pollution emissions)	Total Suspended Particles (TSP), PM_{10}, $PM_{2.5}$ (wherever feasible), SO_x, NO_x and CO	Contractor's Health Safety, Environment(HSE) Officer/Department	Weekly	At key receptor locations at different project component construction sites	1-hr and 24-hr measurements, and visual observation of dust dispersion (scale and direction)	$1,500/ event
Increased noise levels	Leq, Lmin and Lmax	Contractor's HSE Officer/Department	Weekly	Near loud machinery, equipment and vehicles, and major construction activities; At main receptors	Single sample per location (average 1hr reading-15min intervals) during morning (7-8am), evening (1-2pm) and night (4-5pm)	$300/day
Solid waste generation (including construction waste)	Implementation of waste management system	Contractor's HSE Officer/Department	Weekly	At construction sites: waste(solid/liquid) generation, collection, segregation, storage, transportation and disposal; and at lavatories on site	Visual inspection	-
Soil contamination from accidental spills and leaks	Number of incidents of fuel, oil, lubricant or other chemical spills/leaks	Contractor's HSE Officer/Department	Weekly	At construction sites and vehicle refueling, maintenance and packing areas	Visual inspection	-
Impacts on biodiversity and habitats	Number and type of fauna and flora Number of affected habitats	Contractor's HSE Officer/Department; Expert in biodiversity	Weekly	Construction sites, sub-projects footprint	Biodiversity Assessment (survey)	$750 per sub-project

Impact	Monitoring indicators	Responsibility of monitoring	Frequency of monitoring	Location of monitoring	Methods of monitoring	Estimated Cost of monitoring
Health and safety risks	Implementation of the Health and Safety Protocol (yes/no) and Number of near miss events and accidents taking place	Contractor's HSE Officer/Department	Continuous	Construction sites of all project component; workers and personnel on site	Visual Inspection, Employees' records	-
Damage/ interference with existing infrastructure	Type and number/ size of damaged infrastructure	Contractor's HSE Officer/Department	Daily	At construction sites	Visual Inspection	-
Potential land acquisition and displacement	Type of displacement: physical/ economical; Associated value	CDR, Expropriation Committee	As needed	At construction sites	Valuation of loss and needed compensation	-
Obstructing access to amenities	Type, location and duration of amenity to which access was obstructed	Contractor's HSE Officer/Department	Daily	At construction sites	Visual Inspection	-
Social tensions and conflict over job-sharing	Number of reported conflictual events/ number of related grievances Proportion of Lebanese vs Syrian workers	PMU	Monthly	GRM at PMU; On site Employees' records	Visual Inspection	-
Working conditions	Labor's wages	PMU	Monthly	Laborers' contracts	Visual Inspection	-
Child labor	Labor's age	PMU	Monthly	Laborers' records/ files	Visual Inspection	-
Underemployment of women	Number of female employees out of the total	PMU	Bi-annual	Laborers' records/ files	Visual Inspection	-
Gender-based violence	Number of reported incidents of GBV	PMU	Monthly	Laborers' records/ files	Visual Inspection	-

Impact	Monitoring indicators	Responsibility of monitoring	Frequency of monitoring	Location of monitoring	Methods of monitoring	Estimated Cost of monitoring
Accidental unearthing of archeological/cultural findings	Implementation of the procedures agreed with the DGA for the protection of archeological findings during construction	Dedicated personnel from the DGA	Continuous	Construction sites of all project components during excavation and earth works	Visual Inspection	-
Traffic	Traffic delays	CDR	Weekly/ daily (as needed)	At obstructions (construction sites)	Measurement of time needed to reach destination	$250/ event

7.2.2 During Operation

During operation, the requirements of the national environmental, labor and social legislation should be followed and records should be maintained to ensure continuous environmental and social compliance.

Table 0-2 presents a proposed environmental monitoring plan for the construction phase of the project.

Table 0-2 Proposed Environmental Monitoring Plan for the Project Operation Phase

Impact	Monitoring indicators	Responsibility of monitoring	Monitoring institution (if different from responsible)	Duration/Frequency) of monitoring	Location of monitoring	Methods of monitoring	Estimated Cost of monitoring
Air pollutant emissions (Dust and fugitive air pollution emissions)	Total Suspended Particles (TSP), PM_{10}, $PM_{2.5}$ (wherever feasible), SO_x, NO_x and CO	CDR/ local authorities		Yearly: 1-hour and 24-hour measurements	At key receptor locations form the project sites	1-hr and 24-hr measurements, and visual observation of dust dispersion (scale and direction)	$1,500/ event
Noise	Leq, Lmin and Lmax	CDR/ local authorities		Bi-annual	At main receptors	Single sample per location (average 1hr reading-15min intervals) during morning (7-8am), evening (1-2pm) and night (4-5pm)	$300/day
Vehicle accidents	Number, dates, frequency and causes of vehicle accidents at project locations	CDR/ local authorities		Annual	Along roads covered by the REP project	Keeping records of accidents covering the indicators listed in the 2nd column	-

CHAPTER EIGHT: INSTITUTIONAL ARRANGEMENTS FOR SAFEGUARDS MANAGEMENT

This chapter presents the Institutional Framework for environmental management within the REP. The purpose of this ESMF is to ensure that environmental and social management is integrated into the entire development cycle of individual investments to be financed under the REP. In sections below, a highlight of mitigation process at respective levels of the project cycle is provided.

8.1 Implementation arrangements for environmental and social safeguards mitigation measures

The mitigation measures are expected to take place at three stages:

Mitigation at design stage: The design stage is crucial as the point where all mitigation activity will be planned for and resources allocated. CDR will therefore take charge and supervise design works and will ensure that contracts for design works bear clauses requiring Design Teams to plan for and allocate resources for impact mitigation. It will be the responsibilities of CDR to ensure that respective ESMPs are integrated wholly into design reports.

Mitigation at Construction Stage: Mitigation at construction stage will take place as part of the contracts for Civil Works, in line with the World Bank Safeguards Procedures for Inclusion in the Technical Specifications of Contracts (Annex 6, Attachment 6). Contracts for Civil works will therefore bear clauses binding respective contractors to undertake impact mitigation as par the Design Report. CDR, through its field officers and mainly through dedicated supervision consultants, will monitor activities of contractors to ensure delivery as per contracts.

Mitigation at Operation Phase: All contracts for Civil Works will allow for a one year Defect Liability Period when contractors will still be bound to undertake impact mitigation alongside routine repairs. Beyond the Defect Liability Period, all mitigation will fall on the Municipality.

8.1.2 Implementation arrangements of environmental safeguards

Planning, implementation and supervision of environmental safeguards will take place at three stages:

PMU Level

Among its key tasks, the PMU will be responsible for providing the overall policy direction, technical assistance, review and endorsement of screening reports, environmental and social assessment and management plans, capacity building for effective safeguards management to the implementing agencies, monitoring of environmental compliance and progress reporting to the World Bank.

Environmental/social focal points

The responsibility of day to day planning, implementation and supervision of environmental/social safeguards by the PMU will be coupled with the assignment of focal point(s) for environmental and social safeguards who will be in charge of ensuring timely and sound application of the ESMPs to

the planned investments. The environmental/social focal points will work closely with the PMU environmental/social consultants to ensure harmonization and coordination of activities according to the ESMMF requirements. The focal points for environmental and social affairs should have sufficient background to support the implementation of the ESMPs. In case of need for additional capacity, the PMU will recruit external consultants who have sufficient expertise to support the focal points.

At the field level, it is expected that the PMU environmental and social focal points will conduct regular field supervision to ensure compliance of contractors, their workers and practices, to the ESMPs. The PMU will also require the engineering and technical firms to recruit specialized staff in environment, social development and health and safety to conduct daily supervision on field activities and prepare non-compliance reports on which the PMU will investigate and take action accordingly.

Contractors

Implementation of the ESMPs will largely be the contractors' responsibility and therefore the contractor will have to nominate qualified environmental, health and safety consultant and a social development consultant (if needed) in order to ensure compliance with the ESMPs during construction.

8.1.3 Key roles and responsibilities of various parties involved in safeguards management

Environmental Consultant - Project Management Unit

- Provide technical support for environmental safeguards management under the REP;
- Ensure suitably qualified and experienced personnel are in place;
- Co-ordinate closely with the Environmental Officers in the PMU in planning and managing the EA cycle in relation to the project implementation schedule; and provide necessary technical assistance to facilitate the implementation, management and monitoring of environmental and social safeguards
- Review and endorse environmental screening reports, site specific environmental assessments/management plans prepared for each road;
- Ensure that applicable measures in the ESMP are included in the design, and condition on compliance with ESMP is included in the bidding documents;
- Develop, organize and deliver environmental training programs and workshops for the PMU staff, contractors, field supervision staff and other implementing agency officials (responsible for the supervision of Maintenance works), as needed, on safeguard requirements and their management;
- Develop programs to build long-term capacity in CDR and REP PMU for improved environmental and social management and monitoring
- Prepare additional technical guidelines, if necessary, to support the ESMF in order to strengthen the implementation of environmental safeguards
- Report to WB and the PMU on the overall environmental performance of the project as part of PMU's periodic progress reporting.
- Hold regular review meetings with the environmental officers;

- Promote community participation in the process of planning, management and monitoring of environmental impacts; provide guidelines on community participation in environmental monitoring to the PMU;
- Support technical components of the project such as SWM and draft TORs for technical studies and consultancies, if the need arises.

Environmental/Social Focal Point – Project Management Unit

- Ensure environmental screening is carried out for each sub-project as soon as conceptual technical design and scope have been defined;
- Closely co-ordinate with the WB for review and endorsement of the screening decision and recommendation;
- Ensure timely preparation of Environmental Assessments/Management Plans for sub-projects, as necessary (depending on screening outcome);
- Co-ordinate with PMU management for hiring technical assistance, where necessary, and for review and endorsement of these safeguard documents;
- Ensure consistency of safeguard documents with national environmental regulations and World Bank regulations; work with the PMU to obtain necessary clearances from environmental authorities for sub-projects, where applicable;
- Ensure relevant ESMP provisions are included in the design; and ESMPs are included in the bid documents; and condition on compliance with ESMP is included in the contractor's agreement;
- Ensure compliance with ESMPs during the construction period and maintain close co-ordination with the site engineer and the Environmental focal point of the contractor;
- Co-ordinate with the PMU for planning and delivering short training programs and workshops for the contractors and field supervision staff on the project's safeguards requirements and procedures;
- Prepare and submit regular environmental monitoring and implementation progress reports to the PMU;
- Ensure adequate public consultation during environmental screening and ESMP preparation; encourage community participation in sub-project planning, management and monitoring
- Ensure public complaints relating to nuisance and inconvenience caused by sub-project implementation are addressed with corrective action and adequately documented

Environmental Focal Point - Contractor

- Ensure implementation of relevant provisions of the ESMP during sub-project implementation; prepare contractor's plan for implementing the ESMP;
- Ensure close co-ordination with the Environmental Officer of the PMU offices and report progress on compliance on a regular basis.

8.2 Environmental Monitoring

The REP will focus on effective environmental and social monitoring. As majority of the anticipated environmental impacts from the project are general in nature and related to road rehabilitation, maintenance, civil works, site management, worker/public safety, etc., monitoring will be largely carried out in the form of compliance monitoring through regular site supervision by the responsible officers. A general monitoring checklist and a specific construction safety monitoring checklist to be used and filled during site supervision is provided in Annexes 9 and 10**.** These lists should be updated

and expanded to include impacts which are mostly case-specific and other site-specific environmental impacts based on actions agreed in the ESMPs.
Monitoring of environmental parameters (such as air, water, noise, wastes, etc.) will be conducted based on the requirements specified in the individual ESMPs. However, given the ambient levels of noise and emissions in the surroundings, pollution in the waterways…etc., no severe significant impacts on the surroundings' environmental quality are anticipated as a result of project activities.
As such, the need for regular and systematic measuring of air, noise and water quality to monitor contribution to environmental degradation from the project per se is not considered essential except in few cases.
The overall project impacts will be monitored during project implementation through a number of selected indicators which reflect the positive environmental contribution from the project to the overall environment. As such, no additional environmental indicators are proposed. Most importantly, the project will support independent environmental audits on an annual basis throughout project implementation.

8.3 Progress Reporting

Progress reporting on safeguards compliance will take place as indicated below.

- Contractor's environmental compliance reports to the Environmental Supervision Consultant on monthly basis;
- Environmental Supervision Consultant reviews and approves the contractor reports and submits to the PMU on monthly basis
- PMU environmental/social progress reports to the WB, on a quarterly basis. (This will be part of the quarterly project progress report produced by the PMU).

8.4 Capacity Development Requirements

For effective environmental/social safeguards management, the CDR will require implementation support in three main areas; (i) dedicated staff and resources (ii) technical assistance and (ii) training and awareness.

8.4.1 Dedicated staff and resources

The CDR will develop a PMU dedicated to the project, which includes a social and environmental specialist. Also, more details are presented in sections 8.1.3 above and 8.4.2 below.

8.4.2 Short–term training and awareness programs

In order to ensure safeguard procedures, instruments and monitoring needs of the REP are well understood by the PMU and its implementing partners, short-term training and awareness workshops will be conducted targeting primarily project and contractor staff on (i) World Bank's safeguard policies; (ii) national environmental regulations (the main social and environmental legal texts listed in Table 3.3-1); (iii) safeguards planning, management and monitoring requirements of the REP as specified in the ESMF; (iv) internal conflict that may arise or be exacerbated because of how benefits are distributed, selections done, consultations and GRM implemented, etc. in the presence of underlying tensions, and conflict management; and (v) gender mainstreaming to ensure the GRM responds to needs and to address and prevent gender-based violence (GBV).

8.4.3 Technical assistance

Where stand-alone ESMPs are required as screening outcomes, the PMU will hire consultants. In addition, the PMU may hire specialist services, carry out additional sampling (if needed) and site monitoring, conduct awareness for implementing agencies and contractors of disposal plans, monitor compliance and ensure control measures are adequately implemented.

8.5 Estimation of Environmental Safeguards implementation cost

Table 0-1 presents the estimated cost of ESMP preparation, implementation and monitoring.

Table 0-1: Estimated Cost of ESMP preparation, implementation and Monitoring

Activity	**Unit**	**Unit Rate (US$)**	**QTY (estimated)**	**Total in US$**
1. ESMP preparation - Simple checklist - Extensive ESMP/ESIA	Checklist Report	5,000 10,000	100 25	750,000
Sub-total (1)				***750,000***
2. Personnel	Man Month (MM)			
PMU Level - Environmental officer - Social officer **Contractor Level** - Environmental Officer/Consultant - Social development officer/consultant		3,000 3,000 Included in construction costs	30 15	90,000 45,000 Included in construction costs
Sub-total (2)				***135,000***
3. ***Training and awareness***				
- Training and awareness programs (short-term and long-term) - Training on sector environmental/social management issues - Training programs on environmental safeguards, monitoring for project staff, contractors…etc.	Lump-sum	Lump-sum	Lump-sum	
Sub-total (3)				***100,000***
4. Environmental monitoring (through independent third party institutions) to be covered in construction contracts				Included in construction costs

5. ***Contingencies (approx. 5% of total costs)***	***49,250***
Total Cost	***US$ 1,034,250***

CHAPTER NINE: DETERMINATION OF E&S INSTRUMENTS

This chapter will provide clear guidance on

1. Which types of safeguards instruments will be required;
2. Examples for project typologies, ranging from simple, routine civil reconstruction works (e.g. road repair) to more complex repairs of e.g. bridges;
3. Reference to the entire anticipated scope of management, mitigation and monitoring measures (as shown in Annex 9).

9.1 Types of Safeguards Instruments

The types of safeguards instruments anticipated for the project range from abbreviated, checklist type ESMPs for simple, routine repair works, over more elaborate and comprehensive ESMPs to ESIAs within clearly defined project boundaries. All project activities involving civil works on any scale will require some type of environmental / social management instrument, which will be determined and defined by the methodology presented in this section.

Most typologies within the expected scope of subprojects are expected to involve routine, simple civil works pertaining only to existing structures and footprints. All of the expected types of interventions and civil works for repair / reconstruction of roads will require safeguards instruments in the form of ESMPs (E&S management plans) that would become part of the works contracts, set the E&S standards and compliance mechanisms, and serve as contractual basis for supervision and enforcement of good E&S practice during the works. However, considering the mostly simple nature of such repair works, for these typologies abbreviated, "checklist type" ESMPs (see Annex 10 for a template) will be prepared as appropriate safeguards instrument.

For some projects which may involve works of more substantial nature in scale, or crossing rivers or sensitive and vulnerable to environmental impacts, a site-specific ESMP (meaning within clear project boundaries) may be required. Also the ESMPs produced would be more specific on measures to protect water quality, riverine / aquatic ecosystems, and retain the hydrological regime around the road or bridge. Additional social considerations, such as continued access to the river for fishing and water abstraction, may become relevant. Similar principles would apply to projects that are located close to, or affecting natural habitats, including wetlands or forests.

The majority of road repair and reconstruction in urban and rural settings will only require the "checklist type" ESMP as appropriate due diligence instrument. If only minor repairs are planned for bridges, even if in sensitive settings, that same principle applies.

The following table allocates to each component the likely type(s) of E&S instruments:

Table 0-1: Anticipated E&S Instruments by Component

Component / Activities	**Anticipated E&S Instruments**
Component 1: Roads Rehabilitation and Maintenance	• Checklist ESMPs for most planned road repair works; • Checklist ESMPs for minor bridge repair works, such as repairing the deck and surface. • Site-specific ESMPs for road works in combination with more sensitive baseline conditions

Component / Activities	Anticipated E&S Instruments
Component 2: Improving Response Capacity to Emergency Roads Works	• No E&S instruments for sourcing for equipment
Component 3: Capacity building	• No E&S instruments for capacity building

9.2 Description of E&S Instruments for the Scope of Subprojects

This section briefly characterizes the types of E&S instruments envisaged for the scope of activities under the project. The following Table is a concise summary of their key properties, and also makes reference to Annexes with detailed templates, TOR or descriptions.

Table 0-2: Description of E&S instrument types for subprojects

Instrument	Purpose	Scope and Contents	Annex
Checklist ESMP	(i) To Ensure basic compliance and good housekeeping for minor, routine civil works in non-sensitive environmental settings; (ii) simple, easily enforceable contractual basis for E&S compliance during construction works	Not very site-specific, covers all generic impacts that can occur during civil works; preconfigured template, where planned activities are checked and trigger clearly described management and mitigation measures that can be monitored and verified	#10
Site-specific ESMP	(i) To capture E&S baseline conditions that are more sensitive and could require management and mitigation measures beyond the standard good practice approach prescribed by the checklist ESMP; (ii) to provide technical guidance and contractual basis to deal with specific, more sensitive or complex E&S issues	Besides the standard set of measures for good housekeeping, E&S management and mitigation, this instrument contains tailored measures and provisions to deal with E&S issues of higher sensitivity and complexity, e.g. the protection of sensitive areas or habitats, old trees, cultural heritage, or agricultural / horticultural lands.	#10 with more details
ARAP / RAP	To ensure that all negative impacts on peoples' land, livelihoods or property are properly accounted for and compensated, and that no one is worse off after project implementation, than before.	A detailed description is contained in the RPF prepared for this project.	none[35]

[35] A separate RPF is prepared.

9.3 Environmental safeguards due diligence process (screening, review and approval) at the sub-project level

The following table shows the key steps in the sub-project cycle and the main responsibilities among the different project partners.

