REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Consultancy Services For

Roads Routine Maintenance

And Rehabilitation of Remaining Roads

For Lot3 (Nabatieh, Marjayoun, West Bekaa, Rachaya, Hasbaya, Jezzine & Saida Cazas)

CDR Contract No. 20836

Final Environmental & Social Management Plan (ESMP) For Roads Routine Maintenance in Hasbaya Caza

(Stage 1.2.b of Task 1)

August 2022

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ASSOCIATED CONSULTING ENGINEERS

B.P. 11 - 3446 BEIRUT- LEBANON

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ACE	Associate Consulting Engineers
CBD	Convention on Biological Diversity
CDR	Council of Development and Reconstruction
CO	Carbon Monoxide
CoM	Council of Ministers
EHS	Environmental, Health and Safety
ESMP	Environmental and Social Management Plans
GBV	Gender Based Violence
GRM	Grievance Redress Mechanism
IBA	Important Bird Area
ILO	International Labor Organization
LARI	Lebanese Agriculture Research Institute
MoE	Ministry of Environment
MoPWT	Ministry of Public Works and Transportation
NGOs	Nongovernmental Organizations
PIU	Project Implementation Unit
REP	Road and Employment Project
SEA	Sexual Exploitation and Abuse
UNFCCC	United Nations Framework Convention on Climate Change
VAC	Violence Against Children
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization

EXECUTIVE SUMMARY – NON-TECHNICAL SUMMARY

ES1. Introduction

The Council for Development and Reconstruction (CDR) acting as an executing agency on behalf of the Lebanese Council of Ministers (CoM) awarded a contract to Associated Consulting Engineers (ACE), hereinafter the Consultant, to prepare an Environmental and Social Management Plan (ESMP) for roads routine maintenance for primary roads (including International roads/ Highways) in Hasbaya (Lot 3) under Roads and Employment Project (REP) – Road Routine Maintenance & Rehabilitation of Remaining Roads Project. This project is funded by the World Bank (WB).

The project will be implemented over a period of five years and was extended one additional year. The Project's main objectives are to enhance transport connectivity along selected paved road sections, create short-term job opportunities for the Lebanese and Syrian communities, and support farmers engaged in crop and livestock production.

This report represents the Environmental and Social Management Plan (ESMP) for Roads Routine Maintenance activities in Hasbaya Caza (Lot 3) in line with WB safeguard Operational Policies, guidelines and national legislation. Noting that the Project was signed before October 2018, date of effectiveness of the Environmental and Social Framework (ESF). It is worth mentioning that some roads under the REP are already under rehabilitation and that the roads under this ESMP are new roads eligible for maintenance.

ES2. Existing Policies, Legal and Administrative Framework

The governmental public institutions involved in the different stages of implementation of the roads project as well as its different components are CDR, Ministry of Public Works and Transportation (MOPWT), Ministry of Environment (MOE), Ministry of Labor (MOL), Ministry of Interior and Municipalities (MOIM), and the Ministry of Culture (MOC).
The various laws and regulations that road projects must abide by:

- Labor Law/1946: The Lebanese Labor Code
- Law No. 335/2001: Pursuant to the International Labor Organization ILO Convention No 128
- Law No. 400/2002: Pursuant to ILO Convention No 138
- Decree 8987/2012 Prohibition of employment of minors under the age of 18 in work that may harm their health, safety or morals
- Decree 9129/2022 - Cost of living allowance for employees and workers
- Decision 29/1/2018 - Businesses, professions, trades, and jobs that should be restricted to Lebanese only
- Decree 2761/1933 on The prohibition of wastewater discharge into water streams
- Decree 8735/1974 on the Conservation of Public Hygiene
- Law 558/1996 - Protection of forests
- MoE Decision 52/1/1996 -Requirements to protect air, water, and soil pollution
- MoE Decision 16/1/2022 - Emissions Limits Values for Air Emissions
- Law 444/2002 - Framework Law for Environmental Protection
- Decree 8803/2002 and its amendments - Organizes the activity of quarries and crushers, licensing procedures, as well as the operation, management
- Law 77/2018 - Water Law and rehabilitation of quarries.
- Law 78/2018 - Air Quality Law

- Law 80/2018 - Integrated Solid Waste Management
- Decree 11802/2008 - Occupational prevention, safety, and health in all enterprises subject to the Code of Labor
- Law 166/1933 - Antiquity Law amended by law 37/2008
- Decree-Law 118/1977 - Municipal Act
- Law 37/2008 - Cultural Policy Law
- Law 243/2012 - New Traffic Law
- Legislative Decree 340/1943 - Penal Code
- Law 58/1991 - Expropriation Law
- Law 53/2017 - Amendment of Penal Code

The World Bank Policies and Procedures: Compliance with OP/BP 4.01 on Environmental Assessment and OP/BP 4.12 on Involuntary Resettlement. According to OP/BP 4.01, a public consultation with project-affected people and local nongovernmental organizations (NGOs) must be conducted for all projects under Category A and Category B.

The WB Group (WBG) Environmental, Health and Safety (EHS) Guidelines are mandatory and need to be adopted throughout the project duration.

In addition, some international conventions and treaties are relevant to the project and are as follows: The United Nations Framework Convention on Climate Change (UNFCC), Convention on Biological Diversity (CBD), Convention 120 concerning Hygiene in Commerce and Offices, Convention 136 concerning Protection against Hazards of Poisoning Arising from Benzene, and Convention 139 concerning Prevention and Control of Occupational Hazards caused by Carcinogenic Substances and Agents.

ES3. Description of the Proposed Project

The routine maintenance works of this project will be undertaken to roads located in the Caza of Hasbaya of the Nabatieh Governorate. The total number of the proposed roads to be maintained under this project will be a representative 25% of the total Primary Roads (including International roads/ Highways) in the Caza with an estimated total length of 90,000 m of primary roads in Lot 3.

The routine maintenance is targeting in the first place the primary roads, including International roads ranging from one lane in each direction with low Traffic Volume to multiple lanes in each direction with high traffic density known as Highways, within the Caza of Hasbaya and the secondary roads where and when the funds permit. The total primary roads lengths as per i-RAP road classification in the Caza of Hasbaya is 25 Km.

One of the road selection criteria is that the selected road should have a good condition taking into consideration that roads or section of the road that needs rehabilitation or reconstruction should be excluded.

The required maintenance activities for the proposed project will cover Incidental repair works, pavement repair works, concrete repair works, and installation of traffic control devices.

ES4. Baseline Environmental and Social Conditions

Topography, Geology and Hydrogeology

The Caza of Hasbaya is located in the Governorate of Nabatieh, about 114 km southeast of Beirut. The Caza is surrounded by West Bekaa from the North-West, Marjayoun from the South-West and Rachaya from the North-East. The elevation of Hasbaya ranges between 502 m and 2,142 m above sea level. The main geological formation within the study belong to the following: Chouf Sandstone (C1), Abey Formation (C2) of the Lower Aptian age, Albian (C3), Sannine Limestone, of Cenemonain age unit (C4); Dolomitic Limestone (C4a), Bluish marl and shale (C4b), Limestone and dolomitic limestone (C4c), White marl and marl-limestones (C6), Pleistocene (Q)-(qta, qd, qcpb, qaa), Eocene (E), Pliocene (P), Kserouan Limestone (J4)-Bhannes Volcanics (J5)-Bikfaya Limestone (J6)-Salima Limestone (J7), and ncg.

The Caza of Hasbaya hosts the Hasbani Spring (Nabaa El Hasbani) near a secondary road and the Hasbani-Wazzani River crossing two secondary roads. The Hasbani–Wazzani River is the northern primary watercourse of the Jordan River. The Hasbani-Wazzani River is fed mainly from snowmelt in Jabal El-Sheikh. The Caza also has other springs including Chebaa next to two secondary roads, Sraid and Nabaa El Wazzani at a distance from a secondary road and Nabaa El Qerche at a secondary road.

Climate and Meteorology

The results of Hasbaya weather data conditions are used to describe the climate of the Caza. The lowest average temperature is 4°C registered in January, while July and August register the highest average temperatures of 31°C. In Hasbaya, most rain events fall in the winter during the month of January. However, the driest months are July and August, with 0 mm of rain

Additional data on climate in the area was obtained from the Lebanese Agriculture Research Institute (LARI) from its station in the village of Habsaiya located at the altitude 750 meters a.s.l. This data represents the average temperatures and average precipitation of the year 2019. As for the wind data, wind speed and direction data were also obtained from LARI's station in Hasbaya at the altitude 730 meters.

Air Quality and Noise

In 2018, a study used the National Air Quality Monitoring Network (AQMN) data of 2014, as well as data from a long-term monitoring campaign, to assess an air quality modelling system. The study simulated air quality over Lebanon and Greater Beirut for key gas pollutants including Nitrogen Dioxide (NO2) and Particulate Matter (PM). At the time of the study, the AQMN that was installed and operated by the MoE consisted of five stations, four of which were used in the study, including two urban stations in Beirut. The long-term monitoring campaign was conducted simultaneously by the University of Saint Joseph at an urban site within Beirut City, and at a suburban location outside Beirut. The modeled annual concentration map showed that NO_2 annual concentration at Hasbaya is around 10 µg/m^3 whereas the annual PM_{10} is around 36 µg/m^3.

Land Use/Land Cover

In Hasbaya Caza, agricultural activities are found in different villages as the Caza is rich in arable land. Olive is considered one of the main agricultural crops. Other agricultural crops include fruit trees and vines. Moreover, grains are planted on tin higher non-irrigated basin of the Hasbani River, while the irrigated part of the basin is mostly planted with different kinds of vegetables and citrus fruits. Some residents in the Caza of Hasbaya breed livestock such as cows, chicken and goats. In addition, the Caza has several residential areas which are densely populated, such as the villages of Meimas and Hasbaya.

Biological Environment and Ecologically Sensitive Areas

Flora: Aleppo pines cover an area of 400-500 ha in the southern part of the country in the Cazas of Marjayoun and Hasbaya. As for the floral species, and in reference to the report 'Setting Conservation priorities for Lebanese Flora - Identification of important plant areas', the endemic plant species that was identified in different locations in the South is Centaurea heterocarpa Boiss. & Gaill.

Fauna: The Governorate of Nabatiyeh, of which Hasbaya Caza is part of, hosts an Important Bird Area (IBA) Ebel Es Saqi that is not close to any of the proposed roads eligible for maintenance. In this IBA site, different bird species can be observed such as the Common Cranes, White Storks, Pallid Harrier, European Honey-buzzard, Egyptian Vulture, Black-headed Bunting and Masked Shrike. Moreover, the Ebel Es Saqi is aHima, and is divided into six land use zones of a pine forest, scrubland, Hasbani River Ecotone, Hasbani River, crop fields and olive groves. Moreover, the non-avian fauna of interest are bats, hyrax, wild cat, fox, jackal, river otter, wild boar, freshwater fish, terrestrial turtles, chameleon and lizards, three species of amphibians, and scorpions.

Hasbaya hosts the spring and basin of the Hasbani River which has enabled the Caza to have a very rich natural landscape and fertile lands. The Caza also hosts the AlHibariya Village which is near a secondary road, which was declared a touristic site by the MOT in Lebanon in 2004. As mentioned before, The Governorate of Nabatiyeh, which Hasbaya Caza is part of, hosts an IBA (Ebel Es Saqi Site). This IBA is found between Marjayoun and Hasbaya Caza to the west of Hasbani-Wazzani River.

Demographic Profile

The Caza of Hasbaya has around 330,000 inhabitants (including Syrian refugees). The total number of Syrian Refugees in the different villages of the Hasbaya Caza is around 3,989. The Governorate of Nabatieh hosts 52 informal tented settlements for Syrian Refugees. Only few of these settlements are found in the Hasbaya Caza near a secondary road. Some of the Syrian refugees reside in apartments in Hasbaya Caza. Moreover, the unemployment rate in Hasbaya Caza is estimated at 10.5%.

Economic Activities and Infrastructure

Agriculture is the main economic activity in most villages of the Hasbaya Caza. Olives constitute the most important crop. Cultivation of fruit trees, such as apples, is also present. Furthermore, grains are planted in the higher non-irrigated basin of the Hasbani River, while the irrigated part of the basin is mostly planted with different kinds of vegetables and citrus fruits. The main agro-food product in the Caza of Hasbaya is olive oil. There are also several craft and trade activities in the Caza, mainly in painting, aluminum, carpeting, concrete carpeting, stone builders, and in the construction industry (sanitary, electricity, painting, tiling etc.). Another major source of income for border villages is revenue from smuggling, mainly of goods into Syria across the mountainous borders of Chebaa.

The main source of drinking water in Hasbaya is the non-piped water supply with 53.1% connectivity lower than the connectivity at the national level which is 76.9%. As for the public electricity network, almost all households in Hasbaya Caza are connected to the public network whereas 87.1% of households rely on a private electricity source or own a private generator

Education

There is one public primary school, one public elementary school, and public vocational school in Hasbaya. Additionally, there are 3 private primaries, and elementary and vocational schools distributed within the Caza. However, none of these schools were identified near the proposed primary and secondary roads. In Hasbaya Caza, the illiteracy rate was reported to be 9.2%. This rate was higher for women with an illiteracy rate of 12.4% compared to men which is 5.9%.

Health Services

The health facilities consist of one public hospital Hasbaya Governmental Hospital which is located on a secondary road and a public clinic which is part of the Ministry of Social Affairs. Additionally, there are 3 functioning clinics in the Hasbaya village.

Cultural Heritage

The Caza of Hasbaya hosts several historical, cultural, and religious sites, such as the historical monument and natural landscape Al Hibariya Village near a secondary road. There are several cultural sites in the Caza, including: Al Hasbani Cascade located near a secondary road, Al Hasbani Bridge located close to a secondary road, Souk El Khan along a secondary road, Old olive press and the Hasbaya Ancient Mosque along a secondary road, Khalwat al Bayyada at a distance from a secondary road, and The Chehabi Citadel located on a secondary road

Summary of Baseline

The main sensitive receptors within the Hasbaya Caza include Hasbani Spring close to a secondary road and the Hasbani-Wazzani River that crosses two secondary roads, and several springs distributed at different elevations within the Caza including Chebaa close to two secondary roads, Sraid and El Wazzani spring at a distance from a secondary road, Nabaa El Qerche located on a secondary road. Ebel Es Saqi IBA and Hima are also found between Marjayoun and Hasbaya Caza to the west of Hasbani-Wazzani River, but it is not close to any of the proposed roads eligible for maintenance. Moreover, there are several archaeological sites that are identified in the Caza.

ES5. Summary of Potential Environmental and Social Impacts during Maintenance activities

Summary of Impacts during Maintenance activities

Receptor	Impact Description	Rating	Mitigation Measure
Environmental			
Air, nearby communities and workers	Air pollution from emissions of machinery, trucks or open burning activities Potential Impact on: Al Hibariya village located near a secondary road Hasbaya Governmental Hospital on a secondary road Al Hasbani Cascade 215m away from a secondary road AlHasbani Bridge 30m away from a secondary road Souk ElKhan on a secondary road Old Olive press along a secondary road The Hasbaya Ancient Mosque along a secondary road The Chehabi Citadel on a secondary road	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Atmospheric Emissions and Dust Management Provisions** Water the ground when extremely windy Mix material in an enclosed space Cover material when transporting Prepare and abide by Emergency Preparedness and Response Plan **Specific Measures Near Sensitive Receptors** Speed limit for project vehicles and machinery within working areas shall not exceed 20 Km/h Ensure optimal traffic routes. Use wet suppression in the dry season, where unpaved roads, the working strip, raw material stockpiles are located <200 m from settlements

Receptor	Impact Description	Rating	Mitigation Measure
	Near densely populated urban areas on secondary and primary roads		
Air, nearby communities	Dust pollution from maintenance and excavation activities Potential Impact on: Al Hibariya village located near a secondary road Hasbaya Governmental Hospital on a secondary road Al Hasbani Cascade 215m away from a secondary road AlHasbani Bridge 30m away from a secondary road Souk ElKhan on a secondary road Old Olive press along a secondary road The Hasbaya Ancient Mosque along a secondary road The Chehabi Citadel on a secondary road Near densely populated urban areas on secondary and primary roads	N	
Nearby communities and workers	Noise pollution a result of transportation or delivery of raw materials, trucks movement, concrete mixing, drilling, construction and operation of heavy vehicle movement such as excavators Potential Impact on: Al Hibariya village located near a secondary road Hasbaya Governmental Hospital on a secondary road Al Hasbani Cascade 215m away from a secondary road AlHasbani Bridge 30m away from a secondary road Souk ElKhan on a secondary road Old Olive press along a secondary road The Hasbaya Ancient Mosque along a secondary road The Chehabi Citadel on a secondary road Near densely populated urban areas on secondary and primary roads	N	Maintenance of vehicles and machinery Excavation and any other noisy activity only to be conducted during working hours In the case where it is absolutely necessary to conduct some activities outside the normal working hours (i.e. at night), prior approval of the concerned municipality and CDR will be obtained Set traffic speed limits **Specific Measures Near Sensitive Receptors** Verify drivers' behavior with respect to driving speed Plan vehicle routes to avoid settlements where possible
Biodiversity and sensitive habitats	Disturbance of nearby areas and animal escape through noise and vibrations	N	

Receptor	Impact Description	Rating	Mitigation Measure
Water resources, soil, nearby communities	Contamination of surface water and pollution of ground water from improper disposal of wastewater from workers and of wash water coming from cleaning of machines and equipment Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from asecondary road, and 440m away from another secondary road Nabaa El Qershe on a secondary road	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Effluent Management Provisions** **Rainwater run-off Management Provisions** Prepare and abide by Emergency Preparedness and Response Plan **Specific Measures Near Sensitive Receptors** On-site concrete pouring shall be done in a way to avoid leaching to nearby water bodies. Onsite mixing of concrete shall be performed at least 40 meters away from nearby water bodies Prohibit the disposal of excess concrete mix into the environment or near water bodies
Water resources, soil, nearby communities	Water pollution due to accidental spill of oils and chemicals from trucks and from transportation of chemicals and oils Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from secondary road, and 440m away from another secondary road Nabaa El Qershe on a secondary road	N	Prepare and abide by a **Spill Prevention and Management Plan** under **Pollution Prevention Plan** Minimize soil exposure time Minimize the use of chemicals Regular maintenance of vehicles Prepare and abide by **Waste Management Plan** and **Hazardous Materials Management Plan** Prepare and abide by **Emergency Preparedness and Response Plan** **Specific Measures Near Sensitive Receptors** Fuel, oil or hazardous materials required to be temporarily stored onsite shall be stored within secondary containment located further than 100m from a watercourse or water body Fuel and hazardous chemical storage areas shall not be allowed within 30m of a minor watercourse, within 100m of a major watercourse, or where there is the potential for spilled fuel to enter groundwater Keep the area free of litter and garbage and prevent random disposal of waste Specific locations shall be designated for consuming food and snacks away from sensitive receptors.
Water resources	Improper disposal of cut volume may cause contamination of water bodies in rainy weather Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from a secondary road, and 440m away from anothersecondary road Nabaa El Qershe on a secondary road	N	
Water resources, soil, subsoil and land	Contamination of soil and surface water bodies from the improper disposal of solid waste generated from workers and the used materials, construction waste from excavation and drilling activities Potential Impact on:	N	Prepare and abide by **Waste Management Plan** Reuse or recycle the generated waste whenever possible Prepare and abide by Emergency Preparedness and Response Plan **Specific Measures Near Sensitive Receptors**

Receptor	Impact Description	Rating	Mitigation Measure
	Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from a secondary road, and 440m away from another secondary road Nabaa El Qershe on a secondary road		Waste bins shall be located at a distance of over 100 m from any natural sensitive area or water bodies and over 500 m from any socioeconomic sensitive area
Energy resources	High consumption rates of electricity, fossil fuel, etc. contributing to overconsumption and depletion of fuel	N	Maintenance of the generators and trucks Light in the site offices shut down during the night Construction workers must be trained and provided with awareness sheets on efficient energy use Machinery and equipment must be turned off when not in use
Water resources	High consumption rates of water for construction related activities	N	Use water in the most efficient way and reduce wastage Regular site inspection to detect water leakages Whenever possible, use dry-cleaning instead wet cleaning Training and awareness should be raised to workers concerning water usage best practices and water conservation Proper disposal of construction waste
Water resources, soil, nearby communities	Reduction in overall ground and surface water quality due to improper disposal of construction waste	N	
Water resources, soil, subsoil and land	Depletion of natural resources due to the unsustainable extraction of borrowing material (sand, aggregates, …)	N	Ensure that the borrow material are extracted from legal sites Avoid agricultural lands to extract borrowing material
Biodiversity and sensitive habitats	Potential damage of existing flora	N	Prepare and abide by **Pollution Prevention Plan** In case of any tree removal, ensure that the contractor will get a permit from the MoA
Social			
Local workers, socio-economic activities	Creation of job opportunities for local communities	P	Workers are paid their wages in full and on time
Nearby communities, socio-economic activities	Local garages will benefit from the equipment oil maintenance and residents will benefit from the rent fees of the offices and the equipment parking area.	P	
Shop owners/renters	Small snack shops and coffee stations are expected to benefit from workers buying food and drinks	P	
Foreign Workers	Temporary potential Labor Influx	N	Priority hiring to qualified local community GRM for local communities (public notice including GRM to be posted at relevant municipalities and on project sign boards)

