



# Environmental and Social Management Plan

Litani River Hydropower Plants, Lebanon

August 15, 2024

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## Executive Summary

Under the *Lebanon Renewable Energy and System Reinforcement Project* (World Bank, P180501), the World Bank is considering providing financing to help scale up renewable energy in Lebanon’s electricity supply mix, strengthen the electricity transmission network and its management, improve operating efficiency of Electricité du Liban (EDL), and rehabilitate critical assets at hydropower plants (HPPs). One component of the project would be to finance rehabilitation of the Markabi, Awali and Joun HPPs, which form a cascade on the Litani River. The HPPs have a total installed capacity of about 192 megawatts and are owned and operated by the Litani River Authority (LRA), a state company within the Ministry of Energy and Water. Among the responsibilities of LRA are to implement and manage irrigation, drinking water supply and hydropower projects in the Litani River Basin, the location of which is shown in the figure.

In May 2024, LRA conducted an audit of the environmental, social, and health and safety (ESHS) of the Litani River Cascade: HPPs. The intent was to identify and assess the risks and impacts of HPP operations and of the rehabilitation works in order to identify actions that LRA may need to implement in order to meet the requirements of the World Bank’s Environmental and Social Framework, the environmental and social legislation of Lebanon, and good international industry practice.



The key finding of the audit was that the HPPs, both the rehabilitation works and the continuing operation, can meet these. In order to do so, LRA will need to take certain actions to address issues that were identified during the audit and potential issues that may arise during construction<sup>1</sup>.

These actions are defined in this Environmental and Social Management Plan (ESMP). Table ES-1 provides an overview of the key findings of the audit and identifies the most important actions that must be taken. The main body of this ESMP then identifies and defines in more detail the issues and impacts of concern, the actions that must be taken, the parties responsible for implementing the action, the timeframes during which actions must be taken, and the intended outcomes. In addition, the Plan summarizes the requirements for monitoring implementation of the Plan and of environmental and social performance.

### Summary of Findings and of Corrective and Mitigation Measures

<i>Environmental Aspect</i>	<i>Relevant Audit Findings for Operations and Rehabilitation Works</i>	<i>Corrective / Mitigation Measures</i>
<b>Physical Environment</b>		
Air Quality	<ul style="list-style-type: none"> <li>• Very minor emissions to air from</li> </ul>	<ul style="list-style-type: none"> <li>• No action required for air</li> </ul>

<sup>1</sup> Please note that the terms “rehabilitation” and “construction” are used interchangeably throughout the ESMP.

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<i>Environmental Aspect</i>	<i>Relevant Audit Findings for Operations and Rehabilitation Works</i>	<i>Corrective / Mitigation Measures</i>
	<p>current and expected increase of traffic</p> <ul style="list-style-type: none"> <li>• Possible minor dust emissions from traffic on unpaved surfaces</li> <li>• Technical due diligence reported hydrogen sulfide in some indoor spaces (none was detected during the environmental and social audit)</li> </ul>	<p>emissions other than good international industry practice</p> <ul style="list-style-type: none"> <li>• LRA and Contractors to include SO<sub>2</sub> detection and mitigation in Occupational Health and Safety Plan HS Plans (e.g., sealing, ventilation, or other)</li> </ul>
Hydrology (Water Flows)	<ul style="list-style-type: none"> <li>• Under the current operating regime, downstream river reaches are significantly reduced at most times and entirely dry during dry periods</li> <li>• Change in operating pattern during construction could affect downstream users and biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• The current operating regime will continue without change following rehabilitation</li> <li>• Rehabilitation works are scheduled to avoid changes in existing operating patterns and amounts of river flows:</li> <li>• No change in impact, positive or negative</li> </ul>
Water quality	<ul style="list-style-type: none"> <li>• Gray water and sanitary water currently report to septic systems and this will continue during and after rehabilitation works.</li> <li>• Small quantities hazardous materials stored and used (fuels, paints, lubricating oils, etc.), slightly larger quantities likely to be used by Contractors during construction</li> <li>• No evidence that past leaks and spills of hazardous substances have affected water quality</li> <li>• Some (minor) potential for contamination of surface water through mismanagement of hazardous substances.</li> </ul>	<p>Materials and Waste Management Plans will be developed by LRA for operations and Contractor(s) for rehabilitation(see below)</p>
Noise	<ul style="list-style-type: none"> <li>• Limited or no external impact: noise does not reach off-site receptors at present and will not after rehabilitation</li> <li>• Construction noise also should not reach external receptors</li> <li>• Current workers are exposed to low levels of machinery noise in some areas of HPPs</li> <li>• Construction workers will be exposed to some higher levels during rehabilitation works</li> </ul>	<p>Workplace noise mitigation to be required in OHS management plans developed by LRA for operation and Contractor(s) for rehabilitation (see above)</p>
Waste and Materials Management	<ul style="list-style-type: none"> <li>• HPPs store and use small amounts of hazmats stored (lubricating oils, paints, etc.) and generate small amounts of waste at present, with some increase expected during rehabilitation, including significant metal scrap</li> <li>• Small amounts of gray and sanitary water managed in septic systems</li> <li>• Poor management of hazmats and wastes at present—no program, no</li> </ul>	<ul style="list-style-type: none"> <li>• Some minor risk to HPP workers from improper storage or use of hazmats at present</li> <li>• Somewhat higher risks to workers during rehabilitation due to dynamic nature of activities</li> <li>• Management plans to be developed by LRA for operation and Contractor(s) for rehabilitation</li> </ul>

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<i>Environmental Aspect</i>	<i>Relevant Audit Findings for Operations and Rehabilitation Works</i>	<i>Corrective / Mitigation Measures</i>
	secure storage or training, evidence of minor leaks (but no major issues to date)	
<b><i>Biodiversity</i></b>		
Biodiversity (habitats, ecosystems, flora, and fauna)	<ul style="list-style-type: none"> <li>• Endemic plant species observed in Awali orchard</li> <li>• No activities in the orchard or in other areas not currently disturbed or used for operations</li> </ul>	<ul style="list-style-type: none"> <li>• Awali orchard will not be affected</li> <li>• Negligible or no impact: <ul style="list-style-type: none"> <li>– No activities that will affect wildlife or plants</li> <li>– No change or effect on surface water</li> <li>– No effect on natural or critical habitat</li> </ul> </li> </ul>
<b><i>Community Health, Safety, and Security</i></b>		
Community health, safety, and welfare	<ul style="list-style-type: none"> <li>• Civil Service board checks ages, prohibits employment under 18 years (none actually under 21)</li> <li>• All workers enter into voluntary contracts</li> <li>• No formal mechanism for external grievances</li> </ul>	<ul style="list-style-type: none"> <li>• Contracts to require age verification</li> <li>• Negligible to minor risk of adverse impact due to labor influx or added pressure on infrastructure/ services (very small additional workforce during construction, , limited interaction with community for short period)</li> <li>• Rehabilitation works that would affect power supply to be scheduled at normal maintenance times in order to avoid disruptions in supply</li> <li>• Positive impact from stabilization and enhancement of electricity supply</li> </ul>
Stakeholder engagement	<ul style="list-style-type: none"> <li>• No formal engagement program</li> <li>• LRA has regular interactions with local authorities</li> <li>• No formal GRM</li> <li>• Local leaders support the HPPs and the rehabilitation works</li> </ul>	Stakeholder engagement Plan for the overall project will include requirements for engagement by LRA and HPPs
Emergency preparedness and response	<ul style="list-style-type: none"> <li>• HPPs have emergency plans at present</li> <li>• Workers have not been trained</li> </ul>	<ul style="list-style-type: none"> <li>• LRA to refine Emergency Preparedness and Response Plans to identify feasible emergencies and define preparedness and response, including responsibilities and consultation with authorities</li> <li>• Contractors to develop own Emergency Preparedness and Response Plan for rehabilitation works</li> <li>• All workers trained on relevant aspects of Plans</li> </ul>
<b><i>Workforce and Site Security</i></b>		
Labor management	<ul style="list-style-type: none"> <li>• Temporary minor employment by Contractors during rehabilitation (20-30</li> </ul>	<ul style="list-style-type: none"> <li>• Generally adequate existing HR procedures, including employment</li> </ul>