Table 0-3: Environmental Safeguards Identification Responsibilities

Key steps in a sub-project cycle (in chronological order)		**Responsibility**			
		CDR/PMU	**PMU Consultant**	**Contractor**	**WB**
1	Identification of sub-project; Application preparation and its submission to PMU	**X**			
2	Review of sub-project application; Endorsement/rejection	**X**			
3	Completion of environmental screening	**X**			
4	Review and endorsement of screening report and decision	**X**			
5	EA/ESMP financing and preparation (if determined by screening outcome)		**X** preparation		
6	Review and clearance of EA/ESMP	**X**			**X**
7	Obtain clearances from local environmental/regulatory authorities	**X**			
8	Implement sub-project in line with ESMP		**X**	**X**	
9	Monitor environmental compliance based on ESMP	**X** sample basis Documents review	**X** On daily basis	**X**	
10	Reports to PMU on ESMP compliance			**X**	
11	Reports to WB on ESMP compliance	**X**			
12	Maintaining records of safeguards documents for all sub-projects	**X**	**X**		

CHAPTER TEN: DISCLOSURE, CONSULTATION AND ACTIVITIES

10.1 Consultation

As part of the ESMF, public participation events were held at agreed upon locations in each of the 7 governorates included within the scope of the REP; these were held between the 8th and the 17th of January 2018. Invitations were sent out by CDR to the concerned Ministries, public authorities and, Unions of Municipalities. Invitations were also sent to concerned NGOs and CSOs through official letters. The invitation letters sent by CDR in Arabic and the email sent to NGOs can be found in Annex 1; and a list of the invitees is provided in Annex 2. As shown in the invitation letters (Annex 1), all stakeholders were encouraged to favor the attendance and participation of women. NGOs invited comprised women's associations in all regions (Annex 2). The NGOs invitation was for two persons, one of which at least being a woman.

The project details, potential impacts and mitigation measures were presented in a 45-minute presentation (Annex 3), and opened the floor for one (1) hour of open discussions with the attendees. During the questions and answers sessions, various issues of environmental, safety as well as social concerns were raised by the attendees. These were all addressed and discussed. The main issues of concern raised during these public consultation sessions are outlined in Table 1 below, while the more detailed minutes of meetings are listed in Chapter 10. Photographic documentation of the consultation sessions is provided in Annex 4. A list of the attendees at each of the respective governorates is attached in Annex 5.

Overall, 47 attendees were consulted, 16 of which were women (34%). Of these 16 women, 5 were decision makers (qaemmaqams), and three were engineers and/or heads of services within unions of municipalities. Four women's associations attended the event, represented by one or two attendees each.

A total of 50 unions of municipalities were also invited to the consultation events, 20 of which attended the events, in addition to a few municipalities.

Moreover, representatives of Syrian displaced persons and stakeholders supporting them were invited to the consultations; these included the UNHCR, UNDP, MoSA, the International Committee of the Red Cross (ICRC), the International Federation of Red Cross and Red Crescent Societies, as well as local and international NGOs. Kunhadi and YASA, concerned with road safety and accidents prevention, were also among the list of invitees.

Table 1. Summary of main concerns raised during the consultation sessions for the REP

Topic of concern	Detailed description of concern by public attendees	Answer by ELARD's team
Coordination with relevant municipalities	In general, most of the local authorities present at these consultation sessions were concerned that they would not be contacted or consulted during selection of roads within the scope of the REP.	The public was advised that the selected Consultant would be conducting detailed studies to identify primary roads of utmost priority based on the following criteria: 1) road asphalting conditions/ deterioration of roads; 2) average daily traffic volume; and 3) equal balance between rural and urban areas; Once selected, there would be further consultation sessions that would be held with local authorities

Topic of concern	Detailed description of concern by public attendees	Answer by ELARD's team
		to discuss the results of the road selection and collect feedback and suggestions.
Coordination with relevant authorities, especially with respect to public works, wastewater and water infrastructure, etc.	The public were generally concerned whether there would be coordination amongst all the necessary infrastructural establishments/ministries prior to project execution, since works are typically conducted without coordination, resulting in re-excavations, re-closure of roads, and further nuisances and unnecessary delays and recurrent stressors.	The public was informed that World Bank projects require and ensure that there is full coordination amongst all relevant municipalities and authorities prior to project execution to avoid such unnecessary impacts; implementation is seen in current ongoing WB projects in Lebanon; there would also be continuous follow-up by CDR and the World Bank to ensure that these requirements are being implemented.
Equipment distribution	Some of the municipalities located especially at higher geographic locations that experience harsh winter seasons were specifically concerned that there would not be fair distribution and provision of equipment such as snow blowers, wheel loaders, four-wheel drive vehicles, etc.	The public was advised that consultants awarded by the CDR would carry out the necessary detailed studies to identify the geographic areas of priority in order to determine distribution of the necessary equipment; all the selections would be technically reviewed and approved by CDR and the World Bank.
Project execution and existing studies	Some of the municipalities stated that they would like to be involved in the execution and handing over of the REP to ensure that there has been full compliance with technical requirements; they also advised that they have already conducted studies for roads and safety in their respective municipalities that could be beneficial and applicable to this project.	The public was advised that the awarded consultant would review any existing studies to take into consideration as necessary any aspect of these studies and furthermore all road selections under the various components of this project would be discussed in further public participation sessions with the concerned stakeholders/public for any feedback and suggestions.

The process that will be followed for public disclosure of the ESMF is as follows:

- The draft report will firstly be made publicly available to project-affected groups by making the report available on the internet (CDR website) and the premises of targeted municipalities.
- Following comments received and revisions duly carried out, the ESMF will be officially submitted to the World Bank, and made publicly available on the World Bank's external website.

The detailed minutes of the consultation events held at the ESMF stage are provided in Table 0-1 below. The presentations given in the different governorates can be found in Annex 3. Photographic documentation of the consultation sessions is provided in Annex 4. A list of the attendees at each of the respective governorates is attached in Annex

5.10.2 Grievance Redress Mechanism (GRM)

Grievance Redress Mechanism (GRM). As noted in the project appraisal document, an effective and responsive mechanism facilitates project progress by reducing the risk that unaddressed complaints eventually lead to construction delays, lengthy court procedures, or adverse public attention. The primary purpose of the GRM however will be to provide clear and accountable means for project beneficiaries and affected persons to raise complaints, including concerns of possible tensions and feelings of exclusion, as well as to seek remedies when they believe they have been harmed by the project. The final design of the GRM will be validated and adjusted as needed during the course of project implementation in consultation with relevant stakeholders to ensure its relevance and ease of use. Based on best practices, the final institutionalized GRM should encompass a system that involves the following key steps:

- **Uptake**: Multiple uptake channels for complaints should exist to ensure widespread accessibility.
- **Sorting and Processing**: There should be a system to categorize, assign priority, and route grievances to the appropriate entity for handling and resolution.
- **Acknowledgement and Follow-Up**: Complaints should be acknowledged (in writing). The acknowledgement should outline the GRM process, provide contact details and indicate how long it is likely to take to resolve the grievance. Clear timetables should be publicly available.
- **Verification, Investigation, and Action**: The merit of each grievance should be judged against clearly defined standards. Investigators should be neutral and not have a stake in the outcome. Action should be taken on every grievance.
- **Monitoring and Evaluation**: There should be a process to track grievances and assess progress being made to resolve grievances. There should be indicators to measure grievance monitoring and resolution, best displayed via a simple graphical dashboard. If there is data being collected, this data should be used to make policy and/or process changes to minimize similar grievances in the future.
- **Feedback**: Complainants should be surveyed for their satisfaction and feedback on the credibility of the process. Feedback should be publicly made available. The GRM should ideally recognize and enforce a right to appeal decisions. Target communities and other interested parties should be informed of this right, if recognized.
- **Analysis**: A process should be in place to analyze the effectiveness of the GRM periodically, within set timeframes.

The proposed GRM for this project will be disclosed as part of the ESMP and RAP and publicly available. The GRM will be accessible to all relevant stakeholders who can use this mechanism to send their suggestions, concerns and complaints related to the project, including environmental concerns. The complaints, suggestions and concerns can be sent by e-mail, mail, phone (through a hotline), in person and other means. The phone number, e-mail address, and address for receiving complaints will be disclosed among the population and will be posted at project sites once the project becomes effective.

All objections to land acquisition must be made in writing, in a language that the PAP understands and is familiar with, to CDR. Attempts must be made to settle grievances amicably. The procedure for handling grievances must be as follows:

- Initially, all complaints should be registered by the PMU, which shall establish a register of resettlement/compensation related grievances and disputes mechanism.
- The existence and conditions of access to this register (where, when, how) shall be widely disseminated within the community/town as part of the consultation undertaken for the sub-projects in general. Moreover, the information on how to access the GRM should be available through billboards, CDR website, etc.
- A committee of knowledgeable persons, experienced in the subproject area(s), shall be constituted at a local level as a Committee to handle first instance dispute/grievances. This group of mediators attempting amicable mediation/litigation in first instance will consist of the community leaders/mayor, the PMU Director, and legal advisors for social/income/vulnerable groups and gender issues. This mediation committee will be set up at local level by the implementation agency on an "as-needed" basis (that is, it will be established when and if a dispute arises in a given community).

- When a grievance/dispute is recorded according to the above-mentioned registration procedures, the mediation committee will be established, and mediation meetings will be organized with interested parties.
- Minutes of meetings will be recorded.
- The existence of this first instance mechanism will be widely disseminated to the affected people as part of the consultation undertaken for the sub-project in general. It is important that these mediation committees be set up as soon as RAP preparation starts.
- Disputes documented through for example socio-economic surveys should be dealt with by appropriate mediation mechanisms which must be available to cater for claims, disputes and grievances at this early stage.
- A template form for claims should be developed and these forms be collated on a quarterly basis into a database held at subproject level.
- GRM levels (Figure 0-1)
    - Level 1: If any person has any complaint, concern or suggestion regarding the project implementation, he or she can lodge an orally or written grievance through mail, e-mail, phone text message, or social media to the site manager/engineer of the concerned municipality of the sub-project. In case an oral complaint is made, it will be written on paper by the receiving unit. The above issue will be resolved within the maximum of one week.
    - Level 2: If the person is not satisfied with the action of the site manager's Office, he or she can bring the complaint to the attention of the mediation committee. The issue shall be resolved within a maximum of two weeks.
    - Level 3: If the person is not satisfied with the decision of the mediation committee, he or she can bring the complaint to the attention of the Head of the concerned Department at CDR. Once the Head of the concerned Department receives the complaint, it needs to be resolved within the maximum of two weeks.

If the grievance relates to valuation of assets, experts may need to be requested to revalue the assets, and this may necessitate a longer period of time. In this case, the aggrieved person must be notified that his/her complaint is being considered.

A designated person at each level will be assigned to be responsible for receiving and recording receipt of each complaint, whether received orally or in writing. The contact information of the designated person will be made publicly available prior to commencement of project implementation. At the end of each month when the project commences, the designated person reports to the PMU on the number and subject of new complaints received, and the status of complaints, if any, that remain under resolution. The report also informs the PMU of complaints that could not be resolved at the lower levels and are being elevated to the PMU Director's attention. The PMU aggregates information received into a status report each quarter, indicating the number and subject of complaints. The quarterly status report also provides up-to-date information on the number and subject of complaints that have been resolved, and the manner in which they have been resolved. The quarterly status reports will be made available for external monitoring and to the World Bank for project supervision and project evaluation purposes.

The GRM does not exclude the formal legal process of the national law. If a grievance remains unresolved following application of the project GRM process, the affected person can initiate legal proceedings in accordance with national law and may have recourse to the Appeals Court as warranted.

Figure 0-1 Schematic illustration of the Grievance Redress Mechanism (GRM)

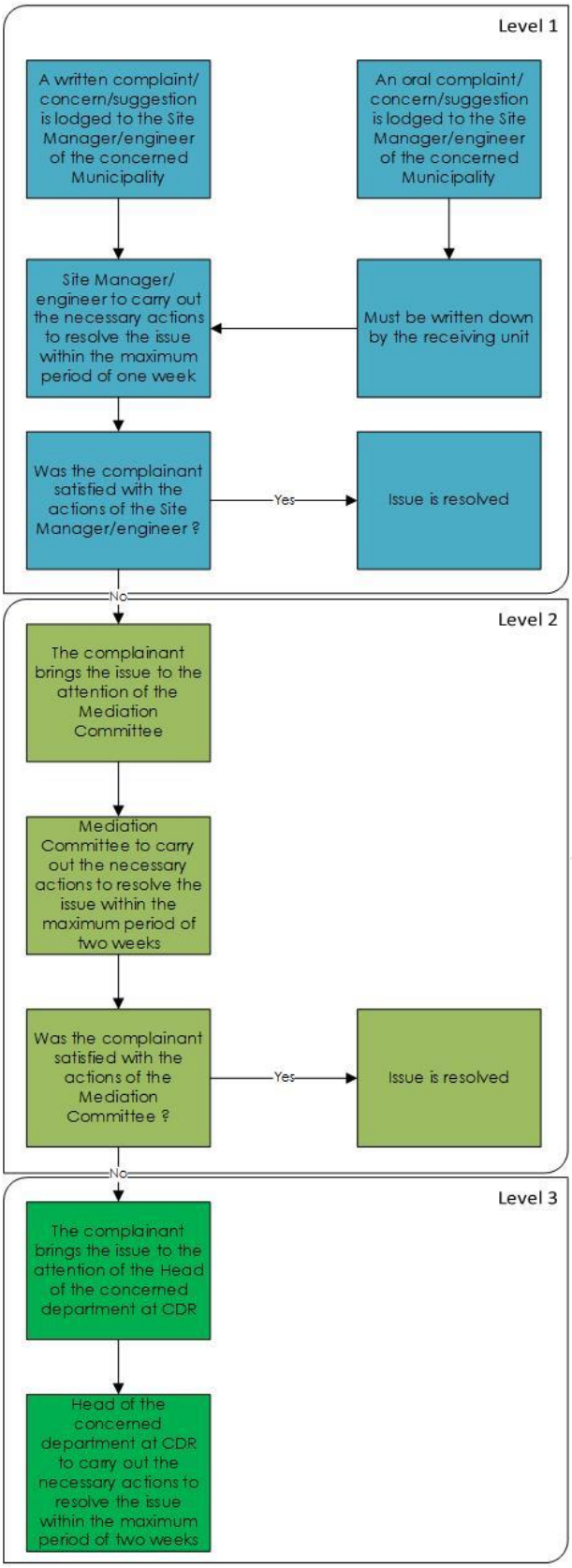


Table 0-1: Questions and comments raised during consultation sessions for the Roads and Employment Project

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
SOUTH LEBANON MOHAFAZA – Consultation Session on 08 January 2018		
-What is the role of the public in reality when it comes to decision/participation in the road designs; -The NGO is concerned that the identified environmental and social impacts will not be mitigated during construction. What is the role of the public: to administer project implementation, or to ensure and monitor compliance with the requirements of the REP? -Will all the relevant authorities be involved in the process?	Eng. Malek Ghandour, AMWAJ of the Environment (NGO)	- There will be an awarded Consultant approved by the CDR and World Bank (WB) who will carry out detailed studies to determine primary roads of priority for rehabilitation under the various components mentioned for this project, and further public consultation sessions will take place to discuss the selection for feedback, concerns, suggestions, etc. -The awarded Consultant approved by the CDR and World Bank (WB) will be responsible for ensuring that all environmental and social impacts identified in the ESIA report are mitigated as documented in the Environmental and Social Management and Monitoring Plan (ESMMP) of the ESIA. Any non-compliance by the awarded Contractor has to be corrected before proceeding with the works. In addition, a Grievance Redress Mechanism (GRM), which is a strict requirement of the WB, will be created so that complaints from the affected public can be reported using the contact number that will be made available in order to ensure rectification and corrective action. -Participation of all relevant authorities will be ensured in future public consultation sessions that will take place in the more detailed phase of the project
-The priority should be to resolve legal obstacles and finalize expropriations, including those related to encroachers, before initiating the project.	Nicolas Abou Daher, Representative of the Governor of South Lebanon and former Governor	-Expropriations and encroachments have been addressed in the presentation, are covered by the RPF of the project, and will be addressed by RAP at later stage.

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
-The safety of existing roads is a high priority to address through the provision of cats eye studs, lighting, traffic lights and signals, and rehabilitation of holes. The Saida-Jbaa road is an example whereby bumps were removed and overall safety remains a major issue; signs and lights are needed, and bumps should be kept to limit speed. This has recently resulted in a deadly accident on the mentioned road, that is preventable with the implementation of safety considerations. The public does not feel that roads are constructed with safety considerations. Public safety must be considered first, followed by road design.		-Safety is one of the REP components (component 3 – support planning and road safety implementation measures), as described in the presentation. Moreover, the requirements for each selected priority road will be studied in more detail in the detailed design phase of the project
-Public transportation is a priority that is much needed. The lack of such a system is causing significant pollution with heavy reliance on private transport. Students living far from universities / schools and people living far from their workplace need a good public transportation system to stop rural exodus. Rehabilitating existing roads should not be the only aim of this project; more efforts must be directed at establishing a reliable public transportation system. -Issue of coordination with relevant authorities with respect to telecommunications, wastewater, water, and other infrastructure before initiation of excavation works is missing -Road safety signs are also crucial in the REP context; who is responsible for this issue?	Dr. Nahed Msayleb Amwaj Environmental NGO	-The recommendation for the improvement of the existing public transportation system will be documented and reviewed by the World Bank and CDR for future consideration. While public transportation is very important for Lebanon and is deficient in this regard. At present this REP focuses on existing roads and the need for their rehabilitation; public transportation is not a component of this project but can be recommended for future study. -Coordination amongst the relevant authorities is of utmost importance; this is being realized in ongoing projects and will be addressed by CDR for the REP project. -All areas that require safety signs will also be studied as mentioned in the presentation as part of Component 3 of the REP – MoPWT is the responsible party, and all detailed studies will be carried out by the awarded Consultants.
-Jabal Rihan municipalities have snow and blocked roads during the winter season. There is no trust in public authorities at all, and unions of municipalities are assuming almost all of the responsibilities that the MoPWT should be assuming. Municipalities are concerned that they may not benefit from the	Bassem Sharafeddine, Architect/ President of the Union of Municipalities of Jabal Rihan	-With World Bank projects, there is a systematic process that needs to be followed; as such, during the detailed phase each, governorate and geographic area will be carefully studied to identify those of utmost priority, and equipment will accordingly be

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
equipment mentioned in the project presentation, and that other municipalities (even coastal) having stronger connections with decision makers and politicians might be awarded the much needed equipment while they are less in need. -Secondary roads and their safety have not been considered in this project; studies are required for around 20km of roads in Jabal Rihan to assess road safety and the number of accidents that occur. -Will coordination with concerned municipalities take place? The Union of Jabal Rihan Municipalities has conducted some recent studies that take into consideration safety issues, and hopes these studies will be reviewed and taken into consideration. Roads in the Union are in poor conditions; for example, a road connecting the Jezzine, Marjaayoun and Bekaa cazas that has been existing for 15 years was asphalted in 2008. Since then, no maintenance has been conducted and the road is now in poor condition; it is necessary for road safety studies to be conducted as a pre-requisite for the selection of projects. -How will municipalities know what type of equipment can be beneficial to them, and how can they be involved and have a say in the selection process?		recommended and distributed. -This recommendation will be documented as necessary. -There will also be coordination with the relevant authorities/municipalities to determine priorities accordingly and existing studies for roads and safety will also be reviewed by the Consultants as necessary. -As for the equipment that can be beneficial to the respective municipalities, a detailed study will be conducted by the awarded Consultants to determine the needs and necessities, and of course future public participation sessions will take place seeking feedback on selected projects.
-The geographic situation of each governorate/ municipality is different; some villages are very far from main roads, and thus may not benefit from this project. -Will municipalities also be involved in the decision –making relating to equipment and other components of this project, such as	Lena Slim Jezzine Qaemmaqam	- The awarded consultants will study the existing roads and will determine the priority roads based on several criteria including existing road situation based on asphalt condition and road deterioration, the average daily traffic, and will balance between rural and urban areas. -Full coordination with all relevant parties / authorities / stakeholders will take place in future