Receptor	Impact Description	Rating	Mitigation Measure
Shop owners/renters	Economic Activities and its effect on the livelihood of the shop owners	N	Install overpass structures from the road to the shops Maintain a passing corridor within the alignment to grant access to nearby properties Ensure that access to small snack and coffee stations is not blocked by installing wooden boards where necessary Inform the shops' owners ahead of time about maintenance date and coordinate with relevant municipalities Regularly inform road users and local communities in relation to changed traffic conditions or access Proper installation of sign boards in culturally appropriate languages that are clear and understandable to the public Timely completion of the maintenance activities Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards) Prepare and abide by Traffic Management Plan (TMP).
Foreign workers influx	Discrimination from the local community against the potential influx of foreign workers	N	Prevent discrimination at the workplace Conduct awareness campaigns for the local community regarding foreign workers influx Inform the local community that worker will sign code of conduct before starting the work GRM for local communities and all relevant stakeholders
Locals and foreign, skilled and unskilled)	Possible unequal wage benefits between local and foreign workers	N	Ensure that all workers (locals and foreign, skilled and unskilled) shall be compensated and are contracted equally as per the scale of market price rates, have equal contractual benefits and working conditions, and have access to internal GRM
Local and foreign children	Possible recruitment of children who are under the legal age as workers on the site, especially in the case of the day laborers	2N	Daily registrations of workers and verification of their age to prevent child labor Abide by the National Labor Law Ensure the contractor is aware of the penalties that Labor Law imposes in the case of child labor Oblige the contractor to strictly abide by the Labor Law through the CDR tender documents that should include prohibition of child labor
Nearby communities, socio-economic activities	Disruption of local community to access services due to maintenance activities and temporal road closures	N	Prepare and abide by **Traffic Management Plan** Traffic shall be secured via alternative routes to reach relevant destinations in case the works imply the temporary closure of this road Inform the local community about the location of detours, road blockages or diversions through public announcements and proper diversion signage

Receptor	Impact Description	Rating	Mitigation Measure
			Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Existing infrastructure and nearby communities	Damage of existing infrastructure	N	Regular coordination with relevant municipalities Conducting trial pits Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Nearby communities	Potential occurrence of gender-based violence and sexual exploitation and abuse incidents and all forms of GBV incidents	N	Draft Codes of Conduct and the guidelines for a GBV and VAC Action Plan Conduct training sessions for workers on Sexual Exploitation and Abuse and/or Sexual Harassment All workers should understand, and sign codes of conduct written in their native language Respond to the reported incidents of sexual abuse exploitation as a matter of priority Regular training on gender-based aspects, internal and external GRM that includes an anonymous channel for protection of complainants' identity and confidentiality Availability of a GRM with multiple channels to initiate a GBV complaint, which ensures confidential reporting with safe and ethical documenting of GBV cases, including Sexual Exploitation and Abuse and Sexual Harassment GRM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways Ensure that there is a survivor centric approach for SEA/SH complaints and trained personnel handling these calls
Nearby communities	Slight increase in traffic due to the transport of construction materials or due to the material that may fall Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road	N	Prepare and abide by **Traffic Management Plan** Ensure traffic is not blocked during transportation Inform residents and place signs near the working areas in culturally appropriate languages and written in clear and understandable manner Ensure communities have access to GRM Cover transported material Abide by traffic regulations Operate well maintained vehicles
Nearby communities	Traffic congestion in the town due to temporal road closure Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road	N	
Nearby communities, socio-economic activities	Material falling from vehicles during transport may cause traffic accidents or congestion Potential Impact on:	N	

Receptor	Impact Description	Rating	Mitigation Measure
	Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road		
Health and Safety			
Workers	Accident and injuries to workers and public because of maintenance activities	2N	Develop a site-specific **Public Health and Safety Plan and Occupational Health and Safety**
Nearby communities	Dust generation and noise may cause health related problems for workers and disturbance to residents Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road	N	

ES6. Environmental and Social Management and Monitoring Plans

Continuous monitoring during the implementation of the maintenance activities will be required to ensure the effectiveness of the proposed mitigation measures. Monitoring shall include:

- Observe dust dispersion and measure total suspended particles, PM10, PM 2.5, SOx, NOx and CO when a significant amount of air pollutants are generated
- Check for leakages in the connections between the porta cabin toilets and the existing network or polyethylene tank
- Check the discharge endpoint of the pumped wastewater from the polyethylene tank
- Ensure an active solid waste management plan
- Ensure active spill prevention and management plan
- Inspect the quantities and types of the used fuel and oils
- Inspect water quantities
- Monitor the different drilling and construction activities
- Ensure active spill and accident prevention plan
- Check the infrastructure locations and that excavation works do not interfere with it
- Ensure Site Observation
- Check traffic conditions during transportation of materials
- Ensure traffic is not blocked
- Ensure traffic is relocated properly
- Ensure all safety precautions are abided by
- Ensure the proportion of Lebanese vs Syrian workers
- Check Worker's age
- Check GRM log
- Ensure that all workers are committed to prevent and report sexual abuse and exploitation incidents
- Ensure signs are in place before works begin
- Ensure that all workers are wearing their PPEs

- Record injuries and accidents within the workers
- Ensure the installation of pedestrian and vehicular passages near residential areas
- Ensure road diversion and construction attention signs are in place before works begin
- Record injuries and accidents with passers-by
- Ensure the development of a site-specific Occupational and Public Health and Safety Plan, and that the best practices are applied

ES7. Consultation, Disclosure and GRM

The purpose of conducting public consultation is to inform the stakeholders and the local NGOs about the proposed project and the routine maintenance activities that will be executed in Hasbaya Caza and to take into account their concerns and feedback. Due to the Covid-19 situation in Lebanon at the moment and high level of community transmission, public consultation was held virtually on Tuesday, 22 February 2022 using Zoom Application. In addition to the unions and municipalities, local and international NGOs were invited to the public hearing but did not attend the session. A total of 6 participants attended the session including one woman. The proceedings which describe in detail the raised concerns and complaints by the participants and how all have been addressed are presented in this ESMP.

In addition, a formal grievance readiness mechanism (GRM) will be implemented during maintenance activities. The purpose of a GRM is to ensure that all feedback and complaints received from stakeholders, customers, employees, contractor staff and the public in general are documented, considered and addressed in an acceptable and timely manner. It is important to note that this mechanism will be shared with the participants and two mechanisms are used for filing a grievance, one for the surrounding communities and one for the workers. Moreover, GRM will be disseminated to the affected municipalities prior to roads routine maintenance works. The GRM will also be responsible for tracking and resolving worker grievances and maintain records about grievances/complaints received, recommendations and resolutions made and notice of resolution of grievance to the complainant. In addition, the GM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways. The online GRM form that is designed for the REP at the CDR level can be used in the meantime.

1. INTRODUCTION

1.1 Project Background

The Council for Development and Reconstruction (CDR) acting as an executing agency on behalf of the Lebanese Council of Ministers (CoM) awarded a contract to Associated Consulting Engineers (ACE), hereinafter the Consultant, to prepare an Environmental and Social Management Plan (ESMP) for roads routine maintenance for primary roads (including International Roads/ Highways) in Hasbaya (Lot 3) under Roads and Employment Project (REP) – Road Routine Maintenance & Rehabilitation of Remaining Roads Project. This project is funded by the World Bank (WB). *See more about the Project in Section 3.*

The Roads and Employment Project covers classified roads[1] in 25 Cazas[2] throughout Lebanon with an expected total length of 835 km and grouped in six (6) lots. The project will be implemented over a period of five years and was extended one additional year. The Project's main objectives are to enhance the transport connectivity along selected paved road sections, to create short-term job opportunities for the Lebanese and Syrian communities and to support farmers engaged in crop and livestock production.

This report represents the Environmental and Social Management Plan (ESMP) for Roads Routine Maintenance activities in Hasbaya Caza (Lot 3) in line with WB safeguard Operational Policies, guidelines and national legislation. Noting that the Project was signed before October 2018, date of effectiveness of the Environmental and Social Framework (ESF). It is worth mentioning that some roads under the REP are already under rehabilitation and that the roads under this ESMP are new roads eligible for maintenance.

1.2 Project Rationale

Lebanon has a total of around 21,705 km of roads including international, primary and secondary roads (World Bank, 2017) along with a highway network linking the country with Syria (WFP, 2016). Despite this large road network coverage, a significant percentage of these roads is in poor condition. This situation hinders local and economic development mainly in rural and lagging regions, where the condition of the main network is worse than the national average. Moreover, this state has been aggravated by the influx of Syrian refugees which has significantly increased traffic and the utilization of the road network (CDR, 2018). As such, the proposed project aims to improve the efficiency of road sector expenditures through the prioritization of road works and the improvement of road asset management techniques (CDR, 2018).

The objectives of Component 1 of this assignment, which is Roads Rehabilitation and Maintenance are to (1) Carry out a program of activities to rehabilitate, upgrade and maintain selected roads, including road safety and spot improvements ("Sub-projects") and (2) Provide technical assistance for the design, procurement and supervision of said Sub-projects and for preparation of Safeguards Instruments for the Project. This ESMP will only cover the planned routine maintenance works for classified primary roads (including International roads/ Highways) in Hasbaya Caza.

[1]Classified roads are based on the official Ministry of Public Works road classification which classifies the roads in Lebanon as primary, secondary or tertiary.

[2]Lebanon is divided administratively into three levels: Governorates (محافظات), cazas or districts (أقضية), and municipalities (بلديات). There are eight governorates, 26 districts, and 1,029 municipalities in the country (as of the 2016 municipal elections).

1.3 Report Objectives

This ESMP has the following objectives:

- Describe all activities of the project;
- Identify relevant environmental and social national, international and WB policies and regulations;
- Conduct public consultation to identify public concerns regarding the project and to feed into project design to the extent possible;
- Describe baseline environmental and socio-economic conditions within the study area;
- Identify the significant positive and negative environmental and social impacts associated with the implementation of the proposed project;
- Propose mitigation / enhancement measures for the identified impact whenever possible;
- Facilitate informed decision making, including setting the environmental terms and conditions for implementing the proposed project;
- Develop a plan to monitor the identified impacts and their associated mitigation measures;
- Develop an institutional setup along with capacity building requirements.
- Develop a Grievance Redress Mechanism (GRM) for the Project.

1.4 Methodology

This ESMP of the Road Routine Maintenance & Rehabilitation of Remaining Roads Project in Hasbaya Caza (Lot 3) was prepared to cover Roads Routine Maintenance of Component 1 "Roads Rehabilitation and Maintenance" during maintenance and to assess the likely environmental and social consequences of these activities and identify mitigation/enhancement measures. As such, the task was initiated by conducting literature review in order to define the current environmental and social conditions, along with relevant local and WB legislations, guidelines, and standards. In addition, the environmental team communicated closely with the technical team in order to obtain the necessary information the proposed maintenance activities, thus describing the proposed project in a thorough manner. In terms of the assessment, negative and positive impacts were identified and mitigation measures were proposed to address the negative ones. As such, an ESMP was developed and included a monitoring plan, which is needed to ensure compliance of the project with environmental and social conditions and regulations.

Based on the current institutional setup of the Roads and Employment Project, the institutional setup and the requirements for capacity development was described to ensure that project implementers have sufficient technical and human resources available to effectively undertake the environmental and social management and monitoring tasks. As for the participation of the public and concerned entities, this was done through conducting public consultation to which stakeholders and local community were invited to participate. Consultation was held on February 22, 2022 virtually and results are included in this report.

2. POLICY, LEGAL & ADMINISTRATIVE FRAMEWORK

2.1 National Environmental and Social Legal Framework

The maintenance works of roads involve a variety of activities that need to abide by national legislations. Table 2-1 describes a legal framework governing the routine maintenance activities for Hasbaya Caza that is part of Lot 4.

Table 2-1: National Legal Framework related to Project

Law / Decree / Decision	Relevant Provisions
Labor	
Labor Law/1946 - The Lebanese Labor Code	The Labor Law covers the industrial accident prevention and compensation. It regulates the minimum wage, the minimum age of employment based on their ages and the workplaces, resting periods and vacations for adolescent workers. It also sets the working hours, and the penal code regulation of strikes and lock out in essential employments
Law No. 335/2001 - Pursuant to International Labor Organization (ILO) Convention No 128	This ratified convention addresses the minimum age of employment
Law No. 400/2002 - Pursuant to the ILO Convention No 138	Elimination of the worst form of child labor
Decree 8987/2012 - Prohibition of employment of minors under the age of 18 in work that may harm their health, safety or morals	This Decree restricts the employment of minors under the age of 18 in activities and works that can be harmful to their health, morals and that can limit their education
Decree 9129/2022 - Cost of living allowance for employees and workers	This Decree sets the minimum wage of the cost of living allowance for employees and workers subject to the Labor Law
Decision 29/1/2018 - Businesses, professions, trades, and jobs that should be restricted to Lebanese only	Restricts significant number of jobs to Lebanese only and allows Syrians to occupy jobs that are not restricted to Lebanese especially in the construction sector
Environment	
Decree 2761/1933 - The prohibition of wastewater discharge into water streams	States the characteristics of channels and reservoirs where wastewater is discharged. In addition to the prohibition of its discharged into natural environment
Decree 8735/1974 - Conservation of Public Hygiene	Solid waste management including collection and disposal is under the control of the municipality. It restricts dumping of wastes in public or private lands adjacent to roads and residential districts
Law 558/1996 - Protection of forests	Classifies protected forests and defines the prohibited activities and works into the mentioned forests. It also contains offences and penalties.
MoE Decision 52/1/1996 -Requirements to protect air, water, and soil pollution	Allowable noise level according to type of areas and the permissible duration of exposure
MoE Decision 16/1/2022 - Emissions Limits Values for Air Emissions	Sets limits for air emissions and specify the parameters that need be measured according to the sector and the facilities
Law 444/2002 - Framework Law for Environmental Protection	Protect the national environment against all forms of degradation, air and water and soil pollution, and the promotion of sustainable use of natural resources and conservation of biodiversity
Decree 8803/2002 and its amendments - Organizes the activity of quarries and crushers, licensing procedures, as well as the operation, management and rehabilitation of quarries.	Ensures the provision of construction material and the disposal of construction waste comply with the decree
Law 77/2018 - Water Law	Tackles protection of water resources from pollution and management and monitoring of public wastewater treatment facilities
Law 78/2018 - Air Quality Law	The investment in any facility or establishment that emanate foul or toxic odors should abide by the different environmental conditions issued by a decision from MoE
Law 80/2018 - Integrated Solid Waste Management	Covers the management of non-hazardous and hazardous waste, and responsibilities and penalties related to violations of waste management laws

Law / Decree / Decision	Relevant Provisions
Health and Safety	
Decree 11802/2008 - Occupational prevention, safety, and health in all enterprises subject to the Code of Labor	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
Cultural and Municipal	
Law 166/1933 - Antiquity Law amended by law 37/2008	This law defines heritage and antiquity, identifies its ownership, states legislation for excavation and judicial procedures due to violation
Decree-Law 118/1977 - Municipal Act	Defining the responsibilities of municipalities
Law 37/2008 - Cultural Policy Law	Any archaeological artefact located in Lebanon and deemed to be of historical, artistic, architectural or anthropological significance by the Ministry of Culture must be protected
Traffic	
Law 243/2012 - New Traffic Law	Provide general driving rules and defines the penalties upon violation of the law
General	
Legislative Decree 340/1943 - Penal Code	The law defines the type of crimes such as rape; lewd acts by threat, violence, or against minors; and other similar crimes. It also states punishments and legality of penalties
Law 58/1991 - Expropriation Law	States general and specific provisions for land acquisition. Also is includes improvement tax resulting from the implementation of public works. Despite that no expropriation activities will be done; this law is added because OP 4.12 was triggered by the project
Law 53/2017 - Amendment of Penal Code	Under sexual violence Article 522 of the Penal Code exonerated a perpetrator of kidnapping and adultery who married his victim. This was repealed in this law

In terms of the national legal requirements for maintenance, Lebanon uses the American Association of State Highway and Transportation Officials (AASHTO) 4th edition "Maintenance Manual for Roadways and Bridges" of 2007.

Numerous governmental public institutions will be involved in the different stages of the ESMP of the REP. These include:

- Council for Development & Reconstruction
- Ministry of Public Works and Transportation
- Ministry of Environment
- Ministry of Agriculture
- Ministry of Labor
- Ministry of Interior and Municipalities / Municipalities
- Ministry of Culture

2.2 Word Bank Policies

The WB policies that are applicable to this project are represented in Table 2-2. Furthermore, additional information will be provided for each World Bank policy.

Table 2-2: World Bank Policies

WB Policies	Description
Safeguards Policies	Compliance with OP/BP 4.01 on Environmental Assessment and OP/BP 4.12 on Involuntary Resettlement
Access to Information	The WB allows access to any information in its possession that is not on a list of exceptions

WB Policies	Description
Consultation and Disclosure Policy	According to OP/BP 4.01, a public consultation with project-affected people and local nongovernmental organizations (NGOs) must be conducted for all projects under Category A and Category B
Guidelines and Manuals	The WB Group (WBG) Environmental, Health and Safety (EHS) Guidelines are mandatory and need to be adopted throughout the project duration. In addition, the WB has developed guidelines and manuals that need to be adopted during the ESMP implementation phase of the project

2.3 International Treaties and Conventions

Table 2-3 presents the international conventions that Lebanon is a signatory to whose provisions may be relevant to the project.

Table 2-3: Relevant International Treaties and Conventions

Convention	Ratification
United Nations Framework Convention on Climate Change (UNFCCC) - 1992	Ratified through Law No. 359 (1994)
Convention on Biological Diversity (CBD) - 1992	Ratified through Law No. 360 (1/8/1994)
Convention 120 concerning Hygiene in Commerce and Offices	Ratified by Lebanon in 1977
Convention 136 concerning Protection against Hazards of Poisoning Arising from Benzene	Ratified by Lebanon in 2000
Convention 139 concerning Prevention and Control of Occupational Hazards caused by Carcinogenic Substances and Agents	Ratified by Lebanon in 2000

2.4 Environmental Health and Safety (EHS) Guidelines of the WB

Table 2-4 showed the EHS guidelines of the WB as well as the national regulations that must be abided by for wastewater and ambient water quality, air emissions and ambient air quality and noise management.

Table 2-4: WBG EHS Guidelines and National Regulations

General EHS Guidelines	National Regulations
World Health Organization (WHO) Guidelines for Ambient Air Quality of 2005	National Ambient Air Quality Standards of MoE Decision 52/1/1996
WHO Noise Level Guidelines	Noise Standards as per MoE Decision 52/1/1996

3. DESCRIPTION OF THE PROPOSED PROJECT

3.1 Location

The routine maintenance works of this project will be undertaken to roads located in the Caza of Hasbaya of the South Governorate. The total number of the proposed roads to be maintained under this project will be a representative 25% of the total Primary Roads including International roads ranging from one lane in each direction with low traffic volume to multiple lanes in each direction with high traffic density known as Highways, in the Caza with an estimated total length of 90,000 m of primary roads in Lot 3.

The routine maintenance is targeting in the first place the primary roads (including International Roads/Highways) within the Caza of Hasbaya and the secondary roads where and when the funds permit. The total primary roads lengths as per i-RAP road classification in the Caza of Hasbaya is 25 Km. (Table 3-1).

Table 3-1: Primary Roads of Hasbaya Caza

Caza Hasbaya		
Road Code	**i-RAP Classification**	**Length(km)**
PRI 062	Primary Road	7
INT 005	International Road	18.8

The map below (Figure 3-1) shows the primary (incl. International Roads/ Highways) and secondary roads eligible for maintenance in the Caza of Hasbaya.