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<i>Environmental Aspect</i>	<i>Relevant Audit Findings for Operations and Rehabilitation Works</i>	<i>Corrective / Mitigation Measures</i>
	<p>maximum at each HPP). At present, unclear if works at the HPPs will be done sequentially or simultaneous)</p> <ul style="list-style-type: none"> <li>• LRA employment not planned to change</li> <li>• Civil Service recruits and hires permanent and contract employees-- hiring freeze causes all new employees to be contract workers.</li> <li>• 70 percent of the 160 permanent LRA employees are men, with an uncertain but higher number of contract workers—at HPPs, ratio of women to men at HPPs slightly lower</li> <li>• Civil service rules apply to permanent employees</li> <li>• No HR Manual for contract workers, but same rules are reported to be applied with some adjustment for different employment conditions (benefits, etc.)</li> <li>• No formal grievance mechanism</li> <li>• Pay scale reported to be uncompetitive</li> </ul>	<p>contracts</p> <ul style="list-style-type: none"> <li>• Labor Management Plan for the overall project will include requirements– Code of Conduct, GRM, GBV/SEA/SH, etc.</li> <li>• Contractors will develop conforming LMPs for rehabilitation</li> </ul>
Occupational health and safety	<ul style="list-style-type: none"> <li>• At present: <ul style="list-style-type: none"> <li>– No OHS program</li> <li>– No OHS specialists or safety officers</li> <li>– No OHS training</li> <li>– No formal reporting, record-keeping, or investigations of near misses and/or incidents</li> <li>– Very limited use of PPE, which is not provided</li> </ul> </li> <li>• Unsafe working conditions and equipment at present, with risk of falls, equipment impact, electricity, exposure to hazmats, and exposure to H<sup>2</sup>S in poorly ventilated spaces</li> <li>• No worker injuries or deaths have been reported for several years.</li> <li>• Contractors will be exposed to similar types of risks but with more activity, hence higher risks</li> </ul>	<ul style="list-style-type: none"> <li>• LRA to appoint a qualified expert to conduct an occupational health and safety audit and, based on the findings, prepare an Occupational Health and Safety Plan for operations, to cover all employees at all locations</li> <li>• Contractor(s) prepare OHS Plan(s) for their activities and workers</li> </ul>
Site Security	<ul style="list-style-type: none"> <li>• HPPs are fenced, with unarmed security personnel who monitor CCTVs</li> <li>• No incidents reported</li> <li>• Unknown at present if Contractors will provide security</li> </ul>	<p>If Contractor(s) provide security forces, use-of-force training to be required</p>



## 1. Background and Introduction

Under the *Lebanon Renewable Energy and System Reinforcement Project* (World Bank, P180501), the World Bank is considering providing financing to help scale up renewable energy in Lebanon's electricity supply mix, strengthen the electricity transmission network and its management, improve operating efficiency of Electricité du Liban (EDL), and rehabilitate critical assets at hydropower plants (HPPs). One component of the project would be to finance rehabilitation of the Markabi, Awali and Joun HPPs, which form a cascade on the Litani River. The HPPs have a total installed capacity of about 192 megawatts and are owned and operated by the Litani River Authority (LRA), a state company established in 1955 within the Ministry of Energy and Water. Among the responsibilities of LRA are to implement and manage irrigation, drinking water supply and hydropower projects in the Litani River Basin, the location of which is shown in the figure.

LRA retained the services of an international Consultant to carry out an audit of environmental and social performance and risks of operation and rehabilitation of the HPPs, to verify the rehabilitation works could meet the requirement of the World Bank's Environmental and Social Framework and Lebanon's environmental and social standards. The audit was carried out in May 2024 and included consultation with local authorities. Audit results were recorded in *Environmental and Social Audit: Litani Hydropower Plants, Lebanon* (July 25, 2024).



The key finding of the audit was that the HPPs, both the rehabilitation works and the continuing operation, can meet the requirements of the World Bank's Environmental and Social Framework and of Lebanese law. In order to do so, LRA will need to take certain actions to address issues that were identified during the audit and potential issues that may arise during construction<sup>2</sup>. Implementation of the actions will require LRA to have qualified personnel to oversee the programs, and for all supervisors and workers to be appropriately trained in their responsibilities under the program. To ensure that Contractors design and implement their own management programs, LRA will need to include relevant requirements into construction contracts.

## 2. Organization of Environmental and Social Management Plan

The ESMP is organized as follows:

- Section 2 describes the purpose of this ESMP and summarizes consultations with local officials that were held during the audit. Section 3 presents the requirements for environmental and social management by identifying the actions and activities that must be taken during the various phases of the Project. It also identifies whether LRA, the

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<sup>2</sup> Please note that the terms "rehabilitation" and "construction" are used interchangeably throughout the ESMP.



Project Management Consultant, or the Contractor will be primarily responsible for implementation during rehabilitation works, with the understanding that LRA bears ultimate responsibility for ensuring the actions are undertaken.

- Section 4 outlines environmental and social monitoring requirements.
- Section 5 defines training requirements.
- Section 6 describes the means by which corrective actions will be identified and acted upon.
- Section 7 defines organizational responsibilities, reporting lines, and staffing.
- Section 8 identifies actions that will not be required but are strongly recommended. These are directed at operations rather than the rehabilitation work.

### **3. Purpose of Environmental and Social Management Plan**

This Environmental and Social Management Plan (ESMP) summarizes the actions that LRA and its Contractors must take in order to avoid or reduce potential environmental and social impacts and meet the requirements of the World Bank and Lebanese law. The ESMP identifies issues and impacts of concern, specifies the actions that operating HPPs and their rehabilitation works must take, identifies the responsible parties and timelines, and outlines the desired outcomes. In addition, the Plan summarizes the requirements for monitoring implementation of the Plan and of environmental and social performance.

In some cases, the ESMP requires LRA or their Engineer-Procure-Construct (EPC) contractor(s) to develop detailed management plans that are tailored to specific activities and potential risks and impacts, and in others it identifies best management practices (BMPs) and/or good construction practices that will minimize, reduce, or eliminate many of the impacts of minor or even negligible significance which could escalate to become more important if they are not handled properly.

It was considered important that the opinions and concerns of key stakeholders be obtained during the audit so they could be taken into account by LRA in its operation of the HPPs and its design and implementation of the rehabilitation works. Therefore, mayors and officials of local municipalities were consulted during the audit so their own and their constituents' opinions and concerns could be recognized and understood. Officials who were consulted included the mayors and other officials of the municipalities of Joun, Jezinne Municipality, Qaraoun and Bouhayra Municipalities. The officials reported that they remain in frequent contact and have good relationships with LRA. They reported their constituents' appreciation of the services that LRA provides and that no one had expressed concerns about adverse effects from the HPPs, and they had no concerns about adverse effects from rehabilitation or continuing operations.

The officials were unanimous in expressing their support of the rehabilitation project, which LRA had described and discussed with them previously, and expressed their appreciation of the improvements in electricity supply that would result.

### **4. Responsibility for ESMP Implementation**

LRA will have ultimate responsibility for implementing the requirements of this ESMP during operations and during the rehabilitation works, including actions that are implemented by third

parties such as contractors and primary suppliers. The processes and requirements in the ESMP will collectively form the basis of the Environmental and Social Management System (ESMS) that will be implemented by LRA.

## **5. Environmental and Social Management Plan**

Table 1 describes and outlines the overall ESMP for the Litani River Cascade. It identifies the measures that must be implemented to avoid, reduce, or otherwise mitigate the potential adverse impacts identified in the environmental and social audit, as summarized above. It also identifies best management practices/good construction practices and other mitigation measures that will reduce or eliminate the impacts, including impacts of minor or even negligible significance, which could escalate to become more important if they are not handled properly. It is expected that mitigation measures will be sufficient to eliminate or reduce all risks to acceptable levels and to ensure that project activities meet the requirements of the World Bank Environmental and Social Framework and good international industry practice.

## **6. Environmental and Social Monitoring Plan**

Table 2 outlines the Environmental and Social Monitoring Plan. This monitoring is necessary to ensure there is close scrutiny over actual environmental and socio-economic performance during construction and operation so that prompt action can be taken if mitigation measures are not being implemented or if the measures are not adequately mitigating actual impacts. The objectives of the Environmental and Social Monitoring Plan are to ensure the following goals are achieved during all phases of the project:

- Potential impacts are identified during planning, construction and operation.
- Mitigation measures are implemented as required, and verified as being implemented.
- The effectiveness of mitigation measures is evaluated and shortcomings are identified.
- Mitigation measures are refined and enhanced as needed to further avoid or reduce impacts.
- Mitigation measures are developed and implemented as needed to deal with unforeseen issues or changes in operations.
- LRA and the Ministry of Environment are able to verify that their respective requirements are being met.

It is important to note that monitoring will not include only formalized inspections but also routine observations during the course of managers and supervisors performing their duties. They would routinely observe conditions and activities at all times, including when they are conducting formal “monitoring.” In addition, monitoring will not only be conducted for issues and parameters that are the subject of formal plans but also for all conditions that could result in a violation of the law, prevent a hazard to people or the environment, or present a risk or nuisance to the community. For example, emissions of air pollutants are expected to be very minor and not addressed in a management plan or formally monitored. However, all managers and supervisors (not only ESHS managers and supervisors) would be expected to notice and take action in case a truck was emitting black smoke or there was open burning of debris. Finally, the subject of any complaint regarding

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ESHS performance, whether from a worker or an external stakeholder, would be subject to investigation and possible monitoring to verify or deny the substance of the issue and to take appropriate action.

As noted, LRA will oversee the overall ESHS/HSE performance of all parties. Either directly or through the Project Management Consultant, LRA will select and appoint the Contractor, review and approve the contractors' management program, oversee the Contractor's work to ensure that the required mitigation measures are being implemented and are effectively avoiding or reducing impacts to acceptable levels throughout the Project and subsequent HPP operation.