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
roads design? Municipalities have different problems with main roads. Will municipalities' opinion and suggestions be taken into consideration or will CDR/MoPWT decide without consulting local authorities?		public participation sessions; coordination will take place with engineers and other members of municipal councils to study and consider issues of utmost priority that will be taken into consideration in the final designs
NABATIYEH GOVERNORATE – Consultation Session on 09 January 2018		
-What is the role of municipalities in decision-making relating to the roads that will be selected for rehabilitation under this project? Will there be any meetings with the unions of municipalities or municipalities themselves in the decision-making process?	Ahmad Kreidy, Hasbaya Qaemmaqam	-Consultants will first be selected by CDR; these consultants will conduct the needed studies and will then hold hold public participation meetings with all concerned authorities, whose concerns and suggestions will be taken into consideration and documented as necessary in the reports that will be submitted to the WB for review.
-What is the nature of the project other than road rehabilitation?		-Mainly primary, secondary and tertiary roads rehabilitation, road safety measures, and improving road emergency response.
-What is the role of municipalities during execution of the project? Will they be responsible for approving the project upon completion?		-During execution, there will be full coordination with all relevant authorities, municipalities, etc. But approval will be from the CDR/World Bank. Local authorities' suggestion will be documented for WB review.
-Is the priority to link the main roads between the villages or is it for the internal roads within villages?		-The purpose of this project is to give priority to the main roads.
-It is understood that the World Bank is funding the roads rehabilitation project, and the bidding and execution will be carried out by CDR.		-World Bank is not only funding the project, but will be following up continuously throughout the project life cycle.
-Will the funds be distributed equally amongst all cazas?		-Funding distribution will be distributed amongst governorates based on the criteria for the selected roads and these including existing road situation based on asphalt condition, road deterioration, average daily traffic; and there will further be a

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
		balance between rural and urban areas.
-Should municipalities expect another public participation session with CDR to discuss roads selection? Who will take initiative to follow up on the project - CDR or municipalities?		-CDR, further to approval by the World Bank, will assign consultants who will conduct further participation sessions as per WB safeguard policies and the ESIA decree (Decree 8633/ 2012) requirements once this stage has been reached; meanwhile, local authorities can contact Mr. Elie Helou or Mr. Fadi Matar at CDR for clarifications and suggestions.
-When will this project be executed?	Several attendees	-As the World Bank has requested the finalization of the stakeholder participations at the soonest, it is expected that the project will be implemented in the near future.
-Are the municipalities and unions of municipalities the only concerned authorities for this project?	Bilal Chehade, President of the Union of Municipalities of Iqleem El Tuffah	-In addition to these stakeholders, the concerned ministries such as MoPWT, MoE, Ministry of Interior and Municipalities, CDR are also involved.
-Will there be any further interferences (political) that can have an impact on the decision of the selected roads for rehabilitation?		-If this were the case, this would be a contradiction to the World Bank objectives and principles; criteria for selection of roads have been mentioned and will also be discussed with relevant authorities and stakeholders during future consultation meetings once roads have been selected. Criteria for road selection are mainly technical and include Average Daily Traffic, road deterioration and road asphalting conditions on primary roads.
-Should the union of municipalities prepare their plans from now?		-They are free to prepare their plans, knowing that the criteria for selection have already been mentioned; these plans will be reviewed against the criteria developed, and will be taken into consideration when relevant.
-The Municipality has previous problems regarding expropriation issues with CDR due to pending compensations, and it has been more than a year (project 800); many affected persons are coming	Ahmad Barakat, Municipality of Rub-Tleteen	-For every World Bank project such as this REP, all necessary procedures will be taken by CDR expropriation committee to ensure that the affected

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
to the municipality and asking about their right to their compensations; how can you guarantee that the same will not be repeated with this project?		landowners' full compensation rights are reserved prior to project execution although having said that, it is important to note that this project will try to avoid expropriations to the extent possible.
-Will the road safety equipment be provided to the municipalities or the union of municipalities?	Walid Abou Nassar, Vice President, Union of Municipalities of Hasbani	-It is assumed that they will be granted to the union of municipalities, although this will be confirmed at a later stage upon conducting more detailed studies, but priority will be given to locations at higher elevations primarily that witness severe snowstorms.
-Have the roads for rehabilitation already been selected as shown in the map?		-The map is showing the existing road network in the respective governorates, and the roads selection will be carried out further to studies by CDR/MoPWT and in coordination with the relevant local authorities.
BAALBEK-HERMEL GOVERNORATE – Consultation Session on 10 January 2018		
-How will the funds be distributed amongst the governorates?	Ali Assaf, President of Union of Municipalities of Shallal	-This project is still in its initial stage and once more detailed studies are conducted to identify the priorities and needs, the distribution of funds amongst the governorates will be determined. Criteria for the selection of priorities are the average daily traffic, asphalt conditions and road deterioration.
-The capacity building and implementation support under component 3 is a very important issue and is commended		
-Do we have the right to stop the projects if we see that they are not progressing properly or if there are any deficiencies observed?		-It is possible to voice any complaints the community or locals may have through the Grievance Redress Mechanism of the World Bank as mentioned in the presentation, and these will be reviewed by the concerned parties and action will be taken accordingly.
-The number of Syrians as stated in the presentation - 128,293 (UNHCR, 2016) - is incorrect as their number is much higher		-This could be the case since the numbers mentioned here are for the registered Syrian refugees; so it could be that there are additional unregistered numbers.

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
-Municipalities are very happy with this project, but they want to ensure that all road works are conducted properly, well managed and well-studied so that it will not be necessary to excavate roads again for further asphalting works or maintenance works a short period after road rehabilitation works under this project have already been executed – even if this means that only 5km versus 20km of roads will be allocated for each governorate, it is better to ensure that these 5km are well planned to avoid any future inconvenience.		-The project is still in its initial phase and of course the necessary studies will be carried out prior to execution of the project as necessary by the awarded consultants, with full and continuous supervision throughout the project life-cycle that will be regularly monitored by the World Bank.
-There is a project taking place in Baalbek with World Bank funding, but municipalities have no idea about the execution of the project and they would like to be more involved in such projects. They do not have any plans, drawings or studies to be able to check against executed works and make sure they are progressing correctly and in compliance with the criteria for the project. For example, during a previous project involving concrete works, the Municipality had noticed the Contractor was not in proper compliance with safety and work requirements, and therefore stopped the works; the contractor resumed the works only after having corrected the needed and complied with the necessary requirements. Will similar control be exerted over this project? -The Contractor must ensure that insurance is provided to all labourers working on the project in case of any accidents.	Nasri Osman, President of Union of Municipalities of Baalbek	-With the World Bank projects there is continuous follow-up from the side of the assigned project management unit and the supervising consultants who will be providing documentation and reporting on a regular / weekly / frequent basis and mistakes will be corrected as needed to avoid penalties or halting or delay in works – World Bank also visits all work sites regularly to follow up on all safety and other matters. -One of the main criteria and requirements of the World Bank is to ensure that all labourers are fully insured, especially in the event of any accidents which may potentially occur. The relevant documentation providing such evidence showing full insurance coverage shall be reviewed by CDR.
-How will the equipment be distributed amongst the governorates, especially the snow blowers and the like?	Ibrahim Nassar, President of Union of Municipalities of West Baalbek	-Such equipment will be distributed based on the geographic locations that are in most need of such equipment; so the mountainous areas would get priority over the areas at lower altitudes, but these will be studied and selected by the awarded Consultants.

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
-Will wastewater networks be extended as part of the REP in order to avoid excavations after the project has been executed?		-Wastewater networks are not part of the REP; however, coordination will be conducted with all relevant municipalities and stakeholders as necessary to ensure all infrastructure works are conducted in coordination with each other and to avoid closing up roads again for further excavations and works again (to the extent possible).
-We would like to be fully involved in the execution of the project in order to facilitate and expedite the progress of the project as smoothly as possible	Asked by general attendees	-It is possible to keep up with the progress of the project through the available social media that will be created for communication of the project components and their geographic locations as necessary.
-We are concerned that once roads have been executed under this project, they will be excavated again very soon for further infrastructure works, thus causing additional and extended traffic delays and noise pollution, and stress, etc. We suggest ensuring that infrastructure works are all coordinated and conducted at the same time.	Rawya Mehdi Soleh, Women's Assembly Organization	-It is the role of CDR and the awarded consultant to ensure that all coordination works are conducted prior to initiation of any execution of road works as necessary.
-It would be positive to have women involved in the road works, although this is not accepted by the society at large; for example, under another project, some women were involved in road sweeping prior to initiation of the project on a daily basis; it is hoped that this could be replicated for this project too.	Hala Qassem Akil, Women's Assembly Organization	-Of course involvement and empowerment of women is very important for the World Bank and is highly encouraged for this and other projects, and this comment will be documented.
BEKAA GOVERNORATE – Consultation Session on 11 January 2018		
-During the selection of roads under the REP, will there be coordination with the relevant stakeholders or will CDR carry out the selections alone?	Tony Chedid, Vice President of the Lake Union of Municipalities (Al Bouhayra)	-CDR will appoint a consultant in each governorate to study the roads of priority under the 3 components of Phase 1 of the REP, the criteria mainly including primary, secondary and tertiary roads, asphalt conditions, road deterioration, and average daily traffic which have previously been studied by the MoPWT. Public consultations will then be held to discuss the results of the selections and collect feedback and comments.
-We are generally dissatisfied with regards to various CDR-related projects in the area, especially in comparison to the Council of the		-The REP is under the funding and supervision of the World Bank with a specified timeline for

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
South ("مجلس الجنوب") who in general comply with all our requests and meet their deadlines in a timely manner.		completion of project scope of works; therefore, it is not anticipated that similar issues will be encountered.
-There are a few ongoing road projects in Deir El Ghazal, and unfortunately we are seeing no positive results in general in these road projects.	Georges Abou Faysal, Vice President of Municipality of Deir El Ghazal	-As previously mentioned, World Bank funded projects in conjunction with CDR ensure continuous Contractor's compliance with all requirements set forth for the project with positive results. For any other comments or concerns, please contact Mr. Elie Helou at CDR.
NORTH LEBANON GOVERNORATE – Consultation Session on 16 January 2018		
-Will coordination with the relevant stakeholders take place or will CDR do the roads selections without consultations?	Iman Al Rafii, Qaemmaqam of Zgharta	- CDR will appoint a consultant in each governorate to study the roads of priority under the 3 components of Phase 1 of the REP; public participation sessions will then take place for discussion, feedback, and suggestions.
-In every caza there are a number of roads; what are the criteria for selection of the roads of priority? -EIA and expropriation will take a long time as was the case with many other projects that were planned decades ago	Rouaida Yaghi, Head of Engineering Department, Union of Municipalities of Batroun	-The criteria for road selections under the REP include primary, secondary and tertiary roads, existing asphalting conditions/ road deterioration, average daily traffic, and balance between rural and urban areas will be ensured. Further public participation sessions will be held at a later stage of the project to discuss the results of the selections and collect feedback and concerns. -During the 1st phase of the REP project, Environmental and Social Impact Assessment (ESIA) will be conducted and once these are approved, expropriations, if any, will take place in parallel with the design. The CDR expropriation department will be handling all expropriations.
-When will coordination begin between the municipalities and the awarded Consultants?	Jessy Franjieh, Civil Engineer, Union of Municipalities of Zgharta	-The project is progressing; coordination / consultations will be carried out the soonest after this stage of consultations has been completed, and once there is approval from the CDR/World Bank to proceed.
-Municipalities can request a bank guarantee from the Contractor	Dima Homsi,	-The Project Management Unit assigned by the

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
and during handover of the project, a representative from the relevant municipality should give their approval of the works.	Director, Union of Municipalities of Fayhaa	World Bank already ensures that the awarded Contractors provide all the necessary paperwork and documentation; the World Bank and CDR give the approval for the project finalization and reception while taking into consideration any and all comments from the relevant stakeholders as necessary.
-In the study phase, it is important to communicate with all relevant authorities/municipalities because there are several villages that are not included in the Union of Municipalities. -There are some roads at higher elevations in the mountains that have to be closed during the winter season; what types of equipment could be beneficial to us?	Rouba Al Chafchaq, Becharri Qaemmaqam	-All affected parties and stakeholders will be identified as necessary and there will be full coordination with all parties. -The mountainous roads could benefit from the equipment as mentioned in component 2 of the project including wheel loaders, snow blowers, and salt spreaders; the awarded consultants will carry out the necessary studies to determine the geographic areas of utmost priority and their respective needs.
AKKAR GOVERNORATE – Consultation Session on 16 January 2018		
-This is a very good project and we hope that it can be implemented without any issues.	Amani Nafee, Lebanese Democratic Women's Committee	-World Bank projects are very systematically implemented in Lebanon and in the region; this comment will be documented.
MOUNT LEBANON GOVERNORATE – Consultation Session on 17 January 2018		
-Which roads will be selected from the 500km of roads allocated for this project? -Shouldn't municipalities decide what roads have utmost priority within the scope of this project? Some Unions of Municipalities do not include all municipalities that are essentially experiencing dangerous road conditions and severe snow storm events with serious deficiencies in equipment, safety measures, etc.	Najwa Sweidan, Jbeil Qaemmaqam	-This REP focuses mainly on existing primary, secondary and tertiary roads in all 7 governorates within the scope of this project, excluding Beirut. -Consultants, under the supervision of the World Bank, will take into consideration concerns and points of views raised by **all** concerned stakeholders. The World Bank has special policies that require the involvement of all stakeholders, and their comments and suggestions will all be documented, reviewed and considered during project design and implementation.
-How will component 2 of the project for the purchase of items like snow blowers, wheel loaders and other equipment be	Nicolas Al Haber, Union of Municipalities	-Detailed studies will be conducted by the Consultants at a later stage to allocate equipment

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
distributed amongst the governorates?	of Jord Al Aala and Bhamdoun	distribution, but priority will ultimately be given to the geographic areas situated at higher mountainous elevations, as opposed to lower locations, that experience more snowstorms and extreme weather.
-Please provide a definition for primary roads.	-Asked by general attendees	-Primary roads provide the link between villages or between the cities and villages, and also include the main roads within the villages and the cities.
-During the study and selection of roads that are of utmost priority, will a private office be assigned to conduct the works? -If the REP requires partial expropriations within an existing decree, would it not be necessary to secure the compensations to cover the full expropriation fees of the existing decree?	Ghadir Hamadeh, Engineer, Technical department, Union of Municipalities of El Chouf El Swaijani	-Yes, a private office/Consultant under the supervision of CDR and World Bank will be assigned the project studies and consultations. -There will be full compensation only to the affected areas that require expropriation within the scope of the REP.
-Expropriations by CDR are a very a sensitive issue; the need for expropriations might arise within the scope of the REP which might remain pending for extensive periods of time like the case of the "Sayyed Hadi" Highway for example, where the expropriation ("وضع اليد") is still pending to date as a result of unresolved encroachments, and no representative from CDR is available here today to explain the reason(s) for the delay(s). -What is the duration of the project? -What are the criteria for the projects selection? Will they really be implemented or will there be political interference? Because if that is the case, then our presence here today is useless and is a waste of our time.	Mohammad Dergham, President of Union of Municipalities of the Southern Suburbs of Beirut	-As mentioned in the presentation, the REP will avoid to the extent possible any expropriations, but having said that, the World Bank policy is to compensate the affected parties, landowners and potential encroachers as necessary. And if national laws are deficient in this respect, the World Bank will fill in policy gaps; e.g. in the case of the Bisri dam project, all affected landowners are being fairly compensated financially or otherwise before project implementation. -As the World Bank has requested the finalization of the stakeholder participations at the soonest, it is expected that the project will be implemented in the near future. - There are no politics involved in this project. World Bank policy is to ensure that all the criteria as mentioned including primary/ secondary/tertiary roads, the average daily traffic volume, the asphalt condition / deterioration of the roads, and an equal balance between rural and urban areas are

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
		systematically implemented, and there will be continuous follow-up to ensure proper compliance and implementation throughout the project life cycle without any political intervention, as this project focuses on selections via the technical criteria mentioned.
-We have conducted recent studies that are ready for execution; will these be taken into consideration, as we are ready for full coordination with the concerned parties?		-If the Consultant sees that the study is feasible and convenient for the purpose of the REP scope of works, they can take it into consideration and this can save time.
-What if the REP works on the existing primary roads had an impact on the adjoining roads? This would potentially raise issues of expropriation. Is this being taken into consideration by CDR?	Marwan Salha, Union of Municipalities of Higher Metn	-If there is a need for any expropriation, which we will be avoided to the extent possible, then the CDR will take this into consideration and take the necessary steps as per the relevant Law and the World Bank policies mentioned.
-Will priority be given to some governorates over others?		-The awarded Consultants will study the existing roads situations within the 7 governorates under the scope of this project, and priority will be given based on the criteria including primary/ secondary/ tertiary roads, the average daily traffic volume, the asphalt condition / deterioration of the roads and an equal balance between rural and urban areas.
-I propose that the Unions of Municipalities meet in the relevant cazas, choose the roads of priority under the scope of works for this project, and coordinate with MoPWT to push for the rehabilitation of these projects.		-The consultation sessions with the relevant municipalities, unions, etc. will be carried out by the awarded Consultant, and all concerns and suggestions will be taken into consideration and documented for WB review as necessary.
-MoPWT is involved mainly in primary roads, while the Unions of Municipalities are responsible for secondary and tertiary roads; we have no right to choose the roads of priority under this project, therefore we are concerned that our presence here is a waste of our		-The current consultation sessions are being conducted in order to explain the project components to the public, the ESMF and RPF aspects, and to get feedback, suggestions and comments. Unions of municipalities are also

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
time. This creates confusion regarding our actual role.		concerned with roads falling within their jurisdiction and are involved in their planning. For any additional concerns, kindly contact Mr. Elie Helou or Mr. Fadi Matar representing CDR.
-Will coordination between all Unions of Municipalities and Consultants take place? -Does this project include infrastructure works? -The full coordination between all infrastructural departments/ministries is a must so as to avoid further nuisances with road blockages due to excavations, more delays and traffic and general dissatisfaction. -Component 2 of the REP to improve road emergency response capacity is a very important component of this project. Bhamdoun Municipality possesses no equipment or items as listed in the presentation, especially considering our weather conditions in the winter season; it would be good if we were considered and selected as a priority within the scope of this project.	Nahida Reslan Salha, Women's Organization of Ras El Metn	-The World Bank policy is to ensure full coordination between all relevant stakeholders, and that includes all unions of municipalities. -These are not included in the REP scope of works, but there will be full coordination with the authorities in charge of water and wastewater infrastructure, public works, etc. to take the necessary measures to avoid unnecessary and repeated/ extended periods of road works. -Before project initiation, it is up to the Contractor with Supervising Consultants to ensure full coordination with all relevant municipalities and authorities as necessary; so far, World Bank funded projects are not experiencing this problem. -As mentioned, Consultants will carry out all required studies to select geographic areas of priority and this suggestion will be documented.
-I understand that we are here today to comprehend fully the scope of this project and its various stakeholders, but unfortunately we do not see concerned parties here. It appears to us therefore that although this is a very important project, and we are very happy with it, it is not being taken seriously as concerned parties are not present, and this is essentially a waste of our time. We are sorry we will have to leave the session. -How can we take this REP seriously if the relevant parties are not	Marlene Kahwaji, Shouf Qaemmaqam	-ELARD is the environmental Consultant on the REP, and we will do our best to answer any questions or concerns that you may have, and of course the concerns you have raised now will be documented.

