REPUBLIC OF IRAQ

MINISTRY OF CONSTRUCTION, HOUSING, MUNICIPALITIES AND PUBLIC WORKS

ROADS AND BRIDGES DIRECTORATE

Emergency Operation Development Projects (EODP) (P155732)

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR

> Rehabilitation & Reconstruction of Imam Ways Bridges (4) & (7) in Diyala Governorate

> > 10th September, 2016

H	Revision History								
Version	Revision Date	Description or Reason for Change	Discipline Review	Director Review	Approval				
00	14/07/2016	Initial Release							
01	26/08/2016	First Revision	Comments addressed partially						
02	01/09/2016	Second Revision	Comments addressed						
03	12/09/2016	Third Revision	RSA comments addressed						

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ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
AIM	Audit and Inspection Manager
ASD	Allowable Stress Design
BS	British Standard
EHS	Environmental Health and Safety
EODP	Emergency Operation for Development Project
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management plan
GIIP	Environmental and Social Management Plan
GOI	Government of Iraq
GRM	Grievance Redress Mechanism
IEODP	Iraqi Emergency Operation Development Project
MOCHPM	Ministry Of Construction Housing and Public Municipalities
MOE	Ministry of Environment
MOST	Ministry of Science and Technology
MSDS	Material Safety Data Sheets
OP	World Bank Operational Policy
PAPs	Project Affected People
PMT	Project Management Team
PPE	Personal Protective Equipment
RBD	Road and Bridges Directorate
RE	Resident Engineer
TOR	Terms of Reference
WB	World Bank

EXECUTIVE SUMMARY

INTRODUCTION

This executive summary reflects the main issues (project description and activities, baseline conditions, impact analyses, mitigation measures and monitoring arrangements) of the Environmental and Social Management Plan (ESMP) conducted for the rehabilitation/repair of Bridges (4) & (7) on Imam Ways in Diyala Governorate. The main objective of the ESMP is to examine the environmental and socio-economic impacts of the project (during both rehabilitation/repair and operation phases), and to propose mitigation measures. The project is expected to result in significant socio-economic benefits for the local communities and surrounding areas as it will improve and ease of transport for the locals and the bridge users.

PROJECT DESCRIPTION

Imam Ways Road connects Al-Muqdadia City with Khankin City, both located in Diyala. The bridges were constructed in 1982 to overpass shallow seasonal water courses that are totally dry in summer.

Bridge (7) on Imam Ways is 75 m long. It consists of 5 spans with a length 15 m each. The width of Bridge is 11.60 m. It comprises 9 m carriage way and 1.30 m sidewalk on each side. The superstructure consists of concrete girders 15 m long and 1.00 m depth and reinforced concrete deck.

Bridge (4) on Imam Ways is 60 m long. It consists of 4 spans with a length of 15 m each. The width of Bridge is 11.60 m. It consists of 9 m carriage way and 1.30 m sidewalk on each side. The superstructure entails concrete girders 15 m long and 1.00 m depth and reinforced concrete deck.

Bridges (4) & (7) on Imam Ways have been attacked by terrorists' bombers. The second & third spans of each of the 2 bridges are completely damaged and both bridges are currently not accessible to traffic. As alternative route, the vehicles use the paved road that connects Bahiya to Khanaqin via Kani Masi. The length of this alternative road is about 55km while that of the part of Imam Road Way on which Bridges (4) & (7) are located, is about 51Km. Also, for short distance travel, multiple culverts were installed under the bridges to allow the temporary overpass of the water courses.

The objective of the Project is the rehabilitation/repair of the two bridges to facilitate travel and commerce and access to essential service including health care and education and movement of agriculture products. The Bridges are of a strategic military significance. They are used mainly by heavy trucks for transportation of goods such as food, medicine, commercial products and by people from different areas around the bridge. They are taken also by students commuting to the universities.

Works on the bridges include:

- Demolishment and removal of damages in the second and third spans and pier 2 for each bridge (the two spans are simply supported and have 2 expansions joints),
- Installation of new rubber pads (No. 28),
- Installation of pre –cast pre-stressed girders (14 girders),
- Deck slab surfacing (0.20m depth, 350 m²),

• Other works such as lighting, pitching, and setting the expansion joint.

ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

Land in the vicinity of the bridges is a State-owned open area. There are no buildings located within 1.5 km of the project site. Consequently, none of these buildings is sufficiently close to the bridges construction areas that it is likely to be adversely affected by either the rehabilitation activities or the re-operation of the bridges.

Since the repair and rehabilitation activities of the two bridges will not entail neither permanent nor temporary land acquisition and no impact is expected on the livelihood of the local people, therefore, OP 4.12 does not apply.

The climate of the area is a desert. The average annual temperature is 22.7 °C. The total average yearly precipitation is 203 mm.

The ambient air quality is within normal range. Although no baseline measurements were conducted due to security constraints, it can be assumed that the concentration of pollutants is well below allowable standards since there are no sources for air pollution in the bridges areas. Similarly, noise levels are expected to be below the national standards.

There are no protected areas or endangered species in the site vicinity. There aren't neither any historical or cultural sites around the bridges.

No additional land is needed to proceed with the project.

The annual traffic volume on the Imam Ways road is about 2,656,470 vehicles. 50% of the vehicles are trucks and 36% are buses. As the bridges are currently not accessible, vehicles are using the paved road that connects Bahiya to Khanaqin via Kani Masi. Also, multiple culverts were installed on the seasonal water courses as a temporary detour near the bridges areas.

POLICY, LEGAL AND ADMINISTRATIONAL FRAMEWORK

A desk study was carried out to identify and assess the applicable legal and administrative regulations to such Project. The assessment considered both Iraqi laws and the policies and procedures of the World Bank. A collection of relevant laws and regulations is presented in this section. The objective of this task would be to ensure the project complies with relevant environmental laws and regulations throughout the rehabilitation and operation phases of the bridge. The Table below present the relevant and applicable laws and regulations.

Applicab	Applicable Iraqi laws				
Law no. 37 of 2008	Describes institutional arrangements of the Ministry of Environment and Outlines policies and roles and responsibilities toward protecting the environment.				
Law no. 27 of 2009	Protection and Improvement of Environment				
Regulations no. 2 of 2001	Preserving water resources				
Law No.3 issued in 1997	Environment protection				
Law No. (55) Issued in 2002	Heritage and antiques				
Applicabl	e WB Policies				
OP 4.01	Environmental Assessment				
EHS	Environmental, Health, and Safety guideline				
GRM	Grievance Redress Service				

Table E1: Summary of Applicable Laws, Regulations and Policies

ENVIRONMENTAL AND SOCIAL IMPACT ANALYSIS

The reconstruction of the two bridges may have negative impacts on the surrounding environment but they are temporary, reversible and not severe. They are expected to occur during the rehabilitation and operational phases. It is anticipated that the rehabilitation of the bridges will have significant positive social impacts on the local communities.

Environmental Impacts

The main environmental impacts of the project will be associated with activities during the rehabilitation period. These include air emissions, noise, dust, generation and handling of construction and other waste, and health and safety concerns associated with construction workers. Mitigation measures will be implemented to minimize the environmental costs by reducing the identified adverse environmental impacts.

The expected negative environmental impacts include:

- a. Solid and hazardous Waste resulting from the rehabilitation activities.
- b. Health and safety of the workers during rehabilitation.

Social Impacts

From the socio-economic perspective, both the construction and operational activities are expected to have positive impacts on the communities living in the area. Transportation will be significantly enhanced which will facilitate movement of locally agricultural production to markets. Additionally, the anticipated increase in through-traffic resulting from ease of movement across the bridge, improving livelihood opportunities. Traffic management plan during rehabilitation stage will be introduced as safety measure as shown in Table E3 below. The construction contractor(s) will be responsible for compliance with the ESMP provisions during the rehabilitation phase of the project. The contractor will be also be in charge of undertaking work in a manner which complies with all relevant environmental procedures, adheres to all legislative requirements, and ensures that all environmental objectives associated with the contract are achieved. The overall assessment of the key environmental and social impacts is summarized below.

	Environmental Receptor	Impact Significance
1	Air Quality	Low
2	Noise	Low
3	Water Resources Low	
4	Soil Low	
5	Solid and hazardous wastes	Medium
6	Flora & Fauna	Not significant
7	Topography and landforms	Not significant
8	Impacts on local traffic	Low
9	Health and Safety	High
10	Socio-Economic impacts	Low
11	Land	Insignificant

Table E2: Summary of Impact Assessment Matrix – During Construction / Rehabilitation

ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES

The required mitigation measures for each of the minor environmental impacts and any adverse socio-economic impacts that may arise have been considered. Furthermore, a complete monitoring and auditing system were suggested for each environmental and social parameters in order to sustain the environmental and social situations in the area of the projects. These measures should significantly reduce the identified potential minor impacts.

The following tables present the proposed mitigation measures that need to be implemented and their relevant estimated costs both during the rehabilitation and the operational phases.

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
1	Air quality	 Unpaved roads, e.g. which may be utilized for construction vehicles movement or transportation of construction materials should be prepared in a way to avoid dust emissions. Watering to suppress dust should take place regularly. Watering or increase of the moisture level of the open materials storage piles to reduce dust levels; Enclosure or covering of inactive piles to reduce wind erosion; Loads in all trucks transporting dust-generating materials have to be sprayed with water to suppress dust, as well as wheels of means moving inside and outside of the construction-site; and Speed reduction for vehicles approaching the site to less than 40 km/hr. On site, speed should not exceed 20 km/ht. 	Contractor	Resident engineer	1,000
		 Engines of vehicles and other machinery are kept turned on only if necessary, avoiding any unnecessary emission; Machines and equipment are periodically checked and maintained to ensure their good working condition; All equipment and machines must be maintained and tested for compliance with standards and technical regulations for the protection of the environment and have appropriate certifications; Activities are carried out using the minimum required number of means at the same time; and Electric small-scale mechanization and technical tools are used when available and feasible; 	Contractor	Resident engineer	Included in contractor cost
		Limit vehicle speed limits to be the minimum (less than 40 km/hour) near residential buildings and farmlands.		Resident engineer	Included in contractor cost