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Litani River HPPs**

**Table 1. Environmental and Social Management Plan for Litani River HPPs**

No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
<b>1.0. Planning Phase</b>					
1.1	Preparation of bidding/procurement documents for each HPP rehabilitation project	<ul style="list-style-type: none"> <li>• Failure of bidders to recognize ESHS requirements, to plan for ESHS management, and to incorporate ESHS requirements in cost proposals and planning</li> <li>• Unacceptable impacts</li> <li>• Note: applies to procurement of prospective Contractors and Project Management Consultants</li> </ul>	<ul style="list-style-type: none"> <li>• Base contracts for EPC Contractor(s) and Project Management Consultant(s) on World Bank Standard Procurement Documents</li> <li>• As required by SPDs, include relevant ESHS documentation (including this ESMP) in procurement documents</li> <li>• Include requirement for “Management Strategy and Implementation Plan” (MSIP) in procurement documents, with MSIP to include:               <ul style="list-style-type: none"> <li>– Outline of corporate HR and OHS programs and overview how they will be applied at project level</li> <li>– Labor Management Plan</li> <li>– Corporate ESHS/HR Policy</li> <li>– Worker Code of Conduct and worker Grievance Redress Mechanism,</li> </ul> </li> <li>• Include requirement for key personnel to include qualified ESHS/HSE manager/specialist(s)</li> </ul>	<ul style="list-style-type: none"> <li>• Bidders understand ESHS/HSE requirements and prepare responsive proposals</li> <li>• Prospective bidders understand the need to minimize impacts on workers and environment</li> <li>• Design includes requirements for safe works and safe roadway use</li> <li>• Realistic costs for ESHS implementation</li> <li>• Minimal unqualified bidders</li> </ul>	LRA
1.2	Review and evaluation of proposals	<ul style="list-style-type: none"> <li>• Failure to consider bidders’ ESHS/HSE qualifications and experience in scoring proposals</li> <li>• Unqualified Contractor or Project Management Consultant</li> <li>• Unacceptable impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Include ESHS/HSE specialist(s) in proposal review team or require briefing of other evaluators on required ESHS qualifications</li> <li>• Include corporate ESHS/HSE experience and qualifications and ESHS staff experience and qualifications in proposal scoring guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• ESHS capacity recognized and scored</li> <li>• Bidders disqualified for poor safety and ESHS/HSE record</li> <li>• Recommendation for award to Contractor and Project Management Consultant qualified to implement ESMP</li> </ul>	<ul style="list-style-type: none"> <li>• LRA (for evaluation of Project Management Consultant proposals)</li> <li>• LRA (possibly through Project Management Consultant) for Contractor proposals</li> </ul>

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<i>No.</i>	<i>Activities</i>	<i>Potential Adverse Impact</i>	<i>Mitigation Measures/ Best Management Practice</i>	<i>Target outcome of mitigation</i>	<i>Responsible body</i>
1.3	Selection of Contractors and Project Management Consultant	<ul style="list-style-type: none"> <li>• Selection of Contractor unqualified and/or unprepared to implement this ESMP, or supervise Contractor</li> <li>• Unacceptable impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Establish minimum acceptable score for ESHS/HSE</li> <li>• Select Contractor based in part on (acceptable) ESHS/HSE performance and qualifications               <ul style="list-style-type: none"> <li>– Evaluate how well each bidder’s MSIP demonstrate awareness of requirements and qualifications to implement them</li> <li>– Reject if no demonstrated experience/qualification or poor performance record</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Contractor can implement this ESMP</li> <li>• Project Management Consultant able to supervise ESHS performance</li> <li>• Contractor ultimately implements ESHS requirement satisfactorily</li> <li>• Fewer delays in project preparation and construction</li> <li>• No unacceptable impacts</li> </ul>	LRA
1.4	Preparation for management of ESHS issues	<ul style="list-style-type: none"> <li>• Failure to hire qualified specialists</li> <li>• Non-compliance with applicable requirements</li> <li>• Excessive ESHS impacts due to mismanagement or failure to manage ESHS performance</li> </ul>	<ul style="list-style-type: none"> <li>• Appoint qualified personnel to plan, supervise, and implement ESHS requirements</li> <li>• Contractor and Project Management consultant to appoint personnel identified in proposal (LRA to verify proposed key personnel are the ones provided (no “bait-and-switch” replacements)</li> <li>• All parties allocate sufficient time to perform ESHS duties, including:               <ul style="list-style-type: none"> <li>– Contractor: prepare management plans for C-ESMP, implement and supervise own and Subcontractor ESHS performance, prepare reports</li> <li>– Project Management Consultant: review plans and C-ESMP, supervise Contractor performance, review and prepare reports</li> <li>– LRA: oversee Project Management Consultant, review and prepare reports</li> <li>– All: train foremen/workers in key requirements for ESHS mitigation,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Qualified staff in sufficient numbers to implement/ oversee C-ESMP (see row 2.3 below)</li> <li>• Full compliance with ESMP</li> </ul>	<ul style="list-style-type: none"> <li>• LRA</li> <li>• Project Management Consultant</li> <li>• Contractor</li> </ul>

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No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
			including Code of Conduct and worker GRM – Develop checklists for use by ESHS staff to record and report findings – Develop templates for bi-weekly ESHS reports to LRA – Develop templates for investigating and addressing root cause of incidents – Develop registers for recording grievances from external stakeholders and from workers and procedures for passing them to LRA		
1.5	Development and adoption of Worker Code of Conduct	<ul style="list-style-type: none"> <li>• Workers uninformed of expectations</li> <li>• Workers unaware of GRM</li> <li>• Unacceptable worker behavior (SEA/SH, conflict with community, unsafe practices, etc.)</li> </ul>	Modify the example Code in World Bank Standard Procurement Document as needed to adapt to local conditions and law	<ul style="list-style-type: none"> <li>• Workers aware of expectations and requirements and of GRM</li> <li>• No unacceptable behavior</li> </ul>	<ul style="list-style-type: none"> <li>• LRA (develop and adopt)</li> <li>• Project Management Consultant (adapt and adopt)</li> <li>• Contractor (adapt and adopt)</li> </ul>
1.6	Development of ESHS management program for operation, including: <ul style="list-style-type: none"> <li>– ESHS Policy</li> <li>– Occupational Health and Safety Management Plan (see row 3.2)</li> <li>– Hazardous Materials and Waste Management Plan (see row 3.3)</li> <li>– Emergency Preparedness and</li> </ul>	<ul style="list-style-type: none"> <li>• Unsafe conditions and practices</li> <li>• Poor materials management, risk of spills, contamination, exposure to hazmats</li> <li>• More emergency, more impacts</li> <li>• Poor ESHS performance during operations and rehabilitation</li> </ul>	Appoint qualified ESHS/HSE specialist to prepare C-ESMP and associated plans and procedures, with: <ul style="list-style-type: none"> <li>• Detailed requirements (what, who, where, when, etc.) for all relevant topics and potential risks/impacts</li> <li>• Training requirements (who is trained and when, what is covered) in all plans</li> <li>• Required reports to management on ESHS performance</li> <li>• Requirement to review program at least annually and update as needed,</li> </ul>	<ul style="list-style-type: none"> <li>• Safe working conditions and workers</li> <li>• No impacts from hazmats</li> <li>• Fewer emergencies, better responses</li> <li>• Compliance with ESHS standards</li> <li>• ESHS issues averted or reduced to acceptable levels</li> </ul>	LRA

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No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
	<p>Response Plan (see row 3.4)</p> <ul style="list-style-type: none"> <li>• Development of management plans or detailed method statements/procedures as needed to control:               <ul style="list-style-type: none"> <li>- Noise and dust</li> <li>- Traffic</li> <li>- Other detected/reported ESHS risks/impacts</li> </ul> </li> </ul>				
1.7	Preparation of Contractor Management Plan (see row 3.6)	<ul style="list-style-type: none"> <li>• Poor Contractor management and supervision</li> <li>• Noncompliance, unacceptable impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Appoint qualified ESHS/HSE specialist to prepare Plan               <ul style="list-style-type: none"> <li>- Management approval before submission to LRA</li> <li>- Plan to include staffing requirements, duties , schedules checklists for inspections and observations, schedules for oversight activities, reporting requirements, staff assignments, etc.</li> </ul> </li> <li>• To be approved by LRA ESHS/HSE manager when acceptable</li> </ul>	Clear guidance for systematic Contractor management and ESHS/HSE supervision	Project Management Consultant  (LRA approve)
1.7	<p>Development of site/activity specific Contractors' Construction ESMP (C-ESMP) by development of:</p> <ul style="list-style-type: none"> <li>• Subcontractor Management Plan (if Contractor to engage Subcontractors)</li> <li>• Occupational Health</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor begins works without programs to avoid or minimize ESHS impacts:</li> <li>• Subcontractor ESHS performance not managed</li> <li>• Uncontrolled or unacceptable risks/impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Appoint qualified ESHS/HSE specialist to prepare C-ESMP and associated plans and procedures               <ul style="list-style-type: none"> <li>- Include detailed requirements (what, who, where, when, etc.) for all relevant topics and potential risks/impacts</li> <li>- Include training requirements (who is trained and when, what is covered) in all plans</li> </ul> </li> <li>• Approve internally and submit to LRA at least</li> </ul>	<ul style="list-style-type: none"> <li>• No authorization to commence works without approved C-CESMP</li> <li>• Comprehensive contractor program for avoiding and minimizing impacts</li> <li>• Subcontractor compliance with plans</li> </ul>	Contractor (prepare)  LRA (approve, possibly through Project Management Consultant)