Questions/Comments	Addressed By	Answer (by ELARD's consultants)
all here even though we are excited about this project and we left our duties to come and attend this meeting? *Several attendees left the premises.*	Najwa Sweidan, Jbeil Qaemmaqam	-For any concerns that you have for which you do not find our answers or responses sufficient, kindly contact Mr. Elie Helou or Mr. Fadi Matar at CDR.
-Each Municipality and Union of Municipalities should have a separate meeting with the assigned Consultants at this stage, as it is not clear to us what the project details are and what our role is. -Component 2 is very important for us, especially considering the lack of road emergency response capacity, and we hope we too will be considered during selection. We have sent in the past year and a half suggestions to the concerned authority as to how we can improve the road safety in our region with implementation of safety signs, radars, road bumps, etc., and to this date we have not received a response even to state that our suggestions are not necessary for example. -We also propose that the REP includes distribution of radars, not only on highways, but also on mountainous roads; this will reduce deaths and accidents by imposing proper speed control measures and would involve the Ministry of Interior and Municipalities and the MoPWT. As such, the World Bank would have funded a project that would benefit not only safety measures but also the generation of some income for the relevant authorities. We believe that implementation of radars is more important than asphalting of roads. -$15 million for road safety improvements, equipment and capacity building are not sufficient when distributed amongst the 7 governorates. The Ministry of Interior should conduct a national study in this regard and reconsider the allocated amount. -It is important that all studies conducted are fully disclosed.	Marlene Kahwaji, Shouf Qaemmaqam	-This project is now at a framework stage and has not reached a detailed stage; once that stage is reached, further meetings will be conducted with the concerned authorities and stakeholders. -Same as above -This is an important recommendation which shall be documented and please note that it is covered under components 2 and 3 of this project for a total amount of $15 million. -Yes, it is a World Bank policy to fully disclose all results, documents and reports so all information will be made available to the public.

A **stakeholder engagement plan** shall be developed at the ESMP stage. Stakeholder engagement is important to build and maintain constructive relationships over time and is vital to ensure that development projects are appropriate and sustainable. It refers to substantive dialogue between a project proponent and its stakeholders though a range of activities and approaches, from information sharing and consultation, to participation, negotiation, and partnerships. The nature and frequency of this engagement should reflect the level of project risks and impacts. One of the purposes of a Stakeholder Engagement Plan is to create a process that provides opportunities for stakeholders to express their views and concerns, and allows the Project Proponent to consider and respond to them.
Stakeholder engagement during design, implementation and operation is important since it:

- gives people some say over how projects or policies may affect their lives;
- allows more responsibility of the concerned persons to ensure the finalization of the works;
- generates a sense of ownership and transparency if initiated early in the development process;
- provides opportunities for learning for both the project team and stakeholders themselves;
- Includes clear mechanisms for responding to people's concerns, suggestions, and grievances;
- Suppresses processes of intimidation or coercion; and
- Builds capacity, enhances responsibility and is essential for sustainability.

The importance of "actively developing and sustaining relationships with affected communities and other stakeholders throughout the life of the project, and not simply during the initial feasibility and assessment phase" is highlighted in the IFC guidance: "Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets" (2007).
The Stakeholder Engagement and Consultation Plan should be prepared in accordance with IFC guidance as well as Equator principles and based on the World Bank's environmental and social safeguards: OP 4.01 Environmental Assessment and OP 4.12 Involuntary Resettlement.
Stakeholder engagement should be free of manipulation, interference, coercion, and intimidation, and conducted on the basis of timely, relevant, understandable and accessible information, in a culturally appropriate format. The main steps and objectives of the stakeholder engagement plan shall consist of:

- Stakeholders identification and analysis: stakeholders may include locally affected community groups (women, men, elderly, people with disabilities, etc.) or individuals and their formal and informal representatives, national or local public authorities, civil society and community-based organizations and groups with special interests, or private businesses.
- Planning and implementing a process that improves communication between the Proponent (i.e., Council for Development and Reconstruction - CDR) and the different stakeholders. Opportunities shall be provided for stakeholders to express their views and concerns, and for the Proponent to respond to them;
- Framing how each stakeholder will be approached and at what stage of design, construction and operation phase development
- Ensuring that people or entities possibly affected, whether positively or negatively, by the Project are aware of and understand its components;
- Addressing the concerns of the stakeholders using transparent and inclusive approaches;
- Information disclosure: the subproject ESIAs and all the ESIA-related materials – soft and hard copies – shall be made available to stakeholders at readily accessible locations (websites, municipalities or unions of municipalities…) from the time they are developed and throughout the

Project implementation.

- Project consultation activities: this can be achieved through public hearings in the various regions, focus group meetings with specific groups (such as women, the elderly, youth, etc.), meetings and interviews, opinion surveys, etc.
- Establishment of a grievance redress mechanism (GRM) as described above to provide clear and accountable means for affected persons to raise complaints and seek remedies when they believe they have been harmed by the project. This also facilitates project progress, by reducing the risks that unaddressed complaints eventually lead to construction delays, lengthy court procedures, or adverse public attention.

ANNEXES

Annex 1: Invitations sent by CDR to Stakeholders
Annex 2: List of Invitees
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Annex 9: Sample mitigation and monitoring plan
Annex 10: Template for "checklist type" ESMP
Annex 11: Minimum contents of an ESIA

ANNEX 1: Invitations sent to Stakeholders

Invitations sent to Public Stakeholders

Sample Invitation sent to NGOs

Annex 2: List of Invitees

Mohafazas	Union of Municipalities	Total # Unions/ Mohafaza	Public Authorities
Akkar	Jord El-Qaytaa Sahel wa Wasat El Qaytaa Al Shafat Al Joumeh	4	MOPWT: - DG of Land and Maritime Transport; - DG of Roads and Buildings; - Railway and Public Transport Authority. CDR MoE MoSA (Social Affairs) DGA MoIM Governors and Qaemmaqams of the North, Akkar, South, Nabatiyeh, Bekaa, Baalbek-Hermel, and Mount Lebanon
N. Lebanon	Batroun Bcharre District Koura Minieh Dinnieh Al Fayhaa Zghorta District	7	
S. Lebanon	Saida-Zahrani Jezzine Sahel Zahrani Sour District Jabal Rihan	5	
Nabatieh	Bint Jbeil District Chqif Aarqoub Iqlim Al Teffah Jabal Aamel	5	
Mt. Lebanon	Jbeil District Keserouan Ftouh Shouf Sweijani Iqlim Al Kharroub Al Janoubi Iqlim Al Kharroub Al Shamaly Higher Chouf Jord Al Aala-Bhamdoun Higher Metn Sahel Al Metn Jounoubi Dahyeh Al Janoubieh Metn Shamaly-Sahily-Awsat	11	
Baalback-Hermel	Baalback Hermel W. Baalback E. Baalback Al Shallal	5	
Bekaa	Sahel	5	

Mohafazas	Union of Municipalities	Total # Unions/ Mohafaza	Public Authorities
	Al Bouhayra Zahle District E. Zahle Beqaa Al Awsat		

International Organizations:

- UNDP
- UNHCR

Local NGOs:

جمعية أرز الشوف
جمعية إنماء البيئة في راشيا
جمعية البيئة في رأس بعلبك
مركز التعرف على الحياة البرية
جمعية عاريا البيئية
جمعية أركانسيل
جمعية البيئة والانسان - حبوش
جمعية الحفاظ على البيئة في البقاع
هيئة حماية البيئة و المحافظة على التراث - النبطية
جمعية حماية و تنمية الثروة الحرجية
جمعية أمواج البيئة
جمعية النجدة
ورشة الموارد العربية
ARCHI-Tree
كاريتاس
Creative Associates International Inc.
كاريتاس إنترناشونال الأمانة الإقليمية لمنطقة الشرق الأوسط وشمال أفريقيا
Caritas Internationalis Regional Secretariat for the Middle East and North Africa
جمعية التعاون من أجل التنمية
Community Habitat Finance
هيئة الحفاظ على البيئة- بشري
جمعية الخدمات الانسانية و الاجتماعية في الشمال
تجمع الهيئات الأهلية التطوعية
مركز الدراسات والتدريب والتطوير
مركز الاطفال و الفتوة
مركز الدراسات الإنمائية و البلدية
ندوة الدراسات الإنمائية
جمعية العناية بالبيئة و الإنسان
جمعية البيئة والطبيعة
لجنة رعاية البيئة
جمعية التنمية الريفية- عرسال
جمعية بيئة بلا حدود

مؤسسة فريدريش إيبرت
مؤسسة فارس
الاتحاد الدولي للمدن المتحدة
أصدقاء حرش إهدن
أصدقاء الطبيعة
مؤسسة فرح الإجتماعية
تجمع أصدقاء أرز تنورين- حدث الجبة
جمعيات الملتقى الأخضر
جمعية الخط الأخضر
جمعية الجبل الاخضر
المربع الاخضر
جمعية الخدمات الخضراء
مؤسسة الحريري
بعثة اللجنة الدولية للصليب الأحمر
مؤسسة التعاون الإقتصادي والتقني الدولية
الإتحاد الدولي لجمعيات الصليب الأحمر والهلال الأحمر الدولي
المؤسسة اللبنانية للتنمية الاقتصادية والاجتماعية
مركز الشرق الأوسط للإرشاد والإنماء
جمعية نساء جبل عامل
جهاد البناء
مؤسسة جوزف سكاف
جمعية سيدات إنماء البقاع
جمعية اللبنانيات الجامعيات
الهيئة اللبنانية لمناهضة العنف ضد المرأة
المجلس النسائي اللبناني
ليبانوس
مؤسسة البيت اللبناني للبيئة
لجنة حقوق المرأة اللبنانية
ملتقى الهيئات الإنسانية غير الحكومية في لبنان
الصليب الأحمر اللبناني
لا فساد- الجمعية اللبنانية لتعزيز الشفافية
جمعية المقاصد الخيرية الإسلامية في لبنان
(Mercy Corps International)ميرسي كوربس الدولية
جمعية البيئة في المنصورية
مؤسسة مخزومي
الحركة الإجتماعية
نداء الأرض
نور- جمعية المرأة العربية
المساعدات الشعبية النروجية
جمعية بيت المرأة الجنوبي
البعثة البابوية
التجمع النسائي الديمقراطي اللبناني
مؤسسة رينه معوَض

جمعية سيدة رأس المتن
رابطة النهضة الاجتماعية
تحاد غوث الأطفال/ السويد
إتحاد غوث الأطفال/ أميركا
إتحاد غوث الأطفال/ إنكلترا
المؤسسة العلمانية للتعاون من أجل التنشئة
النجدة الشعبية اللبنانية
جمعية التقدم الإجتماعي في لبنإن
جمعية حماية الطبيعة في لبنان
جمعية النهضة الاجتماعية
جمعية المواساة والخدمات الاجتماعية في صيدا
تجمع المؤسسات الاهلية في صيدا
رابطة سيدات دير الأحمر
الصندوق الدولي للتأهيل
تجمع النهضة النسائية
منظمة السلامة العالمية
الرؤية العالمية- لبنان
جمعية العمل النسوي
رابطة المرأة العاملة في لبنان
جمعية الشباب المسيحيين
(Youth Social Awakening Union)اتحاد الصحوة الاجتماعية للشباب
جمعية الشابات المسيحيات
الحركة البيئيّة اللبنانيّة
(Lebanese Association for the Protection of the Environment)
الجمعية اللبنانية لحماية البيئة
(Artgold)آرت غولد
(World Vision)الرؤية العالمية
(North Leda)نورث ليدا
(Association for Development in Akkar) جمعية التنمية في عكار
كن هادي
يازا

Annex 3: Presentations given during the Consultation Events

Annex 4: Photographic Documentation of the Consultation Sessions


South Lebanon Governorate Consultation Session Attendees and Venue

Nabatiyeh Governorate Consultation Session Attendees and Venue

Baalbek Governorate Consultation Session Attendees and Venue

Bekaa Governorate Consultation Session Attendees and Venue

North Lebanon Governorate Consultation Session Attendees and Venue

Mount Lebanon Governorate Consultation Session Attendees and Venue (Sin El Fil Municipality)

Annex 5: List of Attendees at the different Governorates

Annex 6: Impact Lists and Guidelines Applicable to Individual Projects

Attachment 1
Checklist of Possible Environmental and Social Impacts of Projects

I. Subcomponent Related Issues

S No	ISSUES	YES	NO	Comments
A.	**Zoning and Land Use Planning**			
1.	Will the subproject affect land use zoning and planning or conflict with prevalent land use patterns?			
2.	Will the subproject involve significant land disturbance or site clearance?			
3.	Will the subproject land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?			
B.	Utilities and Facilities			
4.	Will the subproject require the setting up of ancillary production facilities?			
5.	Will the subproject require significant levels of accommodation or service amenities to support the workforce during construction (e.g., contractor will need more than 20 workers)?			
C	Water and Soil Contamination			
6.	Will the subproject require large amounts of raw materials or construction materials?			
7.	Will the subproject generate large amounts of residual wastes, construction material waste or cause soil erosion?			
8.	Will the subproject result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?			
9.	Will the subproject lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?			
10.	Will the subproject lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?			
11.	Will the subproject involve the use of chemicals or solvents?			
12.	Will the subproject lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?			
13.	Will the subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?			
D.	**Noise and Air Pollution Hazardous Substances**			
14.	Will the subproject increase the levels of harmful air emissions?			
15.	Will the subproject increase ambient noise levels?			

S No	ISSUES	YES	NO	Comments
16.	Will the subproject involve the storage, handling or transport of hazardous substances?			
E.	**Fauna and Flora**			
18.	Will the subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?			
19.	Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?			
20.	Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?			
F.	**Destruction/Disruption of Land and Vegetation**			
21.	Will the subproject lead to unplanned use of the infrastructure being developed?			
22.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			
23.	Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?			
24.	Will the subproject lead to landslides, slumps, slips and other mass movements in road cuts?			
25.	Will the subproject lead to erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains?			
26.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			
27.	Will the subproject lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?			
G.	**Cultural Property**			
28.	Will the subproject have an impact on archaeological or historical sites, including historic urban areas?			
29.	Will the subproject have an impact on religious monuments, structures and/or cemeteries?			
30.	Have Chance Finds procedures been prepared for use in the subproject?			
H.	**Expropriation and Social Disturbance**			
31.	Will the subproject involve land expropriation or demolition of existing structures?			
32.	Will the subproject lead to induced settlements by workers and others causing social and economic disruption?			
33.	Will the subproject lead to environmental and social			

S No	ISSUES	YES	NO	Comments
	disturbance by construction camps?			
34	Will the sub-project lead to physical displacement (title-holders, squatters, and vulnerable groups)?			
35	Will there be economic displacement?			
36	Will there be loss of assets/infrastructure?			
37	Will the sub-project impact livelihood of non-titled persons and vulnerable groups?			

II. Site Characteristics

S.No	ISSUES	YES	NO	Comments
1.	Is the subproject located in an area with designated natural reserves?			
2.	Is the subproject located in an area with unique natural features?			
3.	Is the subproject located in an area with endangered or conservation-worthy ecosystems, fauna or flora?			
4.	Is the subproject located in an area falling within 500 meters of national forests, protected areas, wilderness areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?			
5.	Is the subproject located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?			
6.	Is the subproject located close to groundwater sources, surface water bodies, water courses or wetlands?			
7.	Is the subproject located in an area with designated cultural properties such as archaeological, historical and/or religious sites?			
8.	Is the subproject in an area with religious monuments, structures and/or cemeteries?			
9.	Is the subproject in a polluted or contaminated area?			
10.	Is the subproject located in an area of high visual and landscape quality?			
11.	Is the subproject located in an area susceptible to landslides or erosion?			
12.	Is the subproject located in an area of seismic faults?			
13.	Is the subproject located in a densely populated area?			
14.	Is the subproject located on prime agricultural land?			
15.	Is the subproject located in an area of tourist importance?			
16.	Is the subproject located near a waste dump?			
17.	Does the subproject have access to potable water?			
18.	Is the subproject located far (1-2 kms) from accessible roads?			
19.	Is the subproject located in an area with a wastewater network?			

S.No	ISSUES	YES	NO	Comments
20.	Is the subproject located in the urban plan of the city?			
21.	Is the subproject located outside the land use plan?			

Signed by Environment Specialist:
Name: _____
_____
Title: _____
_____
Date: _____
_____

Signed by Project Manager:
Name:

Title:

Date:

Attachment 2

Protection of Cultural Property

1. Cultural property includes monuments, structures, works of art, or sites of significance points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

Chance Find Procedures

2. Chance find procedures will be used as follows:

(a) Stop the construction activities in the area of the chance find;
(b) Delineate the discovered site or area;
(c) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Ministry of Culture take over;
(d) Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture immediately (within 24 hours or less);
(e) Responsible local authorities and the Ministry of Culture would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists of the Ministry of Culture (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
(f) Decisions on how to handle the finding shall be taken by the responsible authorities and the Ministry of Culture. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
(g) Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Ministry of Culture; and
(h) Construction work could resume only after permission is given from the responsible local authorities and the Ministry of Culture concerning safeguard of the heritage.

3. These procedures must be referred to as standard provisions in construction contracts, when applicable, and as proposed in section 1.5 of Attachment 6. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered are observed.

4. Relevant findings will be recorded in World Bank Project Supervision Reports (PSRs), and Implementation Completion Reports (ICRs) will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

Attachment 3

Codes of Practice for Prevention and Mitigation of Environmental Impacts

Potential Impacts	Prevention and Mitigation Measures
Roads • Rehabilitation/improvement of urban roads. • Rehabilitation/improvement of access road /bridges	
Disruption of drainage: • Hampers free drainage, causes stagnant pools of water. • Increased sediments into ponds, streams and rivers due to erosion from road tops and sides. • Increased run-off and flooding.	• Design to provide adequate drainage and to minimize changes in flows, not limited to the road reserve. • Provision of energy dissipaters, cascades, steps, and checks dams. • Provision of sufficient number of cross drains. • Balancing of cut and fill. • Revegetation to protect susceptible soil surfaces. • Rehabilitation of borrow areas.
Erosion: • Erosion of land downhill from the road bed, or in borrow areas. • Landslides, slips or slumps. • Bank failure of the borrow pit.	• Design to prevent soil erosion and maintain slope stability. • Construction in the dry season. • Protection of soil surfaces during construction. • Physical stabilization of erodible surfaces through turfing, planting a wide range of vegetation, and creating slope breaks. • Rehabilitation and re-grading of borrow pits and material collection sites.
Loss of vegetation.	• Balancing of cut and fill. • Revegetation to protect susceptible soil surfaces. • Minimize loss of natural vegetation during construction. • Revegetation and replanting to compensate any loss of plant cover or tree felling.

Potential Impacts	Prevention and Mitigation Measures
Loss of access.	• Design to include accessibility to road sides in case roadbed is raised. • Alternative alignments to avoid bisecting villages by road widening.
Impacts during construction: • Fuelwood collection. • Disease due to lack of sanitation. • Introduction of hazardous wastes. • Groundwater contamination (oil, grease). • Accidents during construction. • Potential impacts to cultural property.	• Provision of fuel at work camps to prevent cutting of firewood. • Provision of sanitation at work camps. • Removal of work camp waste, proper disposal of oil, bitumen and other hazardous wastes. • Management of construction period worker health and safety. • Use archaeological chance find procedures and coordinate with appropriate agencies.
• Increased migration from nearby cities.	• Provide comprehensive community participation in planning, and Migration issue to be resolved through local conflict resolution system.

Attachment 4

Safeguards Procedures for Inclusion in the Technical Specifications of Contracts

I. General

1. The Contractor and his employees shall adhere to the mitigation measures set down and take all other measures required by the Engineer to prevent harm, and to minimize the impact of his operations on the environment.

1. The Contractor shall not be permitted to unnecessarily strip clear the right of way. The Contractor shall only clear the minimum width for construction and diversion roads should not be constructed alongside the existing road.