Table E3: Mitigation measures during rehabilitation Phase

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
2		Construction activities are to take place within reasonable hours during the da and early evening. Night-time activates near noise sensitive areas, such a residential buildings, should not be allowed.		Resident engineer	Included in contractor cost
	Noise	 Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Equipment to run only when necessary; and Positioning of the noise sources in a concealed area with respect to acoustic receptors, consistent with the needs of the construction site. 	Contractor	tor Resident engineer Included contractor cost	
		Use of personal protection equipment for workers especially those who use jack hammers or near noisy engines or compressors.	Contractor	Resident engineer	2,000
		Damaged sections of the bridge are carefully removed without blocking water drainage channels.	Contractor	Resident engineer	Included in contractor cost
		Wastewater from the worker rest areas or construction offices should be contained in solid containers and should be removed regularly from site by means of authorized contractors.		Resident engineer	8,000
3	Water resources	In case of the need to change engine oils or refuel some construction equipment, a proper maintenance workshop or shelter should be installed to ensure containment of any fuel or oil spills.		Resident engineer	eer Included in contractor cost eer 8,000 eer 3,000
		 In case of using septic tanks on site, the engineering drawings of these tanks should be presented to the Resident Engineer for approval. No solid wastes are to be thrown into the drainage channel. 	Contractor	Resident engineer	Included in contractor cost
4	Soil	• To prevent soil contamination by oil/grease spills, leakages or releases, all manipulations of oil derivatives in the process of construction and provision of the fuel to the machines should be performed with maximum care; leak proof containers should be used for storage and transportation of oil/grease and wash off from the oil/grease handling area shall be drained through drains and treated appropriately before disposal;	Contractor	Resident engineer	Included in contractor cost

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
		 Construction waste and debris shall be collected on a regular basis and disposed of at designated landfills; Only authorized quarries shall be used for purchasing soil to be used for embankment, padding, bedding, backfilling during construction; and It must be prohibited to operate equipment and vehicles outside the designated work areas and roads. No hazardous waste storage to take place directly on soils. Appropriate and enclosed containers should be utilized. 	Contractor	Resident engineer	1,000
5	Solid and hazardous wastes	 Minimize waste generation on site. Simple waste management plan for specific waste streams must be developed. General waste must be collected and transported to local council approved disposal sites. Food wastes must be collected, where practicable, considering health and hygiene issues, for disposal off-site through licensed contractors. Waste containers must be located at each worksite. Chemical wastes must be collected in 200 liter drums (or similar sealed container), appropriately labeled, for safe transport to an approved chemical waste depot or collection by a liquid waste treatment service. Storage, transport and handling of all chemicals must be conducted in accordance with all legislative requirements, through licensed contractors and in coordination with the local authority. All hazardous wastes must be appropriately stored in bounded areas and should be clearly identified as "hazardous" Transportation and disposal of hazardous wastes should be done through licensed contractors and in compliance with the legal requirements and instructions of the coordination with the as ministry of science and technology. Hazardous liquids, such as solvents, rust proofing agents and primer must be managed in accordance with the requirements of relevant legislation and industry standards. 	Contractor	Resident engineer in coordination with the local authority and ministry of science and technology regarding hazardous wastes	6,000

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
		 A hazardous materials inventory for the construction period must be prepared. Material Safety Data Sheets (MSDS) for hazardous materials must be available on-site during construction and made available and explained to workers. Hydrocarbon wastes, including lube oils, must be collected for safe transport off-site for reuse, recycling, transport or disposal at approved locations. 			
6	Flora & Fauna	Not Applicable	Not Applicable	Not Applicable	Not Applicable
7	Topography and landforms	Not Applicable	Not Applicable	Not Applicable	Not Applicable
8	Traffic	 Where practicable, truck deliveries must be restricted to daytime working hours 	Contractor in coordination with the Local Traffic Department	Resident Engineer	500
		• Limit speed of construction vehicles and provide road signage for drivers and local community.	Contractor	Local traffic department in coordination with the RE	1,000
9	Health and Safety	 Qualified personnel must be employed for the construction equipment, and personnel must be trained for health and safety issues. Personal protection equipment such as eyeglasses, gloves, hard heads and safety belts, slip- resistant safety footwear must be supplied and continuously used by all workers, technicians, engineers and site visitors. 	Contractor	Resident engineer	3,000

Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
	 Compliance with international standards for good construction practices; Adherence to local and international guidance and codes of practice on Environmental Health and Safety (EHS) management during construction; Management, supervision, monitoring and record-keeping; Implementation of EHS procedures as a condition of contract with contractors and their sub-contractors; Clear definition of the EHS roles and responsibilities of the companies involved in construction and to individual staff (including the nomination of EHS supervisors during construction and an EHS coordinator during operation); Pre-construction assessment of the EHS risks and hazards associated with construction and operation, including consideration of local cultural attitudes, education level of workforce and local work practices; Provision of appropriate training on EHS issues for all construction and operation workers, including initial induction and regular refresher training, taking into account local cultural issues; Provision of health and safety information; Regular inspection, review and recording of EHS performance; Putting on a safety harness and connecting it, via an energy-absorbing lanyard, to a suitable anchor point for staff working at the sides of the bridges Maintenance of a high standard of housekeeping at all times. 	Contractor	Resident engineer	Included in contractor cost
	 Any accident to be reported and treated within site as a first aid procedure. Safety training for the workers. Fuel and oil changing shelters should be equipped with necessary firefighting and safety equipment First aid items should be available all times onsite and trained staff on emergency aids should be identified. 		Resident engineer in coordination with health and safety officials.	2 500

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
10	Handling Complaints	• A complaints register will be kept on site and this will feed into the GRM. Details of complaints received will be incorporated into the audits as part of the monitoring process.	Resident Engineer	IRBD/PMT	Included in contractor cost
	Total cost US\$ (rehabilitation phase)				

Re	ceptor	Mitigation Measures during Operation Phase	Responsibility	Supervision	Total estimated
1	Air quality	During the license issuance or renewal process of vehicles, traffic authorities should ensure that all vehicle engines are in good conditions.	Traffic Department	Traffic Department	No cost
2	Noise	During the license issuance or renewal process of vehicles, traffic authorities should ensure that all vehicle engines are in good conditions. Speed limits should be reduced especially near residential buildings. Limit trucks movement especially at night in coordination with the local traffic authorities.	Traffic Department	Traffic Department	No cost
3	Water resources	Runoff from the bridge and road surfaces is likely to include solids, oil, grease and other materials. However, their impacts are very limited as the area of bridge (7) is 870 m ² and that of bridge (4) is 696 m ² .		Not applicable	Not applicable
4	Soil	Not applicable	Not applicable	Not applicable	Not applicable
5	Solid and hazardous wastes	During the operational period, some littering and waste generation resulting from the repair activities will occur. Littering may occur due to wind action.	Local Authority	Local Authority (Municipality)	Within municipal budget
0	Traffic	Speed limits and road signs should be in place to prevent or minimize the road accidents.	Department	Traffic Department	No cost
6		The bridges must be provided with suitable post lighting at night to reduce the probability of road accidents.	RBD	RBD	Within RBD budget
7	Flora & Fauna	Not Applicable	Not Applicable	Not Applicable	Not Applicable
8	Topography and landforms	Not Applicable	Not Applicable	Not Applicable	Not Applicable
9	Traffic	Improved traffic conditions	Local Traffic Department	Resident Engineer	No Cost
10	Handling Complains	The continued operation of a GRM for one year following opening of the bridges for use will ensure that local community members have an accessible, fair and transparent means of reporting any emerging adverse impacts, and a means of obtaining mitigation.	RBD/PMT	Local authorities	No cost
		Total cost US\$ (Operation phase)			No Cost

Table E4: Mitigation measures during operation Phase

MONITORING & INSTITUTIONAL STRENGTHENING

A complete monitoring, auditing and reporting program will be set forward in order to ensure proper implementation of mitigation measures, and maintain or improve the environmental and the socio-economic characteristics of the area adjacent to the bridges during the rehabilitation and operation phases of the project.

The monitoring program will focus on noise impact, air quality, health and safety and any emerging socio-economic adverse effects. The monitoring activity will monitor the application of environmental and social mitigation measures and the result of monitoring activities shall be reflected in the monthly reports. The following tables summarize the proposed environmental and social monitoring programs respectively.

Rec	eptor	Monitoring Activities	Monitoring Indicators	Frequency	Responsibility	Supervision	Total estimated Cost in US\$
1	Air quality	 Investigate dust complaints from workers and residents Visual inspection of vehicles and equipment operating or entering the site Measurements of exhaust emissions (CO, SOx, NOx, PM10, PM2.5) 	 Recorded and documented complaints Record the status of equipment and vehicles on site (excessive black or white smoke) Results of exhaust emissions measurements 	 Daily visual inspection Measurements monthly during implementation period 	Resident Engineer (third party)	PMT	12,500
2	Noise	 Investigate noise complaints from workers and neighboring communities in the affected locations Measure ambient noise near sensitive receptors 	 Recorded and documented complaints Recorded tests results 	 Weekly inspection of complaints In case of complain 	Resident Engineer	PMT	1,500
3	Water resources	 Investigate implementation of mitigation measures and observe any oil or fuel spills. Investigate wastewater disposal measures 	Site Investigation report	• Daily Investigation	Resident Engineer	PMT	No Cost

Table E5: Monitoring activities during rehabilitation Phase

Reco	eptor	Monitoring Activities	Monitoring Indicators	Frequency	Responsibility	Supervision	Total estimated Cost in US\$		
4	Soil	 Observe any soil contamination with oil or fuel Observe any accumulation of wastes 	Site Investigation report	Daily	Resident Engineer	РМТ	No cost		
5	Solid and hazardous wastes	 Maintain records on waste types and quantities Observe any waste accumulation in un approved locations 	 Waste management contracts with authorized contractors Waste delivery receipts from local authorities. 	WeeklyWeekly	Resident Engineer	РМТ	No cost		
6	Health and safety	 Ensure compliance of workers to Health and Safety requirements Maintain log on accidents 	Observation reportAccidents report	Weekly	Resident Engineer	РМТ	No cost		
7	Flora & Fauna	Record any observation about wild animals or plants on site or nearby and report to the Environmental Authority	Observation report	Upon occurrence	Resident Engineer	РМТ	No cost		
8	Topography and landforms	No monitoring required	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable		
9	Traffic	Ensure speed limits and warning signs are installed	Road signs are installed.	Half annual	Resident Engineer	РМТ	No cost		
10	Handling Complaints	Ensure that the GRM is effective and well communicated	Number of complaints received, analyzed and responded to.	Weekly	Resident Engineer	РМТ	No cost		
	Total cost US\$ (Operation/Maintenance phase) 1-								

An institutional framework and strategy for the involved official institutions were suggested in order to strengthen the capacity buildings in the field of the environmental monitoring and reporting procedures and methodologies. The suggested capacity development requirement is a consolidated training for all RBD/PMT environmental/social field supervisors to save on the training costs.