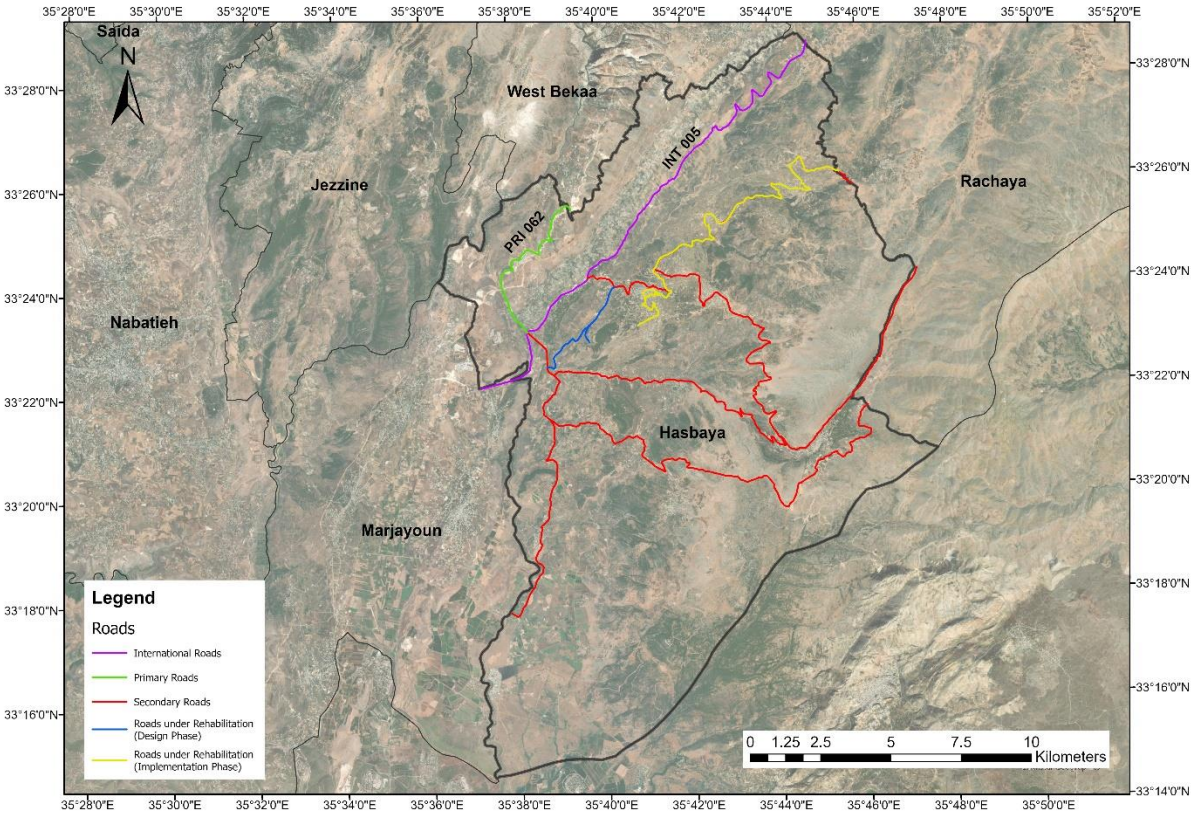


Figure 3-1: Primary and Secondary Roads Eligible for Maintenance in Hasbaya Caza

The following criteria are proposed for the selection of representative roads:

1) Road Category: The selected road(s) should be classified as primary roads (including International roads/ highways).
2) Road Design Characteristics: The existing road design characteristics, horizontal and vertical alignments, cross-section(s), shall comply with the characteristics of primary road as specified in the international design standard.
3) Road Usage: The selected road(s) should be of high traffic volume compared to other roads and ensure the connection with the main secondary roads and popular areas.
4) Road Overall Condition: The selected road should have a good condition taking into consideration that roads or section of the road that needs rehabilitation or reconstruction should be excluded
5) Total Length: the total length of the selected representative roads shall be not less than 25% of the total length of the primary roads.

3.2 Project Activities

In order to identify the required maintenance and repair works for this project, a site inspection will be conducted by an experienced highway engineer who will visually inspect various roads characteristics and features including surface condition, shoulders, roadside drainage and protection works, road signage and road safety elements. Moreover, a reconnaissance of the selected 25% of the total primary roads must be executed.

The required maintenance activities for the proposed project will cover Incidental Repair Works, Pavement Repair Works, Concrete Repair Works and installation of Traffic control devices, all their components are described in the following sections.

3.2.1 Incidental Repair Works

Incidental repair works will include the following:

- Clearing and grubbing comprising the removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area.
- Repairing of damaged manhole covers completed as specified and to the Engineer's satisfaction.
- Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts.
- Removing damaged Galvanized Steel Guardrail and replace by new one as specified and shown on drawings.
- Repairing of Masonry wall.

3.2.2 Pavement Repair Works

The repair works that will be undertaken for the pavement will be as follows:

- Shallow Patching works: surface patch including milling and re-instating wearing asphalt course (5cm) and a full asphalt removal and repair with maintaining base course layer and applying one layer asphalt binder course (5 cm) and one layer asphalt wearing course of (5cm) as specified and shown on drawings.
- Deep Patching works including excavation, base course (30cm), asphalt binder course (one layer 5cm) and asphalt wearing courses (one layer 5cm).
- Crack sealing.
- Milling & overlay for sunken but stable trench width less than 1m.

- Removal and reinstatement of damaged trench. Width less than 1m.

3.2.3 Concrete Repair Works

The maintenance and repair works to be implemented for the concrete are represented as follows:

- Cast in situ Reinforced concrete, Class 250/20 (B25) for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers and retaining walls (all types and shapes).
- Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers.
- Cast in situ Reinforced concrete, Class 250/20 (B25) for cover channel.

3.2.4 Traffic Control Devices

The installation of traffic control devices will cover the following activities:

- Thermoplastic reflectorized road paint lines width 20 cm (Thickness 3 mm) including surface preparation and removal of existing paint lines (where needed).
- Thermoplastic reflectorized special road marking including speed limit marking (Thickness 3 mm).
- Cats eye Pavement Studs as specified and to the Engineer satisfaction (3-cluster type).
- Bituminous speed humps completed all as specified and shown on drawings and to the Engineer's satisfaction.
- Rumble strips (TPR materials) completed all as specified and shown on drawings and to the Engineer's satisfaction.
- Delineators and Makers Posts Type J4.
- Small Signs (not exceeding 1 m^2 area).
- Temporary Signing and Channelizing Devices for Protection of Traffic:
  - Barricade with flashers type k5c.
  - Rectangular sign type KCI.
  - Sign, size greater than or equal to one square meter including posts, supports, foundations and all related works, type K2.
- Temporary Channelizing Devices:
  - Plastic Barrier, 145 cm long and 40 cm wide, type K16.
  - Removable single face concrete safety barrier, 200 cm long and 38 cm wide.
  - Removable double face concrete safety barrier, 200 cm long and 60 cm wide.

3.3 Material and Equipment

Typical equipment used for routine maintenance activities will be used for the maintenance of roads in Hasbaya Caza, including but not limited to:

- Steel-wheeled Rollers
- Asphalt Distributor or paver
- Concrete mixing trucks
- Dumper Trucks or Trucks
- Excavators
- Loaders
- Asphalt Milling Machines

- Thermoplastic Road Marking Machines
- Liquid Asphalt Spraying Tanks
- Guardrail Post Driving Machines
- Asphalt Cutters

As for the main material needed for the routine maintenance activities, this include but not limited to:

- Aggregates (fine and coarse)
- Asphalt mix
- Liquid Asphalt
- Concrete mix
- Water
- Fuel
- Thermoplastic Paint Material
- Steel Guardrails
- Stones (for stone pitching)
- Reinforcing Steels
- Manhole Covers
- Rubber Bitumen
- Cat Eyes
- Delineators
- Traffic Signals

3.4 Site Construction Staffing and Facilities

The total number of workers for the roads routine maintenance activities project shall be based on the total volume of each activity as per the bill of quantities of the tender documents, as well as the independent assessment of the awarded contractor subject to the project duration and the planner's effort to produce a relevant program of work to cover all project activities. Accordingly, all maintenance activities will need the involvement of a certain number of workers ranging from unskilled labors to equipment drivers to foremen/engineers. Thus, the number of workers will be determined for each project activity. An estimated number of 6 workers (on average) will be designated for each maintenance activity (4 for application and 2 for safety). Furthermore, the project site will not include any facilities to be installed on-site. The usage of material and equipment for this project will be limited only for the duration of maintenance works.

4. DESCRIPTION OF THE ENVIRONMENT AND SOCIAL CONTEXT

To properly assess the potential impacts of the road routine maintenance activities, an environmental and socioeconomic baseline needs to be developed. The baseline will also play a prominent role in developing and implementing mitigation and monitoring plans. This section presents a description of the baseline information. The description of the baseline conditions was based on literature review within Hasbaya Caza and is divided into three sections covering the physical, biological and socioeconomic environment.

4.1 Physical Environment

4.1.1 Topography

The Caza of Hasbaya is located in the Governorate of Nabatieh, about 114 km southeast of Beirut. The Caza is surrounded by West Bekaa from the North-West, Marjayoun from the South-West and Rachaya from the North-East. The elevation of Hasbaya ranges between 502 m and 2,142 m above sea level. The topographic map representing this Caza is provided in Annex 1.

4.1.2 Geology

The geological formation within the Caza of Hasbaya are presented in Annex 2. Based on the geological map, the main geological formation within the study belong to the following (Geocities website, 2022):

- Chouf Sandstone (C1): this formation belongs to the Cretaceous period. It is an often ferruginous brown to white sandstone with associated clays, shales and lignites. Some of the darker layers contain woody or coaly fragments, often with pyrite, marcasite and amber. Locally, the Chouf Sandstone contains basaltic volcanics and reddish clayey beds which appear to be weathered volcanic tuffs. The Chouf Sandstone is very variable in thickness, ranging from a few metres to 300 m thick and in places showing rapid lateral changes.
- Abey Formation (C2) of the Lower Aptian age: this formation belongs to the Cretaceous period. It consists of a mixture of clay, sand and calcareous material in varying proportions forming clay, sandy clay, marl, marly limestone etc. The calcareous material may be slightly to moderately indurated. Where marl prevails its fresh colour is bluish, weathering to creamish brown. The entire Abey Formation is around 125 m thick at the type section.
- Albian (C3): This formation (Hammana Formation) belongs to the Cretaceous period. It consists of green marl (containing glauconite) intercalated with thick layers of marly limestone forming cliffs 3 - 4 m in height. May contain some thin sand layers in the lower part of the formation.
- Sannine Limestone, of Cenemonain age unit (C4); this unit is divided into three subunits namely:
- Dolomitic Limestone (C4a): this formation is characterized by geodes of different sizes filled or voided and a thickness of about 300 meter. Within this unit Ammonites and fish fossils were found.
- Bluish marl and shale (C4b): this formation contains crystals of quartz, chert nodules and bands form. The thickness of this unit is in the range of 80-100 meter
- Limestone and dolomitic limestone (C4c): The Limestone of this unit is highly karstifie. The color of this formation is white to brown and its thickness is about 300 meter.

- White marl and marl-limestones (C6): Cretaceous and lower Tertiary sediments indistinguishable lithologically; stiff bluish plastic Marl with glauconite, interbedded with chalky marly Limestone and nodules of black chert. This formation has a thickness that ranges from 400 m to 150 m and is rich in foraminifera fossils.
- Pleistocene (Q)-(qta, qd, qcpb, qaa): Belongs to the quaternary geological unit. It is composed of loose Eolian and cemented sands. Residual soil including Terra Rosa are also found in this formation. In addition, this geological unit is composed of loose alluvium, unconsolidated soil and sediments.
- Eocene (E): This rock formation belongs to the Tertiary geological period and is widespread in South Lebanon. It is composed of marly and chalky limestone with a thickness in the range of 4500 m–550 m. With a thick succession, it has a good potential to store groundwater
- Pliocene (P): this formation belongs to the tertiary geological unit. It is characterized by its conglomerate, sandstone and sandy marine marl. The color of this formation is bluish and has a thickness ranging between 300 to 400 m
- Kserouan Limestone (J4)-Bhannes Volcanics (J5)-Bikfaya Limestone (J6)-Salima Limestone (J7): these formations belongs to the Jurassic geological period. It is a very variable sequence of brown-yellow ferruginous oolitic limestones, often burrowed and cross bedded, that alternate with brown marls. The unit is mainly fairly thin bedded (although some massive units occur, especially at the top) and a relatively recessive topography occurs. Thickness varies from zero-few meters to 150 m.
- ncg: coarse torrential pudding

4.1.3 Hydrogeology

The Caza of Hasbaya hosts the Hasbani Spring (Nabaa El Hasbani) that is 630m away from a secondary road and the Hasbani-Wazzani River that passes through two secondary roads. The Hasbani–Wazzani River is the northern primary watercourse of the Jordan River, which has a total area of about 18,425 km2, 645 km² of which is located in Lebanon. The Hasbani-Wazzani River is fed mainly from snowmelt in Jabal El-Sheikh and discharges about 225 million m3 per year, with an average of about 7.23 m^3/sec whereby the maximum flow is between November and May (Shaban, 2017). The Caza also has other springs including Chebaa spring which is 331m away from a secondary road and 440 m away from another secondary road, Sraid spring that is 1600m away from a secondary road, Nabaa El Qerche located on a secondary road and Nabaa El Wazzani that is 1860m away from a secondary road.

A map showing the major rivers and streams along with the springs in Hasbaya Caza is presented in Annex 3.

4.1.4 Climate and Meteorology

The results of Hasbaya weather data conditions are used to describe the climate of the Caza. This station is the closest one where data is available. Annex 4 – Figure 1 presents the averages temperatures and precipitation registered at Hasbaya during each month of the last 30 years. It shows that the lowest average temperature, which was 4°C was registered in January, while July and August had registered the highest average temperatures of 31°C. In Hasbaya, most rain events fall in the winter during the month of January (99 mm of precipitations). However, the driest months are July and August, with 0 mm of rain (Meteoblue website, 2022).

Figure 2 of Annex 4 shows the wind rose for Hasbaya representing how annual wind speed and direction are distributed. The wind rose indicates that the wind direction with the highest frequency within the study area is from the west to east with a speed of greater than 5 km/h occurring most of the times (1,005 h/year). In addition, strong winds occur during winter mainly from November to

January while periods of calm winds usually occur from February till October (Meteoblue website, 2022).
Additional data on climate in the area was obtained from the Lebanese Agriculture Research Institute (LARI) from its station in the village of Habsaiya located at the altitude 750 meters a.s.l. This data represents the average temperatures and average precipitation of the year 2019 (Annex 4, Figure 3).

As for the wind data, wind speed and direction data were also obtained from LARI's station in Hasbaya at the altitude 730 meters a.s.l. Annex 4 – Table 1 represents the average monthly and annual wind speed and direction for the year of 2019.

4.1.5 Air Quality and Noise

In 2018, a study (Abdallah et al., 2018) used the National Air Quality Monitoring Network (AQMN) data of 2014, as well as data from a long-term monitoring campaign, to assess an air quality modelling system. The study simulated air quality over Lebanon and Greater Beirut for key gas pollutants including Nitrogen Dioxide (NO2) and Particulate Matter (PM). At the time of the study, the AQMN that was installed and operated by the MoE consisted of five stations, four of which were used in the study, including two urban stations in Beirut (one at the Beirut Pine Forest and the other at the Lebanese University campus in Hadath). The long-term monitoring campaign was conducted simultaneously by the University of Saint Joseph at an urban site within Beirut City at the Beirut Pine Forest, and at a suburban location outside Beirut namely the university campus in Mansourieh. The results for Lebanon simulation for NO_2 and PM_{10} are shown in Annex 5. The modelled annual concentration map showed that NO_2 annual concentration at Hasbaya is around 10 $\mu g/m^3$ (below the WHO recommended value of 40 $\mu g/m^3$ limit) whereas the annual PM_{10} is around 36 $\mu g/m^3$ (above the WHO recommended value of 20 $\mu g/m^3$ limit) (Abdallah et al., 2018).

4.1.6 Land Use/Land Cover

In Hasbaya Caza, agricultural activities are found in different villages as the Caza is rich in arable land. Olive is considered one of the main agricultural crops. Other agricultural crops include fruit trees (mainly apple, pomegranate, pears, and citrus) and vines (Civil Society Centre, n.d.; FAO, 2012). Moreover, grains are planted on the higher non-irrigated basin of the Hasbani River, while the irrigated part of the basin is mostly planted with different kinds of vegetables and citrus fruits (Civil Society Centre, n.d.). Some residents in the Caza of Hasbaya breed livestock such as cows, chicken and goats. However, during the past 20 years, the number of cows decreased. Currently, the production of milk and meat is not enough to cover the local needs. As for the rearing of goats, it has also declined due a decrease in the grazing lands in the area. Furthermore, in the Hasbaiya village, there are 3 large farms dedicated for the rearing and production of eggs and chicken. In addition, there are also 2 small chicken farms with around 500 chickens each (Civil Society Centre, n.d.).

In addition, the Caza has several residential areas which are densely populated, such as the villages of Meimas and Hasbaya. Refer to Annex 6 for an overview of the LU/LC of the entire Caza.

4.2 Biological Environment

4.2.1 Flora

Aleppo pines cover an area of 400-500 ha in the southern part of the country in the Cazas of Marjayoun and Hasbaya (MoE/UNDP/ECODIT, 2010; UNDP/CEDRO, 2012). As for the floral species, and in reference to the report 'Setting Conservation priorities for Lebanese Flora - Identification of important plant areas', the endemic plant species that was identified in different locations in the South is Centaurea heterocarpa Boiss. & Gaill. ex Boiss (Bou Dagher-Kharrat et al., 2018).

4.2.2 Fauna

The Governorate of Nabatiyeh, which Hasbaya Caza is part of, hosts an Important Bird Area (IBA) (Ebel Es Saqi Site). However, this IBA is not located at a close proximity to any of the proposed roads eligible for maintenance. In this IBA site, different bird species can be observed such as the Common Cranes, White Storks, Pallid Harrier, European Honey-buzzard, Egyptian Vulture, Black-headed Bunting and Masked Shrike. Moreover, the Ebel Es Saqi Site has been declared in 2006 as a Hima that was among the list of sites of natural and/or ecological importance in need for protection (SPNL, 2020). The Hima is divided into six land use zones of a pine forest, scrubland, Hasbani River Ecotone, Hasbani River, crop fields and olive groves (MoE/UNDP/GEF/Birdlife International/SPNL, 2014). Moreover, the non-avian fauna of interest are bats, hyrax, wild cat, fox, jackal, river otter, wild boar, freshwater fish, terrestrial turtles, chameleon and lizards, three species of amphibians, and scorpions (BirdLife International, 2020)

4.2.3 Ecologically Sensitive Areas

Hasbaya hosts the spring and basin of the Hasbani River which has enabled the Caza to have a very rich natural landscape and fertile lands. However, the Caza does not host any nature reserves, but has the AlHibariya Village located near a secondary road, which was declared as a touristic site by the MOT in Lebanon in 2004 (MoE, 2006; MoE/UNDP/ECODIT, 2010). As mentioned before, The Governorate of Nabatiyeh, which Hasbaya Caza is part of, hosts an IBA (Ebel Es Saqi Site). This IBA is found between Marjayoun and Hasbaya Caza to the west of Hasbani-Wazzani River (small area of Ebel Es Saqis included in Hasbaya Caza). However, Ebel Es Saqi IBA is not located near any of the proposed roads (1570m away from the nearest secondary road) (SPNL, 2020) (Annex 3).

4.3 Socio Economic Environment

4.3.1 Demographic Profile

The Caza of Hasbaya is part of Nabatiyeh Governorate which has around 330,000 inhabitants (including Syrian and Palestinian refugees) and this is considered the lowest population share among all governorates in Lebanon (IDAL, 2018). The average household size in the caza is 3.6 compared to the overall average household size of 3.8 individuals (CAS, 2019).). The Caza of Hasbaya hosts 36,827 residents, of which 19,260 are the poor Lebanese (OCHA, 2016). In addition, there are 69 vulnerable localities in South and El Nabatieh governorates, 10 of which are classified as most vulnerable. Out of these 10 localities, none are located in Hasbaya Caza (OCHA, 2016) (Refer to Annex 7 for the distribution of vulnerable localities in the Caza). Concerning specific vulnerable groups, such as Female Headed Households (FHH) and people with disabilities, there is no available information on any of the national, UN or other resources. As for the elderly (seniors above the age of 65), they comprise 11.7% of the total population in the caza compared with the country's national average of 11% (CAS, 2019).

The Caza does not have any Palestinian Refugees (OCHA, 2016). According to the Syrian Refugee Response (UNHCR, 2021), the total number of Syrian Refugees in the different villages of the Hasbaya Caza is around 3,989 mainly located near a secondary road. The Governorate of Nabatieh hosts 52 informal tented settlements for Syrian Refugees. Only a few of these settlements are found in the Hasbaya Caza (OCHA, 2016) near a secondary road. In general Syrian refugees are integrated in community and reside in apartments in Hasbaya Caza. Refer to Annex 7 for the distribution of informal settlement in the Caza).

Moreover, the unemployment rate in Hasbaya Caza is estimated at 10.5%, less than the national average 11.4% (CAS, 2019). Out of 21,700 individuals aged 15 years and above living in the Caza,

12,500 were outside the labour force. In Hasbaya the total labour force participation rate is 42.1% which is lower than the national rate of 48.8%. However, men labour participation rates were higher than the women labour participation rates and are respectively 66% and 19.6% (CAS, 2020).

4.3.2 Economic Activities and Infrastructure

Agriculture is the main economic activity in most villages of the Hasbaya Caza (UNDP, 2016). Olives constitute the most important crop. In the basin of the Hasbani River, there are around 100 Ha of irrigated land and 100 Ha of non-irrigated land. Cultivation of fruit trees, such as apples, is also present. A decline in apple production was observed mainly due to production problems, including the inability of farmers to control diseases that affect these trees as well as the decrease in rainfall (Civil Society Centre, n.d.). However, plantation of pomegranate and pears is still active in the area. Furthermore, grains are planted on the higher non-irrigated basin of the Hasbani River, while the irrigated part of the basin is mostly planted with different kinds of vegetables and citrus fruits (Civil Society Centre, n.d.).

The main agro-food product in the Caza of Hasbaya is olive oil. There are over 6 olive oil presses, and some of them are large presses that can process around 2,000 kg of olives in one hour (Civil Society Centre, n.d.).

There are also several craft and trade activities in the Caza, mainly in painting, aluminum, carpeting, concrete carpeting, stone builders, and in the construction industry (sanitary, electricity, painting, tiling etc.) (Civil Society Centre, n.d.). For instance, the Souk El Khan, next to a historical rural caravanserai built in the late 14th century, is a traditional weekly marketplace that offers fresh produce and locally grown fruit and vegetable, in addition to homemade products (FAO, 2009).