3. Remedial actions which cannot be effectively carried out during construction should be carried out on completion of each Section of the road (earthworks, pavement and drainage) and before issuance of the Taking over Certificate:

(a) these sections should be landscaped and any necessary remedial works should be undertaken without delay, including grassing and reforestation;

(b) water courses should be cleared of debris and drains and culverts checked for clear flow paths; and

(c) Borrow pits should be dressed as fish ponds, or drained and made safe, as agreed with the land owner.

4. The Contractor shall limit construction works to between 6 am and 7 pm if it is to be carried out in or near residential areas.

5. The Contractor shall avoid the use of heavy or noisy equipment in specified areas at night, or in sensitive areas such as near a hospital.

6. To prevent dust pollution during dry periods, the Contractor shall carry out regular watering of earth and gravel haul roads and shall cover material haulage trucks with tarpaulins to prevent spillage.

II. Transport

7. The Contractor shall use selected routes to the project site, as agreed with the Engineer, and appropriately sized vehicles suitable to the class of road, and shall restrict loads to prevent damage to roads and bridges used for transportation purposes. The Contractor shall be held responsible for any damage caused to the roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the Engineer.

8. The Contractor shall not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good

condition on all motorized equipment under the control of the Contractor.

9. Adequate traffic control measures shall be maintained by the Contractor throughout the duration of the Contract and such measures shall be subject to prior approval of the Engineer.

III. Workforce

10. The Contractor should whenever possible locally recruit the majority of the workforce and shall provide appropriate training as necessary.

11. The Contractor shall install and maintain a temporary septic tank system for any residential labor camp and without causing pollution of nearby watercourses.

12. The Contractor shall establish a method and system for storing and disposing of all solid wastes generated by the labor camp and/or base camp.

13. The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.

14. The Contractor shall ensure that site offices, depots, asphalt plants and workshops are located in appropriate areas as approved by the Engineer and not within 500 meters of existing residential settlements and not within 1,000 meters for asphalt plants.

15. The Contractor shall ensure that site offices, depots and particularly storage areas for diesel fuel and bitumen and asphalt plants are not located within 500 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet.

16. The contractor shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the Works.

IV. Quarries and Borrow Pits

17. Operation of a new borrow area, on land, in a river, or in an existing area, shall be subject to prior approval of the Engineer, and the operation shall cease if so instructed by the Engineer. Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage the river banks, or carry too much fine material downstream.

18. The Contractor shall ensure that all borrow pits used are left in a trim and tidy condition with stable side slopes, and are drained ensuring that no stagnant water bodies are created which could breed mosquitoes.

19. Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the river banks.

20. The location of crushing plants shall be subject to the approval of the Engineer, and not be close to environmentally sensitive areas or to existing residential settlements, and shall be operated with approved fitted dust control devices.

V. Earthworks

21. Earthworks shall be properly controlled, especially during the rainy season.

22. The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the work.

23. The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.

24. In order to protect any cut or fill slopes from erosion, in accordance with the drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.

25. Any excavated cut or unsuitable material shall be disposed of in designated tipping areas as agreed to by the Engineer.

1. Tips should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips, as directed by the Engineer.

VI. Historical and Archeological Sites

27. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

a. Stop the construction activities in the area of the chance find.
b. Delineate the discovered site or area.
c. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Ministry of Culture take over.
d. Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture immediately (less than 24 hours).
e. Contact the responsible local authorities and the Ministry of Culture who would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. This would require a preliminary evaluation of the findings to be performed by the archeologists of the Ministry of Culture (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values.

f. Ensure that decisions on how to handle the finding be taken by the responsible authorities and the Ministry of Culture. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.

g. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Ministry of Culture; and

h. Construction work will resume only after authorization is given by the responsible local authorities and the Ministry of Culture concerning the safeguard of the heritage.

VII. Disposal of Construction and Vehicle Waste

28. Debris generated due to the dismantling of the existing structures shall be suitably reused, to the extent feasible, in the proposed construction (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the project engineer. The contractor should ensure that these sites (a) are not located within designated forest areas; (b) do not impact natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.

29. In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of the Supervisor/Engineer.

30. Bentonite slurry or similar debris generated from pile driving or other construction activities shall be disposed of to avoid overflow into the surface water bodies or form mud puddles in the area.

31. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Engineer.

32. Vehicle/machinery and equipment operations, maintenance and refueling shall be carried out to avoid spillage of fuels and lubricants and ground contamination. An oil interceptor will be provided for wash down and refueling areas. Fuel storage shall be located in proper bounded areas.

33. All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 300m from all cross drainage structures and important water bodies or as directed by the Engineer.

ANNEX 7: Generic Terms of Reference for Social Assessment[36]

Social assessment is the instrument used most frequently by the Borrower to analyze social issues and solicit stakeholder views for the design of Bank supported projects. Social assessment helps make the project responsive to social development concerns, including seeking to enhance benefits for poor and vulnerable people while minimizing or mitigating risk and adverse impacts. It analyzes distributional impacts of intended project benefits on different stakeholder groups, and identifies differences in assets and capabilities to access the project benefits

A social assessment is made up of analytical, process, and operational elements, combining (a) the *analysis* of context and social issues with (b) a participatory *process* of stakeholder consultations and involvement, to provide (c) *operational* guidance on developing
a project design, implementation, and monitoring and evaluation (M&E) framework.
Bank staff then (a) provide guidance and technical assistance to the borrower (and consultants) to undertake the social assessment, and (b) verify, assess and appraise the Borrower's social assessment findings, as an integral part of their social analysis.

This Terms of Reference is guidance; task teams are expected to assist the Borrower in adapting this general framework based on country, sector and project specific needs and specificities. The scope and depth of the social assessment should be determined by the complexity and importance of the issues studied, taking into account the skills and resources available. If requested, the World Bank would also consider supporting related programs of capacity building in social assessment processes.

To the extent possible, the project social assessment should build on existing data and analysis relevant to the sector and project. Consideration should be given to doing the social assessment in two stages, by first conducting a Rapid Context Assessment of available data, identify stakeholders and key issues, and undertaking a gap analysis of where additional data or consultations are required. Based on that, an update and further detailing of the Terms of Reference may be done.

Introduction

This section should state the purpose of the terms of reference, identify the development project to be assessed and explain the implementing arrangements for the social assessment.

Background Information

Pertinent background for potential parties who may conduct the social assessment, whether they are consultants or government agencies, would include a brief statement of the rationale for the project, its intended objectives, a description of its major components, the implementing agency(ies), its current status and timetable, and whether there are any associated projects.

Purpose and Objectives

Summarize the general objectives and scope of the social assessment, briefly lay out the main design and methodological issues related to completing the social assessment, and discuss its timing in relation to the project preparation, design and implementation.

[36] SOCIAL ANALYSIS SOURCEBOOK, WORLD BANK, 2003

Task 1: Description of the Proposed Project

Provide a full description of the project to the extent known when the social assessment is undertaken. Include the following information: location, size, schedule and planned sequence of activities, resources available, expected implementation arrangements and life span. If the proposed project has more than one component, describe each one as it relates to social analysis.

Task 2: Description of the Socio-Cultural, Institutional, Historical and Political Context

Conduct a rapid review of available sources of information to describe the sociocultural, institutional, historical and political context in which the project operates. The review should include qualitative descriptions and quantitative indicators of development trends relevant to the project, such as significant demographic changes, patterns of asset ownership and livelihoods, external political or economic environment, etc. The purpose of this exercise is to describe what constraints and opportunities the context poses to the project.

- *Socio-cultural context:* Describe the most significant social and cultural features that differentiate social groups in the project area. Describe their different interests in the project, and their levels of influence. In particular, explain any particular effects the project may have on the poor and excluded. Does the project offer any opportunities to influence the behavior of and outcomes for such groups? Are there any known conflicts among groups that may affect project implementation?
- *Institutional context:* Describe the institutional environment; consider both the presence and function of public, private and civil society institutions relevant to the operation. Are there important constraints within existing institutions, e.g. disconnect between institutional responsibilities and the interests and behaviors of personnel within those institutions? Or are there opportunities to utilize the potential of existing institutions, e.g. private or civil society institutions, to strengthen implementation capacity?
- *Historical context:* Describe the "big picture," those conditions in the history of the country that might uniquely impinge upon the project. If a project proposes to restructure an industry that had great importance and visibility in the national economy, such as coal mining in Eastern Europe, it may be reasonable to assume that industrial layoffs would be affected by political economy issues. In a country with a history of tension between ethnic or religious groups, the operation may need to be extra-sensitive to differential impacts on those groups.
- *Political context:* Describe the political background relevant to the project. Political instability, for example, could affect long-term project planning, as could an election between the project design and implementation phases. On the other hand, a shared political vision such as the drive for EU accession can be an important enabling condition for a project.

Task 3: Legislative and Regulatory Considerations

Review all national legislation and regulations pertinent to the project, as well as the broader policy and reform context within which the project takes place. Pay particular attention to laws and regulations governing the project's implementation and the access of poor and excluded groups to goods, services and opportunities provided by the project. In addition, review the enabling environment for public participation and development planning. Social analysis should build on strong aspects of the legal and regulatory systems to facilitate program implementation and identify weak aspects while recommending alternative arrangements. (The TOR should specify those that are known and require the consultant to investigate other arrangements.)

Task 4: Key Social Issues

The social analysis provides the baseline information for designing the social development strategy. The analysis should determine what the key social and institutional issues are in relation to project objectives; identify the key stakeholder groups in this context and determine how relationships between stakeholder groups will affect or be affected by the project; and identify expected social development outcomes and actions proposed to achieve those outcomes. Social development outcomes are the socially relevant results the project is expected to achieve, such as poverty reduction, equity and inclusion, strengthening of social capital and social cohesion, and promotion of accountable and transparent governance, as well as the mitigation of adverse impacts arising out of the project. The key elements and entry points for the social analysis relevant to the project

(a) Social diversity and gender: Examine how people are organized into different social groups, based on the status ascribed to them at birth – according to their ethnicity, clan, gender, locality, language, class, or some other marker – or on the status or identity they have achieved or chosen – civil servant, industrial laborer, white collar worker, environmentalist, etc. Importantly, an analysis of social diversity also includes looking at the ways in which such diversity interacts with social and power relations and the implications this has for questions of access, capabilities and opportunities;

(b) Institutions, rules and behavior: Examine social groups' characteristics, intra group and inter-group relationships, and the relationships of those groups with public and private (e.g. market) institutions (including the norms, values and behavior that have been institutionalized through those relationships). Such an analysis should provide a detailed assessment of the formal and informal organizations likely to affect the project and the informal rules and behaviors among them. Possible institutional constraints and barriers to project success, as well as methods to overcome them, should be described.

(c) Stakeholders: Identify the various groups who have an interest or a stake in the project. Stakeholders are those who are likely to be affected by a project, as well as those that may influence the project's outcomes. In addition to the beneficiaries of the project and other groups directly affected by it, stakeholders may include organized groups from the public and private sectors as well as civil society who have an interest in the project. The characteristics, interests and likely influence of various groups in the development process are the subject of stakeholder analysis;

(d) Participation: Examine opportunities and conditions for participation by stakeholders – particularly the poor and vulnerable – in the development process(e.g. contributing to project design, implementation and/or monitoring; influencing public choices and decision-making; holding public institutions accountable for the goods and services they are bound to provide; access to project benefits and opportunities; etc). Otherwise excluded groups affected by the project as well as project beneficiaries should be brought into the social assessment process, and appropriate mechanisms to sustain such participation in project implementation and monitoring should be deployed; and

(e) Social risk: Identify social risks (e.g. country risks, political economy risks, institutional risks, exogenous risks, and vulnerability risks, including but not limited to those that may trigger World Bank Safeguard Policies). Social risk analysis examines the social groups vulnerable to stress and shocks and the underlying factors that contribute to this vulnerability. Drawing on this, risk management plans should be prepared with an eye to

addressing these concerns during project design, implementation, and monitoring and evaluation.

The analysts examine these key elements in order to assess and describe the opportunities, constraints and likely social impacts of the proposed operation. The consultant should fill the gaps in the information on these issues that the Bank task team identifies, and should summarize information from other organizations where available.

Task 5: Data Collection and Research Methods

Describe the design and research methodology for the social analysis. In this regard:

- Clarify the research objective by stating the research hypotheses and identifying the social processes and relationships to be examined by the social assessment;
- Build on existing data;
- Clarify the units of analysis for the social assessment: intra-household, household level, as well as communities/settlements and other relevant social aggregations on which data is available or will be collected for analysis;
- Choose appropriate data collection and analytical tools and methods, employing mixed methods wherever possible; mixed methods include a mix of quantitative and qualitative methods, and a mix of data from different units of analysis for triangulation of results;
- Provide the rationale for sampling employed, including criteria for research sites and selection of respondents. Employ representative sampling wherever possible. When this is not feasible (such as when dealing with impacts on a discrete population group, explain the reason and criteria for purposive sampling employed. For purposive sampling or qualitative research, research rigor is enhanced by providing a control group or establishing matching pairs to obtain robust results;
- Establish baselines and/or benchmarks with indicators for use in future monitoring. Indicators should be of such a nature that results and impacts can be disaggregated by gender and other relevant social groups.

Task 6: Strategy to Achieve Social Development Outcomes

Identify the likely social development outcomes of the project and propose a social development strategy, including recommendations for institutional arrangements to achieve them, based on the findings of the social assessment. The social development strategy could include measures (a) that strengthen social inclusion by ensuring that both poor and excluded groups and intended beneficiaries are included in the benefit stream and in access to opportunities created by the project (i.e. a *social inclusion framework*); (b) that empower stakeholders through their participation in the design and implementation of the project, their access to information, and their increased voice and accountability (i.e. a *participation framework*); and (c) that enhance security by minimizing and managing likely social risks and increasing the resilience of intended beneficiaries and affected persons to socioeconomic shocks (i.e. a *risk management framework*).

Additionally, the strategy should address broader questions of social sustainability, by assessing (a) the resilience of project benefits, institutional mechanisms, etc, to risks over time, and (b) how well integrated the approach is into the larger set of development interventions in the country and sector in order to minimize inconsistencies and take advantage of potential synergies.

The social development strategy is expected to increase the benefits to the poor and vulnerable as well as reduce social and political risks that could undermine the gains of development, thereby

increasing the equity and social sustainability of projects.

Task 7: Implications for Analysis of Alternatives

Review the proposed approaches for the project, and compare them in terms of their relative impacts and social development outcomes. Consider what implications the findings of the social assessment might have on those approaches. Should some new components be added to the approach, or other components reconsidered or modified? Has the social assessment revealed the need for heretofore-unnecessary risk-management measures? If the social analysis and consultation process indicate that alternative approaches are likely to have better development outcomes, such alternatives should be described and considered, along with the likely budgetary and administrative effects these changes might have.

Task 8: Recommendations for Project Design and Implementation Arrangements

Provide guidance to project management and other stakeholders on how to integrate social development issues into project design and implementation arrangements. As much as possible, suggest specific action plans or implementation mechanisms to address relevant social issues and potential impacts. These can be developed as integrated or separate action plans, for example, as Resettlement Action Plans, Indigenous Peoples Development Plans, Community Development Plans, etc.

Task 9: Developing a Monitoring Plan

Through the social assessment process, a framework for monitoring and evaluation should be developed. To the extent possible, this should be done in consultation with key stakeholders, especially beneficiaries and affected people. The framework shall identify expected social development indicators, establish benchmarks, and design systems and mechanisms for measuring progress and results related to social development objectives.

The framework shall identify organizational responsibilities in terms of monitoring, supervision, and evaluation procedures. Where possible, participatory monitoring mechanisms shall be incorporated.

- Establish a set of monitoring indicators to track the progress achieved. The Benchmarks and indicators should be limited in number, and should combine both quantitative and qualitative types of data. The indicators should include *outputs* to be achieved by the social development strategy; indicators to monitor the *process* of stakeholder participation, implementation and institutional reform; indicators to monitor social risk and social development *outcomes*; and indicators to monitor *impacts* of the project's social development strategy. It is important to suggest mechanisms through which lessons learned from monitoring and stakeholder feedback can result in changes to improve the operation of the project. Indicators should be of such a nature that results and impacts can be disaggregated by gender and other relevant social groups;
- Define transparent evaluation procedures. Depending on context, these may include a combination of methods, such as participant observation, key informant interviews, focus group discussions, census and socio-economic surveys, gender analysis, Participatory Rural Appraisal (PRA), Participatory Poverty Assessment (PPA) methodologies, and other tools. Such procedures should be tailored to the special conditions of the project and to the different groups living in the project area.
- Estimate resource and budget requirements for monitoring and evaluation activities, and a

description of other inputs (such as institutional strengthening and capacity building) needed to carry it out.

Expected Outputs, Schedule and Reporting

Prepare a detailed schedule of the social assessment activities described in the terms of reference. Explain what kinds of outputs the social assessment plans to produce, and note when the team will give preliminary and final drafts of each output to the Bank staff conducting social analysis. Include relevant charts and graphs, statistical and qualitative analysis and, in some cases, raw data obtained during the social assessment.

In addition to the outputs of the social assessment, include a note on the social assessment process itself, stating any difficulties faced by the team in conducting the social assessment, and recommend the most appropriate dissemination strategy for the findings. Provide the report and accompanying materials in English and the local language.

Consultant Team

Social assessment usually requires a multidisciplinary team to meet the different demands of the assignment. The terms of reference should specify key positions on the team. Individual time requirements should be specified for each assignment. One team member should be appointed team leader, and be responsible for the team's performance

ANNEX 8: Project Description

A. Project Components

The proposed World Bank and CFF-funded project of US$200 million will support Phase I of the US$510 million government's roads program. The first phase of the government program, estimated at US$300 million, is planned to be executed during three years and will focus on: (a) the rehabilitation and maintenance of existing roads, including road safety improvements; (b) the purchase of equipment for emergency roads works; and (c) capacity building in the sector. The financing of Phase I will consist of a US$200 million financing from the World Bank (including an IBRD loan and CFF) and described here as "the project", and a US$100 million loan sought by the Government from other donors on concessional terms. The World Bank will coordinate the project implementation with parallel-financed projects under Phase I to ensure the overall success of the government program, although these projects will be executed separately.

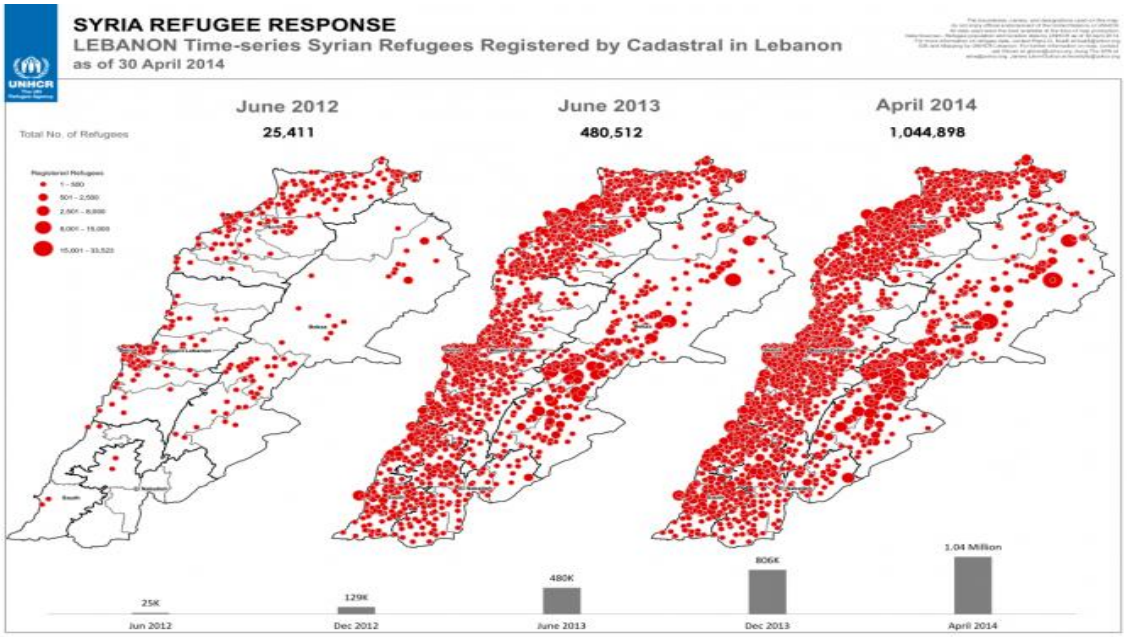
The selection of the program's priority road sections, including for the World Bank-funded project, is ongoing based on a number of criteria. Given the important size and scope of the program, and to objectively prioritize and select the road sections to be rehabilitated, a number of selection criteria was agreed that take into account the road condition, the level of traffic, the balancing of roads between regions and communities, the balancing of road sections by categories (primarily, secondary, and tertiary), and the labor creation potential and broader socioeconomic impacts. A visual survey is currently ongoing to assess the road condition of the network (about 6,000 km of primary, secondary, and tertiary roads are being covered), as well as to produce a road safety rating of the network based on the methodology of International Road Assessment Program (IRAP). The visual survey will also produce some indication and verification of current traffic volumes. Meanwhile, the World Bank and the ILO are producing estimates on the direct and indirect job creation potential of road investments for various road types, works, and categories; as well as the broader socioeconomic benefits of such investments. The finalization of the program's priority road sections selection is expected by the end of February 2017.