	Capacity development topic	Provider(s)	Duration	Estimated Cost (US\$)
1	Environmental and social Impact Assessment Environmental and social Management in Construction Sites	Consultant	3 Days	3,000
2	Iraqi Environmental Legal Requirements	Ministry of Environment	1 Day	2,000
3	World Bank Environmental and Social Safeguards	The World Bank	2 Days	10,000 (international travel and accommodation cost for RBD trainees)
	Total Estimated	\$15,000		

Table E6:	Capacity	development	requirement	for RBD
Table Lo.	Capacity	ue ve to pinente	requirement	IOI HDD

PUBLIC CONSULTATIONS

According to the World Bank policies, it is required that broad and open public consultations be held with PAPs on the project. These consultations are to ensure that the project affected peoples (PAPs) are provided with the opportunity to engage in the rehabilitation planning process, to raise questions and receive input and responses to their concerns. However, due to difficulties and security constraints, this approach was not achievable.

In order to fulfill the WB requirements, a one on one interview was adopted to obtain sound information on the possible impacts on the local communities. Accordingly, a questionnaire was formatted to cover the key environmental and social aspects related to the project. It was difficult to conduct the questionnaire with women due the fact that it is not easy to take the women's opinions freely due to the tribe's habits that exist in the area of the project. The questionnaire was then addressed to vehicle-road users and a number of the local individuals in the surrounding community randomly to have their opinions and thoughts regarding the rehabilitation activities.

According to the results revealed from these questionnaires, the local community individuals agreed that, the rehabilitation activities will have a positive impact on their social daily life. None of the locals expressed any reservation on the project nor specified any negative impact that might affect him or his family. All locals agreed that the two bridges will need some additional safety signs and instructions in order to keep the traffic within safe conditions.

GREIVANCE REDRESS MECHANISM

Bank procedures require that Grievance Redress Mechanisms (GRMs) be established and operational prior to commencement of the project, and that they continue to operate for one year following completion of the works for third party settlement of disputes arising from resettlement.

Accordingly, a GRM will be established at the project level to ensure any grievance can be addressed in an amicable manner. Resolving complaints at community level is always encouraged to address the problem that a person may have during implementation and/or operational phase.

During individual interviews, information about a grievance mechanism was introduced to interviewed individuals and a translated GRM form was also provided. All interviewed people were informed that they can submit their complaint to either site engineer, or to community leader or to PMT during construction. The community leaders' information (mobile phone number) and PMT contact information (office and mobile phone numbers) will be available before implementation starts. There will be signs posted at the entrance of the bridges (Refer to Annex 1 for more details).

In addition, the draft ESMP and its translated summary were published on the RBD's website to allow for feedback and wider dissemination of information related to the planned activities under this project. In addition, the translated summary of the draft ESMP will be disclosed at the project site for feedback and comments if any.

CONCLUSION AND RECOMMENDATIONS

The EIA concludes that the proposed rehabilitation and reconstruction of Bridges (4) & (7) on Imam Ways will have an overall significant positive impact on the affected population. The implementation of the recommended mitigation measures especially during the construction phase will ensure that potential negative environmental impacts are addressed.

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1. INTRODUCTION

According to the Environmental and Social Management Framework (ESMF) which was prepared for the Emergency Operation for Development Project (EODP) and disclosed locally in Iraq and on the World Bank's InfoShop, an Environmental and Social Management Plan (ESMP) should be prepared, cleared and publically consulted upon and disclosed prior to the commencement of any construction activities for the bridges which cross seasonally filled valleys within the roads and bridges component of the Project.

This ESMP was developed to cover the activities associated with the rehabilitation/repair and operation of **Bridges (4) & (7) on Imam Ways.** The ESMP identifies key environmental and social impacts of the project activities during both the rehabilitation and the operational phases, and defines the necessary mitigation measures addressing potential negative impacts, as well as monitoring procedures during construction and operation. The ESMP was carried out by an independent consultant according to requirements of the current environmental regulations of the World Bank Operation Policy 4.01 (WB- OP 4.01), and Iraqi regulations. In this report the WB OPs, and Iraqi environmental and social standards and regulations were followed to ensure the national and international acceptance and compliances of the ESMP. The ESMP should be followed and implemented by all relevant parties.

The objectives of this ESMP are to provide:

- Practical and achievable actions to ensure that the project's adverse environmental and social impacts are properly mitigated.
- An integrated plan for monitoring, assessing and controlling potential impacts.
- Support to Local and State authorities to enable setting approval conditions for the project based on relevant standards and procedures.
- Focus on positive aspects and benefits, mitigate negative impacts and avoid serious and irreversible damage to the environment and people.
- An opportunity for holding consultation with the communities to get their input on the project activities.
- Information to the local community about the revised project activities and the environmental measures, socio-economic measures, information on residents' rights who might be negatively affected by some project activities and bridges operations,
- Information to the local community of the existence of a Grievance Redress Mechanism (GRM) system through which they might lodge complaints and expect prompt and fair consideration.

The ESMP establishes a framework for the identification of environmental protection, mitigation, monitoring measures to be taken during rehabilitation and operational phases of the project. The ESMP includes project description, mitigation measures, monitoring plan, management plans, institutional arrangements, and public consultation. The ESMP

will aim to achieve a good environmental and social performance during construction and maintenance. To meet this goal, the following activities, measures and programs must be followed:

- Environmental regulations
- Application of all environmental and social mitigation and management measures.
- Environmental and social monitoring plan.
- Emergency and contingency plan.
- Institutional plan.
- Environmental and safety measures.
- Effective and open consultations with local communities.

Environmental and social monitoring is an important component of this ESMP. It provides the information for periodic review and refinement modification of the ESMP as necessary, ensuring that environmental and social protection is optimized in all project phases through monitoring and early detection and effective remediation of unwanted environmental and social impacts. Lastly, it will also demonstrate compliance with national and international regulatory requirements.

2. PROJECT DESCRIPTION

2.1. Location and description of the bridges

The Project is located in the governorate of Diyala that is sited in eastern-central Iraq, bordering Iran to the East and sharing internal boundaries with the governorates of Baghdad, Salah Al-Din, Sulaymaniyah and Wassit.

Imam Ways Road connects Al-Muqdadia City with Khankin City, both located in Diyala. The bridges were constructed in 1982 to overpass shallow seasonal water courses that are totally dry in summer. These shallow water courses discharge ultimately in Hamreen Lake or its surroundings. It is worth mentioning that the drainage canals were totally dry during the preparation of this ESMP.

Bridge (7) on Imam Ways is 75 m long. It consists of 5 spans with a length 15 m each. The width of Bridge is 11.60 m. It comprises 9 m carriage way and 1.30 m sidewalk on each side. The superstructure consists of concrete girders 15 m long and 1.00 m depth and reinforced concrete deck.

Bridge (4) on Imam Ways is 60 m long. It consists of 4 spans with a length of 15 m each. The width of Bridge is 11.60 m. It consists of 9 m carriage way and 1.30 m sidewalk on each side. The superstructure entails concrete girders 15 m long and 1.00 m depth and reinforced concrete deck.

The following figure shows the locations of the 2 bridges on Imam Ways, subject of this study.

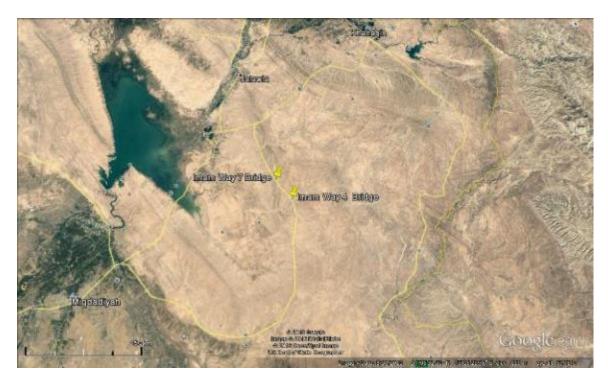


Figure 1: General Location of Imam Way Bridges (4) & (7) (Google Earth)

2.2. Current Condition of the Bridges

Bridges (4) & (7) on Imam Ways have been attacked by terrorists' bombers. The second & third spans of each of the 2 bridges are completely damaged and both bridges are currently not accessible to traffic.

2.3. Objective of the Works

The objective of the Project is to rehabilitate and partially reconstruct the above mentioned bridges on Imam Ways. The Project aims at facilitating the following:

- Transport of goods and especially agricultural products
- Access to essential service including health care and education
- Movement of inhabitants and especially students continuing their studies in Baghdad Universities

Works on the bridges include:

- Earthworks
- Demolishment and removal of damages in the second and third spans and pier 2 for each bridge (the tow spans are simply supported and have 2 expansions joints),
- Installation of new rubber pads (No. 28),
- Installation of pre –cast pre-stressed girders (14 girders),
- Deck slab surfacing (0.20m depth, 350 m²),
- Minor drainage works to re-establish service pipes within the bridges
- Other works such as lighting, pitching, restoration of service pipes, handrails and setting the expansion joint
- Installation of site office (contractor's camp)

The contractor camp (s) can be constructed nearby and adjacent to bridges areas in a state owned land (s); no additional land acquisition is needed.

The anticipated duration of the project is about 8 months.

2.4. Design Data

The engineering works were prepared and will be executed according to the Iraqi standard specifications for Roads and Bridges (1983), British Standard (B.S) 5400, American Association of State Highway and Transportation Officials (AASHTO) Allowable Stress Design (ASD) 2002 and Iraqi standard specification for axial loadings.

3. BASELINE CONDITIONS

3.1. The Project Area

The Project is located in the governorate of Diyala. Agriculture has traditionally been one of the main economic activities in Diyala. The main productions are dates and citrus. The 2 bridges cross seasonal watercourses that drain ultimately in Hamreen Lake or its surroundings.

The project is in an open area. Houses and farms that can be depicted are at a minimum distance of 1.5 km from the bridges. The following figures below shows location of Imam Ways 4 and Bridges and their surrounding areas.