**Environmental and Social Management Plan  
Litani River HPPs**

<i>No.</i>	<i>Activities</i>	<i>Potential Adverse Impact</i>	<i>Mitigation Measures/ Best Management Practice</i>	<i>Target outcome of mitigation</i>	<i>Responsible body</i>
	and Safety Management Plan (see row 3.2) <ul style="list-style-type: none"> <li>• Hazardous Materials and Waste Management Plan (see row 3.3)</li> <li>• Emergency Preparedness and Response Plan (see row 3.4)</li> <li>• Worker Code of Conduct (finalize MSIP draft—see rows 1.1, 2.2, 3.6)</li> </ul> Development of project-specific management plans or detailed method statements/procedures as needed to control: <ul style="list-style-type: none"> <li>• Noise and dust</li> <li>• Traffic</li> <li>• Other ESHS risks/impacts</li> </ul>		four weeks prior to mobilization	<ul style="list-style-type: none"> <li>• All activities conducted in accordance with C-ESMP</li> <li>• No unacceptable or unpredictable impacts</li> </ul>	
1.8	Acquisition of required permits and permissions	Violations of law or contracts	Verify that any required permits and permissions are in hand before authorizing Contractor to mobilize to the site	<ul style="list-style-type: none"> <li>• Permits obtained</li> <li>• Legal operation</li> </ul>	<ul style="list-style-type: none"> <li>• LRA</li> <li>• Contractors (to be determined)</li> </ul>
1.9	Recruitment and employment of workers and (as required) Subcontractors	<ul style="list-style-type: none"> <li>• Inadequate workforce(s)</li> <li>• Unqualified workers and/or subcontractors</li> <li>• Misunderstandings over hiring practices</li> <li>• Poor labor practices</li> </ul>	<ul style="list-style-type: none"> <li>• Implement applicable Labor Management Plan consistent with World Bank guidelines (see 2.4)</li> <li>• Advertise positions that are open for hiring, with preference for hiring from local communities</li> </ul>	<ul style="list-style-type: none"> <li>• Maximum hiring of locals</li> <li>• Workers employed in compliance with Plan and law (nondiscrimination, equal opportunity,</li> </ul>	<ul style="list-style-type: none"> <li>• LRA</li> <li>• Contractor</li> <li>• Project Management Consultant</li> </ul>



**Environmental and Social Management Plan  
Litani River HPPs**

No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
		(substandard pay, uninformed workers, unsafe conditions, etc.) • Excessive staff turnover and associated costs	<ul style="list-style-type: none"> <li>• Establish preference for local hiring, with local people given preference (&gt;50% local unless LRA approves less, with justification)</li> <li>• Employ no one under age 18</li> <li>• Require signed employment contracts that describe job requirements, tenure, compensation, benefits, behavior, etc. ,</li> </ul>	income, etc.) • Low staff turnover, lower costs	
1.10	Establishment and use of laydown areas, storage areas, and other areas to be used or affected by rehabilitation works	Contractor trespasses on unauthorized land Placement of construction zones in inappropriate locations within HPP designated area Impacts outside boundary of designated area	<ul style="list-style-type: none"> <li>• Receive approval for C-ESMP (see 2.4) and receive permits (see 2.5) before any site preparation or rehabilitation activities</li> <li>• Before works begin, identify and mark all sites and areas to be used or otherwise affected – prevent access to disturbance of currently undisturbed areas</li> <li>• Implement C-ESMP requirements for noise, fuel and hazardous materials, worker safety, community safety, etc., including worker training on topics relevant to their jobs and on Code of Conduct</li> <li>• Develop and maintain pre-use photographic and written log of all areas to be affected (earth excavation and moving (if any), storage areas, temporary waste accumulation areas, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with approved C-ESMP and legislation</li> <li>• No disturbance of land not already used by LRA</li> <li>• No unexpected or unacceptable impacts in any location</li> </ul>	Contractor
1.11	Establishment of access to canteens, sanitary facilities, rest areas for construction workers	<ul style="list-style-type: none"> <li>• Worker illness or death</li> <li>• Worker dissatisfaction and lower productivity</li> <li>• Contamination of land or water</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and designate areas for worker breaks and other non-work time</li> <li>• Develop and use checklists for operation and maintenance of canteens, kitchens, and rest accommodations, etc.</li> <li>• Appoint persons to be responsible for cleanliness of workplaces and all other areas under contractor control.</li> <li>• Provide gender-appropriate toilets at facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Sanitary and compliant facilities and amenities</li> <li>• Healthy workers</li> <li>• Toilets in place where needed</li> </ul>	Contractor

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No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
			and work locations, establish and enforce rules prohibiting workers from using other areas		
<b>3.0 Rehabilitation Phase</b>					
3.1	Authorization to proceed with rehabilitation works	<ul style="list-style-type: none"> <li>• Unauthorized works</li> <li>• Unacceptable impacts</li> </ul>	Authorize Contractor to mobilize and begin works when: <ul style="list-style-type: none"> <li>• All required permits are in place</li> <li>• C-ESMP and management plans and procedures are approved and adopted</li> <li>• ESHS/HSE personnel are in place</li> </ul>	<ul style="list-style-type: none"> <li>• All activities planned and authorized</li> <li>• C-ESMP meets all standards</li> <li>• No unacceptable impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Project Management Consultant (recommendation to authorize)</li> <li>• LRA (for authorization)</li> </ul>
3.2	Protection of workers, beginning with mobilization: implementation of Occupational Health and Safety Plan	Worker injury or death	Implement Occupational Health and Safety Management Plan (see row 1.6), including requirements for: <ul style="list-style-type: none"> <li>• Trained first-aider on-site during all construction/rehabilitation activities</li> <li>• Safety officers trained and qualified to train and supervise safety</li> <li>• All workers are medically cleared to perform assigned tasks</li> <li>• Risks and mitigation measures have been identified for all locations, jobs, and activities, with PPE as last resort (job hazard assessments completed)</li> <li>• Workplaces and tasks designed for maximum safe operations</li> <li>• Workers provided with proper equipment, tools, and PPE (at no cost), so they can accomplish tasks safely</li> <li>• Workers trained for working in potentially hazardous jobs and locations (H<sub>2</sub>S contaminated environment, hazardous materials, working with electricity, etc.)</li> <li>• Job training for each worker covers safe</li> </ul>	<ul style="list-style-type: none"> <li>• Tasks completed with no worker injuries or deaths</li> <li>• Tasks completed with no damage outside construction zone</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor</li> </ul>

**Environmental and Social Management Plan  
Litani River HPPs**

No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
			<p>performance of his or her job</p> <ul style="list-style-type: none"> <li>• Provide fully supplied first aid kits in all vehicles and mobile equipment, with kits readily accessible to all workplaces – HSE manager to verify weekly</li> <li>• Provide visible emergency plans and contact numbers at all work location</li> <li>• Using communication channels with nearest medical facilities and personnel regarding works to be completed, with arrangements for support as appropriate</li> <li>• Keep records of safety statistics (work hours, near misses, minor &amp; incidents and accidents, fatalities)</li> <li>• Continuous (supervisor), daily (safety officer), and weekly (ESHS/HSE manager) inspections and checks for compliance</li> <li>• Avoid working in/near water to extent possible. If it is necessary, include requirements for buddy system and other safeguards as appropriate</li> <li>• Investigation of all serious incidents and reporting to management on root causes of all serious incidents, including definition to actions/changes to prevent recurrence of any incident</li> </ul>		
3.3	Resource conservation, spill prevention, waste minimization and management:	<ul style="list-style-type: none"> <li>• Increased use of materials, increased costs</li> <li>• Spills and contamination</li> <li>• Worker exposure</li> </ul>	<p>Implement Materials and Waste Management Plan (see row 1.6), including:</p> <ul style="list-style-type: none"> <li>• Maintain detailed inventory of hazardous and nonhazardous materials in inventory and in waste storage</li> <li>• Replace hazmats with nonhazardous or less hazardous materials where feasible</li> <li>• Use bespoke areas for hazmat storage (store</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced use of materials and waste generation</li> <li>• Minimal spills and contamination, no worker exposure</li> <li>• Proper materials and waste storage, use, and disposal</li> </ul>	Contractor PMC to approve and supervise LRA for oversight

**Environmental and Social Management Plan  
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No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
			hazmats away from other materials and activities) <ul style="list-style-type: none"> <li>• Keep cleanup kits in all vehicles and all workplaces</li> <li>• Keep Material Data Safety Sheets wherever hazmats are stored or used</li> <li>• Take or send (with licensed haulers) wastes only to locations designed for recycling or disposal, as appropriate</li> </ul>		
3.4	Preparation for and responses to emergencies	<ul style="list-style-type: none"> <li>• Unsafe working conditions</li> <li>• Worker injury or death</li> <li>• Community member injury or death</li> <li>• Excess damage to property or people</li> <li>• Unnecessary cost</li> </ul>	Prepare and Implement Emergency Preparedness and Response Plan for rehabilitation works (see row 1.6), including: <ul style="list-style-type: none"> <li>• Appoint emergency response team(s)</li> <li>• Train workers and response teams in responsibilities in case of emergencies in responding</li> <li>• Identify possible emergencies, possible consequences (earthquake, flood, fire, accidents, injuries or deaths, spills), and response actions</li> <li>• Inform stakeholders of possible emergencies that could affect them</li> <li>• Establish relationship with community responders for mutual support</li> <li>• Develop and use checklists to verify readiness for emergencies Place and maintain emergency response equipment (fire extinguishers, first aid kits, cleanup kits, radios/communication devices, etc.) where emergencies could occur</li> </ul>	<ul style="list-style-type: none"> <li>• Emergencies avoided</li> <li>• Emergency equipment in place and ready if needed</li> <li>• Quick and effective responses to emergencies</li> </ul>	Contractor
3.5	Management of workforce	<ul style="list-style-type: none"> <li>• Penalties for violations of Labor Code</li> <li>• Poor workforce morale</li> </ul>	Implement Labor Management Procedures), including: <ul style="list-style-type: none"> <li>• Comply with Lebanese Labor Code</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with law</li> <li>• Workers knowledgeable of employment status</li> </ul>	<ul style="list-style-type: none"> <li>• Project Management Consultant (adapt or develop LRA Plan)</li> </ul>