Meanwhile the project first year's work program is being identified for timely start of project implementation. To move quickly with project implementation, immediate road works of about US$50 million in contract value are being discussed for priority rehabilitation during the first year of the project based on existing government priorities and a Council of Ministers' decision in February 2016, the condition of the roads, and their readiness for implementation. In addition, the purchase of equipment and the selection of some required consultancy services (about US$10 million) will also be initiated within the first year of the project implementation. The World Bank is working closely with CDR, MoPWT, and the SNRSC to help them quickly initiate the required activities.

The project will include the rehabilitation of non-urban road sections from all Lebanese regions, particularly in rural areas and lagging regions. The project will mainly target the rehabilitation of primary, secondary and tertiary roads in non-urban/rural areas. The project coverage is national and will benefit communities in various parts of the country and all Lebanese regions, outside the big cities. While the project will rehabilitate a number of primary road sections given the high traffic volumes and their high importance to the Lebanese economy, over two-thirds of the roads (in km) will be secondary and tertiary roads and in rural areas therefore benefiting rural communities in

various lagging regions of Lebanon. In addition, while certain regions have a higher concentration of refugees and will be benefitting from the project (such as Akkar), Syrian refugees are dispersed in large numbers throughout Lebanon (see map below). Lebanon's very small territory (10,452 square kilometers) and the large number of refugees all over the country, means that host communities and refugees are likely to benefit from any road rehabilitation sub-project given most communities live within only few minutes from such sub-projects. Investments in road rehabilitation will have large direct (jobs) and indirect (reduced transport costs) benefits to host communities and refugees.

Figure 1. Syrian Refugees Distribution in Lebanon[37]



The proposed project will target both the Lebanese and Syrian labor. It is worth noting that Syrians generally comprise between 70 to 80 percent of the total number of workers of similar projects in the roads and construction sector in Lebanon. Typically, contractors select the low-skilled labor force from available able-bodied workers, primarily on a first-come first-serve basis, living in the community around the project's selected roads. Wages are set by the existing market and will not be distorted. Workers may receive overtime pay as well as wage premiums that reflect the location/type of project sites as well as the qualification of those workers. Following ongoing practices, there is generally no contractual arrangements between the contractor and the worker, however, the contractor which is generally qualified and certified by CDR and other relevant ministries will abide by local labor laws, particularly regarding health and safety. While women participation in direct construction job is not common in Lebanon, women are generally employed in much of the supporting industries that will directly and indirectly benefit from the project (such as consultancy services, manufacturing of supply chain material…).

[37] UNHCR, April 2014.

Box 1. The Project Preparation Key Drivers

The project design, undertaken under emergency conditions, aims at producing good road rehabilitation and asset management practices while increasing the labor content of the project. The project preparation was dictated by three drivers, mainly: (a) a project design that allows speedy preparation and implementation to meet the urgent needs stemming from the Syria conflict and refugee crisis, (b) a project that delivers good quality infrastructure and asset management practices, and (c) a project that creates significant number of short-term jobs for Lebanese and Syrians. These drivers are further described below.

Design for speedy preparation and implementation:

- Prepare the project under emergency procedures while deferring exact projects/roads selection and associated safeguards to implementation;
- Agree on the first-year road works program to speed up implementation;
- Include the purchase of necessary equipment which can be implemented quickly; and
- Introduce retroactive financing to support timely project implementation and initiate procurement activities and required studies.

Deliver good quality infrastructure and asset management practices:

- Prepare procurement strategy and packages to ensure a wider participation of local contractors (hence, broader benefits in different areas/communities) while maintaining well qualified contractors to guarantee proper rehabilitation works in accordance with existing Lebanon's high road rehabilitation design standards;
- Introduce proper and objective road prioritization measures through the visual survey of the network's condition and safety, which will also later inform the creation of a new and integrated road asset management system for Lebanon;
- Introduce road safety and climate resilient improvements to improve existing road design and construction standards and practices in Lebanon; and
- Introduce routine maintenance contracts as an important and efficient asset preservation measure (including possibly the piloting of performance-based contracts).

Create significant number of short-term jobs for Lebanese and Syrians:

- Select road sections with required civil works such as drainage and slope stabilization structures to increase the labor content of contracts;
- Include a larger number of tertiary roads, therefore providing a wider coverage of the network, particularly in rural areas as well as more kilometers of roads to rehabilitate;
- Introduce routine maintenance which is very labor intensive and will be undertaken by small local contractors;
- Include provisions to revise designs and technical specifications to increase labor content (such as use of concrete channels instead of pipes for drainage, use of masonry walls and/or vegetation on low volume tertiary roads);
- Include training activities, particularly on new practices and maintenance techniques (such as slope stabilization and routine maintenance).

The World Bank-funded project of US$200 million will therefore have the following components.

Component 1: Roads Rehabilitation and Maintenance (US$184.6 million)

This component will primarily finance works for the rehabilitation and maintenance of about 500 km of primary, secondary, and tertiary roads, including road safety and spot improvements; as well as supporting consultancy services. The investments under this component will improve transport connectivity and create direct and indirect jobs for Lebanese and Syrians. The works include asphalt overlays, drainage works, base and subbase reconstruction on selected sections, slope stabilization works, retaining walls, as well as roadside improvements on sections crossing towns (sidewalks, planting trees). Most road works will be within the existing right of way. Road rehabilitation activities are estimated at US$150 million and will be financed under about 15 different local contracts, ranging in value between US$5 million to US$15 million each, which will allow the participation of medium and small size contractors in the various regions of Lebanon. The component will also finance consultancy services for the design and supervision of the rehabilitation works described above, estimated at about US$8 million. This component will also finance the required safeguards instruments such as the Environmental and Social Management Plan (ESMP), Environmental and Social Impact Assessment (ESIA), and Resettlement Action Plan (RAP) estimated at about US$1 million. It will also finance the piloting of multi-year routine maintenance contracts (two or three-year contracts), estimated at a total of about US$15 million, to be undertaken by small local contractors on a select number of the newly rehabilitated road sections. Finally, this component includes US$10.6 million as price contingencies.

Component 2: Improving Road Emergency Response Capacity (US$7.5 million)

Lebanon is primarily a mountainous country and has been recently witnessing more extreme weather with shorter yet more severe winters and snow periods. MoPWT has currently insufficient number of vehicles particularly for snow removal, and most of the existing equipment is outdated with an average age of 20 years. MoPWT is having difficulty deploying them timely to all mountain roads and regions in Lebanon during extreme weather and snow events during winter which can cover a large part of Lebanon's national and local road networks. This is resulting in some mountain villages and towns, primarily in lagging regions and including some with significant number of refugees, being inaccessible for several days during the winter season with detrimental effects on livelihoods and services in these communities. In addition, some major highways, such as the one linking Beirut to the Bekaa, is often cut by snow resulting in large economic losses.

This component is therefore aimed at improving the capacity of the MoPWT to deal with road emergency works, especially those induced by snow and climate extremes. This component will finance the purchase of road vehicles and equipment, particularly those needed for snow removal and landslides repairs. This component will finance the purchase of 15 wheel loaders, 10 snow blowers, 5 salt spreaders, and 10 four wheel drive vehicles. This component will also assist in revising the existing emergency procedures of MoPWT, and its capacity to plan for extreme weather event, including the timely and proper mobilization and dispatching of its equipment. Given its strong linkages to the climate change agenda, this component could also benefit at later stages from support from disaster risk management and climate adaptation funds.

Component 3: Capacity Building and Implementation Support (US$7.5 million)

This component is aimed at building the capacity of the Lebanese agencies in the planning and management of the road sector. It will also contribute to the training and capacity building of contractors and workers on new and improved road construction and maintenance techniques. This component will finance consultancy services and related software and IT equipment, to support the following subcomponents:

Subcomponent 1. Strengthen national road asset management (US$2 million). This subcomponent will finance the creation of a road asset database for the trunk network in Lebanon, the collection of the basic information for the database (such as road condition visual surveys, IRAP assessment of road safety, and traffic counts on select road sections), and the revision of design and maintenance standards to reflect changing climate conditions, particularly related to drainage and slope protection/stabilization. This subcomponent will also finance the preparation of bidding documents and training on performance-based contracts for road maintenance.

Subcomponent 2. Support the planning and implementation of road safety measures (US$2 million). This subcomponent will benefit the SNRSC and will primarily finance the elaboration of a national strategy and action plan on road safety, as well as the implementation of select priority road safety measures in collaboration with other interested donors. This subcomponent could also benefit at later stages from grants from the Global Road Safety Facility (GRSF) as well as other interested donors.

Subcomponent 3. Support planning and design studies (US$2 million). This subcomponent will finance studies undertaken by CDR to prepare the required planning and design studies for critical transport projects identified as priorities by the Lebanese government.

Subcomponent 4. Support training activities (US$0.5 million). This subcomponent will support training activities to build the technical skills of MoPWT and CDR staff as well as workers and small contractors. It will support training on soft skills as well as technical skills related to the work to be carried out at selected project sites. In particular, this subcomponent will also support the training of small local contractors and microenterprises and their workers on proper routine maintenance requirements and techniques, environmental and social aspects, and health and safety aspects. The implementation of this subcomponent could be in collaboration with other interested donors such as the ILO.

Subcomponent 5. Support for project Implementation (US$1 million). This subcomponent will finance the hiring of required experts by the implementing agency to properly undertake the implementation and monitoring of the project.

Environmental and Social Management General Guidelines

1. *Permits and Licenses*

i) The Contractor shall ensure that all pertinent permits, certificates and licenses have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to;

ii) The Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract.

2. *Location of Contractor's camp site*

Where the contractor will require setting up a site, the same shall be determined in collaboration with the RE taking into consideration the following:

a. Preferably to be located on land already cleared wherever possible;

b. Not to be installed in the areas used as wildlife grazing areas or migratory corridors or in the area with more dense vegetation or densely settled areas;

c. It should also avoid the areas, where the soil has higher erosion risk;

d. The need to be more than 20 meters from watercourses in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse;

e. The local administration shall be involved in the site location to avoid destruction of any ritual site or any other conflict;

f. The Contractor's Camp layout shall take into account availability of access for deliveries and services and any future works;

g. The Contractor's Camp should also be of sufficient size to accommodate the needs of all sub-contractors that may work on the project.

3. *Environmental Training and Awareness*

i) The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMP;

ii) The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMP in his costs and programming;

iii) An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project personnel;

iv) The training shall include but not limited to the following

- Basic awareness and understanding of the key environmental features of the work site and environs;
- Understanding the importance of and reasons why the environment must be protected;
- Ways to minimize environmental impacts;
- Relevant requirements of the ESMP;
- Prevention and handling of fire;
- Health risks pertinent to the site, including prevention of communicable diseases;
- Awareness, prevention and minimization of risk with regard to the contraction and spread of HIV/AIDS and other sexually transmitted diseases;
- The Contractor shall erect and maintain Environmental and Health Information Posters for his employees regarding HIV/AIDS, protection of wildlife and natural resources;
- The Environmental and Health Information Posters shall be erected at the eating areas and any other locations specified by the Resident Engineer.

4. *HIV/AIDS awareness and prevention campaign*

i. The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, contracting implementing organization, with preference for an organization already working on this issue in the project area;

ii. The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material (T-shirts and caps), availability of condoms (free) and theatre groups.

5. *Local Labor/Employment*

Wherever possible, the Contractor shall use local labour.

6. *ESMP management records*

Environmental management records shall be kept on site during the duration of construction and shall include the following:

7. *Other Provisions*

The contractor shall implement the following as required:

i. A suitable storm-water drainage system to prevent soil erosion, protect storage areas and to prevent stagnant ponds forming;

ii. A suitable potable water supply;

iii. Suitable facilities for bathing, washing clothes or vehicles – site staff will not be permitted to use open water bodies for such activities;

iv. Suitable sanitation facilities, adequate for the number of staff on site;

v. Facilities for cooking;

vi. Facilities for solid waste collection;

vii. Facilities for waste water management.

The method for provision of these services will be approved by the responsible engineer.

7.1. Water Supply

The Contractor must adhere to water quality regulations and rules. These Rules describe the following:

a) Water sources for domestic use;

b) Sewage treatment;

c) Ground water;

d) Water for agricultural use;

e) Water for other uses;

f) Schedules depicting standards.

Abstractions from natural, municipal and/or private water resources (e.g. rivers, boreholes and springs) for potable water and construction water shall be approved by the Water Resources Management Authority. The Contractor shall arrange for the necessary approvals / permits from the water authorities.

7.2 Conservation of vegetation and protection of wildlife

i. Except to the extent necessary for establishing the construction site and carrying out the construction works, vegetation shall not be removed, damaged or disturbed. Nor should any unauthorized planting of vegetation take place;

ii. The clearance of the site for construction purposes shall be kept to a minimum. The use of existing cleared or disturbed areas for the Contractor's Camp, stockpiling of materials etc. shall be encouraged;

iii. Areas with dense indigenous vegetation are not to be disturbed unless required for construction purposes, nor shall new access routes be cut through such areas.

iv. Trees should be trimmed rather than removed wherever possible;

v. The use of indigenous plants as firewood is prohibited unless they are obtained from approved sources;

vi. There is a possibility of encountering wildlife during the construction works, these animals should be avoided and not perturbed;

vii. Wildlife poaching or game hunting is forbidden.

7.3 Protection of watercourses

a. The Contractor shall ensure that the footprint of construction activities is minimized at river and stream crossings;

b. Sedimentation from the construction works of perennial rivers and streams must be minimized;

c. No construction materials shall be stockpiled within areas that are at risk of flooding;

d. The Contractor shall ensure that all construction activities at the seasonal river crossings are commenced and completed during the dry seasons;

e. All temporary and permanent fill used adjacent to, or within, the perennial river bed shall be of clean sand or larger particles. Silts and clays shall not be permitted in the fill;

f. Plastic sheeting, sandbags or geo-fabric approved by the RE shall be used to prevent the

migration of fines through the edges of the fill into the river;

g. The Contractor shall not modify the banks or bed of a watercourse other than necessary to complete the specified works. If such unapproved modification occurs, the Contractor shall restore the affected areas to their original profile;

h. The Contractor shall preserve all riparian vegetation;

i. The Contractor shall not pollute the watercourse through any construction activities.

8. *Planning Borrow Pits and Quarries*

Where required, all borrow pits sites shall be clearly indicated on a plan and approved by the RE.

i. The Contractor will be responsible for ensuring that appropriate authorization to use the proposed borrows pits and quarries has been obtained before commencing activities;

ii. Borrow pits and quarries shall be located more than 20 meters from watercourses in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse;

iii. The Contractor shall give 14 days' notice to nearby communities of his intention to begin excavation in the borrow pits or quarries;

iv. The Contractor shall prepare and implement borrow pit plans and borrow pit rehabilitation plans, which would minimize the risk of erosion.

9. *Construction and Operation of New Borrow Pits and Quarries*

a. Topsoil shall be stripped prior to removal of borrow and stockpiled on site. This soil shall be replaced on the disturbed once the operation of the borrow site or quarry is complete;

b. Storm-water and groundwater controls shall be implemented to prevent runoff entering streams and the slumping of soil from hillside above;

c. The use of borrow pits or quarries for material spoil sites may be approved by the RE (and/or with the appropriate consent of the "landowner"). Where this occurs, the materials spoiled in the borrow pit shall be profiled to fit into the surrounding landscape and covered with topsoil.

10. *Blasting*

i. If blasting is required, the Contractor will be responsible for obtaining a current and valid authorization from the Department of Mines and Geology prior to any blasting activity. A copy of this authorization shall be given to the RE;

ii. A qualified and registered blaster by the Department of Mines and Geology shall supervise all blasting and rock-splitting operations at all times;

iii. The Contractor shall ensure that appropriate pre blast monitoring records are in place (i.e. photographic and inspection records of structures in close proximity to the blast area);

iv. The Contractor shall ensure that emergency services are notified, in writing, a minimum of 24 hours prior to any blasting activities commencing on Site;

v. The Contractor shall take necessary precautions to prevent damage to special features and the general environment, which includes the removal of fly-rock. Environmental damage caused by blasting/drilling shall be repaired at the Contractor's expense to the satisfaction of the RE and the relevant authorities;

vi. The Contractor shall ensure that adequate warning is provided to the local communities immediately prior to all blasting. All signals shall also be clearly given;

vii. The Contractor shall use blast mats for cover material during blasting. Topsoil shall not be used as blast cover.

11. *Asphalt, Bitumen and Paving*

The site of the asphalt plant shall be selected and maintained according to the following basic criteria:

a. The plant shall be situated on flat ground;

b. Topsoil shall be removed prior to site establishment and stockpiled for later rehabilitation of the site;

c. Bitumen drums / products shall be stored in an area approved by the RE. This area shall be indicated on the construction camp layout plan. The storage area shall have a smooth impermeable (concrete or thick plastic covered in gravel) floor. The floor shall be bunded and sloped towards a sump to contain any spillages of substances;

d. The area shall be covered to prevent rainwater from contacting the areas containing fuels, oils, bitumen etc. and potentially generating contaminated runoff;

e. The plant shall be secured from trespassers and animals through the provision of fencing and a lockable gate to the satisfaction of the RE;

f. Well-trained staff shall be responsible for plant workings.

g. Within the bitumen plant site, areas shall be demarcated/marked for plant materials, wastewater and contaminated water;

h. An area should be clearly marked for vehicle access;

i. Drums/tanks shall be safely and securely stored;

j. Materials requiring disposal shall be disposed of at an appropriate waste facility.

12. *Cement/Concrete Batching*

i. Where required, a Concrete batching plant shall be located more than 20m from the nearest stream/river channel;
ii. Topsoil shall be removed from the batching plant site and stockpiled;
iii. Concrete shall not be mixed directly on the ground;
iv. The concrete batching works shall be kept neat and clean at all times;
v. Contaminated storm-water and wastewater runoff from the batching area and aggregate stockpiles shall not be permitted to enter streams but shall be led to a pit where the water can soak away;
vi. Unused cement bags are to be stored so as not to be effected by rain or runoff events;
vii. Used bags shall be stored and disposed of in a manner which prevents pollution of the surrounding environment (e.g. via wind-blown dust);
viii. Concrete transportation shall not result in spillage;
ix. Cleaning of equipment and flushing of mixers shall not result in pollution of the surrounding environment;
x. Suitable screening and containment shall be in place to prevent wind-blown contamination associated with any bulk cement silos, loading and batching;
xi. Waste concrete and cement sludge shall be scraped off the site of the batching plant and removed to an approved disposal site;
xii. All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete and disposed at an approved disposal site. Washing the remains into the ground is not acceptable;
xiii. All excess aggregate and sand shall also be removed;
xiv. After closure of the batching plant or any area where concrete was mixed all waste concrete/cement sludge shall be removed together with contaminated soil. The surface shall then be ripped to a depth of 150mm and the topsoil replaced evenly over the site and re-grassed.