Another major source of income for border villages is revenue from smuggling, mainly of goods into Syria across the mountainous borders of Chebaa (UNDP, 2016). In the village of Hasbaiya, as the center of the Caza, there is also a limited number of government and private sector employees. Syrian refugees in the Caza work mostly in agriculture and construction (UNDP, 2016).

Many village residents receive support from their families who have emigrated to work abroad. Women and children participate in agricultural work, such that women employment outside the agricultural sector is limited (Civil Society Centre, n.d.).

Overall, the distribution of the labour force by economic activity in Hasbaya is as follows (Civil Society Centre, n.d.):

- Agriculture (80%);
- Liberal professions and crafts (10%);
- Government Employees Sector, mainly in the security forces or the military (10%).

Hasbaya relies on neighboring villages and businesses to market most of its agricultural and agro-industrial production. The main markets for these products are Nabatieh, Saida and Beqaa (Civil Society Centre, n.d.).

The main source of drinking water in Hasbaya is the non-piped water supply with 53.1% connectivity lower than the connectivity at the national level which is 76.9%. Drinking water was in the form of piped supplies connected directly to 45.6 % of households while 1.3% of residencies have no drinking water supply. As for the public electricity network, almost all households in Hasbaya Caza are connected to the public network whereas 87.1% of households rely on a private electricity source or own a private generator (CAS, 2020).

4.3.3 Education Services

Most education establishments within the Caza of Hasbaya are located in the village of Hasbaya where almost all school children receive primary education. School dropouts is limited. There is one public primary school, one public elementary school and public vocational school in Hasbaya. Additionally, there are 3 private primary, elementary and vocational schools distributed within the Caza. No schools were identified near the proposed primary and secondary roads. As for university education, the Caza does not have any university and students are usually enrolled at universities in Nabatieh, Beqaa and Beirut. Hasbaya has a number of local institutions dealing with educational and social matters in the village, such as the UNDP Youth Gathering (Civil Society Centre, n.d.).

In Hasbaya Caza, the illiteracy rate was reported to be 9.2% which is higher than the national rate (7.4%). This rate was found to be higher for women with an illiteracy rate of 12.4% compared to men which is 5.9%. In addition, the illiteracy rate among the elderly group was found to be greater when compared to younger age groups (CAS, 2020).

4.3.4 Health Services

Most health establishments within the Caza of Hasbaya are located in the village of Hasbaya. The health facilities consist of one public hospital the Hasbaya Governmental Hospital which is located on a secondary road and a public clinic which is part of the Ministry of Social Affairs. Additionally, there are 3 functioning clinics in the Hasbaya village (Civil Society Centre, n.d.). The location of Hasbaya Governmental Hospital can be shown on the sensitive receptors map (Annex 3).

4.3.5 Cultural Heritage

The Caza of Hasbaya hosts several historical, cultural and religious sites, such as the historical monument and natural landscape Al Hibariya Village located near a secondary road (MoE, 2006; MoE/UNDP/ECODIT, 2010).

According to the Ministry of Tourism (2011), there are several cultural sites in the Caza, including:

- Al Hasbani Cascade 215 m away from a secondary road;
- Al Hasbani Bridge 30 m away from a secondary road;
- Souk El Khan (next to a historical rural caravanserai built in the late 14th century) located on a secondary road;
- Old olive press along a secondary road;
- The Hasbaya Ancient Mosque along a secondary road;
- Khalwat al Bayyada (a primary sanctuary of the Druze) 1090m away from a secondary road;
- The Chehabi Citadel, a large six-floor citadel, is part of a 20,000 m^2 complex, which also covers several medieval houses and a mosque located on a secondary road

The main archeological sites that are present in Hasbaya Caza are represented in Annex 3.

4.3.6 Road Sensitive Receptors

The main sensitive receptors within the Hasbaya Caza include Hasbani Spring 630m away from a secondary road and the Hasbani-Wazzani River that crosses two secondary roads, and several springs distributed at different elevations within the Caza including Chebaa 331m away from a secondary road and 440m away from another secondary road, Sraid 1600m away from a secondary road, Nabaa El Qerche on a secondary road and Nabaa El Wazzani 1860m away from a secondary road. As for Ebel Es Saqi IBA and Hima, it is found between Marjayoun and Hasbaya Caza to the west of Hasbani-Wazzani River (small area of Ebel Es Saqi is included in Hasbaya Caza (the IBA is located 1570m away

from the nearest secondary road)). Moreover, there are several archaeological sites that are identified in the Caza. A map of all these receptors can be found in Annex 3.

5. ENVIRONMENTAL AND SOCIAL IMPACT ANALYSIS AND MITIGATION

This section analyzes the potential anticipated positive and negative environmental and social impacts associated with the maintenance activities to be executed in Hasbaya Caza and proposes measures for their mitigation.

5.1 Assessment Methodology

The evaluation of potential environmental and social impacts will be based on relevant scientific evidence, literature review and the professional judgment of the Consultant. The impact assessment approach applied is as follows:

- Identification of project-related activities (during both phases) and environmental aspects;
- Determination of potential impacts on the natural and man-made environment that might arise from these activities;
- Assessment and evaluation of potential impacts based on the criteria set out in the Environmental and Social Management Framework of the project. As such, impacts will be weighted on the scale of P, 2P, O, N, 2N to signify Positive, strongly Positive, Neutral, Negative, and Strongly Negative impacts respectively.

Due to the fact that the location of the maintenance activities will not be defined until execution of the works commence, the impact rating will be based on the presence of the defined sensitive receptors for that impact.

5.2 Potential Positive Impacts during Maintenance

The maintenance of roads in Hasbaya Caza is considered as an economic opportunity for the selected contractor and their subcontractors. Local businesses may benefit from maintenance activities through selling raw materials, equipment, machinery and goods and the project will create jobs and could hire labors from the local community (Lebanese and Syrian). For example, small shops may potentially benefit from the maintenance activities as workers will buy food and drinks from these small shops. In addition, local garages will benefit from increased business in vehicle and equipment maintenance and residents will benefit from the rent fees of the offices and residences as well as vehicle and equipment parking area. The potential influx of workers will also increase economic activity in the area as they will likely purchase their daily requirements from the surrounding shops. This will have a ripple effect within the communities where the roads will be maintained. This impact is, however, temporary and jobs will be discontinued as soon as maintenance works are complete.

As such this impact on economic activity in the region is considered as a positive impact (P).

5.3 Impacts and Mitigation during Maintenance Activities

Table 5-1 presents the general positive and negative impacts that might arise from all maintenance activities during the execution of works along with mitigation measures to be implemented by the Contractor in order to eliminate or minimize potential environmental and social impacts associated with the construction activities of the Project. Several plans and procedures need to be developed by the Contractor for that purpose and tailored to the work site. The ESMP framework for the construction phase shall be included in the contractor's tender documents to ensure that all requirements have been taken into consideration by them and will be developed and implemented during the execution of works.

Table 5-1: Environmental and Social Impacts during Maintenance Activities

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Environmental				
Air, nearby communities and workers	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Air pollution from emissions of machinery, trucks or open burning activities Potential Impact on: Al Hibariya village located near a secondary road Hasbaya Governmental Hospital on a secondary road Al Hasbani Cascade 215m away from a secondary road AlHasbani Bridge 30m away from a secondary road Souk ElKhan on a secondary road Old Olive press along a secondary road The Hasbaya Ancient Mosque along a secondary road The Chehabi Citadel on a secondary road Near densely populated urban areas Refer to Annex 3	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Atmospheric Emissions and Dust Management Provisions (Annex 8)** Water the ground when extremely windy Mix material in an enclosed space Cover material when transporting Prepare and abide by Emergency Preparedness and Response Plan (Annex 8) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Speed limit for project vehicles and machinery within working areas shall not exceed 20 Km/h Ensure optimal traffic routes. Use wet suppression in the dry season, where unpaved roads, the working strip, raw material stockpiles are located <200 m from settlements
Air, nearby communities		Dust pollution from maintenance and excavation activities Potential Impact on: Al Hibariya village located near a secondary road Hasbaya Governmental Hospital on a secondary road	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Al Hasbani Cascade 215m away from a secondary road AlHasbani Bridge 30m away from a secondary road Souk ElKhan on a secondary road Old Olive press along a secondary road The Hasbaya Ancient Mosque along a secondary road The Chehabi Citadel on a secondary road Near densely populated urban areas Refer to Annex 3		
Nearby communities and workers		Noise pollution a result of transportation or delivery of raw materials, trucks movement, concrete mixing, drilling, construction and operation of heavy vehicle movement such as excavators Potential Impact on: Al Hibariya village located near a secondary road Hasbaya Governmental Hospital on a secondary road Al Hasbani Cascade 215m away from a secondary road AlHasbani Bridge 30m away from a secondary road Souk ElKhan on a secondary road Old Olive press along a secondary road The Hasbaya Ancient Mosque along a secondary road	N	Maintenance of vehicles and machinery Excavation and any other noisy activity only to be conducted during working hours In the case where it is absolutely necessary to conduct some activities outside the normal working hours (i.e. at night), prior approval of the concerned municipality and CDR will be obtained Set traffic speed limits **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Verify drivers' behavior with respect to driving speed Plan vehicle routes to avoid settlements where possible

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		The Chehabi Citadel on a secondary road Near densely populated urban areas Refer to Annex 3		
Biodiversity and sensitive habitats		Disturbance of nearby areas and animal escape through noise and vibrations	N	
Water resources, soil, nearby communities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels	Contamination of surface water and pollution of ground water from improper disposal of wastewater from workers and of wash water coming from cleaning of machines and equipment Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from a secondary road, and 440m away from another secondary road Nabaa El Qershe on a secondary road Refer to Annex 3	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Effluent Management Provisions** **Rainwater run-off Management Provisions (Annex 8)** Prepare and abide by Emergency Preparedness and Response Plan (Annex 8) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** On-site concrete pouring shall be done in a way to avoid leaching to nearby water bodies. Onsite mixing of concrete shall be performed at least 40 meters away from nearby water bodies Prohibit the disposal of excess concrete mix into the environment or near water bodies

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers			
Water resources, soil, nearby communities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Water pollution due to accidental spill of oils and chemicals from trucks and from transportation of chemicals and oils Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from a secondary road, and 440m away from anothersecondary road Nabaa El Qershe on a secondary road Refer to Annex 3	N	Prepare and abide by a **Spill Prevention and Management Plan** under **Pollution Prevention Plan (Annex 8)** Minimize soil exposure time Minimize the use of chemicals Regular maintenance of vehicles Prepare and abide by **Waste Management Plan** and **Hazardous Materials Management Plan (Annex 8)** Prepare and abide by **Emergency Preparedness and Response Plan (Annex 8)** **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Fuel, oil or hazardous materials required to be temporarily stored onsite shall be stored within secondary containment located further than 100m from a watercourse or water body Fuel and hazardous chemical storage areas shall not be allowed within 30m of a minor watercourse, within 100m of a major watercourse, or where there is the potential for spilled fuel to enter groundwater Keep the area free of litter and garbage and prevent random disposal of waste Specific locations shall be designated for consuming food and snacks away from sensitive receptors.
Water resources		Improper disposal of cut volume may cause contamination of water bodies in rainy weather Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from a secondary road, and 440m away from another secondary road Nabaa El Qershe on a secondary road Refer to Annex 3	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Water resources, soil, subsoil and land	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Contamination of soil and surface water bodies from the improper disposal of solid waste generated from workers and the used materials, construction waste from excavation and drilling activities Potential Impact on: Hasbani Spring 630m away from a secondary road Hasbani-Wazzani River that crosses two secondary roads Chebaa spring 331m away from asecondary road, and 440m away from another secondary road Nabaa El Qershe on a secondary road Refer to Annex 3	N	Prepare and abide by **Waste Management Plan (Annex 8)** Reuse or recycle the generated waste whenever possible Prepare and abide by Emergency Preparedness and Response Plan (Annex 8) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Waste bins shall be located at a distance of over 100 m from any natural sensitive area or water bodies and over 500 m from any socioeconomic sensitive area
Energy resources		High consumption rates of electricity, fossil fuel, etc. contributing to overconsumption and depletion of fuel	N	Maintenance of the generators and trucks Light in the site offices shut down during the night Construction workers must be trained and provided with awareness sheets on efficient energy use Machinery and equipment must be turned off when not in use
Water resources		High consumption rates of water for construction related activities	N	Use water in the most efficient way and reduce wastage Regular site inspection to detect water leakages Whenever possible, use dry-cleaning instead wet cleaning Training and awareness should be raised to workers concerning water usage best practices and water conservation Proper disposal of construction waste
Water resources, soil, nearby communities		Reduction in overall ground and surface water quality due to improper disposal of construction waste	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Water resources, soil, subsoil and land		Depletion of natural resources due to the unsustainable extraction of borrowing material (sand, aggregates, …)	N	Ensure that the borrow material are extracted from legal sites Avoid agricultural lands to extract borrowing material
Biodiversity and sensitive habitats	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Potential damage of existing flora	N	Prepare and abide by **Pollution Prevention Plan (Annex 8)** In case of any tree removal, ensure that the contractor will get a permit from the MoA
Social				
Local workers, socio-economic activities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts	Creation of job opportunities for local communities	P	Workers are paid their wages in full and on time
Nearby communities,		Local garages will benefit from the equipment oil maintenance and residents will benefit from the rent fees	P	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
socio-economic activities	Removal of damaged galvanized steel guardrail and replacing it by new ones	of the offices and the equipment parking area.		
Shop owners/renters	Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course	Small snack shops and coffee stations are expected to benefit from workers buying food and drinks	P	
Foreign Workers	Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Temporary potential Labor Influx	N	Priority hiring to qualified local community GRM for local communities (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Shop owners/renters	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining	Economic Activities and its effect on the livelihood of the shop owners	N	Install overpass structures from the road to the shops Maintain a passing corridor within the alignment to grant access to nearby properties Ensure that access to small snack and coffee stations is not blocked by installing wooden boards where necessary Inform the shops' owners ahead of time about maintenance date and coordinate with relevant municipalities

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.			Regularly inform road users and local communities in relation to changed traffic conditions or access Proper installation of sign boards in culturally appropriate languages that are clear and understandable to the public Timely completion of the maintenance activities Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards) Prepare and abide by Traffic Management Plan (Annex 8)
Foreign workers influx	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Discrimination from the local community against the potential influx of foreign workers	N	Prevent discrimination at the workplace Conduct awareness campaigns for the local community regarding foreign workers influx Inform the local community that worker will sign code of conduct before starting the work GRM for local communities and all relevant stakeholders
Locals and foreign, skilled and unskilled)		Possible unequal wage benefits between local and foreign workers	N	Ensure that all workers (locals and foreign, skilled and unskilled) shall be compensated and are contracted equally as per the scale of market price rates, have equal contractual benefits and working conditions, and have access to internal GRM
Local and foreign children		Possible recruitment of children who are under the legal age as workers on the site, especially in the case of the day laborers	2N	Daily registrations of workers and verification of their age to prevent child labor Abide by the National Labor Law Ensure the contractor is aware of the penalties that Labor Law imposes in the case of child labor Oblige the contractor to strictly abide by the Labor Law through the CDR tender documents that should include prohibition of child labor

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers			
Nearby communities, socio-economic activities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Disruption of local community to access services due to maintenance activities and temporal road closures	N	Prepare and abide by **Traffic Management Plan (Annex 8)** Traffic shall be secured via alternative routes to reach relevant destinations in case the works imply the temporary closure of this road Inform the local community about the location of detours, road blockages or diversions through public announcements and proper diversion signage Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Existing infrastructure and nearby communities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts	Damage of existing infrastructure	N	Regular coordination with relevant municipalities Conducting trial pits

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.			Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Nearby communities	Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench	Potential occurrence of gender-based violence and sexual exploitation and abuse incidents and all forms of GBV incidents	N	Draft Codes of Conduct and the guidelines for a GBV and VAC Action Plan Conduct training sessions for workers on Sexual Exploitation and Abuse and/or Sexual Harassment All workers should understand, and sign codes of conduct written in their native language Respond to the reported incidents of sexual abuse exploitation as a matter of priority Regular training on gender-based aspects, internal and external GRM that includes an anonymous channel for protection of complainants' identity and confidentiality Availability of a GRM with multiple channels to initiate a GBV complaint, which ensures confidential reporting with safe and ethical documenting of GBV cases, including Sexual Exploitation and Abuse and Sexual Harassment

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels			GRM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways Ensure that there is a survivor centric approach for SEA/SH complaints and trained personnel handling these calls
Nearby communities	Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Slight increase in traffic due to the transport of construction materials or due to the material that may fall Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road Refer to Annex 3	N	Prepare and abide by **Traffic Management Plan (Annex 8)** Ensure traffic is not blocked during transportation Inform residents and place signs near the working areas in culturally appropriate languages and written in clear and understandable manner Ensure communities have access to GRM Cover transported material Abide by traffic regulations Operate well maintained vehicles
Nearby communities		Traffic congestion in the town due to temporal road closure Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road Refer to Annex 3	N	
Nearby communities, socio-economic activities		Material falling from vehicles during transport may cause traffic accidents or congestion Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road Refer to Annex 3	N	
Health and Safety				

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Workers	Thermoplastic reflectorized road paint lines including surface preparation and removal of existing paint lines Thermoplastic reflectorized special road marking including speed limit marking, Bituminous speed humps Rumble strips	Accident and injuries to workers and public because of maintenance activities	2N	Develop a site-specific **Public Health and Safety Plan and Occupational Health and Safety (Annex 8)**
Nearby communities	Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Dust generation and noise may cause health related problems for workers and disturbance to residents Potential Impact on: Near densely populated urban areas Hasbaya Governmental Hospital on a secondary road Refer to Annex 3	N	

6. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

6.1 Monitoring Plan

Continuous monitoring during the implementation of the maintenance activities will be required to ensure the effectiveness of the proposed mitigation measures. The plan includes a list of indicators to monitor, responsibility of monitoring, schedule and location of monitoring activities, monitoring methods and the estimated cost.

Through sound environmental and social management and implementation of a monitoring plan, the maintenance activities in Hasabya Caza will avoid incurring the major adverse impacts. The aims of the monitoring plan are:

- Verify the environmental and social impacts predicted in the ESMP study;
- Determine project compliance with national and international requirements and standards;
- Monitor the performance of the project and the effectiveness of mitigation measures;
- Take remedial action if unexpected problems and unanticipated impacts arise.

Environmental monitoring activities/indicators during the execution of the maintenance activities are included in Table 6-1.

Table 6-1: Environmental and Social Monitoring Plan during Maintenance Activities

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Estimated Cost
Environmental					
Air pollution (Dust /GHG Emissions)	Total Suspended Particles (TSP), PM10, PM2.5 (wherever feasible), SOx, NOx and CO	Weekly and during activities that generates significant amount of air pollutants	Throughout the project area near sensitive receptors	Visual observation of dust dispersion (scale and direction) and 1-hr and 24-hr measurements when significant amount of air pollutants are generated	$1,500/event
Noise Pollution and Light	Leq, Lmin and Lmax	Weekly and during activities generating significant noise levels	Throughout the project area near sensitive receptors	Single sample per location (average 1hr reading-15minintervals) during morning (7-8am), evening (1-2pm) and night (4-5pm)	$300 (cost of noise monitoring machine)
Contamination of surface water bodies and soil from the generated domestic wastewater from workers and liquid waste from maintenance activities	Check for leakages in the connections between the porta cabin toilets and the existing network or polyethylene tank Check the discharge endpoint of the pumped wastewater from the polyethylene tank Effluent from construction activities (Concrete mixing, dust minimizing, washing of equipment…)	Weekly	Throughout the project area and at the porta cabin toilet sites	Visual inspection	-
Contamination of surface water bodies and soil from the generated solid waste	Ensure active solid waste management plan Construction and demolition waste Waste of the workers on site	Weekly	Collection points present on sites and near IBA	Visual inspection	-
Reduction in overall surface water and soil quality Accidental Releases	Ensure active spill prevention and management plan Chemicals, oils and fuel spill incidents	Weekly	Active maintenance locations	Visual inspection	-

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Estimated Cost
Depletion of non-renewable energy resources	Inspection of the quantities and types of the used fuel and oils	Weekly	Fuel and oils purchase bills	Visual inspection	-
Depletion of water resources	Inspection of water quantities Monitoring the different drilling and construction activities Ensure active spill and accident prevention plan	Weekly	Water purchase bills	Visual inspection	-
Destruction of existing Land Resources	Check the infrastructure locations and that excavation works do not interfere with it	Weekly	In location where excavation and drilling are planned (mainly where new pavement is assigned)	Visual inspection	-
Tree and floral species disturbance near the site during maintenance activities	Site observation	Weekly	Around maintenance activities and near IBA		-
Social					
Traffic congestion	Check traffic conditions during transportation of materials Ensure traffic is not blocked Ensure traffic is relocated properly Ensure all safety precautions are abided by	Daily	Throughout the project area	Visual inspection	-
Labor conditions	Proportion of Lebanese vs Syrian workers Worker's age GRM log Attendance sheets to GBV trainings	Weekly	Throughout the project area	Visual inspection	-

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Estimated Cost
	Number of workers trained to SEA Number of workers who signed Code of Conduct				
Labor Influx	Number of report Sexual abuse and exploitation incidents Number of inappropriate communication and language among the workers	Weekly	Throughout the project area	Visual inspection	
Health and Safety					
Accident and injuries to workers	Ensure signs are in place before works begin Visual inspections to ensure that all workers are wearing their PPEs Recorded injuries and accidents within the workers	Daily	At maintenance activity locations	Visual inspection Accidents records	-
Accident and injuries to the public	Ensure the installation of pedestrian and vehicular passages near residential areas Ensure road diversion and construction attention signs are in place before works begin Record injuries and accidents within passers-by Ensure the development of a site-specific Occupational and Public Health and Safety Plan and that the best practices are applied	Daily	At maintenance activity locations	Visual inspection Accidents records	-

6.2 Institutional Setup and Capacity Building

6.2.1 Roles and Responsibilities

The project works will be executed on the main road network which is under the jurisdiction of the Ministry of Public Works and Transportation (MOPWT). In Lebanon, donor-funded road works projects are implemented by CDR upon the request of the Council of Ministers (CoM). Therefore, in the context of REP project, CDR (Road and Transport Department) will execute the project on behalf of the Government/MOPWT.