**Environmental and Social Management Plan  
Litani River HPPs**

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<i>No.</i>	<i>Activities</i>	<i>Potential Adverse Impact</i>	<i>Mitigation Measures/ Best Management Practice</i>	<i>Target outcome of mitigation</i>	<i>Responsible body</i>
		<ul style="list-style-type: none"> <li>• Low-quality work</li> <li>• Excess staff turnover</li> </ul>	<ul style="list-style-type: none"> <li>• Inform and train workers of worker grievance mechanism</li> <li>• Clear and compete labor contracts agreed to and provided to worker (responsibilities, tenure, compensation, behavior requirements, etc.)</li> <li>• Allow no workers under 18</li> <li>• Implement Grievance Redress Mechanism</li> <li>• Implement program to prevent sexual exploitation, abuse, and harassment and gender-based violence</li> </ul>	<p>and conditions</p> <ul style="list-style-type: none"> <li>• Worker concerns addressed effectively</li> <li>• Stable workforce</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor (adapt or develop LRA Plan)</li> </ul>

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Litani River HPPs**

No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
3.6	Management of Contractor: Supervision of Contractor ESHS/HSE performance	<ul style="list-style-type: none"> <li>• Lack of timely knowledge about Contractors' ESHS performance</li> <li>• Inadequate or incomplete implementation of ESHS/HSE requirements</li> <li>• Unnecessary ESHS impacts</li> <li>• Minor issues become major problems</li> <li>• Contractor paid for substandard ESHS/HSE works/performance</li> </ul>	Implement Contractor Management Plan (see row 2.3), including: <ul style="list-style-type: none"> <li>- Supervise implementation of Contractor C-ESMP through observations, frequent inspections, application of remedies, documentation, reporting</li> <li>- Appoint qualified ESHS Manager to oversee ESHS/HSE performance during rehabilitation works at all three HPPs</li> <li>- LRA and Project Management Consultant ESHS/HSE specialists to:</li> <li>- Schedule and participate in consultation meetings and informal interviews</li> <li>- Conduct regular site observations (daily by supervisors 3+ times per week by ESHS manager)</li> <li>- Prepare HSE site observation reports with photographs and recommendations (as required)</li> <li>- Prepare monthly ESHS reports</li> <li>- Review grievance logs periodically</li> <li>- Use remedies under the contract to compel compliance: verbal and written warnings, notices of noncompliance, removal, etc.</li> <li>- Appoint third party to implement corrective measures and reduce contractor invoices accordingly If contractor fails to correct deficiencies in ESHS implementation</li> </ul>	<ul style="list-style-type: none"> <li>• ESHS properly supervised</li> <li>• Full implementation of ESHS requirements</li> <li>• LRA management is well-informed of issues before they become problems</li> <li>• ESHS compliance: no unacceptable ESHS impacts</li> <li>• Contractor paid 100% (see 3.8 below)</li> </ul>	LRA (primary through Project Management Consultant))
3.7	Management of subcontractors (if engaged)	<ul style="list-style-type: none"> <li>• Subcontractors not aware of ESHS/HSE requirements</li> <li>• Poor labor practices and poorly trained workers</li> <li>• Failure to implement C-</li> </ul>	<ul style="list-style-type: none"> <li>• Supervise C-ESMP implementation by Subcontractors through observations, frequent inspections, application of remedies, review records review, reporting</li> <li>• Structure milestone payments to include C-</li> </ul>	<ul style="list-style-type: none"> <li>• Subcontractor implementation of C-ESMP</li> <li>• No unacceptable ESHS impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor</li> <li>• Project Management Consultant (supervise)</li> </ul>

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Litani River HPPs**

No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
		<p>ESMP</p> <ul style="list-style-type: none"> <li>• Subcontractor paid for substandard ESHS works/performance</li> <li>• Poor ESHS performance, including safety, leading to environmental impacts, impacts on local communities, and worker injury or death</li> </ul>	<p>ESMP implementation</p> <ul style="list-style-type: none"> <li>– Pay milestone invoices only if ESHS requirements for that milestone are 100% met</li> <li>– Pay final invoice only when ESHS requirement are 100% complete</li> </ul>	<ul style="list-style-type: none"> <li>• Subcontractors paid 100%</li> </ul>	
3.8	Payment of Contractor/ Subcontractor invoices for completion of milestones	<ul style="list-style-type: none"> <li>• Contractor disregard of safety and other ESHS requirements.</li> <li>• Repeated poor safety practices</li> <li>• Repeated risks to community</li> </ul>	<ul style="list-style-type: none"> <li>• Consider relevant ESHS management requirements to be an integral part of each construction milestone</li> <li>• Include evaluation of ESHS/HSE performance in Project Management Consultant recommendations for LRA payment of invoices for work completion <ul style="list-style-type: none"> <li>– Approve and pay milestone completion invoices only after ESHS requirements for those milestone activities have been implemented as required</li> <li>– Approve and pay invoice for final payment only if ESHS requirements are fully met, recommend payment only when 100% complete</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Proper implementation of the overarching C-ESMP</li> <li>• Timely implementation of requirements of C-ESMP</li> <li>• Minimal impacts</li> <li>• Invoices fully paid with no delay</li> </ul>	<ul style="list-style-type: none"> <li>• LRA (though Project Management Consultant for Contractor invoices)</li> <li>• Contractor (for subcontractor invoices)</li> </ul>
3.9	Completion of rehabilitation works	Unsafe and unstable environmental/social conditions following completion of rehabilitation	<ul style="list-style-type: none"> <li>• Include incomplete ESHS/HSE requirements in “snag list” and require correction</li> <li>• Authorize demobilization only after snag list is completed</li> </ul>	<ul style="list-style-type: none"> <li>• Facility and site safe and stable</li> <li>• Rehabilitation completed with C-ESMP fully implemented</li> </ul>	LRA and Project Management Consultant
3.10	Closure & clean-up of construction areas,	<ul style="list-style-type: none"> <li>• Debris, waste, contaminated soil, waters</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of all tools, equipment, storage units/tanks/drums, debris, wastes, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• All areas affected by rehabilitation works</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor</li> <li>• Project Management</li> </ul>

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No.	Activities	Potential Adverse Impact	Mitigation Measures/ Best Management Practice	Target outcome of mitigation	Responsible body
	temporary storage areas, etc.	remain after works are complete <ul style="list-style-type: none"> <li>Liability for LRA</li> </ul>	<ul style="list-style-type: none"> <li>Cleanup of all contaminated soil (if any occurred)</li> <li>Restoration of areas used for storage, etc.</li> <li>Proper Removal and disposal of residual wastes (scrap, etc.)</li> <li>All areas to be inspected by LRA before release/turnover</li> </ul>	activities restored to pre-construction uses or as agreed with LRA <ul style="list-style-type: none"> <li>No residual liability or damages</li> </ul>	Consultant (review and recommend) <ul style="list-style-type: none"> <li>LRA (approve)</li> </ul>
3.11.3	Payment of final invoice	Demobilization incomplete, with residual damage, leftover waste, contaminated soils or water	Pay final invoice only after final inspection shows proper implementation of C-ESMP and no corrective actions are required to meet standards, including good international industry practice	<ul style="list-style-type: none"> <li>No continuing or residual damages or contamination</li> <li>No further corrective actions needed</li> <li>Final payment made</li> </ul>	LRA (through Project Management Consultant)
<b>5.0 HPP Operation and Maintenance</b> (throughout operations during and after completion of rehabilitation)					
5.1	Stakeholder engagement and grievance management	<ul style="list-style-type: none"> <li>Uninformed stakeholders</li> <li>Distrust of LRA</li> <li>Increased vandalism</li> </ul>	<ul style="list-style-type: none"> <li>Implement Project Stakeholder Engagement Plan</li> <li>Notify local authorities of planned and ongoing activities and schedule</li> <li>Implement stakeholder GRM, with support from Contractor: record, address, and communicate resolutions</li> </ul>	<ul style="list-style-type: none"> <li>Informed stakeholders</li> <li>Public support</li> <li>Grievances addressed and resolved</li> </ul>	LRA
5.2	Development of Environmental and Social Management System for HPP operation and maintenance, inclusive of: <ul style="list-style-type: none"> <li>ESHS Policy</li> <li>Occupational Health and Safety Plan</li> <li>Materials and Waste Management Plan</li> <li>Emergency Preparedness and</li> </ul>	<ul style="list-style-type: none"> <li>Spills and contamination of soil, vegetation, and surface water</li> <li>Extra cost due to wastage</li> <li>Risks to workers</li> </ul>	<ul style="list-style-type: none"> <li>Appoint international expert to conduct safety audit of each HPP and develop corrective action plan</li> <li>As part of corrective action plan from the audit, develop and implement Occupational Health and Safety Plan for each HPP, including (but not limited to): <ul style="list-style-type: none"> <li>Requirements in row 3.2</li> <li>Identify areas and circumstances areas where H<sup>2</sup>S concentrations may present a hazard and implement remedies (remove sources, insulate, ventilate, etc.)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Safety risks identified and mitigated, safe and secure workplaces and workforce</li> <li>Materials and waste management in accordance with law and good international industry practice</li> <li>Reduced number of emergencies and minimal impact from</li> </ul>	LRA (with support of Project Management Consultant).