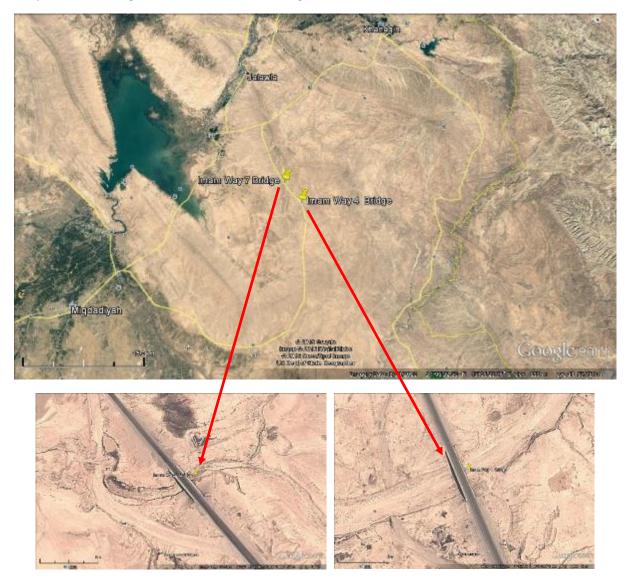


Figure 2: Location of the bridges and their surrounding areas (Google Earth)

3.2. Environmental and Social Baseline Conditions

The environmental baseline section is presented to give clear overview of the environmental and social conditions in the vicinity of the project location prior to commencement of works. The elements of the environment include: climate and meteorology, air quality, noise levels, traffic, surface and ground water resources, biodiversity including flora, fauna, rare or endangered species, and sensitive habitats. It also includes consideration of socio-economic characteristics land-use.

3.2.1 Climate

Diyala governorate has a desert climate.

The major rain falls from November thru February, with a spread showering in March, totalizing around 203 mmm annually.

Monthly wind velocity record in recent years is shown in the following table.

Table 1: Monthly Mean Wind Speed

YEAR	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2007	3.1	2.6	2.3	1.9	3.5	1.8	2.1	2.1	2.5	1.3	2.3	2.9
2008	2.7	1.2	1.8	1.7	1.8	1.2	1.4	1.4	2.4	2.5	1.4	2.4
2009	3.2	1.1	1.9	2.2	3.2	2.5	1.6	1.9	1.9	2.1	====	1.4
2010	2.0	2.1	2.1	1.8	2.1	1.4	3.2	1.9	2.3	1.00	1.3	1.1
2011	21.8	2.6	1.9	2.9	1.4	1.4	2.4	1.3	1.4	1.5	1.5	1.3

Observation station: Divala station Monthly mean wind velocity (m/sec)¹

The average annual temperature is 22.7 °C. Highest temperatures occur in July and August and reach over 41 degrees centigrade.

Table 2: Monthly Mean Temperature

Observation station: Divala station monthly means Temperature (°C)²

YEAR	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2008	12	13.2	23.3	29.3	30.2	38.3	40.2	40.9	39.2	34.1	25.2	20.9
2009	13.3	12.8	22.2	28.9	30.4	39.3	40.3	41.0	39.5	33.2	25.2	18.1
2010	14.2	14.2	24.2	28.2	30.2	39.4	40.4	41.1	39.3	33.1	25.3	19.2
2011	13.2	14.5	23.4	29.3	30.2	39.8	40.6	41.2	39.2	34.4	25.6	19.3
2012	12.5	13.2	24.5	28.9	30.7	39.9	41.0	41.2	39.4	33.0	24.1	19.9

3.2.2 Air Quality

There are no air quality monitoring stations close to the site. As Bridges (4) & (7) on Imam Ways are located in an open space, pollutants are expected to disperse as the area is prone to a good ventilation. The following Table presents the maximum permissible emissions according to WB and the Iraqi Guidelines.

¹ Diyala Environmental Authority

² Diyala Environmental Authority

	Time	SO2 [ppm]	NO2 [ppm]	CO [ppm]
World Bank	24 h	125	-	2-
	8:00:00 AM	0.0023	0.011	0.548
Iraq	12:00:00 AM	0.0036	0.038	1.211

Table 3: Maximum permissible concentrations for SO₂, NO₂ and CO

3.2.3 Site Topography

Within the project area there are some mountains, cliffs, and valleys.

3.2.4 Land use

The area surrounding Bridges (4) & (7) on Imam Road is not occupied. The nearest dwelling or farm is at around 1.5 km from Bridge (7) and 4.5 km from Bridge (4).

3.2.5 Seismic Activities

Although not directly located on a dense cluster of recent earthquake epicenters, the territory of Iraq, especially the eastern part is subject to seismic activities. Some of those were recorded in the past as a result of movement of some tectonic plates in neighboring country, Iran. However, they had insignificant impacts on human and infrastructures.

3.2.6 Flooding

There are no records of flooding that occurred previously in the area.

3.2.7 Noise

Except for the existing normal traffic, no other source of significant noise generation was identified in the area. The nearest sensitive receptors are the workers and contractor staff as there are no residential buildings and even any farm within at least 1.5 km distance from each of the bridges. The impact of the noise on the inhabitants will be low due to attenuation. The noisiest equipment that will be used during the rehabilitation being the scraper and the leveler. They generate a noise of 111 dB. By applying the simple inverse square law, and considering that there is no barrier between the bridge and the nearest residential unit, the noise level that will reach the residential unit is estimated at 48 dB. For comparison purposes, the World Health Organization (WHO) Noise level guidelines for residential areas is 55 dB.

3.2.8 Heritage Environment

Further to site survey and consultation of local inhabitants, it was noticed that there are no sites of historical or cultural importance in the area of Bridges (4) and (7). There are no cemeteries, historical-cultural monuments, churches, mosques near the project that need to be removed in order to rehabilitate the bridges.

3.2.9 Traffic Level

The annual traffic volume on the Imam Ways road is about 2,656,470 vehicles and about 50% are trucks and 36% are buses. As currently the 2 bridges are inaccessible to traffic, vehicles can take the alternative road shown in the figure below. This paved road connects Bahiya to Khanaqin via Kani Masi. It has a total length of 55 km while that of the part of Imam Road Way on which Bridges (4) & (7) are located, is about 51 Km.

Consequently, no traffic problem or traffic congestion will be expected during the rehabilitation phase.



Figure 3: Current and alternative roads (Google Earth)

Also, for short distance travel, multiple culverts were installed under the bridges to allow the temporary overpass of the water courses as shown in the following photo.

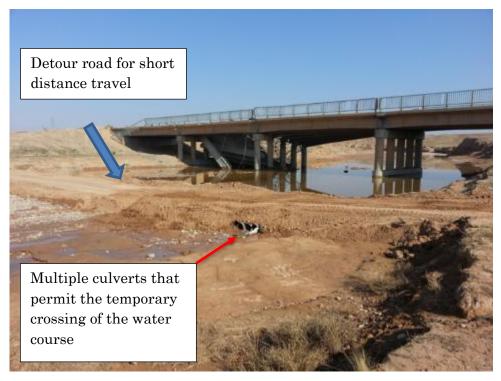


Figure 4: View on Bridge (4) and the temporary road currently used for short distance travel



Figure 5: View on Bridge (7) and the temporary road currently used for short distance travel

3.2.10 Land Acquisition

The rehabilitation activities of Bridges (4) & (7) on Imam Ways will be within the existing footprints of the bridges that were built on state-owned lands. There are no livelihoods in

the project vicinity that are likely to be adversely affected by the project, hence neither involuntary nor voluntarily relocation of people is necessary or expected.

The construction camps will be established near the bridges on vacant state owned lands for storage of equipment and construction materials.

3.2.11 Social Aspects

There are no roadside vendors, either licensed or non-licensed that will be displaced. The surroundings areas on both sides of the bridges are not utilized by any of the local population. All the areas around and within the sites remain clear of any settlement or economic use and are ready for rehabilitation works.

There is no interference registered from the local community which is eager for the works to be completed. The construction will need about 30-40 workers. As priority will be given to local workers from villages around the bridges, it is expected that the needs for workers' accommodation will be very limited because most of the workers will be staying with their families. Those labors are anticipated to be ongoing for the duration of the implementation which expected to be 8 months. No influx of workers to the project area is expected which could result in adverse impact.

No agriculture activities of any kind were initiated within 500 m around the

Application of OP 4.12:

Since the repair and rehabilitation activities of the two bridges will not entail permanent nor temporary land acquisition and no impact is expected on the livelihood of the local people, therefore, OP 4.12 does not apply.

3.2.12 Flora & Fauna

Significant wild life and flora species were not observed in the Project area.

4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

4.1 Iraqi environmental legislations

The work during rehabilitation and operation must follow the Iraqi laws and regulations for the environmental standards. These are:

- Laws of the environment protection No.3 issued in 1997 and the published regulations. The environmental regulations for gaseous emissions, noise and other air pollution standards are not in force and legally binding. However, limits for water disposal in any surface waters and main sewers are subject to regulation no. (25)/1967 and its modifications published by the Ministry of Health (MOH) and the Ministry of Environment (MOE).
- Law of heritage and antiques no. (55) Issued in 2002. This law defines all movable and immovable antiquities, archaeological properties and artifacts in Iraq. It regulates communication channels between the public and the authorities for each type of Contact between the public and the revealed and non-revealed archaeological sites.
- New environmental framework Law No. 27 of 2009 for the Iraqi national government. This Law was introduced but its executive decrees remain to be prepared. The requirements for environmental assessment are not legally binding.
- Regulations governing contact with archaeological sites extend also to encompass developmental activities like road construction and rehabilitation wherever these developmental activities lie within archaeological vicinity.
- Regulations of the MOE on sanitary waste must be followed, and for the rubbles (construction & demolition waste) the regulations, legislations and instruction of MOE and the Ministry of Construction, Housing and Public Municipalities (MOCHPM).

The following Table presents the Iraqi's laws applicable to the project's activity.

Applicable Iraqi Law	Subject						
Law no. 37 of 2008 of MOE	Describes institutional arrangements of the Ministry of Environment and Outlines policies and roles and responsibilities toward protecting the environment.						
Instructions issued by the Ministry of Health pursuant of Law no. 25 of 1967	Contamination Limits and Protection of Rivers.						
Law no. 27 of 2009	Protection and Improvement of Environment						
laws No.3 issued in 1997	of the environment protection						
Regulations no. 2 of 2001	Preserving water resources.						

Table 4: Applicable Environmental Laws and Regulations in Iraq

Legally, the works under rehabilitation and operation must follow the Iraqi laws and the regulations for the Environmental Standards. These are laws of the environment protection No.3 issued in 1997 and the published regulations. The following should be noted:

- There are no environmental regulations for gaseous emissions, noise and other air pollution standards that are and legally binding.
- Water disposal into any surface waters and main sewers is regulated by regulation by regulation no. (25)/1967 and its modifications released by the Ministry of Health and the Ministry of the Environment.
- The Law of heritage and antiques no. (55) was Issued in 2002,
- The sanitary waste (municipal) disposal should follow the regulations of the MOE
- For rubbles (construction &demolition waste) the regulations, legislations and instruction of both MOHE and MOCHPM must be followed.