In order to achieve proper environmental and social management and monitoring, a clear, functional institutional structure will be defined along with the roles and responsibilities of each institution/personnel (refer to Figure 6-1). In fact, during the execution of works, the contractor would be the primary actor; ensuring compliance of works with the different items specified in the environmental and social management plan. Accordingly, the contractor will be supervised by several entities appointed by CDR. CDR will be responsible for constant monitoring of the maintenance works through weekly and/or monthly reports (sent by the contractor) and site visits, ensuring and enforcing mitigation measures.

- More specifically, roles and responsibilities will be defined for the following:
- CDR: Project Implementation Unit (PIU) dedicated to the project which includes social and environmental specialists
- Contractor: project director, project manager, site engineer, environmental expert, social expert, Occupational Health and Safety (OH&S) expert, Road Safety Expert, and Health, Safety and Environmental (HSE) officer
- Supervising Consultant: environmental and social expert
- Municipalities: relevant municipalities in Hasbaya Caza

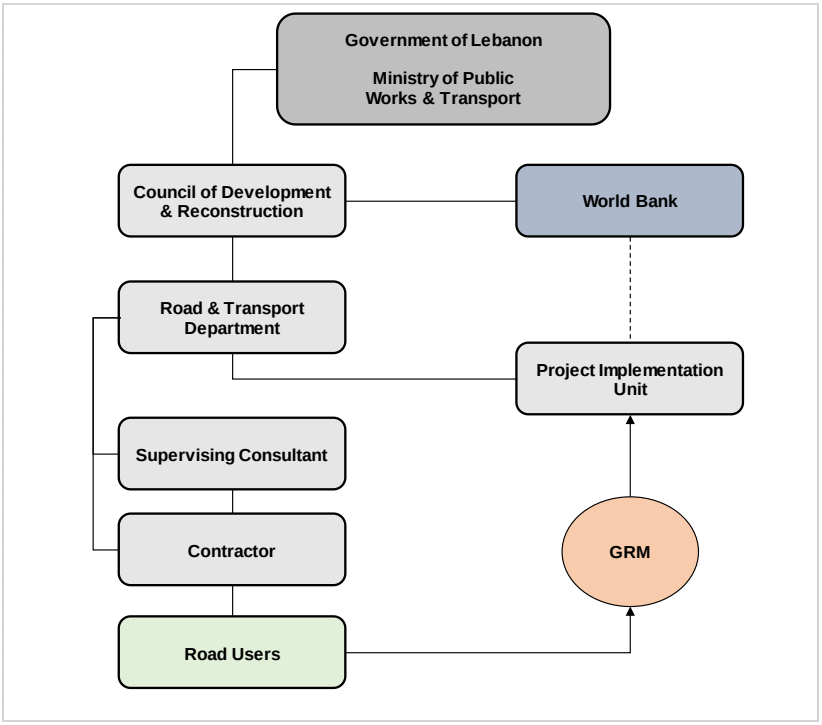


Figure 6-1: Roads and Employment Project Management Structure

6.2.2 Staff Training

In the context of the proposed project, the supervising consultant will prepare environmental and social training course (environmental and social management, health and safety issues) prior to the handover of the road project for the contractors and field supervision staff.

The main objective of the training is to:

- Meet regulatory requirements in capacity development in support of road maintenance;
- Develop technical and administrative procedures for monitoring air quality, traffic scheme recording accidents number;
- Implement data collection for monitoring activities;
- Establish a continuous improvement process for safety;
- Ensure that staff knows and understands the potential risks associated with road safety;
- Enhance knowledge and skills of municipality employees, enabling them to perform their responsibilities in the areas of health and safety.

Training programs must be incorporated with a feedback loop to ensure their relevance and acceptance by staff and will be reviewed periodically and updated when necessary. The implementation of the training programs will raise awareness to the involved workers and municipalities of the Caza in the following topics:

- National environmental and social laws, regulations, and standards;
- WB safeguard policies;
- Identified Management and Monitoring Plans
- GRM and referral pathways and prevention against SEA/SH;
- Codes of Conduct.

6.2.3 Documentation and Reporting

During the maintenance phase, regular monitoring results must be documented in order to track and analyze the frequency of potential impacts and accidents that might occur. The project supervision engineer is responsible for the reporting and establishing a comprehensive database for all monitoring activities. The report must include key indicators such as:

- Type of the activity monitored;
- Date of monitoring and weather conditions;
- Photographic documentation;
- Name of the person that is conducting the monitoring;
- Method of monitoring (sampling, visual inspection, etc.);
- Number and type of samples;
- Results of the monitoring (concentrations, accidents, frequency, etc.);
- Number of internal and external grievances as per the log;
- Code of conduct trainings and number of signed forms, attendance sheets to GBV trainings, worker's age, GRM log, etc…
- Dates of trainings;
- Mitigation measures undertaken;
- Title and dates of training programs.

After documenting, the supervision engineer must submit the reports to the CDR and the WB on a monthly and quarterly basis. In addition, any incident should be recorded using an Incident Record and the details shall be entered into a register (health and safety reporting, accident reporting procedure, case of serious misconduct). There should be immediate reporting of severe incidents (such as fatal accidents).

7. CONSULTATION, DISCLOSURE AND GRM

7.1 Public Consultation

The purpose of conducting public consultation is to inform the stakeholders and the local NGOs about the proposed project and the routine maintenance activities that will be executed in Hasbaya Caza and to take into account their concerns and feedback. Due to the Covid-19 situation in Lebanon at the moment and high level of community transmission, public consultation was held virtually on Tuesday, 22 February 2022 using Zoom Application. An announcement was prepared for this purpose and can be found in Annex 9.

It is worth mentioning here that all relevant municipalities will be informed upfront before the commencement of works about the Project since public consultation was conducted back in February 2022. In addition, a public notice will be posted at each relevant municipality including the GRM procedure. This will disseminate the Project and ensure that its activities are implemented in a transparent manner.

In addition to the unions and municipalities, local and international NGOs were invited to the public hearing. Invitations were sent by the consultant to the concerned municipalities, union of municipalities and NGOs. A sample of the invitation can be found in Annex 9. Annex 9 also include the names of the invited NGOs and their field of activity. Those NGOs may serve as advocates to reduce projects' social and environmental risks and promote good practice. However, the international and local NGOs listed in the Annex were invited but did not attend the consultation.

During the session, participants were asked to write their names along with their organization and/or position in the Chat on Zoom Application. Annex 9 presents the list of attendees of the session. A total of 6 participant attended the session including one women.

The public hearing opened with a word from ACE representative who introduced the overall project and its objectives and relevant organizations including CDR and the World Bank. The Consultant presented a description on the maintenance activities, purpose of the hearing, a summary of the ESMP process, and a list of potential environmental and social issues associated with implementation of maintenance activities. Participants were also informed that a GRM procedure has been developed for the project and were given contact information of the Project Consultant in order to inquire about it as well as the GRM channels. The floor was then opened for discussion and questions. The presentation made to the public hearing participants along with some screenshots from the Zoom meeting can be found in Annex 9.

The proceedings which describe in detail the raised concerns and complaints by the participants and how all have been addressed are presented in the following paragraph.

- Mr. Sami Safadi, Head of the Union of Municipalities of Hasbani mentioned that the length of the primary roads is greater than 25 km. He also mentioned that the proposed activities are limited to maintenance activities which means that if the road features are not available, the project will not install new features such as road safety equipment. In addition, he mentioned that traffic lights are not available on the roads. ACE representative clarified that the road classification was based on a study conducted by Zagreb University whereby the roads were classified into international, primary, secondary and tertiary. He added that the road maintenance activities will be implemented on the Caza level, however, the priority is for the primary roads. ACE representative also clarified that the maintenance activities might be implemented on some of the secondary and tertiary roads based on funds availability. He also pointed out that the municipalities can coordinate with CDR and the contractor before the

implementation of the routine maintenance activities in order to prioritize the activities and identify the roads that need maintenance. As for the installation of new road features such as road safety equipment, ACE representative mentioned that this project phase includes routine maintenance activities of already existing road features and does not include rehabilitation activities. He also stated that there are rehabilitation activities which are already being implemented in the Caza or need to be implemented during later stages. However, since the presence of safety equipment is considered a priority on the roads, this phase (routine maintenance) will include the installation of road safety equipment. Regarding the absence of traffic lights on the roads, ACE representative stated that the installation of road light poles is not included under the routine maintenance works.

- Mr Elie Abou Nakoul, Head of Kawkaba Municipality, mentioned that Souk Al Khan roundabout is causing car accidents as it lacks roads safety features. He also mentioned that municipality conducted a study on this road to assess its impact on public safety. The study included proposed measures to avoid fatal road accidents at this location. In fact, Mr Elie Abou Nakoul was pointing out that these proposed safety measures need to be included in this project. ACE representative stated that this project will only cover maintenance works and he suggested to send a letter to CDR in order to draw their attention about this issue.
- Mr. Labib Al Hamra, Head of Hasbaya Municipality, stated that there are several locations were maintenance activities are needed especially at Al Hasbani Bridge and Souk El Khan. He also mentioned that at some roads, the retaining walls need maintenance. In addition, water drainage needs to be installed in Zaghla. ACE representative clarified that if the maintenance activities are large, these will not be included under the routine maintenance phase. He also mentioned that a study is done in Hasbaya Caza in order to determine the roads that need rehabilitation and suggested to send a letter to CDR in order to draw their attention on these issues. At the end, ACE representative mentioned that in coordination with the relevant municipalities, maintenance activities will be identified before the implementation of the project. Supervision on road maintenance activities will be done to ensure that the contractor is implementing all items and quantities mentioned in the BOQ.

7.2 Grievance Redress Mechanism (GRM)

The purpose of a grievance mechanism is to ensure that all feedback and complaints received from stakeholders, customers, employees, contractor staff and the public in general are documented, considered and addressed in an acceptable and timely manner. It is important to note that this mechanism will be shared with the participants and two mechanisms are used for filing a grievance, one for the surrounding communities and one for the workers. The GRM will also be responsible for tracking and resolving worker grievances and maintain records about grievances/complaints received, recommendations and resolutions made and notice of resolution of grievance to the complainant. In addition, the GM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways. Moreover, GRM will be disseminated to the affected municipalities prior to roads routine maintenance works. Anonymous grievances will be addressed in both levels and the maximum anticipated time needed to close a GRM case. The online GRM form that is designed for the REP at the CDR level can be used in the meantime.

7.2.1 GRM for Communities

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. The complaints, suggestions and concerns can be sent by email, mail, phone (through a hotline), in person and other means such as a grievance compliant logging sheet where grievances are registered in writing and maintained as a database. The phone number, e-mail address, and address for receiving complaints will be disclosed among the population and will be posted at the maintenance sites in Hasbaya Caza, before

commencement of project implementation. Moreover, the information on how to access the GRM should be available through billboards, CDR website, etc..

The GRM levels of the project are the following (see Figure 8-1):

- Level 1: If any person has any complaint or concern regarding the project implementation, he/she can lodge an oral or written grievance to the site engineer. In case an oral complaint is made, it should be written by the Contractor Social expert. The issue must be resolved within a maximum duration of one week.
- Level 2: If the person is not satisfied with the action of the Contractor, he/ she can send the complaint to the PIU social specialist through Phone: 01980096 ext:317, Email: GRM.REP@cdr.gov.lb or official letter registered at the CDR. The issue shall be resolved within a maximum of two weeks
- Level 3: If the person is not satisfied with the decision of the social specialist of PIU, he or she can bring the complaint to the attention of the PIU Director's Office. Once the PIU Director receives the complaint, it needs to be resolved within a maximum of two weeks.

All complaints will be individually followed up on and documented accordingly in a GRM log. The designated person at each level should report to the PIU on the number and subject of new complaints received, and the status of the already existing complaints, if any (i.e. the Contractor social expert will report to the Supervising Consultant expert who will report monthly to the PIU (CDR) who will, in turn, submit the consultants' monthly reports to the WB). The Complaints Register form and GRM log are included in Annex 10.

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.

Finally, an online form has been designed using the IMPACT platform to allow citizens to share their feedback. For each worksite in Hasbaya, a link to the form will be shared with the local communities via location-based SMS, email and social media. At each worksite, a QR code will also be added on the project sign board (which already includes the project GRM) to automatically direct participants to the online form.

7.2.2 GRM for Workers

A GRM for internal employees, namely the laborers onsite are also necessary. It aims to allow labors to report any wrongdoings in their favor or important concerns they might have. This internal GRM is similar in nature to the one previously discussed (in terms of accessibility, reporting means, etc…). The only main difference is the contact people for each level. In this context, the first level involves reporting to the health and safety officer and has a duration of one week. The second level involves reporting to the PMU Director and should be resolved within one weeks. It also follows the Complaints Register form (refer to Annex 10).

8. BIBLIOGRAPHY

Abdallah, C., Afif, C., El Masri, N., Öztürk, F., Keleş, M., & Sartelet, K. (2018). A first annual assessment of air quality modeling over Lebanon using Weather Research and Forecast/Polyphemus. Atmospheric Pollution Research, 9(4), 643-654.

BirdLife International (2020) Important Bird Areas factsheet: Hima Ebel es-Saqi. Available at http://datazone.birdlife.org/site/factsheet/hima-ebel-es-saqi-iba-lebanon. Accessed on 12/03/2020

CAS. (2019). Labour Force and Household Living Conditions Survey (LFHLCS), 2018-2029, Lebanon. Central Administration of Statistics. Lebanon

CAS. (2020). Labour Force and Household Living Conditions Survey 2018-2019 in Hasbaya. Central Administration of Statistics. Lebanon.

Civil Society Centre. (n.d.). Hasbaya Village Profile. Available at: https://civilsociety-centre.org/sites/default/files/vpr/hasbayavillageprofile_revised1.pdf. Accessed on 16/3/2020

Council of Development and Reconstruction (CDR). (2018). Progress Report.

Council of Development and Reconstruction (CDR). (2018). Roads and Employment Project (REP). ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF).

Dagher-Kharrat, M. B., El Zein, H., & Rouhan, G. (2018). Setting conservation priorities for Lebanese flora—Identification of important plant areas. Journal for nature conservation, 43, 85-94.

FAO. (2009). The "Hima" A Revived Traditional Forest Protection and Management System: the case of Lebanon. Available at: http://www.fao.org/tempref/docrep/fao/011/k4846e/k4846e00.pdf. Accessed on 16/3/2020.

Geocities Website: Geological Units of Lebanon. Stratigraphy of Lebanon," [Online]. Available: http://www.geocities.ws/capecanaveral/5109/Strat.htm. [Accessed 10 February 2022].

Meteoblue website. Climate Hasbaya. [Online]. Available at: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/h%c3%a2sba%c3%afya_lebanon_274313

MoE. (2006). Protected Areas in Lebanon. Available at: http://www.moe.gov.lb/ProtectedAreas/categories.htm. Accessed on 16/3/2020.

MoE/UNDP/ECODIT. (2010). State and Trends of the Lebanese Environment. Available at: http://www.undp.org.lb/communication/publications/downloads/SOER_en.pdf. Accessed on 16/3/2020.

MoE/UNDP/GEF/Birdlife International/SPNL. (2014). Statte of Lebanon's Birds and IBAs. Mainstreaming Conservation of Migratory Soaring Birds into Key Productive Sectors along the Rift Valley/Red Sea Flyway.

MOT. (2011). Ministry of Tourism. Lebanon. Available at: http://www.destinationlebanon.gov.lb/content/uploads/DiscoverLebanonDetail/140429124235024~BOOK_SOUTH.pdf. Accessed on 16/3/2020.

OCHA. (2016). Lebanon, South and El Nabatieh Governorates Profile. The United Nations Office for the Coordination of Humanitarian Affairs. Available at https://reliefweb.int/sites/reliefweb.int/files/resources/30052016_South%20and%20El%20Nabatieh%20profile.pdf. Accessed on 10/2/2022.

SPNL Website. (2020). Hima. Society for the Protection of Nature in Lebanon. Available at https://www.spnl.org/hima/. Accessed on 16/3/2020.

Topographic-map Website. Nabatieh Governorate.," 2022. [Online]. Available: https://en-us.topographic-map.com/places/zobb/Nabatieh-Governorate/. [Accessed 10 02 2022]

UNDP. (2016). Converging Interests of Conciliation: The Social Stability Context in the Marjaayoun and Hasbaya Qazas-Conflict Analysis Report-May 2016. Available at: http://www.databank.com.lb/docs/Social%20Stability%20Context%20in%20Marjaayoun%20and%20Hasbaya%20Qazas%202016%20UNDP.pdf. Accessed on 16/3/2020.

UNDP/CEDRO. (2012). The National Bioenergy Strategy for Lebanon. United Nations Development Programme. Available at https://www.undp.org/content/dam/lebanon/docs/Energy%20and%20Environment/Publications/The-National-Bioenergy-Strategy-report.pdf. Accessed on 16/3/2020.

UNDP/UNHCR/UNICEF/MoE. (2021). Lebanon State of the Environment and Future Outlook: Turning the Crises into Opportunities.

UNHCR. (2021). Syria Refugee Response: Lebanon - Syrian Refugees Registered (as of 31 October 2021). Retrieved from: https://reliefweb.int/map/lebanon/syria-refugee-response-lebanon-syrian-refugees-registered-31-october-2021

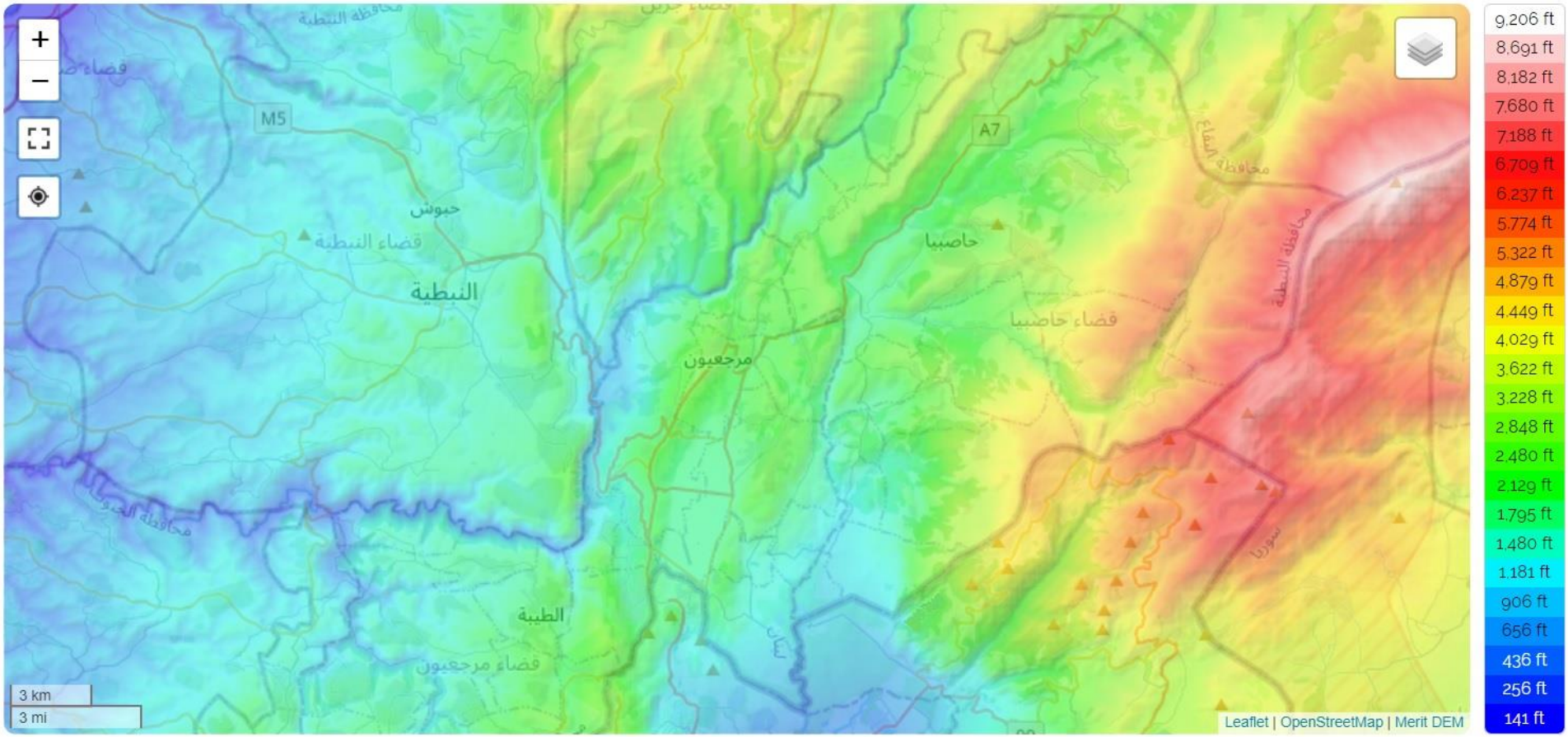
WHO. (2005). Air Quality Guidelines Global Update. PM 24-hour value is the 99th percentile. World Health Organization.