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<i>No.</i>	<i>Activities</i>	<i>Potential Adverse Impact</i>	<i>Mitigation Measures/ Best Management Practice</i>	<i>Target outcome of mitigation</i>	<i>Responsible body</i>
	Response Plan <ul style="list-style-type: none"> <li>•</li> </ul>		<ul style="list-style-type: none"> <li>– Provide and require use of proper PPE, with minimum of hard hats, safety boots, and high-visibility vests/clothing</li> <li>• Develop and implement Materials and Waste Management Plan for each HPP, including (but not limited to):                             <ul style="list-style-type: none"> <li>– Requirements in row 3.3</li> <li>– Removal of all hazmat stores to secure area</li> <li>– Training of personnel in hazmat management</li> </ul> </li> <li>• In consultation with local emergency authorities and responders, develop and implement Emergency Preparedness and Response Plan for each HPP, including (but not limited to) requirements in row 3.4</li> <li>–</li> </ul>	emergency situations <ul style="list-style-type: none"> <li>• Labor management in accordance with Labor Code and good international industry practice</li> </ul>	

**Table 2. Environmental and Social Monitoring Plan for Litani River HPPs**

<i>Activity</i>	<i>What</i>	<i>Where</i>	<i>How</i>	<i>When</i>	<i>Why</i>	<i>Who</i>
	<i>(Is the parameter to be monitored?)</i>	<i>(Is the parameter to be monitored?)</i>	<i>(Is the parameter to be monitored?)</i>	<i>(Define the frequency / or continuous?)</i>	<i>(Is the parameter being monitored?)</i>	<i>(Is responsible for monitoring?)</i>
All construction/ rehabilitation works	Technical progress and implementation of ESHS mitigation measures, compliance with	Selected past and all current work areas	<ul style="list-style-type: none"> <li>• Observations during normal activities</li> <li>• Inspections</li> <li>• Bi-weekly reports and incident reports</li> </ul>	Continuous or as necessary	Verify implementation of mitigation measures	LRA

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Activity	<i>What</i>	<i>Where</i>	<i>How</i>	<i>When</i>	<i>Why</i>	<i>Who</i>
	<i>(Is the parameter to be monitored?)</i>	<i>(Is the parameter to be monitored?)</i>	<i>(Is the parameter to be monitored?)</i>	<i>(Define the frequency / or continuous?)</i>	<i>(Is the parameter being monitored?)</i>	<i>(Is responsible for monitoring?)</i>
	Lebanese ESHS law, World Bank ESSs, and C-ESMP		ESHS monitoring audit	Prior to Contractor mobilization	Identify actions needed to improve ESHS/HSE needed modifications , in particular safety and hazardous materials management, and emergency planning	Competent occupational health and safety specialist appointed by LRA /PMC
			Workplace inspections	At least weekly	Verify implementation	LRA
	Working conditions (equipment, tools, safety equipment, etc.) and workers (PPE)	All active work areas	Observations	During daily rounds (continuous)	<ul style="list-style-type: none"> <li>• Verify implementation of OHS Plan</li> <li>• Verify safety of working conditions and workers</li> <li>• Provide guidance to supervisors and workers</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor supervisors &amp; LRA supervisors &amp; ESHS/HSE specialist</li> </ul>
			Inspections	At least weekly		
	Worker and supervisor safety training	ESHS office, active work areas	Records checks & interviews	Daily or as needed before beginning new work	Ensure workers are trained to work safely	Supervisor (foreman)
				Spot checks (at least once every monthly at each workplace)		Contractor safety/HSE manager
Progress reports/ meetings	<ul style="list-style-type: none"> <li>• Technical progress and status of C-ESMP implementation:</li> <li>• Safety, labor,</li> </ul>	Project-wide	<ul style="list-style-type: none"> <li>• Interviews with Contractor HSE &amp; technical staff</li> <li>• Reviews of bi-weekly Contractor ESHS</li> </ul>	Monthly	Verify technical progress and ESHS protection	<ul style="list-style-type: none"> <li>• Mandatory attendees: project managers, ESHS/HSE</li> </ul>

**Environmental and Social Management Plan  
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Activity	What	Where	How	When	Why	Who
	(Is the parameter to be monitored?)	(Is the parameter to be monitored?)	(Is the parameter to be monitored?)	(Define the frequency / or continuous?)	(Is the parameter being monitored?)	(Is responsible for monitoring?)
	waste management, etc. • Grievance management (workers and external stakeholders)		performance reports • Reviews of worker & stakeholder grievance registers/logs • Workplace visits			managers and specialists of LRA Project Management Consultant, Contractor
Drivers and vehicle safety	Driver qualifications	Office	<ul style="list-style-type: none"> <li>Verify valid driver's license and operator's permit as required</li> <li>Check with traffic police if needed</li> <li>Skills testing as needed</li> </ul>	<ul style="list-style-type: none"> <li>Before allowed to vehicles/equipment (at hiring)</li> <li>Annually thereafter</li> </ul>	Ensure drivers are licensed and trained	Contractor, PMC, and LRA
	Vehicle safety (horns, backup alarms, lights, tires, safety belts, fire extinguisher, cleanup kit, first aid kit, etc.). Remove from service as needed	All vehicles in use	Inspect and complete checklist	Daily before first use	Minimize traffic accidents, protect workers and other drivers/pedestrians	Driver/operator (for all parties)
			Review checklists and vehicles	Spot checks: at least weekly for each vehicle		
Noise generation	Noise levels	Workplaces, including inside HPPs Site boundary (storage areas)	Noise meters	Twice a week at each type of workplace	Verify noise is within standard or identify need for mitigation	Contractor ESHS/HSE specialist

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Activity	What	Where	How	When	Why	Who
	(Is the parameter to be monitored?)	(Is the parameter to be monitored?)	(Is the parameter to be monitored?)	(Define the frequency / or continuous?)	(Is the parameter being monitored?)	(Is responsible for monitoring?)
		All monitoring locations including inside the HPPs (as above)	Records review, noise measurements with meter	Weekly or as needed	Verify noise is within standards	Contractor HSE specialist
			Spot check with meter, records review	Monthly or as needed	Verify Contractor is monitoring and controlling noise adequately	Project Management Consultant ESHS/HSE specialist
Hazardous and nonhazardous materials and waste management	Materials storage	Storage areas	Visual inspection, records review	Continual observation Weekly inspection and records review	<ul style="list-style-type: none"> <li>Verify materials stored properly</li> <li>Impermeable surface under fuels, paint, other hazmat</li> <li>Proper labelling and MSDSs</li> </ul>	Contractor ESHS/HSE specialist
				Weekly inspection Monthly records review		Project Management Consultant ESHS/HSE specialist
	Waste management	All work areas and waste storage areas	Visual inspection, records review	Continual observation Daily inspection	<ul style="list-style-type: none"> <li>Verify waste register is up to date</li> <li>Verify wastes are segregated and stored properly</li> <li>Verify hauler licensing</li> <li>Verify disposal meets legal requirements</li> </ul>	Contractor ESHS/HSE specialist
				Daily inspection Monthly records review		LRA ESHS/HSE specialist
Ensuring adequate hygiene	Sanitation, water, etc.	Canteens, break areas, toilets, rest areas	Inspections	Weekly	Verify amenities meet good international industry practice	Contractor PM and ESHS/HSE manager
	Toilets & potable water	Work locations	Observations	Daily during rounds	Verify workers have potable water	All HSE specialists, supervisors,

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<i>Activity</i>	<i>What (Is the parameter to be monitored?)</i>	<i>Where (Is the parameter to be monitored?)</i>	<i>How (Is the parameter to be monitored?)</i>	<i>When (Define the frequency / or continuous?)</i>	<i>Why (Is the parameter being monitored?)</i>	<i>Who (Is responsible for monitoring?)</i>
			Inspections	At least weekly	Verify toilet facilities are available	managers
		Selected work locations, office	Inspections and records review	Weekly		Contractor ESHS/HSE specialist
						Project Management Consultant ESHS/HSE specialist
Worker grievance resolution	Contractor worker grievance register	Work sites and records offices	Review of register	Weekly	<ul style="list-style-type: none"> <li>Verify grievances are being recorded and resolved</li> <li>Take action if they are not</li> </ul>	Contractor HR manager and PM
	Project Management Consultant worker grievance register					Project Management Consultant ESHS/HSE specialist
	LRA grievance register					LRA ESHS/HSE specialist
	Grievance handling and resolution		Review of selected grievances: interviews of managers responsible for resolution and of complaining workers	Before bi-weekly progress meeting during rehabilitation	Verify grievances are being addressed properly and require action if not	HR & ESHS/HSE managers of Contractor, Project Management Consultant, LRA
Stakeholder engagement	Worker behavior in communities	Community	<ul style="list-style-type: none"> <li>Reviews of grievance log</li> <li>Interviews with community leaders</li> </ul>	Bi-weekly	Determine need for training/dismissals/ etc.	Contractor HR manager, PM
	Community satisfaction with project	Community	<ul style="list-style-type: none"> <li>Reviews of grievance logs</li> <li>Interviews with community leaders and</li> </ul>	Monthly	Identify community issues	LRA ESHS Manager LRA project manager