It should be noted that legislation related to social safeguards issued in Iraq since 2003 has focused primarily on the ratification of international conventions and protocols on issues such as cultural heritage. Currently, there aren't Law related to social and environmental assessment.

4.2 The World Bank Safeguards Policies

In addition to the Iraqi laws and regulations the ESIA follows the policies and procedures of the World Bank. The following section presents the WB operational policies that are relevant to the rehabilitation of the bridges that ensure that projects proposed for Bank financing are environmentally and socially sound and sustainable.

$\ensuremath{\operatorname{OP/BP}}\xspace$ 4.01 - Environmental assessment procedure

The Bank requires environmental assessment of projects proposed for Bank financing. The objectives of the EA are to:

- Inform decision makers of the nature of environmental and social risks.
- Increase transparency and participation of stakeholders in the decision-making process.

OP/BP4.12 - Involuntary resettlement

OP/BP 4.12 focuses on the following principles:

- Involuntary resettlement is avoided wherever feasible, or minimized, exploring all viable alternative project designs;
- Where it is not feasible to avoid involuntary resettlement, activities are conceived and executed as sustainable development programs. Displaced persons are to be meaningfully consulted and have opportunities to participate in the planning and implementing of resettlement programs affecting them; and
- Displaced persons are assisted in their efforts to improve their livelihoods and standards of living, or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. The mechanism of assisting displaced persons is based on full and prior mitigation and compensation for loss of assets or livelihoods.
- OP 4.12 applies whenever, in a Bank-financed project, land is acquired involuntarily or access is restricted in legally designated parks or protected areas.
- However, in this specific project, OP 4.12 will not be applied for the repair and rehabilitation of this bridge as all repair and rehabilitation activities will be within the existing footprint and no additional land acquisition is needed either permanently or temporarily.

4.3 World Bank Group Environmental, Health and Safety (EHS)

The Iraqi requirements on EHS are quite stringent and match, to a large extent, the international best practices on EHS. The World Bank Group Environmental Health and Safety (EHS) Guidelines (General EHS Guidelines: Construction and Decommissioning) provide specific guidance on EHS requirements for construction related activities (Chapter 4). This includes EHS aspects related to:

a. Environment

- Noise and Vibration
- Soil Erosion
- Air Quality
- Solid Waste
- Hazardous Materials
- Wastewater Discharges
- Contaminated Land
- **b.** Occupational Health and Safety
- **c.** Community Health and Safety
 - General Site Hazards
 - Disease Prevention
 - Traffic Safety

4.4 Grievance Redress Mechanism

Bank procedures require that GRMs be established and operational prior to commencement of the project, and that they continue to operate for one year following completion of the works. A checklist of issues to be considered in the design of the GRMs includes the following:

- An inventory of any reliable conflict mediation organizations or procedures in the project area is undertaken and an assessment made to determine if any of these entities or procedures might be used, ensuring that complaints were received and addressed in an effective, timely and transparent manner.
- Good practice is to ensure that Project Affected People (PAP) can apply orally and in the local language and to impose explicit time limits for responding to grievances received. Appeal procedures need to be specified, and this information is made publicly available therefore, allow for both verbal and written grievances to be lodged with the local project authorities, who will transmit these to the local level committee for review, consideration and response.

5. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

5.1 Rehabilitation Phase

This section of the report describes the environmental and social impacts that are likely to result from the construction and rehabilitation of Bridges (4) & (7) on Imam Ways, and the mitigation measures addressing them. The environmental actions, procedures and responsibilities as required during the construction phase must comply with the available specifications, legislation, laws issued by the MOHE.

The construction contractor(s) will be responsible for compliance with the ESMP provisions during the rehabilitation phase of the project. The contractor will be also in charge of undertaking work in a manner which complies with all relevant environmental procedures, adheres to all legislative requirements, and ensures that all environmental objectives associated with the contract are achieved.

The majority of environmental and social impacts will be of low severity nature, limited to the rehabilitation sites, temporary and reversible. The most significant impacts are concerned with disposal of solid and hazardous wastes resulting from the construction activities as well as from the worker camps, disposal of domestic sewage from the worker camps and potential pollution of the water course from the different rehabilitation activities.

The overall assessment of the key environmental and social impacts is summarized below.

	Environmental Receptor	Impact Significance
1	Air Quality	Low
2	Noise	Low
3	Water Resources	Low
4	Soil	Low
5	Solid and hazardous wastes	Medium
6	Flora & Fauna	Not significant
7	Topography and landforms	Not significant
8	Impacts on local traffic	Low
9	Health and Safety	High
10	Socio-Economic impacts	Low
11	Land	Insignificant

Table 5: Summary of Impact Assessment during Construction / Rehabilitation

5.2. Operational Phase

No significant negative environmental or social impacts are anticipated during the operation phase as there is no residential unit or farm within 1.5 km distance from the bridge.

During the operational period, the project is expected to result a positive socio-economic outcome for the local communities. Socially harmful consequences of bridges operation are not anticipated. However, the continued operation of a GRM for one year following opening of the bridges for use will ensure that local community members have an accessible, fair and transparent means of reporting any emerging adverse impacts, and a means of obtaining mitigation.

6. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

In this section, the identified mitigation measures will be summarized. The responsibility for implementation of the mitigation measures will be mostly upon the contractor. However, the supervision and assurance that the mitigation measures are implemented will be the responsibility of the Resident Engineer who represents the Road and Bridges Department (RBD) as the Project Owner.

The Resident Engineer (RE) will be assisted by a team of environmental and social officers who will be responsible for supervising the daily activities of the contractor and will report non-compliances to the Resident Engineer in order to take necessary actions towards the contractor. Regular supervision site visits will also be conducted by the RBD PMT environmental/social officer in association with a qualified environmental and social consultant who will provide technical advice in case there is a need to modify or add new mitigation measures as work necessitates.

The costs of mitigation measures are estimated based on the average market rates for similar activities in Iraq and can be used as indicative costs. It is the sole responsibility of the contractor to estimate the costs associated with the recommended mitigation measures based on his work experience.

The following tables summarize the mitigation measures which are required to be undertaken to avoid any negative impacts on the environment. Responsibilities and estimated costs are also presented.

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
		 Unpaved roads, e.g. which may be utilized for construction vehicles movement or transportation of construction materials should be prepared in a way to avoid dust emissions. Watering to suppress dust should take place regularly. Watering or increase of the moisture level of the open materials storage piles to reduce dust levels; Enclosure or covering of inactive piles to reduce wind erosion; Loads in all trucks transporting dust-generating materials have to be sprayed with water to suppress dust, as well as wheels of means moving inside and outside of the construction-site; and Speed reduction for vehicles approaching the site to less than 40 km/hr. On site, speed should not exceed 20 km/ht. 	Contractor	Resident engineer	1,000
1	Air quality	 Engines of vehicles and other machinery are kept turned on only if necessary, avoiding any unnecessary emission; Machines and equipment are periodically checked and maintained to ensure their good working condition; All equipment and machines must be maintained and tested for compliance with standards and technical regulations for the protection of the environment and have appropriate certifications; Activities are carried out using the minimum required number of means at the same time; and Electric small-scale mechanization and technical tools are used when available and feasible; 	Contractor	Resident engineer	Included in contractor cost
		Limit vehicle speed limits to be the minimum (less than 40 km/hour) near residential buildings and farmlands.	Contractor	Resident engineer	Included in contractor cost

Table 6: Mitigation Measures during Rehabilitation Phase.

Imam Ways Bridges -ESMP

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
		Construction activities are to take place within reasonable hours during the day and early evening. Night-time activates near noise sensitive areas, such as residential buildings, should not be allowed.		Resident engineer	Included in contractor cost
2	Noise	 Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Equipment to run only when necessary; and Positioning of the noise sources in a concealed area with respect to acoustic receptors, consistent with the needs of the construction site. 	Contractor	Resident engineer	Included in contractor cost
		Use of personal protection equipment for workers especially those who use jack hammers or near noisy engines or compressors.	Contractor	Resident engineer	2,000
		Damaged sections of the bridges are carefully removed without blocking water drainage channels.	Contractor	Resident engineer	Included in contractor cost
	Water	Wastewater from the worker rest areas or construction offices should be contained in solid containers and should be removed regularly from site by means of authorized contractors.	Contractor	Resident engineer	8,000
3	resources	In case of the need to change engine oils or refuel some construction equipment, a proper maintenance workshop or shelter should be installed to ensure containment of any fuel or oil spills.	Contractor	Resident engineer	3,000
		 In case of using septic tanks on site, the engineering drawings of these tanks should be presented to the Resident Engineer for approval. No solid wastes are to be thrown into the drainage channel. 	Contractor	Resident engineer	Included in contractor cost
4	Soil	• To prevent soil contamination by oil/grease spills, leakages or releases, all manipulations of oil derivatives in the process of construction and provision (Resident engineer	Included in contractor cost

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
		 and wash off from the oil/grease handling area shall be drained through drains and treated appropriately before disposal; Construction waste and debris shall be collected on a regular basis and disposed of at designated landfills; Only authorized quarries shall be used for purchasing soil to be used for embankment, padding, bedding, backfilling during construction; and It must be prohibited to operate equipment and vehicles outside the designated work areas and roads. 			
		• No hazardous waste storage to take place directly on soils. Appropriate and enclosed containers should be utilized.	Contractor	Resident engineer	1,000
5	Solid and hazardous wastes	 Minimize waste generation on site. Simple waste management plan for specific waste streams must be developed. General waste must be collected and transported to local council approved disposal sites. Food wastes must be collected, where practicable, considering health and hygiene issues, for disposal off-site through licensed contractors. Waste containers must be located at each worksite. Chemical wastes must be collected in 200 liter drums (or similar sealed container), appropriately labeled, for safe transport to an approved chemical waste depot or collection by a liquid waste treatment service. Storage, transport and handling of all chemicals must be conducted in accordance with all legislative requirements, through licensed contractors and in coordination with the local authority. All hazardous wastes must be appropriately stored in bounded areas and should be clearly identified as "hazardous" and disposed of through licensed contractors Transportation and disposal of hazardous wastes should be done through licensed contractors and in close coordination with the relevant local 	Contractor	Resident engineer in coordination with the local authority and ministry of science and technology regarding hazardous wastes	6,000

	Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
		 authority and in compliance with the legal requirements and instructions of the coordination with the as ministry of science and technology. Hazardous liquids, such as solvents, rust proofing agents and primer must be managed in accordance with the requirements of relevant legislation and industry standards. A hazardous materials inventory for the construction period must be prepared. Material Safety Data Sheets (MSDS) for hazardous materials must be available on-site during construction and made available and explained to workers. Hydrocarbon wastes, including lube oils, must be collected for safe transport off-site for reuse, recycling, transport or disposal at approved locations. 			
6	Flora & Fauna	Not Applicable	Not Applicable	Not Applicable	Not Applicable
7	Topography and landforms	Not Applicable	Not Applicable	Not Applicable	Not Applicable
8	Traffic	 Clear traffic signs and signs signals must be installed on-site to provide for safe traffic Where practicable, truck deliveries must be restricted to daytime working 	Contractor in coordination with the Local Traffic Department	Resident Engineer	500
9	Health and Safety	• Limit speed of construction vehicles and provide road signage for drivers and local community.	Contractor	Local traffic department in coordination with the Resident engineer	1,000

Imam Ways Bridges - ESMP

Receptor	Mitigation Measures during Rehabilitation Phase	Responsibility	Supervision	Total estimated Cost in US\$
	 Qualified personnel must be employed for the construction equipment, and personnel must be trained for health and safety issues. Personal protection equipment such as eyeglasses, gloves, hard heads and safety belts, slip- resistant safety footwear must be supplied and continuously used by all workers, technicians, engineers and site visitors. 	Contractor	Resident engineer	3,000
	 Compliance with international standards for good construction practices; Adherence to local and international guidance and codes of practice on Environmental Health and Safety (EHS) management during construction; Management, supervision, monitoring and record-keeping; Implementation of EHS procedures as a condition of contract with contractors and their sub-contractors; Clear definition of the EHS roles and responsibilities of the companies involved in construction and to individual staff (including the nomination of EHS supervisors during construction and an EHS coordinator during operation); Pre-construction assessment of the EHS risks and hazards associated with construction and operation, including consideration of local cultural attitudes, education level of workforce and local work practices; Provision of appropriate training on EHS issues for all construction and operation workers, including initial induction and regular refresher training, taking into account local cultural issues; Provision of health and safety information; Regular inspection, review and recording of EHS performance; Putting on a safety harness and connecting it, via an energy-absorbing lanyard, to a suitable anchor point for staff working at the sides of the bridges Maintenance of a high standard of housekeeping at all times. 	Contractor	Resident engineer	Included in contractor cost
	• Any accident to be reported and treated within site as a first aid procedure.	Contractor	Resident engineer in coordination with health and safety officials.	

	ReceptorMitigation Measures during Rehabilitation PhaseH		Responsibility	Supervision	Total estimated Cost in US\$
		 Fuel and oil changing shelters should be equipped with necessary firefighting and safety equipment First aid items should be available all times onsite and trained staff on emergency aids should be identified. 			
10	Handling Complaints	• A complaints register will be kept on site and this will feed into the GRM. Details of complaints received will be incorporated into the audits as part of the monitoring process.	Resident Engineer	RBD/PMT	Included in contractor cost
Total cost US\$ (rehabilitation phase)					28,000

Receptor		Mitigation Measures during Operation Phase	Responsibility	Supervision	Total estimated
1	Air quality	During the license issuance or renewal process of vehicles, traffic authorities should ensure that all vehicle engines are in good conditions.	Traffic Department	Traffic Department	No cost
2		During the license issuance or renewal process of vehicles, traffic authorities should ensure that all vehicle engines are in good conditions.JoiseSpeed limits should be reduced especially near residential buildings. Limit trucks movement especially at night in coordination with the local traffic authorities.		Traffic Department	No cost
3	Water resources Runoff from the bridge and road surfaces is likely to include solids, oil, grease and other materials. However, their impacts are very limited as the area of bridge (7) is Traffic		Traffic Department	No cost	
4	Soil Not applicable Not		Not applicable	Not applicable	
	Solid and hazardous wastes	azardous the repair activities will occur. Littering may occur due to wind action.		Local Authority (Municipality)	Within municipal budget
0	Traffic	Speed limits and road signs should be in place to prevent or minimize the road accidents.		Traffic Department	No cost
6		The bridges must be provided with suitable post lighting at night to reduce the probability of road accidents.		RBD	Within RBD budget
7	Flora & Fauna	Not Applicable	Not Applicable	Not Applicable	Not Applicable
8	Topography and landforms	Not Applicable	Not Applicable	Not Applicable	Not Applicable
9	Traffic	Improved traffic conditions	Local Traffic Department	Resident Engineer	No Cost
	Handling Complains The continued operation of a GRM for one year following opening of the bridges for use will ensure that local community members have an accessible, fair and transparent means of reporting any emerging adverse impacts, and a means o obtaining mitigation.		RBD/PMT	Local authorities	No cost
		Total cost US\$ (Operation phase)			No Cost

Table 7: Mitigation Measures during Operation Phase.

7. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

7.1 Environmental and Social Monitoring

In order to ensure full compliance of the performed activities to the environmental and social requirements, regular monitoring should be performed. For this purpose, an environmental and social monitoring program has been established for the construction phase to ensure the proper implementation of the environmental and social mitigation measures. The Monitoring Activities during Rehabilitation Phase are shown in Table 8.

Rece	eptor	Monitoring Activities	Monitoring Indicators	Frequency	Responsibility	Supervision	Total estimated Cost in US\$
1	Air quality	 Investigate dust complaints from workers and residents Visual inspection of vehicles and equipment operating or entering the site Measurements of exhaust emissions (CO, SOx, NOx, PM10, PM2.5) 	 Recorded and documented complaints Record the status of equipment and vehicles on site (excessive black or white smoke) Results of exhaust emissions measurements 	 Daily visual inspection Measurements monthly during implementation period 	Resident Engineer (third party)	PMT	12,500
2	Noise	 Investigate noise complaints from workers and neighboring communities in the affected locations Measure ambient noise near sensitive receptors 	 Recorded and documented complaints Recorded tests results 	 Weekly inspection of complaints In case of complain 	Resident Engineer	PMT	1,500
3	Water resources	 Investigate implementation of mitigation measures and observe any oil or fuel spills. Investigate wastewater disposal measures 	Site Investigation report	• Daily Investigation	Resident Engineer	PMT	No Cost
4	Soil	 Observe any soil contamination with oil or fuel Observe any accumulation of wastes 	Site Investigation report	Daily	Resident Engineer	РМТ	No cost

Table 8: Monitoring Activities during Rehabilitation Phase.

Rece	ptor	Monitoring Activities	Monitoring Indicators	Frequency	Responsibility	Supervision	Total estimated Cost in US\$
5	Solid and hazardous wastes	 Maintain records on waste types and quantities Observe any waste accumulation in un approved locations 	 Waste management contracts with authorized contractors Waste delivery receipts from local authorities. 	WeeklyWeekly	Resident Engineer	РМТ	No cost
6	Health and safety	 Ensure compliance of workers to Health and Safety requirements Maintain log on accidents 	Observation report Accidents report	Weekly	Resident Engineer	РМТ	No cost
7	Flora & Fauna	Record any observation about wild animals or plants on site or nearby and report to the Environmental Authority	Observation report	Upon occurrence	Resident Engineer	РМТ	No cost
8	Topography and landforms	No monitoring required	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
9	Traffic	Ensure speed limits and warning signs are installed	Road signs are installed.	Half annual	Resident Engineer	PMT	No cost
10	Handling Complaints	Ensure that the GRM is effective and well communicated	Number of complaints received, analyzed and responded to.	Weekly	Resident Engineer	РМТ	No cost
		Total cost U	S\$ (Operation/Maintena	ince phase)			14,000

7.2 ESMP Institutional Arrangements

In order to ensure full compliance with the environmental and social requirements which are described above, RBD PMT nominated a qualified consultant to act as the focal point for environmental and social affairs at the central level. On the field level, RBD PMT nominated two engineers in Diyala to act as environmental and social officers. Those engineers will be trained on monitoring and reporting of environmental and social impacts and how to fill the checklist to be used during field visits before implementation starts.

RBD Resident Engineer will be the officially responsible staff member for ensuring environmental and social compliance. S/He will be assisted by the designated environmental and social field officers.

In addition, a qualified consultant is recruited by the PMT at the central level to provide technical assistance and capacity building to the environmental and social team both at the central level and at the field level.

7.3 Reporting requirements

To ensure that the mitigation and monitoring measures are being carried out effectively with the required frequency, a clearly defined and regular reporting and response system must be established. The needed frequency of report generation for inspection and environmental /social monitoring is to be monthly, and for auditing to be once during project life-time (8 months).

All inspection and audit reports of environmental performance should be stored in the Audit and Inspection Manager (AIM) system. The AIM is an electronic database that is used to enable corrective actions identified during the inspection $\$ auditing process to be recorded, tracked and closed out. The information will be made available to the relevant regulatory authorities as required. In addition to the monitoring and reporting requirements documented in the relevant sections of the ESMP, the following reporting regime will be implemented:

- a. All incidents or accidents during the bridges rehabilitation should be reported immediately to relevant authorities.
- b. All corrective measures must be discussed to ensure compliance with laws and regulations.
- c. Reports for personnel training on environmental issues or emergency practices must be produced.
- d. Progress reports, environmental monitoring report and other inspections reports must be produced periodically.

The RBD PMT engineers will provide the Resident Engineer with a weekly report briefing their observations and recommendations for action. Whereas the Resident Engineer shall prepare an environmental and social management progress report on monthly basis to RBD PMT in Baghdad.

The environmental and social consultant will prepare a monthly environmental and social supervision report after conducting monthly site supervision visits.

RBD PMT shall prepare a quarter environmental and social progress report which will be submitted to the WB for review and disclosure.

On monthly basis, RBD PMT shall prepare an environmental and social progress report which will be submitted to the WB for review and disclosure.

7.4 Capacity Development and Resources Requirements

RBD PMT dedicated sufficient human resources to undertake the environmental and social management requirements as explained above. The assigned RBD staff at the central and field levels are competent in the field of engineering and have variable practical experience. For RBD staff who will be responsible for undertaking the environmental and social tasks, they will require some capacity development.

All construction personnel and contractors are required to undertake appropriate environmental training and induction programs including, importantly, on GRM procedures.