World Bank (WB). (2017). Roads and Employment Project Retrieved from: http://data.worldbank.org/country/lebanon.

World Bank Group-International Finance Corporation. (2007). Environmental, Health, and Safety (EHS) Guidelines. GENERAL EHS GUIDELINES: ENVIRONMENTAL WASTEWATER AND AMBIENT WATER QUALITY.

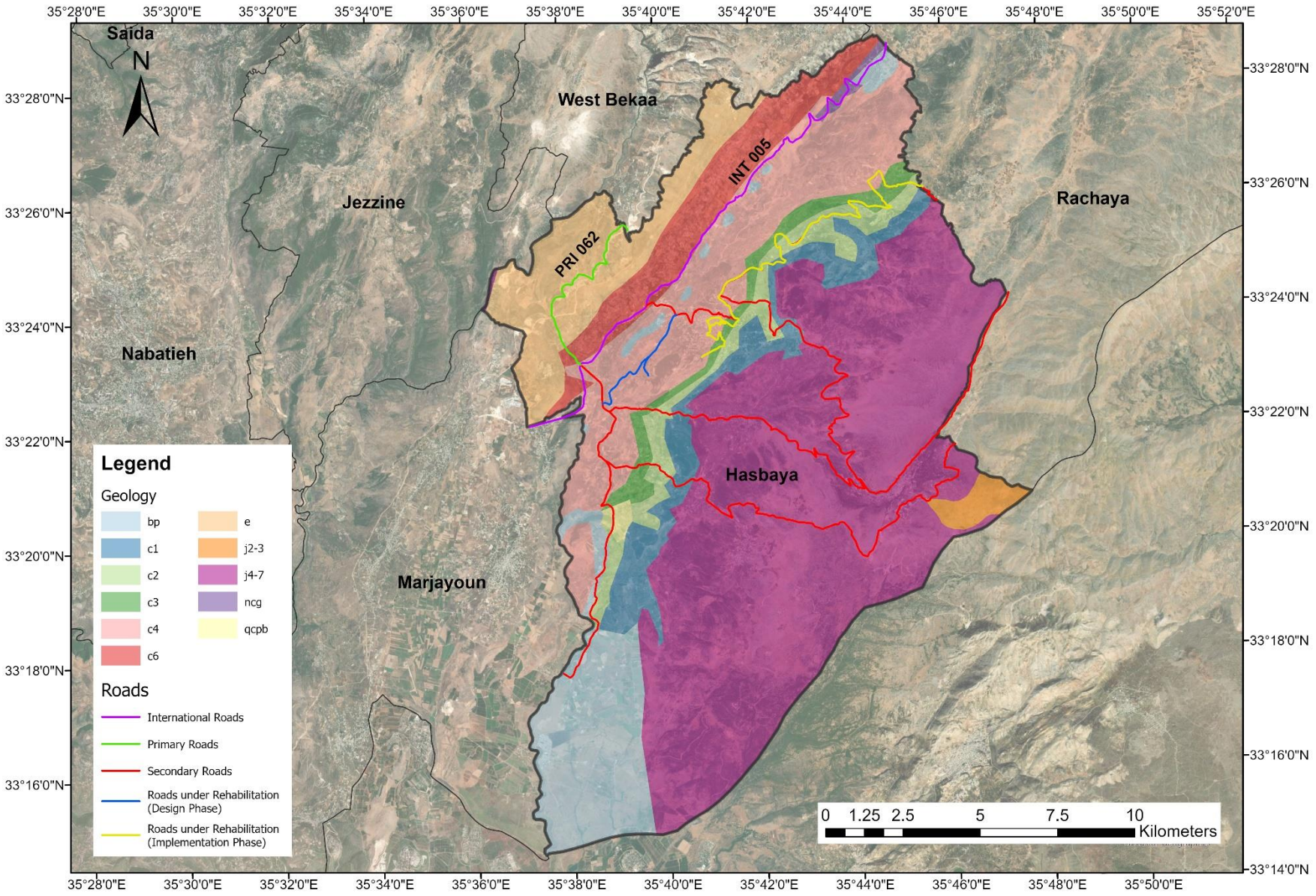
World Food Programme (WFP). (2016). Lebanon Road Network.

ANNEX 1: TOPOGRAPHIC MAP OF HASBAYA

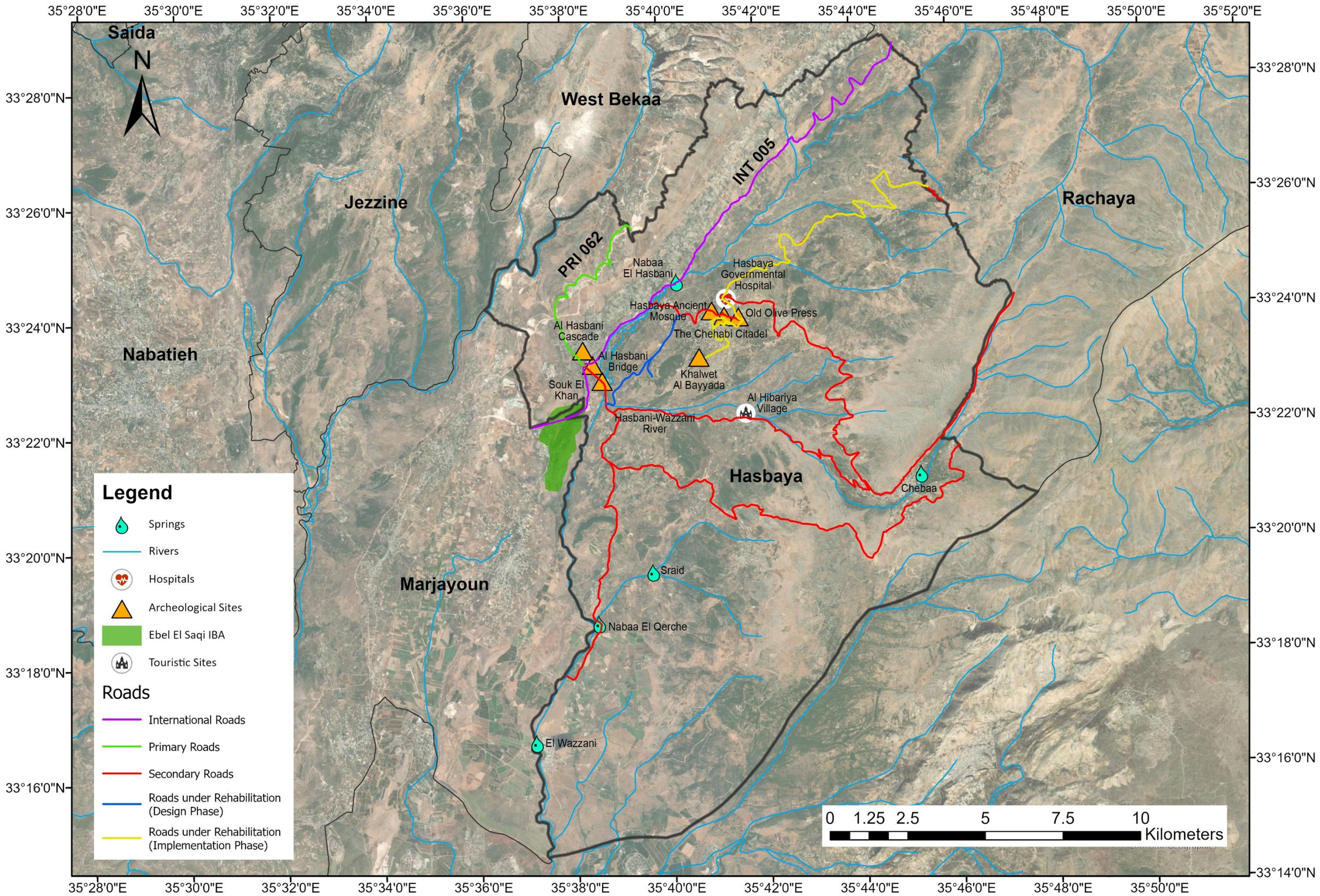


Source: Topographic-Map Website, 2022

ANNEX 2: GEOLOGY MAP OF HASBAYA CAZA

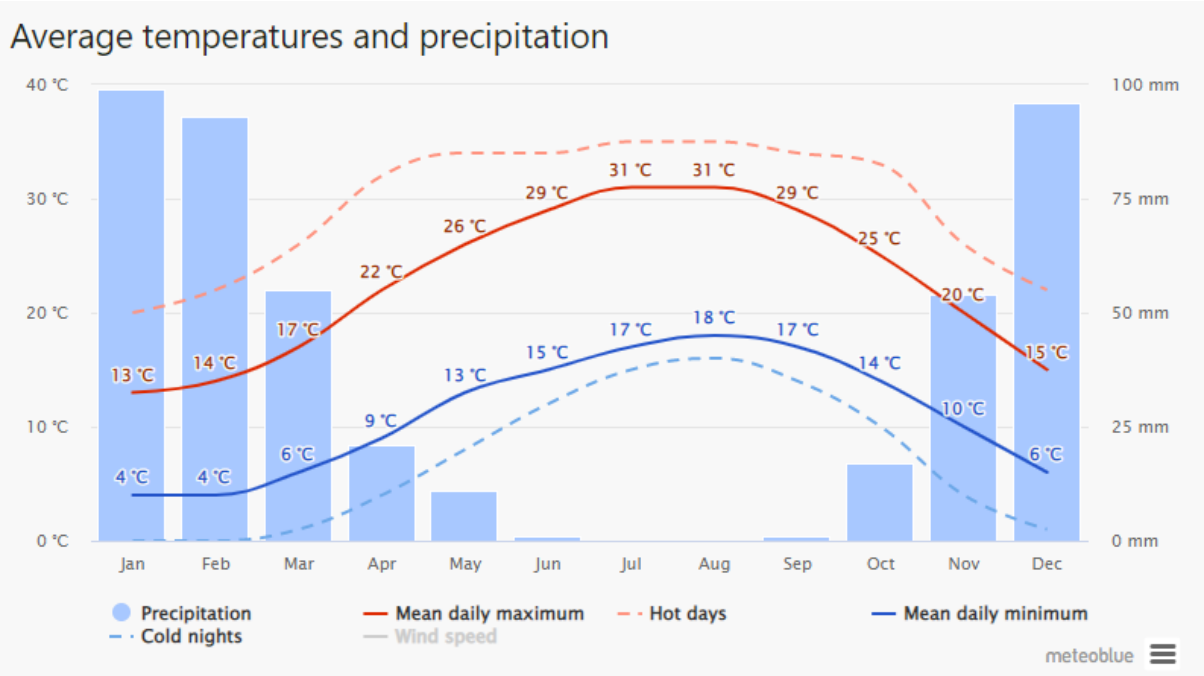


ANNEX 3: SENSITIVE AREAS MAP



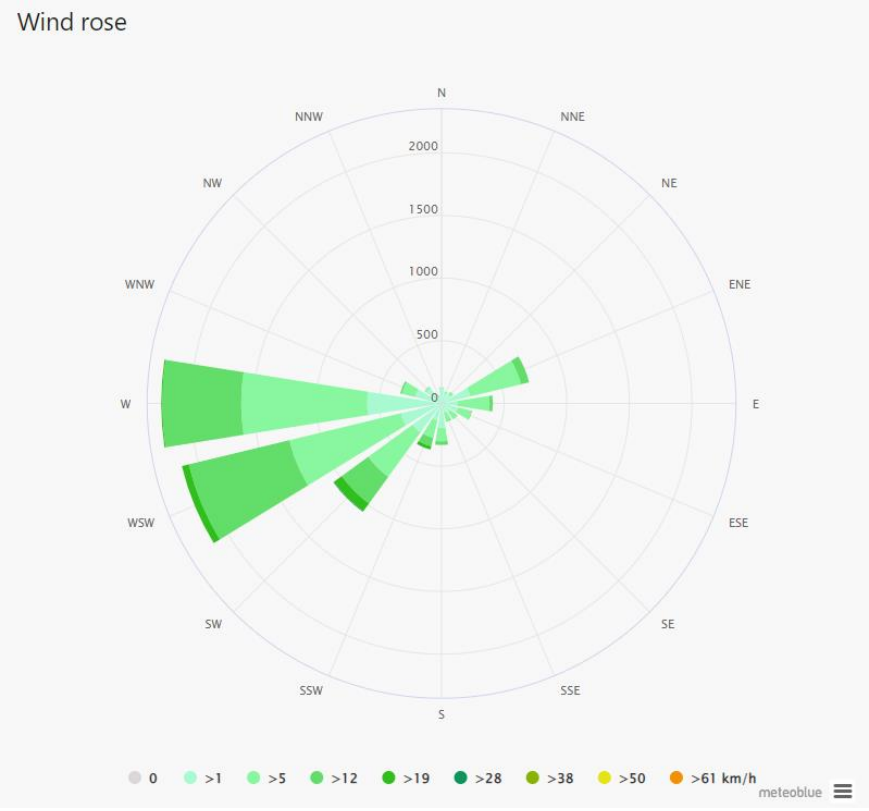
ANNEX 4: CLIMATE DATA

Figure 1: Climograph of Hasbaya in Hasbaya Caza (for the last 30 years)



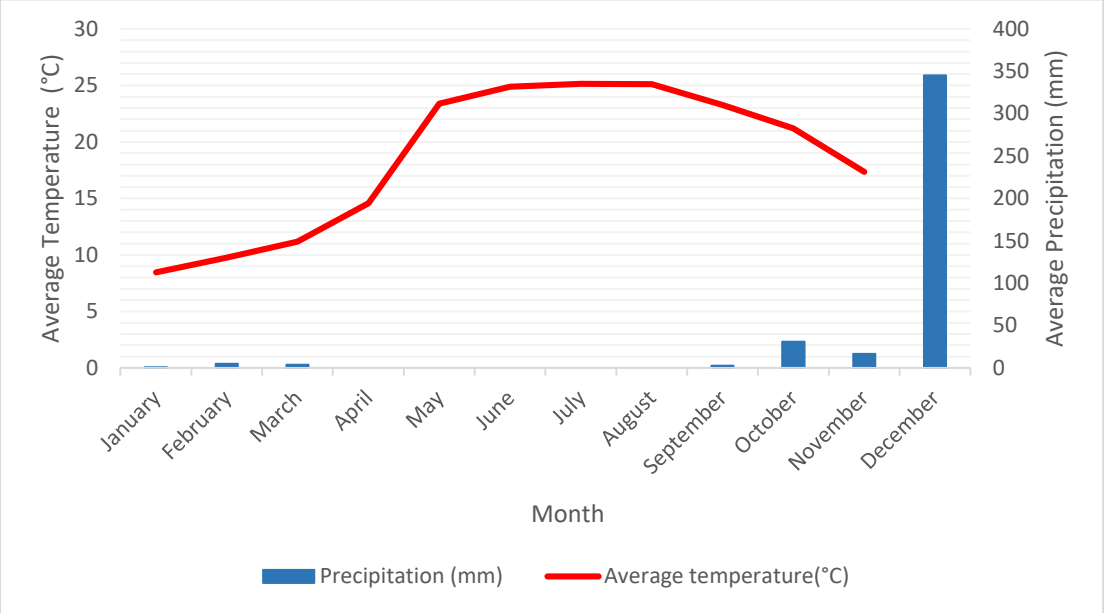
Source:https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/h%c3%a2sba%c3%afya_lebanon_274313

Figure 2: Wind Rose for Hasbaya in Hasbaya Caza (for the last 30 years)



Source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/h%c3%a2sba%c3%afya_lebanon_274313

Figure 3: Climograph of Hasbaya at 750 m from LARI Station for the Year 2019



Source: LARI, 2019

Table 1: Monthly and Yearly Averages of Wind Speed (m/s) and Direction (degrees) registered by Hasbaiya LARI Station in 2019.

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Average per year 2019
Monthly Average Wind Speed (m/s)	1	1.1	0.7	1	1.3	0.81	0.8	0.75	0.07	0.93	1.19	0.81	0.87
Monthly Average Wind Direction (Degrees)	168.6	157	176	165	164	185	188.5	180	174.7	143.2	116	144.2	163.5