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Activity	<i>What</i>	<i>Where</i>	<i>How</i>	<i>When</i>	<i>Why</i>	<i>Who</i>
	<i>(Is the parameter to be monitored?)</i>	<i>(Is the parameter to be monitored?)</i>	<i>(Is the parameter to be monitored?)</i>	<i>(Define the frequency / or continuous?)</i>	<i>(Is the parameter being monitored?)</i>	<i>(Is responsible for monitoring?)</i>
			local residents			
			Stakeholder engagement meetings to provide information, receive feedback	By end of the rehab contract (works)	Info community, identify issues	LRA ESHS/HSE team
Labor management	Employment contracts (tasks, hours/duration, compensation, benefits, compensation, Code of Conduct, etc.)	Office and field	Contract review, worker interviews	Monthly	Verify workers are under voluntary contracts and are aware of benefits, compensation, rules, have been trained (including SEA/SH, GRM, etc.), etc.	HR managers/PMs of Contractor, Project Management Consultant, LRA

## 7. Training and Awareness

To ensure that all participants in the Litani HPP Project are aware of the requirements that are relevant to their responsibilities and what they need to do in order to ensure those requirements are met, LRA and Contractor(s) (assumed to be one per each HPP, although there may be a single one for all HPPs) will develop and implement a training and awareness program. Program(s) will be tailored to the needs of those who may be exposed to risk, those who supervise the workers, and those who manage the Project and its various elements. The level of detail of each individual's training would increase depending on the level of responsibility and the degree of risks to which the person could be exposed. This would include occasional visitors, site managers and supervisors, and Headquarters personnel responsible for overseeing the Project and its activities. The objective is that trainees will be aware of the potential impacts that the Project and their activities could have on themselves and the impacts they could have on other workers, the community, and the environment, and that they possess the necessary knowledge and skills to ensure impacts are avoided altogether or otherwise managed to acceptable levels

Training will be provided to every person who comes on the HPP site:

- **Induction training/briefing** will be provided to everyone who enters the HPP site. This training, tailored for the various categories of trainees (visitors, vendors, managers and supervisors, workers, etc.) will identify the risks to which the trainee may be exposed, required measures to reduce or avoid the risks, actions to take in case of emergency, areas and actions that are forbidden or off-limits, minimum PPE required, and other topics as needed. Because visitors and various categories of trainees will not be exposed to the same level of risks, training sessions will be prepared for the various categories of trainees. Visitors will be trained each time they visit the site within a six-month period and training must emphasize that they are to be escorted at all times by authorized site personnel at all times. Managers and workers will receive induction training at the time they first come to the site and periodically thereafter (no less than annually).

Induction training for employees and workers involved in the rehabilitation works and in operations will necessarily be somewhat more involved and lengthier. It will cover the general risks to which the trainee may be exposed on the HPP premises and work site, not only those that would result from work activities. It would also cover employment conditions (shifts, holidays, benefits, etc.) and other aspects of their employment, including the requirements of the Code of Conduct (such as acceptable behaviors, especially with regard to sexual exploitation, abuse, and harassment) and the availability and workings of the Grievance Redress Mechanism. Induction training for employees and workers involved in rehabilitation and operations will be repeated at least annually.

- **Job training** will be provided to all Contractor and LRA managers, workers, and other staff who are responsible for tasks. This training will be based on job hazard assessments completed for each job and each task and will describe how to perform jobs safely, including required use of safety equipment and PPE, and the areas and activities that are off-limits. Supervisors will be trained not only in their own jobs but also in how the workers they supervise are required to perform their work safely. Job training must be repeated periodically, no less than annually, and must be given/repeated before a

worker is assigned new tasks or is exposed to new hazards (for example, assigned to a new location). Job training may be combined with induction training as appropriate.

Some jobs that present specific hazards may require training to earn a “permit to work” before the task can be undertaken by an individual. These include working in confined spaces (including in excavations or underground—including the underground powerhouses and access tunnels), working on scaffolding or at height, working with hazardous materials or wastes, working with electricity, operating heavy equipment or driving vehicles, lifting, and other tasks that may present extreme or specific hazards. Permits-to-work must be periodically renewed at least annually, with training updated and repeated each time.

- **ESHS/HSE supervision training** will be provided to managers and supervisors/foremen and personnel in leadership positions. All persons in a supervisory or management role will be briefed on overall Project environmental and social requirements, including health and safety requirements, that are part of this overarching ESMP and the Contractor’s C-ESMP, not only the requirements specific to their own tasks. As noted, as part of their own job training, managers and supervisors will also receive the same training as the workers they are responsible for supervising.
- **Daily job briefs/“toolbox talks”**. Every day, before work begins, each work crew will meet briefly to review relevant topics related to the work to be performed and the potential risk it may pose to themselves, others, property, or the environment. The intent is to keep workers safe, allow or control risks to others or to property or the environment. This training may be designed and led by workers as well as supervisors or managers.

All parties – LRA, Project Management Consultant, and Contractors--will maintain records of all training provided to their respective employees, including date and time, length of training, topics covered, names and positions of trainees, signatures of trainees, and signatures of trainers and trainees. Records will be kept in the main site offices as part of personnel and/or environmental and social records and should also be part of personnel records.

LRA and the Contractor will also post signs at entrances to the Project site and in all common areas and all workplace areas that warn of specific and general risks and requirements. These signs will be repaired or replaced as needed to maintain their presence at or near all workplaces. They must be in a language understood by the workers.

## **8. Incidents, Non-Conformances, and Corrective Actions**

The Contractor(s) selected for the rehabilitation works will develop procedures to register, track, investigate, document, identify root causes and corrective, and close violations of applicable requirements, including requirements in this ESMMP and the Contractor’s (or Contractors’) C-ESMPs. This would be most familiar for occupational health and safety incidents, but will also be applied to other situations where requirements are violated, particularly when there are repeated violations or serious impacts on people, the environment, or property. During rehabilitation, Contractors will report serious incidents (and others as required by LRA) to the Project Management Consultant immediately (within 24 hours), and the Project Management Consultant will, in turn,



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would report it to LRA's HPP and corporate ESHS/HSE Managers immediately. LRA would then report as required by the Environmental and Social Commitment Plan.

Following the report, incidents would be investigated<sup>3</sup> to identify the reasons the incident occurred root causes and the corrective actions that must be taken to prevent recurrence. These root cause reports would be submitted from the Contractor to the Project Management Consultant to LRA.

The entire process for all issues will be documented thoroughly by the responsible party and summarized in the routine progress reports

The types of incidents that should be subject to investigation and reporting would include:

- **Occupational health and safety.** Incidents of concern would include near misses, injuries that require first aid treatment, injuries that cause the loss of three or more shifts, injuries that cause long-term or permanent disability, and fatalities. Serious incidents to be investigated and reported immediately in all cases would include, at a minimum, lost time incidents, disabilities, and fatalities. At LRA's discretion, more minor incidents that involve near misses or first aid injuries may be required to be reported, but otherwise would be handled internally (documented and investigated to the extent there are repeated incidents of the same kind, repeated incidents from a particular work crew or worker, or resulting from the same activity). Root cause reports will describe the incident in detail the reasons it occurred
- **Labor management issues.** These could include child or forced labor, failure to have written employment contracts for all workers, failure to include appropriate information in employment contracts, incidents of sexual abuse, exploitation, or abuse, lack of a functioning grievance mechanism, violation of Lebanese Labor Code, failure to provide compensation as required, and similar issues. Here, child and forced labor as well as gender-related issues would be the most serious, and would be reported immediately by Contractors to the Project Management Consultant and then to LRA. At LRA's discretion, other incidents may also need to be reported. Sanctions by Government authorities would be another issue to report immediately. Less serious incidents would again be handled internally.

Similar to OHS incidents, labor issues will be investigated and remedied so they do not continue or happen again.

- **Environmental incidents.** These could include spills of hazardous substances or wastes, releases of harmful pollutants to water or air, systematic failure to implement mitigation measures (including monitoring), working outside property/project boundaries, and other issues that violate Lebanese law or good international industry practice (see World Bank Group General Environmental, Health, and Safety Guidelines for examples of good international industry practice). In general, incidents that affect off-site resources or that involve major releases or damages would be the more serious and would be reported immediately. On-site incidents that caused no permanent damage or off-site impacts

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<sup>3</sup> During rehabilitation, the team would include representatives of the Contractor and the Project Management Consultant, and possibly LRA. During operation, the team would include representatives of LRA HQ and the HPP where the incident occurred, and possibly a representative of another HPP.

would be handled internally only. Again, investigation and reporting would be the same as for OHS and labor incidents.