All managers and supervisors will be responsible for ensuring that personnel under their control have the requisite competencies, skill and training to carry out their assigned tasks in accordance with the requirements of the ESMP. They will also be responsible for identifying additional training and competency requirements.

All project supervisors and managers will receive additional detailed training on the use and implementation of the ESMP. The following Table presents the proposed institutional strengthening program and capacity development requirements.

	Capacity development topic	Provider(s)	Duration	Estimated Cost (US\$)
1	EnvironmentalImpactAssessmentEnvironmentaland socialManagementinSites	Private sector consultant t	3 Days	3,000
2	Iraqi Environmental Legal Requirements	Ministry of Environment	1 Day	2,000
3	World Bank Environmental and Social Safeguards	The World Bank	2 Days	10,000 (international travel and accommodation cost for RBD trainees)
	Total Estimated	\$15,000		

Table 9: Capacity Development Re	equirements for RBD ³
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 $^{^{\}scriptscriptstyle 3}$ Consolidated training for all RBD/PMT environmental/social field supervisors will be conducted to save on the training costs.

In order to ensure full compliance of the environmental and social requirements, regular site visits should be conducted. Dedicated office spaces, office equipment and supplies in addition to adequate means of transportation should be made available for the environmental and social management team at the central level and most importantly on the field level. RBD PMT should ensure the allocation of sufficient budget resources to ensure availing the required resources to achieve the required tasks.

8. PUBLIC CONSULTATION RESULTS

According to the WB policies, it is required that broad and open public consultations be held with PAPs on the project. These consultations are to ensure that the (PAPs) are provided with the opportunity to engage in the rehabilitation planning process, to raise questions and receive input and responses to their concerns. However, due to difficulties and security constraints, this approach was not achievable.

In order to fulfill the WB requirements, a one on one interview was adopted to obtain sound information on the possible impacts on the local communities. Accordingly, a questionnaire was formatted to cover the key environmental and social aspects related to the project. It was difficult to conduct the questionnaire with women due the fact that it is not easy to take the women's opinions freely due to the tribe's habits existed in the area of the project. The questionnaire was then addressed to vehicle-road users and to a number of the local individuals in the surrounding community randomly to have their opinions and thoughts regarding the rehabilitation activities.

According to the results revealed from these questioners, the local community individuals agreed that, the rehabilitation activities will have a positive impact on their social daily life. None of the locals expressed any reservations against the project and did not specify any negative impact that might affect him or his family. All locals agreed that the two bridges will need some additional safety signs and instructions in order to keep the movement on the bridges within safe conditions. The following are the main findings of the consultation process which took place in April 2016.

- a. All questioned locals agreed that the reconstruction activities will have a strong positive impact from the social perspectives on the locals.
- b. No claims from any locals were recorded or alleged regarding the ownership of the land were the bridges in constructed; all agreed that is governmental land property.
- c. No vegetation covers, crops, plants, trees...etc. will be removed in order to execute the rehabilitation activities of the bridges.
- d. The interests of the locals will not be affected in anyway by the reconstruction activities.
- e. No infrastructure within the bridges area will be affected negatively due the reconstruction activities.
- f. No deportation, dislocation of any of the local community will be needed due to these activities.
- g. The reconstruction of the bridges will enhance the social relationship among the locals, improve their transport.
- h. All locals agreed that the bridges will need more traffic and instructional signs for the bridges users' safety. Please refer to annex 3 for more details.

During individual interviews, information about a grievance mechanism was introduced to interviewed individuals and a translated GRM form was also provided. All interviewed people were informed that they can submit their complaint to either site engineer, or to community leader or to PMT during construction. The community leaders' information (mobile phone number) and PMT contact information (office and mobile phone numbers) will be available before implementation starts. There will be signs posted at the entrance of the bridges (Refer to Annex 1 for more details).

In addition, the draft ESMP and its translated summary were published on the RBD's website to allow for feedback and wider dissemination of information related to the planned activities under this project. In addition, the translated summary of the draft ESMP will be disclosed at the project site for feedback and comments if any.

9. Grievance Redress Mechanism (GRM)

Bank procedures require that Grievance Redress Mechanisms (GRMs) be established and operational prior to commencement of the project, and that they continue to operate for one year following completion of the works for third party settlement of disputes arising from resettlement. This GRM should take into account the availability of judicial recourse as well as traditional and community dispute resolution mechanisms. Accordingly, a GRM will be established at the project level to ensure any grievance can be addressed in an amicable manner. Resolving complaints at community level is always encouraged to address the problem that a person may have during implementation and/or operational phase. The project grievance redressed system should be developed in consultation with communities, which might include the following for written complaints:

1. First, the affected person sends his/her grievance in writing to the communities'/community leaders. The grievance note should be signed and dated by the aggrieved person. Where the affected person is unable to write, s/he should obtain assistance from the community to write the note and mark the letter with his/her thumbprint. The community should respond within 14 days.

2. Second, if the aggrieved person does not receive a response or is not satisfied with the solution provided by the community, s/he lodges her or his grievance to PMT which should respond within 14 days.

3. Third, if the aggrieved person is not satisfied with the solution of PMT, s/he can go to the court.

10. CONCLUSION AND RECOMMENDATIONS

The EIA concludes that the proposed rehabilitation and reconstruction of Bridges (4) & (7) on Imam Ways will have an overall significant positive impact on the affected population. The implementation of the recommended mitigation measures especially during the construction phase will ensure that potential negative environmental impacts are addressed.

ANNEXES

Annex (1): Grievance Form

Reference No:	
Full Name	My first name
Note: you can remain anonymous if you prefer or request not to disclose your identity to the third parties without your consent	My last name I wish to raise my grievance anonymously I request not to disclose my identity without my consent
Contact information	By Post: Please provide mailing address:
Please mark how you wish to be contacted (mail, telephone, e-mail).	By Telephone: By E-mail
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	
(Dne-time incident/grievance (date)
H	Happened more than once (how many times?)
On-going (currently experiencing problem)	
What would you like to see happen to resolve the problem?	
Signature:	
Please return this form to: [name],[company name]	
Address: Tel.: or E-mail:	

Annex (2): Site photos



Figure 6: Side view of Bridge (4) on Imam Way



Figure 7: Photo of Bridge (4) on Imam Way showing the damages



Figure 8: A zoomed view on the damages of Bridge (4) on Imam Way



Figure 9: View of the damage on Bridge (7)



Figure 10: Side View of the damage on Bridge (7)



Figure 11: Span completely demolished on Bridge (7)

Annex (3): Individual Consultations

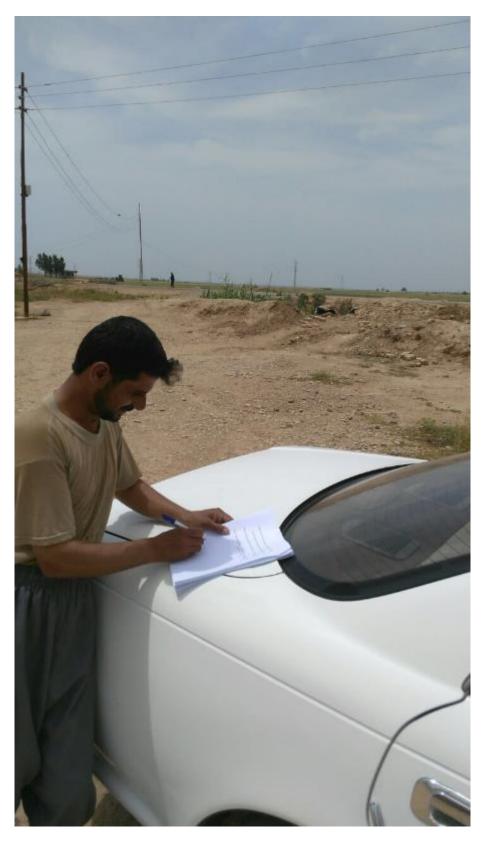


Figure 12: Mr. Qusay Abbas signing his consultation sheet

as he is apo insi cipes : ingel تاريخ الزيارة: ١٥/٤/٢٠٠ م ا : هل تعتقد ان عملية اعادة بناء الجسر / الطريق له الأن ايجابية من الناحية الاجتماعية على السكان القاطنين في المناطق المحيطة بالجس / الطريق؟ 1 pei 25 س ٢ بعل هذالك ادعاءات أو مطالبات من قبل السكان المحليين بعاندية الارض المقام عليها الجس / الطريق؟ تعم 250 س " يسبب اعمال اعادة البناء للجسر / الطريق هل تمت عملية از اللة لمحاصيل زراعية أو الشجار أو أي ص بيسبي معود عانديته لمواطنين او السكان المحليين؟ غطاء نباتي تعود عانديته لمواطنين او السكان المحليين؟ USS تعم من ؟: هل تضررت مصالح المواطنين القاطنين بالقرب من الجمر / الطريق بسبب اعمال اعادة اليناء؟ VYS تعم س ٥: هل هذلك أي بنى تحقية مؤقتة أو دائمية تلعب دورا أساسيا في النشاطات الحياتية اليومية للسكان سنتقرّ بعملية تاهيل الجسر / الطريق؟ 15 نعم س ٢: هل ان احمال اعادة اعمار الجسر / الطريق ستنسب باجر اءات اعادة لتوطين لشخص(والو) لاشخاص الى مناطق جديدة؟ Uss تعم من ٢ إهل تمت عملية استخدام منطقة بناء الجسر / الطريق بطريقة ما من قبل السكان المحليين ، علما ان الأرض تابعة للدرلة؟ 235 تعم س٨: هل تتوقع وجود تأثيرات اجتماعية سلبية بالمنطقة تتيجة اعمال اعادة التأهيل؟ماهي؟ 35 تغم (5)

س ؟ : هل هذاتك تغيير ات ديمو غرافية أو ضرر في النسيجالاجتماعي من جراء اعمال اعادة التأهيل؟ نعم كلا س ١٠ : ماهي المجاميع الاكثر ضعفا و هشاشة التي من المحتمل ان تتأثر باعمال اعادة الاعمار؟ تعم 25 س١١ : هل سيعزز المشروع من عمليات النقل و يقلل من انعز الية المجتمعات الموجودة بالقرب من منطقة الجسر / الطريق؟ 25 تعم س٢٢: فل يحتاج المواطنون المقيمون بالقرب من الجسر / الطريق الى وضع اعلامات تحذيرية أو استدلالية. لزيادة معدلات الامن و الامان لمستخدمي الجسر / الطريق ÷ نعم مر کلا -12/2/22