Source: Data provided by LARI on January 21, 2020

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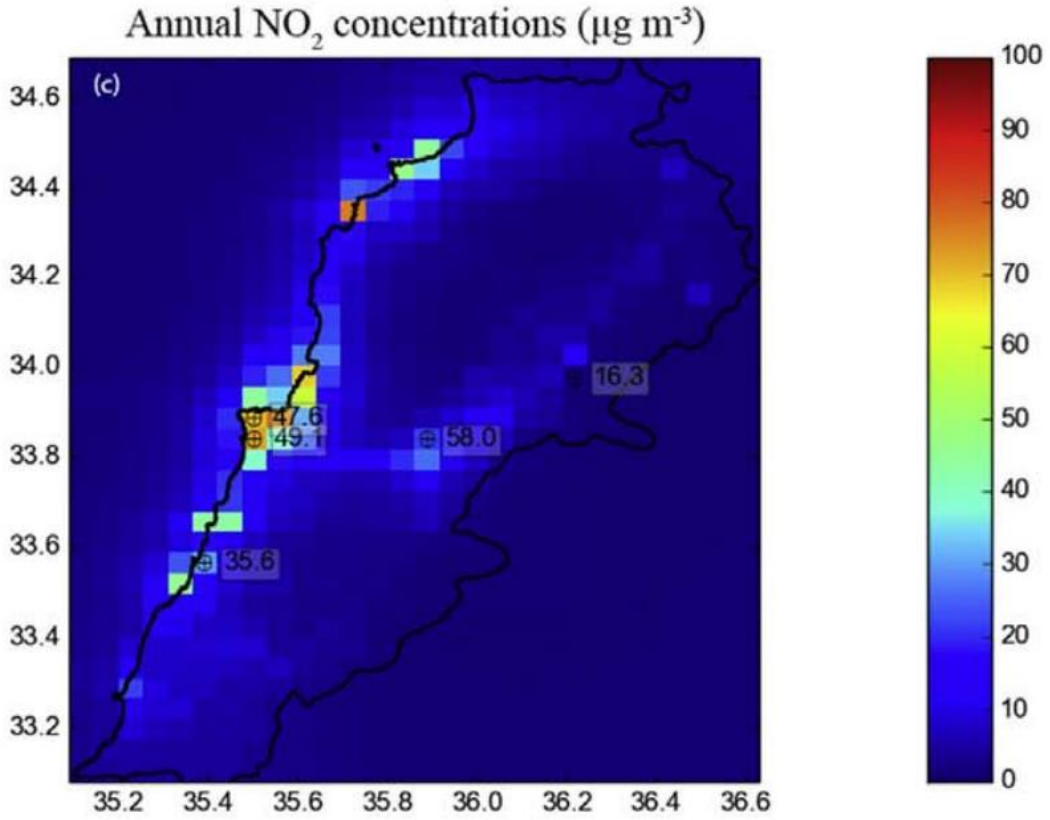
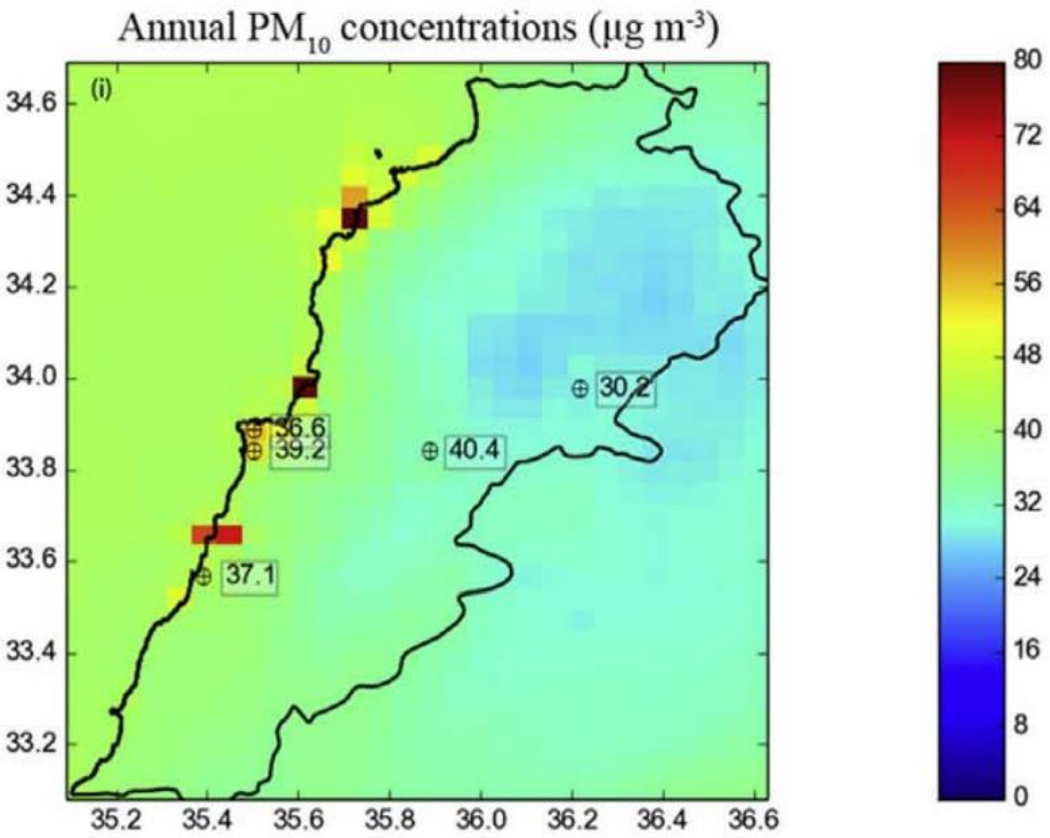
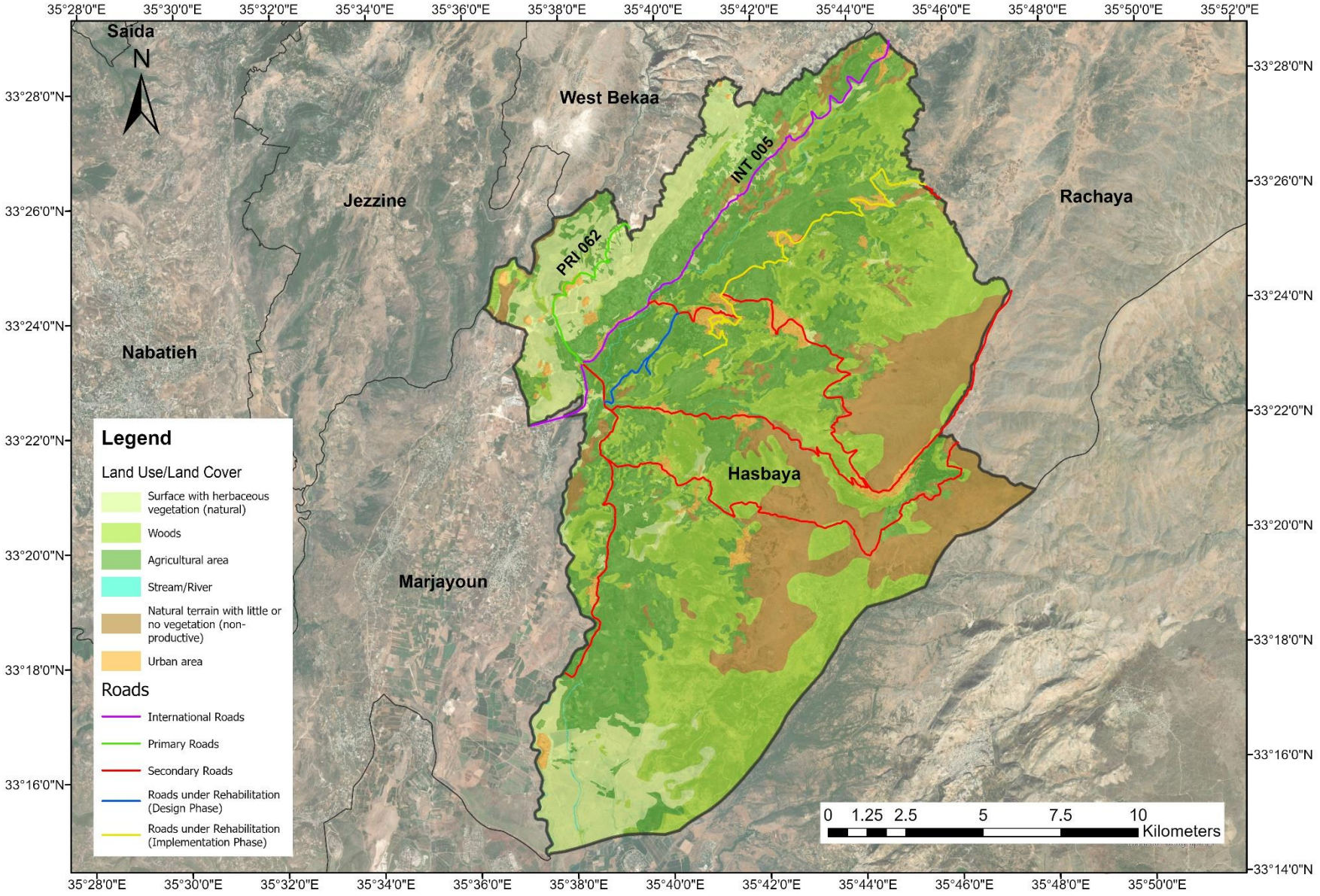
ANNEX 5: AIR QUALITY DATA

The mean modelled annual concentrations maps for NO_2 and PM_{10} (Source: Abdallah et al., 2018)

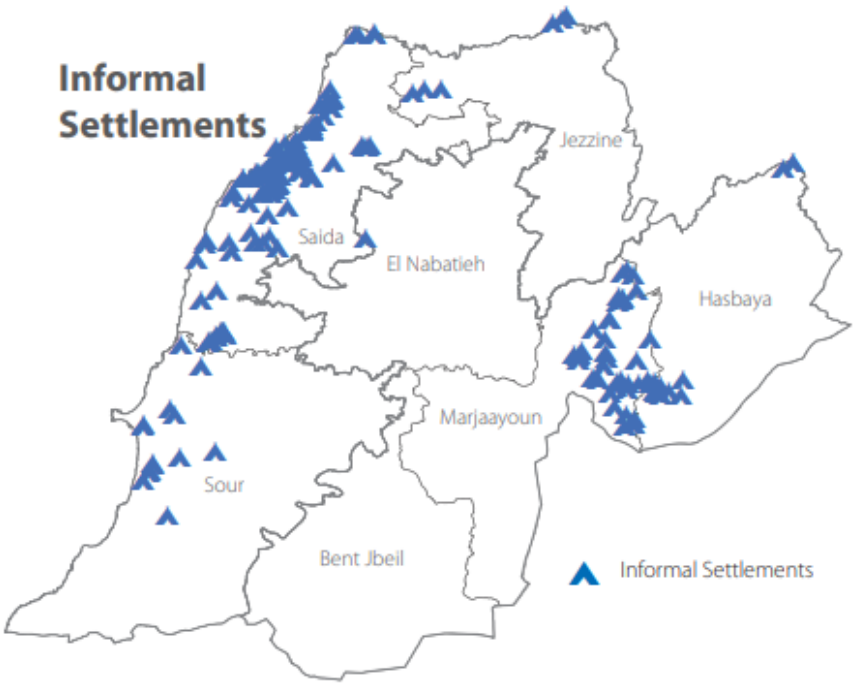


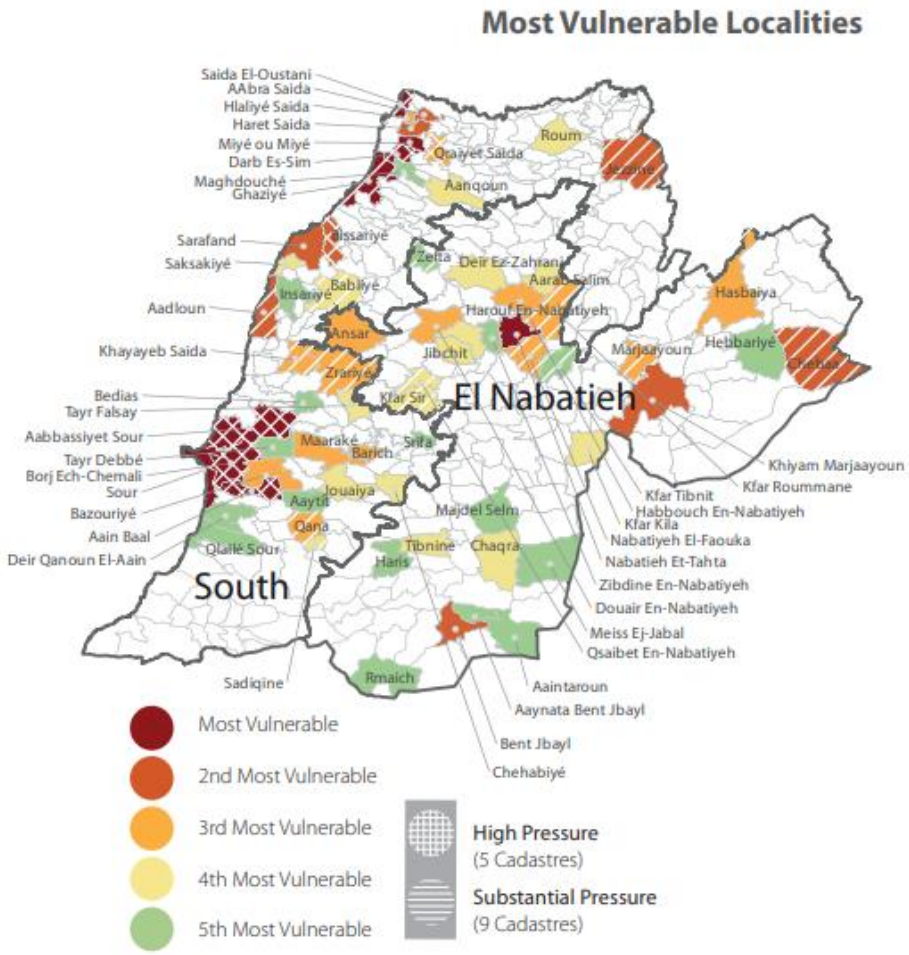


ANNEX 6: LAND USE/LAND COVER MAP OF HASBAYA CAZA



ANNEX 7: INFORMAL SETTLEMENTS AND MOST VULNERABLE LOCALITIES





Source: OCHA, 2016

ANNEX 8: PLANS AND PROCEDURES DURING MAINTENANCE ACTIVITIES

Pollution Prevention Plan

The Contractor shall prepare and abide by a Pollution Prevention Plan to ensure that pollution to air, water or land is prevented or, where this is not possible, reduced and mitigated as far as practicable during the construction phase. The Pollution Prevention Plan will be developed for managing:

- liquid effluents
- air emissions
- noise and vibration
- fuel, oil, and chemical storage and handling
- hazardous, non-hazardous, and household waste handling, storage and final disposal
- vehicle and equipment selection and maintenance

Effluent Management Provisions

- No effluent shall be discharged under any condition neither into water courses or bodies including surface water bodies nor to ground surface or infiltrated into subsoils
- Install mobile porta-cabins and connect the generated wastewater from workers to the existing sewage network or to polyethylene tank
- Empty the tank in the sewer network or into nearby operational wastewater treatment plants either by municipality-owned or contracted wastewater tankers

Rainwater run-off Management Provisions

- Install temporary structures to prevent runoff from reaching nearby water bodies
- Remove base coarse and sand from active maintenance sites to prevent the transfer of suspended solids in rainwater
- All platforms where generators or hydrocarbon storage tanks are installed have an impervious layer
- Restrict excavation activities during periods of intense rainfall

Atmospheric Emissions and Dust Management Provisions

- Exercise care to minimize emissions of dust from its activities, including traffic, at work sites, in residential areas and on access roads.
- Stop dust generating activities during windy weather especially in residential areas
- Where it is deemed that dust is impacting or may have an impact on human, plant or animal receptors or where dust may cause sedimentation of watercourses/water bodies or unacceptable levels of soil loss, water shall be applied to the area creating the dust
- Control vehicle speeds to reduce traffic-induced dust dispersion and resuspension by setting and enforcing speed limits
- Post speed limit signs in sensitive areas
- Ensuring trucks hauling sand, dirt or other loose materials are covered (sheeting trucks)
- Cover dusty stockpiles
- Suspending topsoil stripping and replacement during strong winds
- Using a dust collection system for bulk materials unloading
- Ensure proper handling and storage of materials thus minimising the areas of stockpiled materials

- When storage, transport and handling of bulk materials is made in the open air and exposed to the wind, necessary dust abatement measures shall be implemented
- Regular maintenance of construction machinery, equipment and vehicles

Spill Prevention and Management

- Spill clean-up procedure to reduce the risks of accidental leakages
- Carry out all re-fuelling in designated areas with impervious surfaces and guarantee no fuel spills
- A spill collection tank must be installed under generators and specific equipment
- All chemicals shall be stored in dedicated areas on a paved or sealed floor and in tightly closed containers and be protected from adverse weather conditions
- Used oil or chemical must be stored in an appropriate area until it is collected and disposed in licensed sites
- Use of secondary containment basins for long term storage of lubricants and fuels
- Ensure that the plan is present at the construction site and that oil spill response kits are available
- Ensure proper housekeeping conditions are maintained at the oil/chemical storage areas
- Train all workers to implement this plan in case of accidental spillage

Waste Management Plan

This plan shall be developed and implemented by the Contractor to manage the generated waste effectively. The plan shall include the following components:

- Establish and maintain a waste register which is at the disposal of the Engineer. This register will record all waste management operations: production, collection, transport and disposal. Waste shall be categorized according to the following definitions:
  - Non-hazardous solid waste generated at maintenance sites and offices includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes.
  - Hazardous solid waste includes contaminated soils, oily rags, used oil filters, used oil, as well as spill cleanup materials from oil and fuel spills
- Waste shall be collected from each maintenance sites and from offices at the same rate that it is produced
- All the waste materials generated at work sites and offices shall be segregated into domestic (organic/ paper and cardboard/ metals, glass and plastics) and hazardous waste and disposed into the color-coded containers (one for the disposal of organic waste, one for paper and cardboard and one for aluminium, glass and plastics)
- The domestic waste containers shall be emptied 2 to 3 times per week by the municipality to maintain maintenance sites sanitation
- Segregated recyclables shall be sent to recycling facilities in the area where possible
- Reuse of excavation materials generated during cutting and filling activities whenever possible and disposal of remaining material in controlled disposal site to be identified by the contractor in coordination with the relevant municipality
- Approval letters shall be obtained from the concerned municipalities for domestic and construction waste disposal
- Reuse or recycle the generated waste whenever possible
- Train workers on waste reduction procedures
- Provide workers with nearby sanitation facilities and inform them about their location

- The work zone shall be cleaned on a daily basis. Construction leftovers that are external to the working zone shall be removed regularly. Site housekeeping must be maintained

Hazardous Materials Management Plan

A Hazardous Materials Management Plan will be developed for hazardous materials that pose a potential risk to human health or the environment and include cleaning chemicals, solvents and fuels. The plan shall include the following:

- Fuel and hazardous chemicals/materials shall be stored in designated areas, except for quantities generated or required for the daily construction activities.
- All fuel and hazardous chemical storage facilities shall be located on flat or gently sloping ground and shall be contained within a bund designed to contain at least 110% of the total capacity of the storage containers plus 10% of the aggregate tank volume within the containment area or as otherwise specified by regulatory requirements. The bund walls and floor shall be constructed of concrete or other suitably impermeable material. The filling connection must be within the bund. No drain valves or other connections through the bund walls shall be permitted. Tanks shall be fitted with a gauge to allow the fill level to be monitored during refilling and preferably with a high-level alarm.
- Hydrocarbons, lubricants, paints, solvents and batteries are transported in drums to suitable waste management facilities, if available

Emergency Preparedness and Response Plan

An Emergency Preparedness and Response Plan (EPRP) will be developed so that the Contractor is prepared to respond to accidental and emergency situations in a manner that prevents and mitigates harm to people and the environment. The EPRP needs to be discussed and disclosed to service providers and local affected communities prior to construction. The EPRP shall cover the following emergency situations as a minimum/;

- Medical emergency
- Fire or explosion;
- Hazardous Material Spill or Release;

The EPRP will identify

- Accidents and emergency situations and the communities and individuals that may potentially be impacted
- Response procedures, provision of equipment and resources, designation of responsibilities, communication systems and channels and periodic response training

The Project will need to ensure that the Contractor shall

- Maintain fit-for-purpose Emergency Response Capability, which shall be clearly documented
- Make contingency arrangements for calling a Doctor and transporting injured persons to hospital. The telephone numbers of the emergency services and the name, address and telephone number of the Doctor and the nearest hospital shall be prominently displayed in the Contractor´s office.
- Ensure that all personnel are informed and aware of how to react in an emergency situation, and responsibilities are defined. Information and awareness training shall be documented, and available on all Project Areas
- Organize and document emergency simulation exercises within 3 months of the physical start of the works, and subsequently once every 12 months

Traffic Management Plan

A Traffic Management Plan (TMP) will need to be developed by the main contractor. The TMP shall be a starting point for further discussion between the main contractor, local authorities and road agencies. The plan will include preventative measures to manage the risks from potential increases in traffic from construction activities including transportation of material and workers to and from the maintenance activity sites. In addition, it will include measures to protect workers and manage the risks from civilian traffic within close proximity to maintenance activities especially within residential areas. The TMP will be refined and updated as access routes are confirmed and the timing and type of abnormal loads become known.

The TMP shall include the following:

- Proposed program of works;
- Details of key stakeholders;
- Details regarding the proposed method of construction;
- Proposed Temporary Traffic Control/ Management Plans (TTCP/ TMP);
- Various traffic diversion plan layouts for various type of activities;
- Diversion signs;
- Regulatory signs;
- Informative signs;
- Analysis of impacted roads;
- Risk Assessment;
- Proposed working hours; and
- Protection of Work Zones and road users including pedestrians;

The TMP shall be approved by the Consultant prior the execution of work.

A special TMP shall be prepared regarding works on Highways.

Noting that Works on Highways shall be minimized during Peak- Hours and maximized during off-peak hours, 7 days a week.

Public Health and Safety Plan

An effective Public Health and Safety Plan for construction shall include at least the following components:

- Secure the site and restrict access to it
- Prohibit unattended/unauthorized public access
- No children are allowed to be present on the work site, reminding workers and community members of this in all related communications
- Install barriers with warning lights at night around excavations, material dumps or other obstructions at the maintenance sites
- Install warning signs for drilling and maintenance at the external part of the site and at a distance of 100 meters
- Inform residents and place proper safety and diversion signs at sensitive areas within the project area (i.e. near schools, shops hospitals and agriculture areas)
- Install pedestrian and vehicular passages near residential areas
- Accidental oil spillage shall be well controlled
- Make sure at least three sets of first aid kits are present on the construction site.
- Access to hospitals should not be impeded at any time

- Properly manage trucks and heavy machinery entering and exiting the construction site.
- Training of heavy machinery drivers about road safety
- Equip Project drivers with telephones for contacting the emergency services to enact the EPRP if necessary in case of emergency.
- Keep stakeholders informed of maintenance schedule and abide by assigned timing
- Manage the grievance mechanism through which community members can make complaints about project activities
- The community health and safety plan shall cross reference with other relevant management plans such as the TMP and EPRP. Local health care and emergency services shall be consulted in the development of the plan.