13. *Air and dust emissions*

Air emissions from construction machinery, including dust, is regarded as a nuisance when it reduces visibility, soils private property, is aesthetically displeasing or affects palatability of grazing. Dust generated by construction related activities must be minimized.

The Contractor shall be responsible for the control of air emissions and dust arising from his operations and activities.

a. Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications;

b. Asphalt plants and concrete batching plants shall be well sealed and equipped with a dust removal device;

c. Workers shall be trained on dust minimization techniques;

d. The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilized as soon as practically possible;

e. The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds. The RE shall suspend earthworks operations wherever visible dust is affecting properties adjoining the road;

f. Water sprays shall be used on all earthworks areas within 200 meters of human settlement. Water shall be applied whenever dust emissions (from vehicle movements or wind) are visible at the site in the opinion of the RE;

g. Vehicles delivering soil materials shall be covered to reduce spills and windblown dust;

h. Vehicle speeds shall be limited to minimize the generation of dust on site and on diversion and access roads;

i. Any complaints received by the Contractor regarding dust will be recorded and communicated to the RE and ESO.

14. *Disruption of Access to Property*

Disruption of access to property must be kept to a minimum at all times. Where such disruption is unavoidable, the Contractor shall advise the affected parties and the RE at least seven working days in advance of such disruption.

15. *Spoil Sites*

Where the Contractor is required to spoil material, environmentally acceptable spoil sites must be identified and approved by the RE and EO, taking into consideration the following:

i. Preferably to be located on land already cleared wherever possible. Communities shall be involved in the site location to avoid destruction of any ritual site or any other conflict;

ii. The need to be more than 20 meters from watercourses and in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse;

iii. The development and rehabilitation of spoil areas shall include the following activities:

iv. Stripping and stockpiling of topsoil;

v. Removal (to a nominal depth of 500mm) and stockpiling of subsoil;

vi. Placement of spoil material.

vii. Contouring of spoil site to approximate natural topography and drainage and/or reduce erosion impacts on the site;

viii. Placement of excavated subsoil and then topsoil over spoil material;

ix. Contouring and re-vegetation;

x. The Contractor shall ensure that the placement of spoil is done in such a manner to minimize the spread of materials and the impact on surrounding vegetation and that no materials 'creep' into 'no-go' areas.

16. *Noise Control*

a. The Contractor shall keep noise level within acceptable limits and construction activities shall, where possible, be confined to normal working hours in the residential areas;

b. Schools, hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity. Any excessively noisy activity shall be conducted outside of school hours, where approved by the RE;

c. Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE;

d. The Contractor must adhere to Noise Prevention and Control Rules of April 2005.

17. *Storm-water Management and Erosion Control*

The Contractor shall take reasonable measures to control storm water and the erosive effects. During construction the Contractor shall protect areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking measures to prevent the surface water from being concentrated in drainage channels or streams and from scouring slopes, banks or other areas.

Areas affected by construction related activities and/or susceptible to erosion must be monitored regularly for evidence of erosion, these include: Areas stripped of topsoil; Soil stockpiles; Spoil sites; Borrow pits; Sites for bridges and drainage structures. On any areas where the risk of erosion is evident, special measures may be necessary to stabilize the areas and prevent erosion. These may include, but not be limited to:

i. Confining construction activities;

ii. Using cut off drains;

iii. Using mechanical cover or packing structures such as geo-fabric to stabilize steep slopes or hessian, gabions and mattress and retaining walls;

iv. Mulch or chip cover;

v. Constructing anti-erosion berms;

vi. The erosion prevention measures must be implemented to the satisfaction of the RE;

vii. Where erosion does occur on any completed work/working areas, the Contractor shall reinstate such areas and areas damaged by the erosion at his own cost and to the satisfaction of the RE and ESO;

viii. The Contractor shall be liable for any damage to downstream property caused by the diversion of overland storm water flows.

18. *Equipment Maintenance and Storage*

- All vehicles and equipment shall be kept in good working order, are serviced regularly and stored in an area approved by the RE;
- Leaking equipment shall be repaired immediately or removed from the site;
- All washing of equipment shall be undertaken in the workshop or maintenance areas which shall be equipped with suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate/nitrate-type detergents;
- Rivers and streams shall not be used for washing of equipment and vehicles.

19. *Sanitation*

a. The Contractor shall comply with all laws and any by-laws relating to public health and sanitation;

b. All temporary/ portable toilets or pit latrines shall be secured to the ground to the satisfaction of the RE to prevent them from toppling over;

c. The type and exact location of the toilets shall be approved by the RE prior to establishment. The use of septic tanks may only be used after appropriate investigations have been made and the option has been approved by the RE;

d. All toilets shall be maintained by the Contractor in a clean sanitary condition to the satisfaction of the RE;

e. A wash basin with adequate clean water and soap shall be provided alongside each toilet. Staff shall be encouraged to wash their hands after use of the toilet, in order to minimize the spread of possible disease;

f. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from the site to an appropriate location/facility for disposal;

g. The Contractor shall instruct their staff and sub-contractors that they must use toilets provided and not the bush or watercourses.

20. *Solid Waste Management*

The site is to be kept clean, neat and tidy at all times. No burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted. The Contractor must adhere to Environmental Management and Co-ordination (Waste Management) Regulations 2006. The Contractor shall implement measures to minimize waste and develop a waste management plan to include the following:-

i. All personnel shall be instructed to dispose of all waste in a proper manner;

ii. At all places of work the contractor shall provide litter collection facilities;

iii. The final disposal of the site waste shall be done at the location that shall be approved by the RE, after consultation with local administration and local leaders;

iv. The provision of sufficient bins (preferably vermin and weatherproof) at the camp and work sites to store the solid waste produced on a daily basis;

v. Wherever possible, materials used or generated by construction shall be recycled;

vi. Provision for responsible management of any hazardous waste generated during the construction works.

21. *Wastewater and Contaminated Water Management*

a. No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) to adjacent watercourses and/or water bodies shall be permitted;

b. Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and concrete swills;

c. The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or water bodies;

d. Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained and the water table not endangered;

e. Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted;

f. The Contractor shall notify the RE of any pollution incidents on site.

22. *Workshops*

Where practical, all maintenance of equipment and vehicles on Site shall be performed in the workshop.

i. If it is necessary to do maintenance on site, but outside of the workshop area, the Contractor shall obtain the approval of the RE prior to commencing activities;

ii. The Contractor shall ensure that there is no contamination of the soil, vegetation or surface water in his workshop and other plant or emergency maintenance facilities.

The workshop shall be kept tidy at all times and shall have the following as a minimum:

a. A smooth impermeable floor either constructed of concrete or suitable plastic covered with sufficient gravel to protect the plastic from damage;

b. The floor shall be bounded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil);

c. Drip trays shall be used to collect the waste oil and lubricants during servicing and shall also be provided in construction areas for stationary plant (such as compressors);

d. The drip trays shall be inspected and emptied daily;

e. Drip trays shall be closely monitored during wet weather to ensure that they do not overflow.

23. *General Materials Handling, Use and Storage*

i. All materials shall be stored within the Contractor's camp unless otherwise approved by the RE;

ii. Stockpile areas shall be approved by the RE;

iii. All imported fill, soil and/or sand materials shall be free of weeds, litter and contaminants. Sources of imported materials shall be listed and approved by the RE;

iv. The Contractor shall ensure that delivery drivers are informed of all procedures and restrictions (including 'No go' areas) required;

v. Any electrical or petrol driven pumps shall be equipped and positioned so as not to cause any danger of ignition of the stored product;

vi. Collection containers (e.g. drip trays) shall be placed under all dispensing mechanisms for hydrocarbons or hazardous liquid substances to ensure contamination from any leaks is reduced;

vii. Regular checks shall be conducted by the Contractor on the dispensing mechanisms for all above ground storage tanks to ensure faulty equipment is identified and replaced in timely manner;

viii. Only empty and externally clean tanks may be stored on bare ground. All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.

24. *Fuels, Oils, Hazardous Substances and other Liquid Pollutants*

a. Hazardous materials shall not be stored within 2 kilometers of the top water level of public water supply reservoirs;

b. Hazardous materials shall be stored above flood level and at least 20 meters from any watercourse;

c. Areas for the storage of fuel and other flammable materials shall comply with standard fire safety regulations;

d. Chemicals and fuel shall be stored in storage tanks within a secure compound. All chemicals and fuels shall be stored in accordance with manufacturer's instructions;

e. Storage areas or secondary containment shall be constructed of waterproof reinforced concrete or approved equivalent, which is not adversely affected by contact with chemicals captured within them;

f. The minimum volume for secondary containment shall be 110% of the capacity of the largest tank system, plus 10% of the total capacity of all other separate tanks and containers within the bund wall with closed valves for controlled draining during rains;

g. Pipe-work carrying product from the tank to facilities outside the containment shall be provided with secondary containment;

h. Tank equipment such as dispensing hoses, valves, meters, pumps, and gauges shall be located within the containment or provided with own containment;

Security shall be provided to guard against vandalism when the site is unattended. This includes:

i. Fencing of the tank compound with locks or other adequate security controls at the site;

ii. Locks on unattended dispensing hoses;

iii. Appropriate training for the handling and use of fuels and hazardous material is to be provided by the Contractor as necessary. This includes providing spill response and contingency plans;

iv. Extreme care will be taken when transferring chemicals and fuels from storage vessels to equipment and machinery on an impervious sealed area which is curbed and graded to prevent run-off. Chemical and fuel transfer areas shall drain away from the perimeter bund to a containment pit. The design shall provide for the safe and efficient movement of vehicles;

v. All chemicals stored within the bounded areas shall be clearly labelled detailing the nature and quantity of chemicals within individual containers;

vi. Any chemical or fuel spills shall be cleaned up immediately. The spilt liquid and clean-up material shall be removed, treated and transported to an appropriate site licensed for its disposal;

vii. Storm water shall be diverted away from the fuel handling and storage areas. An oil water interceptor shall be provided to treat any rainwater from fuel storage and handling areas.

25. *Health, Safety and Security*

General Health and Safety

a. The Contractor shall comply with all standard and legally required health and safety regulations as promulgated by Occupational Health and Safety Act and the Factories and Other Places of Work Regulations;

b. The Contractor shall provide a standard first aid kit at the site office;

c. The Contractor shall ensure that staff are made aware of the risks of contracting or spreading sexually transmitted diseases, particularly HIV/AIDS and how to prevent or minimize such risks;

d. The Contractor shall be responsible for the protection of the public and public property from any dangers associated with construction activities, and for the safe and easy passage of pedestrians and traffic in areas affected by the construction activities;

e. All works which may pose a hazard to humans and domestic animals are to be protected, fenced, demarcated or cordoned off as instructed by the RE. If appropriate, symbolic warning signs must be erected;

f. Speed limits appropriate to the vehicles driven are to be observed at all times on access and haul roads. Operators and drivers are to ensure that they limit their potential to endanger humans and animals at all times by observing strict safety precautions;

g. No unauthorized firearms are permitted on site;

h. The Contractor shall provide the appropriate Personal Protective Equipment for staff.

26. *HIV/AIDS*

The implementing agency for HIV/AIDS campaign shall monitor activities regularly to assess effectiveness and impact. This should include an initial, interim and final assessment of basic knowledge, attitude and practices taking account of existing data sources and recognizing the limitations due to the short timeframe to show behavior change. The assessment will be supported by qualitative information from focus group discussions.

27. *Fire Prevention and Control*

i. The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of his activities on site;

ii. The Contractor shall ensure that there is basic fire-fighting equipment available on site;

iii. The Contractor shall supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other areas identified by the RE with tested and approved fire-fighting equipment;

iv. Flammable materials should be stored under conditions that will limit the potential for ignition and the spread of fires;

v. 'Hot' work activities shall be restricted to a site approved by the RE;

Smoking shall not be permitted in those areas where there is a fire hazard. These areas shall include:

a. Workshop;

b. Fuel storage areas;

c. Any areas(e.g. park/forest areas) where vegetation or other material is such as to make liable the rapid spread of an initial flame;

The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to:

- Regular fire prevention talks and drills;
- Posting of regular reminders to staff;
- Any fires that occur shall be reported to the RE immediately and then to the relevant authorities;
- In the event of a fire, the Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring the fire under control;
- Costs incurred through fire damage will be the responsibility of the Contractor, should the Contractor's staff be proven responsible for such a fire.

28. *Emergency Procedures*

The Contractor shall submit Method Statements covering the procedures for the main activities which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to:

a. Accidents at the work place;

b. Accidental fires;

c. Accidental leaks and spillages;

d. Vehicle and plant accidents;

Specific to accidental leaks and spillages:

vi. The Contractor shall ensure that his employees are aware of the procedure for dealing with spills and leaks;

vii. The Contractor shall also ensure that the necessary materials and equipment for dealing with the spills and leaks is available on site at all times;

29. *Site Security*

During public consultation, the local community reported that there is insecurity along the project road at night. The Contractor will need to take the following measures:

a. Appropriate fencing, security gates, shelter and/or security guards are to be provided at the Construction Site to ensure the security of all plant, equipment and materials, as well as to secure the safety of site staff;
b. The Contractor must ensure that good relations are maintained with local communities and their leaders to help reduce the risk of vandalism and theft;
c. Site staffs that are found to be involved in incidences of theft or pose other security risks to the local community are to be dismissed and reported to the authorities.

Chance Find Procedures

Introduction

Contracts for civil works involving excavations should normally incorporate procedures for dealing with situations in which buried **physical cultural resources (PCR)** are unexpectedly encountered. The final form of these procedures will depend upon the local regulatory environment, including any chance find procedures already incorporated in legislation dealing with antiquities or archaeology. For REP, chance finds procedures contain the following elements:

1. PCR Definition

In some cases, the chance finds procedure is confined to archaeological finds; more commonly it covers all types of PCR. In the absence of any other definition from the local cultural authorities, the following definition could be used: "movable or immovable objects, sites, structures or groups of structures having archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance."

2. Ownership

The identity of the owner of the artifacts found should be ascertained if at all possible. Depending on the circumstances, the owner could typically be, for example, the state, the government, a religious institution, the land owner, or could be left for later determination by the concerned authorities.

3. Recognition

As noted above, in PCR-sensitive areas, recognition and confirmation of the specific PCR may require the contractor to be accompanied by a specialist. A clause on chance finds should be included in every contractor's specifications.

4. Procedure upon Discovery

4.1 Suspension of Work

If a PCR comes to light during the execution of the works, the contractor shall stop the works. Depending on the magnitude of the PCR, the contractor should check with CDR for advice on whether all works should be stopped, or only the works immediately involved in the discovery, or, in some cases where large buried structures may be expected, all works may be stopped within a specified distance (for example, 50meters) of the discovery. CDR's decision should be informed by a qualified archaeologist.

After stopping work, the contractor must immediately report the discovery to the Resident

Engineer. The contractor may not be entitled to claim compensation for work suspension during this period. The Resident Engineer may be entitled to suspend work and to request from the contractor some excavations at the contractor's expense if he thinks that a discovery was made and not reported.

4.2 Demarcation of the Discovery Site

With the approval of the Resident Engineer, the contractor is then required to temporarily demarcate, and limit access to, the site.

4.3 Non-Suspension of work

The procedure may empower the Resident Engineer to decide whether the PCR can be removed and for the work to continue, for example in cases where the find is one coin.

4.4 Chance Find Report

The contractor should then, at the request of the Resident Engineer, and within a specified time period, make a Chance Find Report, recording:

Date and time of discovery;
Location of the discovery;
Description of the PCR;
Estimated weight and dimensions of the PCR;
Temporary protection implemented.

The Chance Find Report should be submitted to the Resident Engineer, and other concerned parties as agreed with the cultural authority, and in accordance with national legislation. The Resident Engineer, or other party as agreed, is required to inform the cultural authority accordingly.

5. Arrival and Actions of Cultural Authority

The cultural authority undertakes to ensure that a representative will arrive at the discovery site within an agreed time such as 24 hours, and determine the action to be taken. Such actions may include, but not be limited to:
Removal of PCR deemed to be of significance;
Execution of further excavation within a specified distance of the discovery point;
Extension or reduction of the area demarcated by the contractor.

These actions should be taken within a specified period, for example, 7 days. The contractor may or may not be entitled to claim compensation for work suspension during this period. If the cultural authority fails to arrive within the stipulated period (for example, 24 hours), the Resident Engineer may have the authority to extend the period by a further stipulated time. If the cultural authority fails to arrive after the extension period, the Resident Engineer may have the authority to instruct the contractor to remove the PCR or undertake other mitigating measures and resume work.

Such additional works can be charged to the contract. However, the contractor may not be entitled to claim compensation for work suspension during this period.

6. Further Suspension of Work

During this 7-day period, the Cultural authority may be entitled to request the temporary suspension of the work at or in the vicinity of the discovery site for an additional period of up to, for example, 30days.The contractor may, or may not be, entitled to claim compensation for work suspension during this period. However, the contractor will be entitled to establish an agreement with the cultural authority for additional services or resources during this further period under a separate contract with the cultural authority.

Annex 9: Sample Mitigation and Monitoring Plans

The following tables should be seen as a comprehensive sample compilation of mitigation and monitoring measures that can be tailored for specific sub-project contexts. They are intended to be used in the more comprehensive type of ESMPs, that go beyond the scope of "checklist type" ESMPs.

A template for this checklist type ESMP, which is expected to be used for the majority of subprojects, is attached in Annex 10.