- **Community health, safety, and security incidents.** These could include off-site injuries to community members, on-site injuries of community members due to trespassing, off-site property damage caused by project activities or workers, gender-based violence or sexual exploitation, abuse, and harassment involving workers and community members, and similar issues that resulted in significant risks or impacts on communities or community members. Any injuries to community members or damage to private or public property, and incidents involving gender-based violence or sexual exploitation, abuse, or harassment would be considered serious incidents that should be reported immediately and investigated. In addition, confrontations or other negative interactions with project security personnel would be an issue to be reported immediately. Other incidents and issues would be investigated and handled internally, with reporting the same for the less serious issues (that is, summaries of incidents and actions taken in progress reports).

In addition to such incidents, casual observations or more formal monitoring observations, inspections, or reviews of records may reveal that LRA, the Contractor, or others are not complying with applicable requirements, including the C-ESMP. In such cases, this will be documented and followed up until there are satisfactory responses and compliance. In general, instances of non-compliance with requirements will be addressed immediately or as soon as practicable, with response actions commensurate to the risk of the nonconformance (which could range from simple non-use of proper PPE or poor housekeeping to life-threatening misuse of equipment or gender-related offenses). All but the most minor will be documented as described above, and even those will be documented if they are repeated.

There should be a graduated system of penalties for workers who repeatedly violate requirements, including proper use of PPE, beginning with verbal warning, proceeding to written reprimand, and formal notices of noncompliance and continuing through dismissal for repeated or egregious violations. Similarly, there should be a graduated system of penalties for supervisors and managers if there are repeated instances of safety or other violations or issues associated with work or workers under their supervision.

LRA, Project Management Consultant, and Contractors managers and supervisors, including those responsible for overseeing ESHS performance, must have the authority to order work to stop work if serious breaches of safety or other ESHS requirements are observed that could lead to injury or property damage. In such a case, only the project manager and the responsible ESHS personnel would have the authority to allow work to resume, and only then if the issue had been resolved.

In addition, workers must have the right—and be aware of that right -- to refuse to undertake a task if they are in fear of serious injury or death. In such a case, the supervisor and project manager must investigate and order appropriate action to reduce the risk or change the job, and there may be no retaliation of any sort against the worker(s). Workers must also have the right and ability to report safety or other concerns and have assurance they will be addressed in a timely manner. This will be possible through the Grievance Redress Mechanism, which will provide for anonymous reports, or through the management chain.

## **9. Stakeholder Engagement**

LRA will engage stakeholders as required by the Stakeholder Engagement Plan for the *Lebanon Renewable Energy and System Reinforcement Project*. The Plan identifies the key stakeholders, which for HPP rehabilitation and operations include relevant Government institutions (Electricité du Liban, Ministry of Energy and Water, Ministry of the Environment, Ministry of Labor, and others as appropriate), local authorities (municipalities served by the HPPs and nearby villages, water and irrigation districts, etc.), and local and national civil society organizations with an interest in the Litani River itself.

As noted previously, LRA has open lines of communication with local authorities, who are well aware of ongoing operations and of the proposed rehabilitation projects. As noted, the authorities unanimously support LRA and they anticipate the rehabilitation will result in improvements in electricity supply and reliability, while they do not have concerns about adverse impacts from current operations or from the rehabilitation project. The degree to which communities and households are aware of the rehabilitation project is unknown, but this will be overcome as described in the Stakeholder Engagement Plan. This will include posting information in local town halls and municipality offices and possibly articles in social or news media. At the present time, no public meeting is expected to be needed. However, if LRA determines that one or more meetings is needed, it will be announced and held as described in the Stakeholder Engagement Plan, which would be revised to provide appropriate details.

LRA operates a telephone hotline by which power outages or other issues can be reported by anyone. As noted, however, there is no formal Grievance Redress Mechanism by which stakeholders can request information or submit complaints or concerns and be assured they will be addressed. The Stakeholder Engagement Plan includes a formal Grievance Redress Mechanism that will be open to all parties and will provide for anonymous submissions, with particular procedures in dealing with sensitive issues such as gender-related matters. The Mechanism will be accessible and inclusive and accessible at no cost and will provide for responses to be made publicly available. Finally, the use of the Mechanism will not prevent the use of administrative or judicial avenues to deal with issues.

## **10. Reporting and Staffing**

Reports by the Contractor to LRA and interested parties as per the Project ESCP by LRA to the World Bank will be as required in the respective contracts. Throughout Project performance, the Contractors will prepare and submit monthly or bimonthly reports to the Project Management Consultant on their environmental, social, and health and safety (ESHS) performance. The Project Management Consultant, in turn, will submit monthly summaries of Contractor performance and their own supervision activities to LRA, with the Contractor reports included as attachments. LRA will prepare and submit annual or semi-annual reports to interested parties as per the Project Environmental and Social Commitment Plan that summarize the period's ESHS performance, with Contractor and Project Management Consultant reports included as attachments. The respective reports will include details of at least the following information, some of which may be in addition to what may be required by the contracts. Reports from Contractors will necessarily have the most detail, with Project Management consultant reports somewhat less, and LRA reports focusing on highlights.

- Project activities and status: summary of work activities undertaken and completed, number of workplaces, new tasks and equipment, etc.
- ESHS supervision activities (number of formal inspections, reports received, etc.).
- Status of violations and corrective actions reported
- Workforce: number of workers for LRA, Contractor, and Subcontractors, number local vs other Lebanese vs foreign, number women vs men, number of new hires (and number checked for age), number of terminations and reasons, etc.
- Summary of ESHS supervision actions: person-days by ESHS specialists, number of inspections, areas visited, etc.)
- Results of ESHS supervision actions: issues identified and actions taken (warnings, notices of noncompliance, stop work orders, dismissals, requirements for safety equipment or new PPE, other actions)
- Listing of incidents (see above), including response actions and resolutions. Incidents that remain unresolved from previous periods will be carried into future reports until they are reported as resolved. These could include failure to use proper PPE, injuries, spills, improper materials storage, improper waste management, etc.).
- Description of consultations and interactions with local authorities and local community members, including who participated, reasons, and outcomes. It is expected that LRA would be most engaged with communities, with communities, as provided in the Stakeholder Engagement Plan, with Contractors and Project Management Consultants primarily incidental contacts and not formal engagement.
- Summary of stakeholder grievances received during the period and to date, number resolved during period and to date, and number outstanding. For grievances not resolved as of the end of the period, the report should provide a description of grievance, reason for lack of resolution, and actions to be taken.
- Summary of worker grievances (LRA, Contractor, and subcontractor workers) received during period and to date, number resolved during period and to date, and number

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outstanding. For grievances outstanding over 30 days, the report should provide a description of grievance, reason for lack of resolution, and actions to be taken.

In addition to this formal reporting, significant issues and events would initially be reported by the Contractor to the Project Management Consultant as soon as possible, as described in the previous section.

Implementing and supervising implementation of the ESMP (and C-ESMP) will include the following:

- LRA will appoint an *ESHS/HSE Manager* at the corporate level to be responsible for planning and supervising ESHS requirements across LRA operations. This will encompass occupational health and safety, human resources, environmental management, and community protection and engagement. The person who fills this position must be suitably trained and qualified, even if ESHS responsibilities are only a part of his or her job responsibilities. The person or persons in this position will be responsible for reviewing reports from the HPPs and for preparing LRA reports to interested parties, based on reports from the Project Management Consultant(s) for rehabilitation activities and from the HPPs for operations.
- LRA will appoint an *ESHS/HSE Manager or specialist* at each HPP to be responsible for planning and supervising HSE performance at the HPP, including site rehabilitation works. The individual(s) assigned these responsibilities at each HPP will work under the oversight of the corporate ESHS/HSE manager. Given the relatively small scale of activities at each HPP, this may not be a dedicated position or a dedicated ESHS professional. However, LRA will have to ensure the person or persons appointed to be responsible have the requisite knowledge and expertise. It is important to note that the person or persons will need to be on staff at the HPP. This person or persons will have the responsibility to prepare and submit reports to the corporate ESHS/HSE Manager on HPP ESHS performance during operation, and to review reports prepared by the Project Management Consultant during rehabilitation.
- The Project Management Consultant(s) will in turn be required to have an appropriately qualified *ESHS professional(s)* (a “key person” under the contract) to supervise contractor performance and prepare reports. The Project Management Consultant, as noted, will prepare progress reports that summarize the ESHS performance of Contractors under their supervision and their own supervision activities, and submit the reports to the ESHS/HSE Manager.
- The EPC Contractor(s) will be required to have an HSE Manager qualified to supervise occupational health and safety as well as personnel with suitable qualifications to manage labor and human resources as well as environmental issues. Throughout the rehabilitation phase, this Manager will be responsible for preparing reports on the Contractor’s ESHS performance for approval by Contractor management and submission to the Project Management Consultant.
- The need for ESHS management positions by Subcontractor(s) will be determined by the Contractor, in agreement with the Project Management Consultant. This in turn will be defined in the subcontracts, as will ESHS requirements in line with the Contractors’ own contract. Regardless, the Contractor will remain responsible for Subcontractor ESHS performance and compliance.