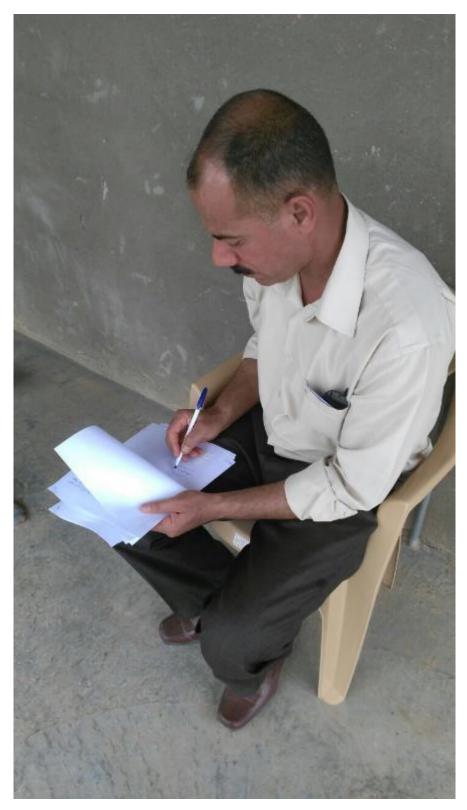


Figure 13: Mr. Amer Salman Khalaf signing his consultation sheet

الاسم: عامر لما تفلَّ apie signi تاريخ الزيارة: ٢٠٢٢ /٢٢- ٢ س : هل تعتقد أن عملية أعادة بناء الجس / الطريق له اثار ايجابية من الناحية الاجتماعية على السكان القاطنين في المناطق المحيطة بالجس / الطريق؟ نعم / X س٢: هل هذالك ادعاءات او مطالبات من قبل السكان المحليين بعاندية الارض المقام عليها الجس / الطريق؟ LYS تعم س٣: بسبب اعمال اعادة البناء للجس / الطريق هل تمت عملية از الة لمحاصيل زر اعية أو اشجار أو أي غطاء تباتي تعود عائديته لمواطنين او السكان المحليين؟ 1/ YS تعم س؟: هل تضررت مصالح المواطنين القاطنين بالقرب من الجس / الطريق بسبب اعمال اعادة البناء؟ 1 XS تعم س•: هل هذالك اي بني تحقية مؤقفة أو دائمية تلعب دور ا اساسيا في النشاطات الحياتية اليومية للسكان ستتأثر بعملية تاهيل الجسر / الطريق؟ 25 نعم س ٦: هل ان اعمال اعادة اعمار الجسر / الطريق سنتسبب باجراءات اعادة لتوطين لشخص (و الو) لاشخاص الى مناطق جديدة؟ 1 75 نعم س٧: هل تمت عملية استخدام منطقة بناء الجس / الطريق بطريقة ما من قبل السكان المحليين ، علما ان الارض تابعة للدولة؟ 1/ XS نعم س٨: هل تتوقع وجود تأثير ات اجتماعية سلبية بالمنطقة نتيجة اعمال اعادة التأهيل؟ماهي؟ e xs تعم (6)

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^{س٩}: هل هذالك تغييرات ديمو غرافية أو ضرر في النسيجالاجتماعي من جراء أعمال أعادة التأهيل؟ 25 نعم س٠٠ : ماهى المجاميع الاكثر ضعفا و هشاشة التي من المحتمل ان تتأثر باعمال اعادة الاعمار؟ نعم 25 س ١١: هل سيعزز المشروع من عمليات النقل و يقال من انعز الية المجتمعات الموجودة بالقرب من منطقة ا الجسر / الطريق؟ 15 نعم س١٢: هل يحتاج المواطنون المقيمون بالقرب من الجسر / الطريق الى وضع اعلامات تحذيرية أو استدلالية لزيادة معدلات الامن و الامان لمستخدمي الجسر / الطريق نعم ک کلا . حابر المان فل C.17/2/02 (6)



Figure 14: Mr. Ali Khalaf signing his consultation sheet

الاس على جسر بي فان العهنة: متقاعد تاريخ الزيارة: ٢٥/٢/٢٠٠ س ا : هل تعتقد أن عملية اعادة بناء الجسر / الطريق له اثار ايجابية من الناحية الاجتماعية على السكان القاطنين في المناطق المحيطة بالجسر / الطريق؟ Vei ZK س ٢ : هل هذاك ادعاءات أو مطالبات من قبل السكان المحليين بعاندية الأرض المقام عليها الجسر / الطريق؟ AS نعم س " يسبب اعمال اعادة البناء للجسر / الطريق هل تمت عملية از الة لمحاصيل زر اعية أو الشجار أو أي عطاء نباتي تعود عانديته لمواطنين او السكان المطيين؟ غطاء نباتي تعود عانديته لمواطنين او السكان المطيين؟ 25 تعم س: ; هل تضررت مصالح المواطنين القاطنين بالقرب من الجس / الطريق بسبب اعمال اعادة البناء؟ ZYS تعم س و بعل هذاك اي بني تحقية مؤقنة او دائمية تلعب دور ا اساسيا في النشاطات الحياتية اليومية لنسكان ستتأثر بعملية تاهيل الجسر / الطريق؟ 25 تعم س٦: هل ان اعمال اعادة اعمار الجسر / الطريق ستنسب باجراءات اعادة لتوطين لشخص (و الو) لاشخاص الى مناطق جديدة؟ 11 NS تعم س٢: هل تمت عملية استخدام منطقة بناء الجس / الطريق بطريقة ما من قبل السكان المحليين ، علما ان الارض تابعة للدولة؟ C'SS تعم س٨: هل تتوقع وجود تأثير ات اجتماعية سلبية بالمنطقة نتيجة اعمل اعادة التأهيل اماهي؟ 135 لعم (4)

س٩: هل هذالك تغيير أت ديمو عرافية أو ضرر في النسيجالاجتماعي من جراء اعمال أعادة التأهيل؟ XS نعم من ١٠ إماهي المجلميع الاكثر ضعفا و هشاشة التي من المحتمل أن تتأثر باعمال أعادة الاعمار؟ 25 تعم س١١ : هل سيعزز المشروع من عمليات النقل و يقال من انعز الية المجتمعات الموجودة بالقرب من منطقة الجر / الطريق؟ VIS تعم من ١٢ وضع اعلامات المؤمون بالقرب من الجس / الطريق الى وضع اعلامات تحذيرية او استدلالية لزيادة معدلات الامن و الامان لمستخدمي الجسر / الطريق . ZC نع The arme ofs c.17 /2/02

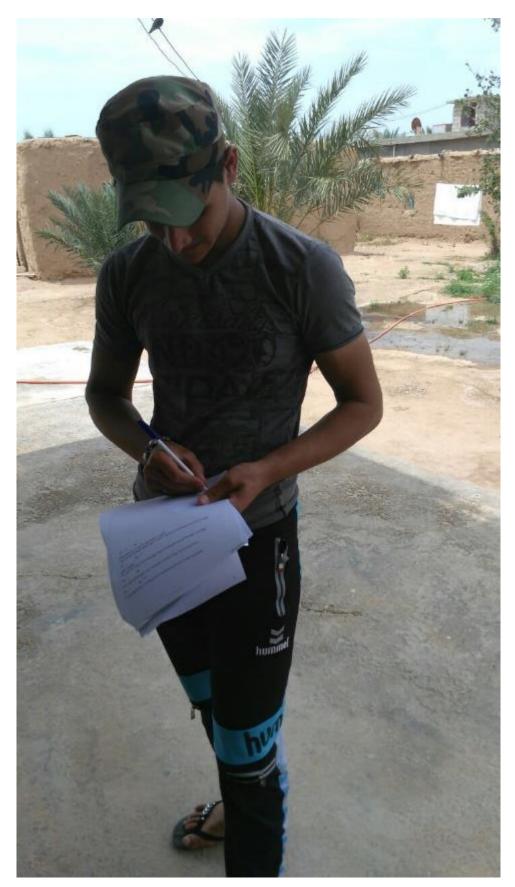


Figure 15: Mr. Ahmed Ibrahim signing his consultation sheet

الاسة الممد الراهم فالت المهنة: كا من تاريخ الزيارة: ٢٠/٢ ٧٢٠٠ س : هل تعقد أن عملية أعادة بناء الجسر / الطريق له اثار أيجابية من الناحية الاجتماعية على السكان القاطنين في المناطق المحيطة بالجس / الطريق؟ 1 per 25 س٢ : هل هذاك ادعاءات أو مطالبات من قبل السكان المطيين بعاندية الارض المقام عليها الجسر / الطريق؟ JS تعم س٣ يسبب اعمال أعادة البناء للجسر / الطريق هل تمت صلية از الة لمحاصيل زراعية أو اشجار أو أي س بيسب ، بسبي . غطاء قياتي تعود عاتديته لمواطنين او السكان المحليين؟ * SS تعم س؟ : هل تضررت مصالح المواطنين القاطنين بالقرب من الحسر / الطريق بسبب اعمال اعادة اليناء؟ U YS تعم س•: هل هذالك أي بذي تحقية مؤقنة أو دائمية تلعب دور أ أساسيا في النشاطات الحياتية اليومية للسكان سنتاتر بعملية تاهيل الجسر / الطريق؟ V XS تعم س : بهل ان اعدال اعادة اعمار الجس / الطريق ستنسب باجراءات اعادة لتوطين تشخص (والو) لاشخاص الى مناطق جديدة؟ 15 تعم س٧: هل تمت عملية استخدام منطقة بناء الجسر / الطريق بطريقة ما من قبل السكان المحليين ، علما ان الارض تتبعة للدولة؟ Liss تعم س٨: هل تتوقع وجود تأثيرات اجتماعية سلبية بالمنطقة نتيجة اعمال اعادة التأهيل?ماهي؟ As تغم (3)

س ٩: هل هذالك تغيير ات ديمو غرافية او ضرر في النسيجالاجتماعي من جراء اعمال اعادة التأهيل؟ نعم 2/25 س ٢٠: ماهي المجاميع الاكثر ضعفا و هشاشة التي من المحتمل ان تتأثر باعمال اعادة الاعمار ؟ 25 س ١١: هل سيعزز المشروع من عمليات النقل و يقل من انعز الية المجتمعات الموجودة بالقرب من منطقة U XS نعم س١٢: هل يحتاج المواطنون المقيمون بالقرب من الجسر / الطريق الى وضع اعلامات تحذيرية أو استدلالية لزيادة معدلات الامن و الامان لمستخدمي الجسر / الطريق نعم 25 . المدارا هي فلق د. 12/12