Sample MITIGATION and Management PLAN

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Design	• **Site Screening** a) *Screening for UXO / ERW* Confirm that demining activities have been duly carried out and the site declares safe.	If further investigations / demining is required, refer to specialized agencies and delay construction	Nil	nil	Design engineer	NA	Site screening is a key decision point, as it determines much of subsequent impacts; to be specified in design contract / bid documents
	b) *Positive selection criteria* sites within urban areas, low E&S baseline conditions, and small extent / size	Confirm appropriate E&S instrument, likely a checklist ESMP	Nil	nil	Design engineer, environmental specialist	NA	
	c) *Criteria for additional screening* sites within, bordering or sufficiently close to protected areas or sensitive habitats	Carefully screen E&S baseline and site conditions, and determine appropriate E&S instrument, such as specific ESMP or ESIA+ESMP	Nil	nil	Design engineer, environmental specialist	NA	
Design	• **Impact on Livelihoods** screen for any impacts on peoples land, property or livelihoods due to subproject implementation	Refer to RPF to determine appropriate management and mitigation measures	minimal	minimal	Client / Design Engineer	Supervision Engineer	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Construction	• **Site Access and Preparation**						
	d) *Construction of access roads: loss of vegetation, old trees, potential aggravation of erosion, effects of noise and dust on people, livestock and wildlife*	Minimize vegetation clearing, choose access with consideration of sensitive areas (parks, habitats, water-courses, wetlands, known, migration routes) and impose speed limits and restrict working hours to daytime only. Source materials (sand, gravel, rocks) locally to minimize transport	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	Access roads can carry significant induced impacts due to improved access to remote areas. Site selection and routing need to be planned with E&S criteria fully considered.
	e) *Risk of spills, loss of materials and risks to community health and safety due to road accidents*	Impose strict speed limits and code of conduct, e.g. priority for cyclists, pedestrians and animals on access road; introduce punitive action for reckless driving and causing accidents. Train all drivers and machine operators in defensive and considerate driving.	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Construction	**Material transport / storage**						
	f) Cement Dust	cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	To be included into bid documents in the technical specifications for the realization of works
	a) Stones Dust	wet or cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	
	b) Sand and gravel Dust	wet or cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	
	g) Storage of materials at construction site could cause contamination of soil and surface / groundwater by windblown dust, spills during handling, poor waste management practices and accidents	store materials in stable and secure laydown areas, which are protected from rain, storm-water runoff and wind, and clearly marked to avoid ingressions from animals, people and machinery	minimal	minimal	Supervision Engineer / Contractor	Supervision Engineer / Contractor	
Construction	• **Execution of Works**						

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
	h) *Stone quarries* dust, workers health and safety, ecosystem disturbance	Prefer (i) existing stone quarries if close to construction site or (ii) source stones at dam site (foundation construction) or in the future reservoir area	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	Identify win-win situations in terms of economy and environmental performance: sources close to dam and in reservoir area minimize transport, thus saving cost and emissions, and increase reservoir capacity.
	i) *Sand and gravel borrow pits* disturbance of river bed, water quality, ecosystem disturbance	source sand at dam site (foundation construction) or in the future reservoir area	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Construction	• **Construction site**						
	a) Noise disturbance to local communities and workers	limit activities to daylight working hours (not between 8 p.m. and 7 a.m. or as agreed with public and authorities);	minimal	minimal	Construction Contractor	Construction Contractor	all these provisions to be specified in bid documents - Technical Specifications - for realization of works
	b) Air Pollution	water construction site and material storage sites, maintain machinery, avoid idling, no waste burning	minimal	minimal	Construction Contractor	Construction Contractor	
	c) Vibrations resulting from equipment work	limit work activities to daylight working hours (not between 8 p.m. and 7 a.m. or as agreed with public and authorities)	nil	nil	Construction Contractor	Construction Contractor	
	d) Traffic disruption during construction activity	especially at turnoff from main roads install warning signs for slow vehicles	minimal	minimal	Construction Contractor	Construction Contractor	
	g) Water and soil pollution from improper material storage, management and usage	Organize and cover material storage areas; isolate concrete, and other works from watercourse by using scaled formwork; isolate wash down areas of concrete trucks/mixers and other equipment	minimal	minimal	Construction Contractor	Construction Contractor	Impacts on surface water and groundwater can be minimized or entirely avoided by selecting dry season as time window for main construction activities

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
		from watercourse by selecting areas are not draining directly or indirectly into watercourse; treat water to remove solids.					

Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
	h) Water and soil pollution from improper disposal of waste materials	dispose waste material at appropriate location protected from washing out, such as sufficiently deep pit that is covered with impermeable material after construction finishes; take all noxious / toxic substances (e.g. spent engine oil) off site for disposal in licensed facility	minimal	minimal	Construction Contractor	Construction Contractor	
	i) Potential contamination of soil and water from improper maintenance and fueling of equipment	proper handling of lubricants, fuel and solvents by secured storage; ensure proper loading of fuel and maintenance of equipment; collect all waste and dispose to permitted waste recovery facility	minimal	minimal	Construction Contractor	Construction Contractor	
	j) Destruction of crops, trees, meadows, etc.	ensure control of working zone and land acquisition; compensate damage	j) NA	depends on quantity of damage	Construction Contractor; Client	a) Construction Contractor; Client	can be entirely avoided if construction area diligently planned and located
	k)Workers safety	provide workers with safety instructions and	k)minimal	k)minimal	a) Construction Contractor	b) Construction Contractor	

Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
		protective equipment (glasses, masks, helmets, masks, boots, etc); safe organization of bypassing people & livestock					

Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Operation	• **Hydrological Impacts** *a) Modification of flow pattern and sediment transport, e.g. by works in river beds, sheet piling etc.*	Minimize and restricted to immediate construction period; ensure prompt removal of any obstacles to water courses after completion of works	nil	nil	NA	NA	Should be addressed in E&S baseline studies and assessments, especially on hydrology and hydrography, local geology and sediment transport as part of design.
	b) Erosion of river banks, protection works or bridge abutments, resulting in damage and/or failure	Ensure engineering and environmental due diligence, including hydrological and hydraulic studies being conducted and integrated into reconstruction works design for maximum sustainability; conduct regular technical inspections of work sites and provide "hotline" for riparians to report damage and incidents.	nil	nil	Design Engineer	Client	Part of the TA package shall be an operation and maintenance plan with a clearly assigned institutional responsibility for (i) regular inspections; (ii) maintenance and repairs and (iii) liaison with dam users

MONITORING PLAN

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	**Why** *is the parameter to be monitored? (optional)*	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Design	site selection criteria	at all potential subproject locations	by applying environmental and engineering judgment	during the design / site identification phase	to optimize E&S performance of the selected locations	nil	nil	Design Engineer / Client	NA
Construction									
• **Site access and preparation**	sensitive routing of roads, minimization of disturbances to communities, vegetation and wildlife	access route corridors	by applying environmental, social and engineering judgment	during the design / site identification and preparation phases	to optimize E&S performance of the selected locations	nil	minimal	Design Engineer / Client	Supervision Engineer / Client
• **Material supply** *Stone quarry*	ESMP and community approval in place	at stone quarry	document inspection, consultation	before exploitation / works begin	E&S and H&S compliance	minimal	NA	Supervision Engineer / Contractor	Supervision Engineer / Contractor

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	**Why** *is the parameter to be monitored? (optional)*	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Sand and gravel borrow pit	ESMP and community approval in place	sand and gravel borrow pits	document inspection, consultation	before exploitation / works begin	E&S and H&S (health and safety) compliance	minimal	NA	Supervision Engineer / Contractor	Supervision Engineer / Contractor
• **Material transport**									
Cement	truck load covered	job site	visual inspections	unannounced inspections during work	E&S and H&S compliance; traffic and community health and safety requirements; avoid traffic disruptions	NA	nil	NA	Supervision Consultant
Stone	truck load covered or wetted	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
Sand and gravel	truck load covered or wetted	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
Traffic management	hours and routes selected	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
• **Construction works**									
Noise disturbance to human and animal population and workers	noise levels; equivalent noise level, equipment	job site; nearest homes or temporary pastoralist camps	noise meter and analyzer, inspection	once for each machine and equipment when works start, and on any complaint received	E&S and H&S compliance;	NA	minimal	Supervision Consultant	Supervision Consultant

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	**Why** *is the parameter to be monitored? (optional)*	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Air pollution	dust (solid particles) and smoke / fumes	at and near job site	visual inspections	during material delivery and construction	E&S and H&S compliance	NA	minimal	Contractor	Supervision Consultant
Vibrations resulting from equipment work	limited time of activities	job site	supervision (instrument -FFT data collector)	inspections during work and on complain	E&S and H&S compliance	NA	minimal	NA	Supervision Consultant
Traffic disruption during works	signposting and road markings	turnoff from main road, access road corridor	visual inspection	at start of works, monthly follow up	E&S and H&S compliance	NA	minimal	Contractor	Supervision Consultant
Water and soil pollution from material storage, management and usage	water and soil quality (suspended solids, oil and grease)	runoff from site, material storage areas; wash down areas of equipment	visual observation; gravity; basic mobile laboratory equipment (water analyzer)	during material delivery and construction, especially during rain, events	E&S and H&S compliance; pollution prevention; community H&S	NA	minimal	Contractor	Supervision Consultant
Water and soil pollution from improper disposal of waste materials	water and soil quality (suspended solids, oil and grease)	waste collection / depository site		in case of provisional disposal of waste at construction site and on complaint	E&S and H&S compliance; pollution prevention; community H&S	NA	minimal	Contractor	Supervision Consultant

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	**Why** *is the parameter to be monitored? (optional)*	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Potential contamination of soil and water from maintenance and fueling of equipment	water and soil quality (suspended solids, oil and grease); procedures of work	job site; equipment maintenance facilities	visual observation; gravity; basic mobile laboratory equipment (water analyzer);	in case of fueling of equipment at construction site and on complaint	E&S and H&S compliance; pollution prev.; community H&S	NA	NA	Contractor	Supervision Consultant
Destruction of crops, trees, meadows, etc.	land use / encroachment by works	job site, access road	visual inspections, consultations	during material delivery and construction	social impact mitigation	NA	minimal	NA	Supervision Consultant
Workers safety	protective equipment (glasses, masks, helmets, boots, etc); organization of bypassing traffic	job site	visual inspections	unannounced inspections during work, at least weekly	compliance with EHS (environment, health and safety) standards	NA	minimal	Design Engineer (to be incl. in specifications, TOR, contract conditions)	Supervision Consultant
<u>Operation</u>									
Erosion of bridge abutments / foundations, resulting in damage and/or failure	signs of erosion, subrosion, washout, clogging by large stones or trees	bridge abutments, river bank protection	visual inspection by qualifies hydraulic engineer	twice annually during 1st 2 years of operation, the annually	to enter into maintenance and repair routing, for sustainability of works	NA	Inspections will bear minimal cost, budget for maint. & repairs to be created	NA	Client

Annex 10: Template for a "Checklist Type" ESMP

Environmental and Social Management Plan (ESMP) Checklist for Civil Works

General Guidelines for Using the Checklist-ESMP:

For construction projects that have minor and clearly defined environmental and social risks, such as the reconstruction of urban roads, a streamlined approach is applied to mainstream the World Bank's environmental and social safeguards requirements, as well as general good international practice into projects.

This ESMP checklist-type format covers typical key mitigation measures to civil works contracts with small, localized impacts or of a simple, low risk nature. The format provides the key elements of an Environmental and Social Management Plan (ESMP) to meet the World Bank's standards and requirements regarding assessment of, and management for Category B projects under OP 4.01.

An additional purpose of this checklist is to offer practical, concrete and implementable guidance to Contractors and supervising Engineers, in the context of simple civil works contracts. The checklist ESMP should be completed during the final design phase and, either freestanding or in combination with any environmental documentation prepared under *national Lebanese* law and regulations, constitute an integral part of the bidding documents and eventually the works contracts. The bidders should be able to identify specific line items on E&S management in the bidding documents, and understand that they will be held accountable to compliance with the ESMP's provisions during implementation.

The checklist ESMP has the following sections:

Part A includes a descriptive part that characterizes the project, specifies institutional and regulatory aspects, describes technical project content, outlines any urgent 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 B includes a screening checklist of potential environmental and social activities and typologies, which 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 is linked. This in turn contains clearly formulated, actionable environmental and social management and mitigation measures.

Part C represents the actual environmental and social management plan to implement the measures and actions that follow from activities and typologies triggered under Part B. For each triggered activity or typology it contains a list of concrete, practical actionable measures and action that the Contractor needs to implement / consider during the works implementation. These measures can be easily checked, verified and reported by e.g. the supervising Engineer.

Part D contains a simple monitoring plan to enable both the Contractor as well as authorities and the World Bank specialists to monitor due implementation of environmental management and protection measures and detect deviations and shortcomings in a timely manner. It has the same format as required for MPs produced under standard safeguards requirements for Category B projects.

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 implementation of the ESMP should be included as line item in the BoQ (bill of quantities) and priced by the bidders. Part D has been designed intentionally simple to enable monitoring of key parameters with basic means and non-specialist staff.

PART A: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE				
Country	**LEBANON**			
Project title	**ROADS AND EMPLOYMENT PROJECT (REP)**			
Scope of sub-project and activity				
Institutional arrangements (Name and contacts)	WB (Project Team Leader)	Project Management	Local Counterpart and/or Recipient	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
SITE DESCRIPTION				
Name of site				
Describe site location			Attachement 1: Site Map [ ]Y [ ] N	
Who owns the land?				
Description of geographic, physical, biological, geological, hydrographic and socio-economic context				
Locations and distance for material sourcing, especially aggregates, water, stones?				
LEGISLATION				
Identify national & local legislation & permits that apply to project activity				
PUBLIC CONSULTATION				

Identify when / where the public consultation process took place	A portfolio of planned subprojects for the Governorate of [……], City of […….] was disclosed to the public via [medium] and [website] during the period from [DD/MM/YYYY] to [DD/MM/YYYY], and a public hearing organized in [location] on [DD/MM/YYYY]. The minutes of the meetings are attached to this ESMP, and the key relevant concerns raised by the public were the following: (i) [concern 1], (ii) [concern 2] etc.
INSTITUTIONAL CAPACITY BUILDING	
Will there be any capacity building?	[X] N or [ ]Y if Yes, Attachment 2 includes the capacity building program

PART B: SAFEGUARDS SCREENING AND TRIGGERS

ENVIRONMENTAL /SOCIAL SCREENING FOR SAFEGUARDS TRIGGERS			
Will the site activity include/involve any of the following?	**Activity / Typology**	**Status**	**Triggered Actions**
	1. Reconstruction of urban, inter-urban or rural roads	[ ] Yes [ ] No	If "Yes", see Section **A** below
	2. Reconstruction of / impacts on surface drainage system	[ ] Yes [ ] No	If "Yes", see Section **B** below
	3. Activities in Historic districts	[ ] Yes [ ] No	If "Yes", see Section **C** below
	4. Required acquisition of land [38] or temporary / permanent impacts on livelihoods	[ ] Yes [ ] No	If "Yes", see Section **D** below
	5. Handling or presence of hazardous or toxic	[ ] Yes [ ] No	If "Yes", see Section **E** below
	6. Impacts on forests and/or protected areas	[ ] Yes [ ] No	If "Yes", see Section **F** below
	7. Traffic and Pedestrian Safety	[ ] Yes [ ] No	If "Yes", see Section **G** below
	8.		
	9.		

Note: In the course of sub-project screening lease tick all boxes on the anticipated activities that apply to the subproject, then proceed to the next section where the anticipated impacts, and required management and mitigation measures are explained.

[38] 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.

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

PART C: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
0. General Conditions	Notification and Worker Safety	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 (always 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	a. During interior demolition debris-chutes shall be used above the first floor b. During excavation works dust control measures shall be employed, e.g. by spraying and moistening the ground c. Demolition debris, excavated soil and aggregates shall be kept in controlled area and sprayed with water mist to reduce debris dust d. During pneumatic drilling or breaking of pavement and foundations dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site e. The surrounding environment (side walks, roads) shall be kept free of soil and debris to minimize dust f. There will be no open burning of construction / waste material at the site g. All machinery will comply with Polish emission regulations, shall well maintained and serviced and there will be no excessive idling of construction vehicles at sites
	Noise	(a) Construction noise will be limited to restricted times agreed to in the permit (b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible

	Water Quality	(a) 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	(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities. (b) 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. (c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. (e) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except when containing asbestos)
B. Impacts on surface drainage system	Water Quality	(a) Drainage / canalization systems will be reconstructed according to good engineering practice, including appropriate dimensions, sedimentation basins, and connection to treatment facilities as required (b) Storm water drainage systems will be designed and constructed as not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes; including during construction activities (c) There will be procedures in place for prevention of and rapid response to accidental spills of fuels, lubricants and other toxic or noxious substances, and for their recovery and appropriate disposal (d) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies 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.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
C. Historic building(s)	Cultural Heritage	(a) If construction works take place close to a designated historic structure, or are located in a designated historic district, notification shall 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. (b) It shall 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.
D. Acquisition of land	Land Acquisition Plan/Framework	(c) 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 shall be immediately consulted. (d) The approved Resettlement Action Plan / Policy Framework (if required by the sub-project) will be implemented
E. Toxic materials	Asbestos management	(a) If asbestos is located on the project site, it shall be marked clearly as hazardous material (b) When possible the asbestos will be appropriately contained and sealed to minimize exposure (c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust (d) Asbestos will be handled and disposed by skilled & experienced professionals, wearing appropriate PPE is mandatory. (e) If asbestos material is be 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. (f) The removed asbestos will not be reused
	Toxic / hazardous waste management	(a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information (b) The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used
F. Affected forests,	Ecosystem protection	(a) Any recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be

wetlands and/or protected areas		damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. (b) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided (c) Adjacent wetlands and streams shall be protected from site run-off and siltation with appropriate measures (d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
G Traffic and pedestrian safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	(a) In compliance with national regulations the Contractor will insure that the construction site is properly secured and construction related traffic regulated. (b) The site will be clearly visible and the public warned of all potential hazards by signposting and barriers / fencing (c) 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. (d) Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement (e) If required, active traffic management by trained and visible staff at the site for safe passage for the public (f) Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction

PART D: MONITORING PLAN

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity **preparation**	site access traffic management availability of waste disposal facilities hazardous waste inventory (asbestos) construction material quality control (eg. paints / solvents) benefits from short-term jobs created issues of gender conflict issues related to project GRM OHS War refugees/vulnerable or	at the site at the site in site vicinity on site Contractor's store / building yard On site and in vicinity of site	check if design and project planning foresee diligent procedures visual / analytical if in doubt visual / research in toxic materials databases Quantitative & qualitative survey Contractor and Supervising Consultant review of CEMP and GRM	before launch of construction before start of rehabilitation works before approval to use materials Before launch of construction	safety of general public, timely detection of waste disposal bottlenecks public and workplace health and safety Social impact to surrounding affected peoples and labor impacts	marginal, within budget marginal, within budget; (prepare special account for analyses at PMU?) marginal, within budget marginal, within budget; marginal, within budget; marginal, within budget;	Contractor, Engineer

	disadvantaged groups						
During activity **supervision**	dust generation noise emissions waste and wastewater types, quality and volumes surface drainage soundness GRM Compliance with CEMP OHS compliance War refugees/vulnerable or disadvantaged groups	on site and in immediate neighborhood, close to potential impacted residents at discharge points or in storage facilities Desk review and on site inspection	visual consultation of locals visual, analytical if suspicious count of waste transports off site, check flow rates and runoff routes for wastewater Visual and desk review	daily daily daily / continuous daily / continuous Daily/continuously	avoidance of public nuisance avoidance of negative impacts on ground/ surface waters ensuring proper waste management and disposal To control occupational health and safety labor conditions and impacts on surrounding project affected people/communities	marginal, within budget	Contractor, Engineer

Annex 11: Minimum Contents of an ESIA

The EA report should include the following items (not necessarily in the order shown):

a. Executive summary. Concisely discusses significant findings and recommended actions.

b. Policy, legal, and administrative framework. Discusses the policy, legal, and administrative framework within which the EA is carried out. Explains the environmental requirements of any co-financiers. Identifies relevant international environmental agreements to which the country is a party.

c. Project description. Concisely describes the proposed project and its geographic, ecological, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities). Indicates the need for any resettlement plan or indigenous peoples development plan (see also subparagraph (h) (v) below). Normally includes a map showing the project site and the project's area of influence.

d. Baseline data. Assesses the dimensions of the study area and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigatory measures. The section indicates the accuracy, reliability, and sources of the data.

e. Environmental and social impacts. Predicts and assesses the project's likely positive and negative impacts, in quantitative terms to the extent possible. Identifies mitigation measures and any residual negative impacts that cannot be mitigated. Explores opportunities for environmental 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.

f. Analysis of alternatives (optional in a category B project). Systematically compares feasible alternatives to the proposed project site, technology, design, and operation - including the "without project" situation - in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, quantifies the environmental impacts to the extent possible, and attaches economic values where feasible. States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

g. Environmental management plan (EMP). Covers mitigation measures, monitoring, and institutional strengthening; see outline in OP 4.01, Annex C.

h. Appendices

   (i) List of EA report preparers--individuals and organizations.

   (ii) References--written materials, both published and unpublished, used in study preparation.

   (iii) Record of interagency and consultation meetings, including consultations for obtaining the informed views of the affected people and local nongovernmental organizations (NGOs). The record specifies any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs.

   (iv) Tables presenting the relevant data referred to or summarized in the main text.

   (v) List of associated reports (e.g. resettlement plan or indigenous people’s development plan).