Occupational Health and Safety (OHS) Plan

In addition, the Contractor shall ensure the workers' health and safety against possible accidents and injuries from the various maintenance activities. The plan shall include the following:

- Hazard Identification and assessment including (Physical injuries from: Traffic accidents, Falling from moving vehicles, Loss of stability and overturning of equipment, Falling from height, Hit by construction materials, Slips, trips and falls, Electrical incidents, Burns from hot works, Health problems due to: Fumes and dust, Noise and vibration, Excessive manual handling, Disease outbreaks, Asphyxiation in confined spaces and Fire)
- OHS protection measures for the identified hazards
- OHS protection measures for Unexploded Explosive Ordnance
- Prevention and precaution measures for COVID-19
- Identify the mandatory personal protective equipment (PPE) to be used including hard hats, safety boots, reflective vest as well as specific PPEs
- Identify and manage dangerous substances planned to be used on the project area
- Work Permit System for Confined Space Entry, Hot Works, Excavation, Lifting, Working at Height, Handling of Hazardous Materials, and Electrical works
- Safe Work Method Statements
- Hazard communication
- Emergency and Evacuation procedures
- Accident and incident reporting and investigation

The Contractor shall implement mitigation measures as per the Occupational Health and Safety Plan. Measures include but not limited to:

- Personnel and visitors to maintenance activity areas shall be equipped with a safety helmet, safety shoes and a reflective jacket as a minimum.
- Adequate quantities of PPE shall be available on the project areas and stored properly
- Personnel shall be trained on how to use and care for PPE
- Conduct training and awareness meetings including correct use of PPE, health and safety procedures, and handling hazardous material containers and related wastes
- Ensure refreshing training session on occupational health and safety measures is conducted on a monthly basis
- Ensure that supervision, directly in charge of construction activities, fully brief and discuss with Personnel HS Tool Box Talks at the start of each work day and prior to commencing new activities. These talks shall be conducted in a language understood by the workforce. A checklist shall be utilised for this purpose. At a minimum it shall include the following: Nature

of the job, associated hazards, safe working methods to be adopted and requirements of the Permit to Work

- Ensure a minimum of first-aid provisions on any work site, including: suitably stocked first-aid kits; a person, respectively an adequate number of staff appointed and trained to take charge of first-aid arrangements and ensure that staff and workers are informed about first-aid arrangements
- Equip the project area with a communication system exclusively for the purposes of communication with the first aid services. Information on how to communicate with the first aid services shall be clearly indicated near the communications equipment
- Collaborate with local health authorities and make arrangement with an appropriate number of local doctors, and/or nurses, hospitals and ambulance services to ensure that medical staff, first aid facilities, and ambulance service are available within the project area
- Measures as per national guidelines published by WHO and Ministry of Public Health regarding COVID-19 prevention and quarantine procedures
- Workplace inspections

Chance Finds Procedure

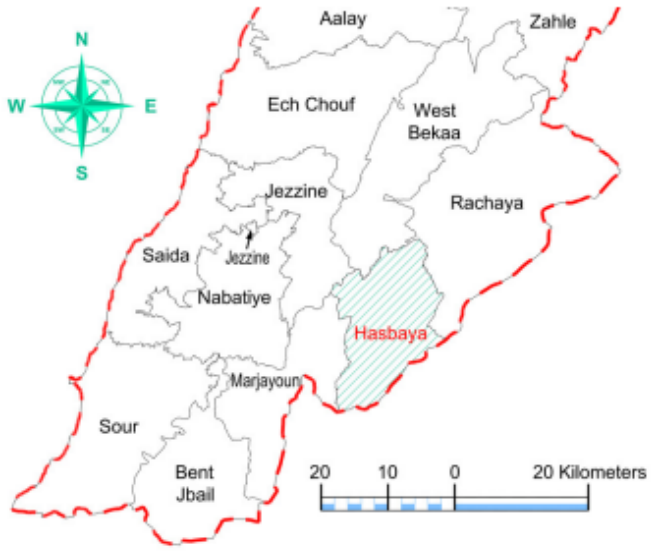
The chance find procedure is a project-specific procedure that identify actions necessary if previously unknown heritage resources, particularly archaeological resources, are unexpectedly encountered during project construction phase.A Chance Find Procedure will set out how chance finds associated with the project will be managed and will include the following requirements:

- Notify relevant authorities (Directorate of General of Antiquities) of found objects or sites
- Fence the area of finds or sites to avoid further disturbance
- Conduct an assessment of found objects or sites by cultural heritage experts in order to identify and implement actions consistent with the requirements of ESS8 and national legislation
- Train project personnel and project workers on chance find procedures

ANNEX 9: PUBLIC CONSULTATION

Announcement

إعلان



ضمن إطار مشروع الطرق والعمالة الممول من قبل البنك الدولي، كلّف مجلس الإنماء والإعمار المكتب الهندسي الإستشاري (ACE) القيام بإعداد ملفات تلزيم **"الصيانة الروتينية"** للطرق الرئيسية التي تقع ضمن نطاق **قضاء حاصبيا**.

إن المشروع سيشمل أنشطة الصيانة الروتينية لمدة سنتين (2) للطرق الرئيسية المؤهلة للصيانة داخل قضاء حاصبيا بعد تقييم وضعها الحالي وإدراجها ضمن الطرق المؤهلة لنشاط الصيانة الروتينية.

ووفقاً لمعايير البنك الدولي، إن المكتب الهندسي الإستشاري يقوم بإعداد خطة إدارة بيئية واجتماعية (ESMP) لهذا المشروع من أجل تحديد ومعالجة وتقليص أي آثار ضارة محتملة أثناء أعمال تنفيذ الصيانة وبالتالي سيتم عقد لقاء عام لعرض مكونات المشروع ومناقشة المواضيع البيئية والاجتماعية المتعلقة بالمشروع يوم **الجمعة بتاريخ 2022/02/04 الساعة العاشرة صباحاً** على تطبيق Zoom، ستجد الرابط هنا:
https://zoom.us/j/98937482997?pwd=b1Z3UGFjM3YzMTNuOXZBaTAvT2RPZz09

أو بإمكانك مسح رمز الإستجابة السريعة (QR Code) أدناه للإنضمام الى الإجتماع:

شاكرين لكم تعاونكم وتجاوبكم، وآملين استمرار التعاون لكل ما فيه خدمة وصحة وسلامة الوطن والمواطن.

Invitation Sample

المكتب الهندسي الاستشاري ايس ش.م.ل.
شركة مساهمة لبنانية وأسمائها ٢٠٠٠٠٠٠٠٠٠ مدفوع بكامله – سجل تجاري ١٦٥٢٩
Associated Consulting Engineers S.A.L

بيروت في ٢٨ كانون الثاني ٢٠٢٢

٣٢/٠٢٢/L2102

جانب رئيس إتحاد بلديات حاصبيا المحترم

المشروع: **أعمال صيانة روتينية للطرق الرئيسية في قضاء حاصبيا (تمويل من البنك الدولي)**

الموضوع: **اجتماع مشاركة عامة**

تحية طيبة وبعد،

بالإشارة الى المشروع والموضوع أعلاه، وضمن إطار مشروع الطرق والعمالة الممّول من قبل البنك الدولي، كلّف مجلس الإنماء والإعمار المكتب الهندسي الإستشاري (ACE) ألقيام بإعداد ملفات تلزيم الصيانة الروتينية للطرق الرئيسية التي تقع ضمن نطاق قضاء حاصبيا.

إن المشروع سيشمل أنشطة الصيانة الروتينية لمدة سنتين (٢) للطرق الرئيسية المؤهلة للصيانة داخل قضاء حاصبيا بعد تقييم وضعها الحالي وإدراجها ضمن الطرق المؤهلة لنشاط الصيانة الروتينية.

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https://zoom.us/j/98937482997?pwd=b1Z3UGFjM3YzMTNuOXZBaTAvT2RPZz09

أو بإمكانك مسح رمز الإستجابة السريعة (QR Code) أدناه للإنضمام الى الإجتماع.

وعليه يسرنا أن نوجه لكم الدعوة للمشاركة في هذه الورشة راجين التكرم بتسمية مندوب من طرفكم للحضور والاتصال للتأكيد مع السيدة كارلا منصور (المكتب الهندسي الاستشاري) على هاتف رقم (٠١/٤٩٧٢٥٠ رقم فرعي ١٢٩) أو فاكس رقم (٠١/٤٩٧٥٥٠).

كما نرفق ربطاً مع هذا الكتاب إعلان لإجتماع المشاركة العامة هذا ونرجو من حضرتكم وضعه حيث ترونه مناسباً ليتمكن سكان البلدة والمعنيين من الإطلاع عليه.

إن هذه الدعوة مفتوحة لأصحاب المنفعة ضمناً منظمات المجتمع المدني والمنظمات الغير حكومية وكافة البلديات المجاورة والمعنية بأعمال الصيانة.

وتفضلوا بقبول فائق الاحترام،

هشام الخليلي
مدير المشروع

مرفقات: إعلان الإجتماع

P.O.Box 11-3446 - Fax: 01 - 497550 - Beirut, Lebanon - Tel: 01 - 497250/1/2 - email:ace@ace-intl.com (٠١)٤٩٧٢٥٠/١/٢ ص.ب ١١-٣٤٤٦ - فاكس (٠١)٤٩٧٥٥٠ - بيروت - لبنان - تلفون:

Local NGOs

Name of the NGOs	Activity
Social Development Association in Meimas	Promotes cultural development by holding exhibitions, seminars and lectures that raise the cultural affairs of the people of the town. Promotes environmental development by striving with the competent authorities to contribute to preserving public cleanliness and forest wealth. Provides material and moral aid to the needy from the town.
Social Development Association in Chabaa	Spreads public awareness and culture among young people. Trains in manufacturing agricultural products. Works to remove illiteracy. Works to preserve a healthy environment and forestry.

International NGOs

NGO Name	Contacts	Intervention Sector(s)
ANERA Lebanon	Mrs. Dima Zayat Deputy Country Director T: 01382590 (ext: 105) M: 70051813 E: dzayat@aneralebanon.org	Children & Youth Development Education Relief Services Water sanitation and hygiene

List of Attendees

Name	Position/Institution/Municipality
Labib Al Hamra	Head of Hasbaya Municipality
Ghazi Khatib	Head of Memis Municipality
Sami Safadi	Head of Hasbani Union of Municipalities
Hala Sadek	Administrative secretary - Hasbani Union of Municipalities
Marwan Deeb	Head of Kfeir Municipality Representative
Elie Abou Nakoul	Head of Kawkaba Municipality
Rabih Moussa	ACE
Célestie Nassar	ACE
Sania El Nakib	ACE
Joanna Zaghrini	ACE

Public Hearing Presentation and Photos


مشروع الطرق والعمالة
في لبنان

THE WORLD BANK

خطة الإدارة البيئية والاجتماعية

LOT 3
قضاء حاصبيا

جلسة مشاركة العامة

04/02/2020

ACE


نقاط حوار الجلسة

- مقدمة
- أهداف اللقاء
- الجهات المعنية بالمشروع
- مراحل اعداد الخطة البيئية والاجتماعية
- وصف المشروع وأبرز مكوناته خلال مرحلة التنفيذ
- الآثار البيئية والاجتماعية الايجابية المحتملة للمشروع
- الآثار البيئية والاجتماعية السلبية المحتملة للمشروع
- أسئلة ومناقشة عامة


مقدمة

- يخطّط مجلس الانماء والاعمار لتنفيذ مشروع الطرق والعمالة في لبنان عبر تمويل من البنك الدولي
- يشمل المشروع أعمال صيانة عدة طرق في بلدات من كافة الأقضية اللبنانية
- يهدف هذا المشروع إلى تحسين كفاءة قطاع الطرق من خلال تحديد أولويات أعمال الطرق وتحسين تقنيات إدارة شبكة الطرق والسلامة العامة


مقدمة

- تتمتع شبكة الطرق في لبنان بنطاق وتغطية كافيين بشكل عام
- لكن نسبة كبيرة من تلك الطرق في حالة سيئة وهو الأمر الذي يؤدي إلى إعاقة التنمية المحلية والاقتصادية، خاصة في المناطق الريفية التي تعتبر فيها حالة شبكة الطرق أدنى مستوىً من حالة الطرقات على المستوى الوطني ككل


2. الجهات المعنية بالمشروع

الجهة	الصفة
البنك الدولي	ممول المشروع
مجلس الانماء والاعمار	إدارة وتنفيذ
المكتب الهندسي الإستشاري ACE	استشاري هندسي و بيئي


1. أهداف اللقاء

- إعلام الرأي العام بالمشروع لإبداء ملاحظاتهم وفقاً لسياسة ضمانات البنك الدولي (سياسة تشغيلية رقم 4.01)
- عرض لأهم الآثار البيئية والاجتماعية والتدابير التخفيفية المرتبطة بتنفيذ المشروع
- مشاركة الحضور بمناقشة القضايا المطروحة وطرحهم لقضايا جديدة لم تذكر
- مناقشة خطة الإدارة البيئية والإجتماعية للمشروع التي تهدف لحماية الصحة البشرية، السلامة العامة والموارد البيئية

4. وصف المشروع

ان المشروع يهدف للقيام :

- باعمال صيانة معظم الطرقات الرئيسية في قضاء حاصبيا بالاضافة الى بعض الطرق الثانوية في حال توفّر اموال من الميزانيّة المعتمدة للقضاء
- مجموع طول الطرق الرئيسيّة 25 km

3. مراحل إعداد الخطة البيئية والإجتماعية

4.2 موقع المشروع في قضاء حاصبيا والطرق المقترح صيانتها

تمت زيارة الطرق القابلة للصيانة لتحديد:

- اوضاع طبقات الرصف الاسفلتية (مستويات الاضرار ومدى انتشارها)
- اوضاع المنشات(منشات تصريف مياه الامطار، حواجز السلامة والعبارات)
- اوضاع العناصر غير الرصفية كاللوحات الارشادية والخطوط المرورية والعلامات

4.4 صور لعدة مواقع ضمن المشروع في قضاء حاصبيا

Obstructed channels and damaged pavement

4.4 صور لعدة مواقع ضمن المشروع في قضاء حاصبيا

Drainage problem and damaged guardrails

4.4 صور لعدة مواقع ضمن المشروع في قضاء حاصبيا

Depression due to water infiltration

4.4 صور لعدة مواقع ضمن المشروع في قضاء حاصبيا

Main problem is stagnant water
No Safety barriers

5. ماذا يتضمن المشروع خلال مرحلة التنفيذ؟

- أنشطة الصيانة الروتينية لمدة (2) سنتين ، في القسيمة 3 - قضاء حاصبيا للطرق الرئيسية كأولوية والطرق الثانوية حيث تتوفر الأموال .
- ستشمل أنشطة الصيانة الروتينية العناصر التالية:

- إصلاح وصيانة رصيف الطريق عن طريق ترقيع الحفر العميقة والضحلة ، سد الشقوق.
- الإصلاح والصيانة عن طريق الطحن والتراكب لانخفاضات الرصيف الموضعية مثل الرصيف الفاشل المطبق فوق الخنادق / المنخفضات.

- إصلاح وصيانة الجدران الاستنادية الخرسانية المسلحة الناقلة / جدران القدم / جدران البناء.

4.4 صور لعدة مواقع ضمن المشروع في قضاء حاصبيا

Damaged pavement due to absence of drainage

6. الآثار البيئية والاجتماعية الإيجابية للمشروع

- تقليل الازدحام المروري وتسهيل التنقل في وإلى القضاء
- خلق فرص عمل لأبناء المنطقة والمساهمة في التنمية الاقتصادية المحلية
- المحافظة على السلامة العامة في الطرقات من خلال تقليل حوادث السير والانجرافات
- تشجيع الشركات المحلية من خلال بيع المواد الخام والآلات والسلع
- ازدهار التنمية الاقتصادية والاجتماعية في المناطق الريفية
- التقليل من تلوث الهواء والغبار

5. ماذا يتضمن المشروع خلال مرحلة التنفيذ؟

- إصلاح وصيانة الأرصفة بما في ذلك البلاط وحجر الأرصفة.
- إصلاح وصيانة حواجز الأمان: حاجز نيوجيرسي / تكساس وسكة حماية فولاذية.

- تنظيف منشآت تصريف مياه الامطار والقيام بالاصلاحات البسيطة اللازمة للمنشآت الخرسانية - تجديد وإصلاح وتنفيذ وصيانة علامات الطرق وتوقيعها.

- الأعمال المساعدة الأخرى المرتبطة بما في ذلك إدارة حركة المرور خلال العقد.

7. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التنفيذ

النشاط	الأثر المحتمل
حركة الآليات والمركبات	زيادة احتمال حوادث السير
انبعاثات الغبار وزيادة نسبة الضجيج	ضرر على السلامة العامة وسلامة العمال
التدابير التخفيفية	
• إدارة حركة المرور أثناء تنفيذ المشروع وتعيين موظف لهذه الغاية	
• التأكد من أن الإشارات التحذيرية وأنظمة الإضاءة ظاهرة وموجودة في الأماكن المكتظة وخاصة قرب المدارس والمستشفيات والمناطق التجارية	
• إعلام السكان ووضع لافتات بالقرب من مناطق العمل	
• حصر الحفر وأي نشاط خرساني خلال ساعات العمل فقط	
• وجود آلية مراجعة الشكاوى للمجتمعات المحيط	

7. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التنفيذ

النشاط	الأثر المحتمل
أعمال بناء اصلاح مجاري مياه الأمطار	أضرار على البيئة النحلية
قلع النباتات و الاعشاب	ضرر على التنوع الحيوي
التخلص غير السليم من النفايات الصلبة	تلوث التربة والمياه
احتمال لحالة حوادث تسرب	تلوث التربة والمياه
التدابير التخفيفية	
• التنسيق المنتظم مع البلديات المحلية	
• التخلص السليم من النفايات الصلبة الناتجة عن أعمال التنفيذ و حظر التخلص منها في مواقع غير مخصصة	
• صيانة كافة الآليات بشكل دوري لمنع حوادث التسرب	

أسئلة ومناقشة عامة

يمكنكم إبداء رأيكم:

عبر التواصل مع
المكتب الهندسي الاستشاري
هاتف: 01/497250
فاكس: 01/497550
بريد الكتروني: ace@ace-intl.com

أو

عبر التواصل مع
وحدة مشروع الطرق والعمالة
في مجلس الانماء والاعمار
هاتف: Ext. 317 01/980096
بريد الكتروني: rstephan@cdr.gov.lb

7. آلية مراجعة الشكاوى

يمكن للاشخاص المعنيين الاستفسار عن معلومات اضافية أو/و تقديم أية شكوى (في حال وجودها) بالتواصل مع وحدة آلية مراجعة الشكاوى من الاثنين حتى الجمعة بين 9:00 صباحاً و15:00 بعد الظهر، عبر:

الهاتف: 01980096 مقسم 317
البريد الالكتروني: GRM.REP@cdr.gov.lb
تسجيل كتاب رسمي لدى مجلس الانماء والاعمار
(العنوان: تلة المراي - رياض الصلح، بيروت – لبنان)

كما يمكن إبداء الرأي حول تنفيذ المشروع من خلال تعبئة النموذج الموجود عبر الرابط التالي
https://cdr.impact.gov.lb/worldbankmobile/home/main?lang=ar
أو عن طريق مسح هذا الباركود

سيكون رأيك مجهول المصدر

شكـــــراً لحضوركم ومشاركتكم


مشروع الطرق والعمالة
في لبنان
THE WORLD BANK
خطة الإدارة البيئية والاجتماعية
LOT 3
قضاء حاصبيا
جلسة مشاركة العامة
22/02/2020
Saniya Nakib
Joanna Zaghrini...
Joanna Zaghrini (Ecocentra)
Rabih Moussa
Célestie Nassar...
Go to Settings to activate Windows.

ANNEX 10: GRIEVANCE REDRESS MECHANISM FORM AND LOG

Reference No:	
Contact Information **Please mark how you wish to be contacted (mail, telephone, e-mail).**	☐ **By Post: Please provide mailing address:** _____ _____ _____ ☐ **By Telephone:** _____ ☐ **By E-mail** _____
Preferred Language for communication	☐ **Arabic** ☐ **English**
Description of Incident or Grievance:	What happened? Where did it happen? Who did it happen to? What is the result of the problem?
Date of Incident/Grievance	
	☐ **One time incident/grievance (date _____)** ☐ **Happened more than once (how many times? _____)** ☐ **On-going (currently experiencing problem)**
What would you like to see happen to resolve the problem?	

Signature: _____

Date: _____

GRM Log Book

Name/group of commenter/complainant	Complaint Received date	Description of Issues	Proposed Corrective Actions	Date of Response	Status		
					Solved	Ongoing	Pending

ESMP Risk Classification Criteria Checklist

Eligibility Criteria for Sub-Projects

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

Checklist of Possible Environmental and Social Impacts of Projects

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?	√		For all the maintenance activities combined, a large amount

S No	ISSUES	YES	NO	Comments
				of asphalt, base course, concrete, stones.
7.	Will the subproject generate large amounts of residual wastes, construction material waste or cause soil erosion?	√		For all the maintenance activities combined, a large amount of asphalt, base course, concrete, stones.
8.	Will the subproject result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?	√		This risk will be eliminated if correct measures were followed.
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?	√		For a limited period during the execution of maintenance activities
15.	Will the subproject increase ambient noise levels?	√		For a limited period during the execution of maintenance activities
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?		√	

S No	ISSUES	YES	NO	Comments
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 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?		√	

Site Characteristics

S. No	ISSUES	YES	NO	Comments
1.	Is the subproject located in an area with designated natural reserves?			This cannot be determined at this stage

S. No	ISSUES	YES	NO	Comments
2.	Is the subproject located in an area with unique natural features?			This cannot be determined at this stage
3.	Is the subproject located in an area with endangered or conservation-worthy ecosystems, fauna or flora?			This cannot be determined at this stage
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?			This cannot be determined at this stage
5.	Is the subproject located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?			This cannot be determined at this stage
6.	Is the subproject located close to groundwater sources, surface water bodies, water courses or wetlands?			This cannot be determined at this stage
7.	Is the subproject located in an area with designated cultural properties such as archaeological, historical and/or religious sites?			This cannot be determined at this stage
8.	Is the subproject in an area with religious monuments, structures and/or cemeteries?			This cannot be determined at this stage
9.	Is the subproject in a polluted or contaminated area?			This cannot be determined at this stage
10.	Is the subproject located in an area of high visual and landscape quality?			This cannot be determined at this stage
11.	Is the subproject located in an area susceptible to landslides or erosion?			This cannot be determined at this stage
12.	Is the subproject located in an area of seismic faults?			This cannot be determined at this stage
13.	Is the subproject located in a densely populated area?			This cannot be determined at this stage
14.	Is the subproject located on prime agricultural land?			This cannot be determined at this stage
15.	Is the subproject located in an area of tourist importance?			This cannot be determined at this stage
16.	Is the subproject located near a waste dump?			This cannot be determined at this stage
17.	Does the subproject have access to potable water?			This cannot be determined at this stage
18.	Is the subproject located far (1-2 kms) from accessible roads?			This cannot be determined at this stage
19.	Is the subproject located in an area with a wastewater network?			This cannot be determined at this stage
20.	Is the subproject located in the urban plan of the city?			This cannot be determined at this stage
21.	Is the subproject located outside the land use plan?			This cannot be determined at this stage

CONCLUSION

	High	Substantial	Moderate	Low
RISK CLASSIFICATION OF THE SUBPROJCT				