



Environmental and Social
Management Program
Veracruz Hydroelectric Project

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 ANEXO A - Código de Conducta	

Sigla o Término	English	Español
Chance finds	Chance finds (of cultural heritage, archaeological or historical resources)	Hallazgos fortuitos (de recursos arqueológicos o históricos)
EHS	Environment, Health & Safety	Medio Ambiente, Salud y Seguridad
EIA	Environmental Impact Assessment	Manifestación de Impacto Ambiental
ESIA	Environmental & Social Impact Assessment	Evaluación de Impacto Ambiental y Social
ESMP	Environmental & Social Management Plan	Plan de Gestión Ambiental y Social
IFC	International Finance Corporation	Corporación Financiera Internacional
OPIC	Overseas Private Investment Corporation	Corporación de Inversión Privada de Ultramar (de los Estado Unidos de América)

1 Introduction

1.1 Project Description

1.1.1 Background

COMEXHIDRO in partnership with Latin Power III (LP III) will be constructing a hydroelectric power generation facility and associated transmission line (“the Project”), near the municipality of Zongolica in the State of Veracruz, Mexico. The dam and associated reservoir will be located on the Apatlahuaya River, and a tunnel and penstock will transport the water to the power station to be located on the Zongolica River where the water will be discharged.

Latin Power III, an investment fund, includes among other investors the Overseas Private Investment Corporation (“OPIC”). OPIC issued a Consent Notice to Latin Power III and their portfolio partners stipulating that the project must comply with the following:

- 1) International Finance Corporation’s April 30, 2007 Environmental, Health and Safety General Guidelines;
- 2) International Finance Corporation’s Environmental, Health and Safety Guidelines for Electric Power Transmission and Distribution, 2007;
- 3) International Finance Corporation’s Performance Standard 2 (Occupational Health and Safety portion only), 2007¹; and
- 4) All applicable health and safety requirements of Mexico.

In addition to the above, the consent notice stipulates that the Project, through the Portfolio Company (Electricidad del Golfo S. de R.L. de C.V.), is required to undertake all project activities (including construction and operation) in accordance with the Project’s Environmental Impact Assessment (EIA) authorization issued by the Mexican Federal Environmental Authority (SEMARNAT). The Project is required to both comply with all mitigation measures and strategies outlined in the Project’s EIA document and ensure compliance by contractors and subcontractors.

1.1.2 Project Description

The Project is located in the central south-west zone of the State of Veracruz, in the area identified as Sierra Negra de Zongolica between three municipalities Mixtla de Altamirano, Texhuacan and Zongolica. The approximate coordinates for the proposed location of the power house are 18°39’14.08 N and 96°58’09.26 W, while the electrical substation is expected to be located at 18°40’33.09 N and 96°59’36.06 W, and the concrete dam will be located at 18°37’11.33 N and 96°59’47.79 W.

The Project will be developed mostly on private property which was acquired through willing seller/willing buyer arrangements. No communal lands or Ejidos will be affected by the development of the Project. The other land involved is federal land under the jurisdiction of CONAGUA, the national entity responsible for water resources and water ways.

According to the EIA, the project footprint covers a total area of 24.26 Ha (242,578 m²). The power house will cover 3.72 Ha, the penstock, 4.32 Ha, and the transmission line ROW

¹ See separate Health and Safety Plan.

easement 9.03 ha in total area. The remaining area is split among the tunnel, offices, workers camp and staging area. The Project will not require the construction of any new roads for access. The total forest area impacted is 13.24 ha. The total estimated Project cost is \$US24,591,137.00.

The Project includes construction of a 31.6 meter high concrete dam to create a small storage reservoir, 3.4 ha in area and with a maximum capacity 194,340 m³, on the Apatlahuaya River. Water from the reservoir will be conducted through a shotcrete-lined 3m x 3m tunnel 2.79 km in length passing through the ridge forming the northeast valley wall of the Apatlahuaya River and then through a 2,350 meter long, 48" diameter steel penstock to the power house on the Tonto River. The discharge from the power house will be released to the Zongolica River.² The Project is expected to use approximately 4.8 m³/s of water, while the remaining flow would continue its natural course down the Apatlahuaya to the Zongolica River. It should be noted that approximately 1.5 km downstream of the dam site, the Apatlahuaya valley ends abruptly at a transverse ridge, and the flow enters a cavern. This is a natural phenomenon and a typical feature of limestone or Karsts terrains worldwide. The flow re-emerges in a series of springs at lower elevations some 2.5 km away which eventually coalesce into a river channel.

The power house will contain a 30 MW Pelton turbine coupled to an electrical generator and auxiliary control equipment. The substation, which will be located next to the discharge at the Zongolica River, will transform voltage from 13.8 KV to 115 KV. The electrical substation will be connected to the Federal Electricity Commission (CFE) Zongolica Substation via a 5 km, 115 KV transmission line. The total energy generation capacity of the Project is 30 MW.

Approximately 2,500 m down gradient from the intake structure, a 7.136 m diameter by 40 meter high oscillation tank will be installed to control transient hydraulic overpressure in the tunnel. The total hydraulic drop of water through system will be 768 meters. The total estimated volume of material to be removed from the tunnel excavation is approximately 29,295 m³. This material will be reused as aggregate for the construction of the concrete dam.

1.2 Environmental and Social Management Program

1.2.1 Objective

This document represents the Environmental and Social Management Plan (ESMP) for the construction and operational phases of the Project. Taking into consideration the most important findings of the Environmental Impact Assessment (EIA) and the outcome of the consultation with affected communities, the objective of the ESMP is to establish and implement a program of measures and actions for mitigating social and environmental risks and impacts. Health and Safety aspects are addressed in a separate plan.

The ESMP is a combination of policies and operational practices designed to prevent impacts whenever technically and financially feasible, and to minimize unavoidable impacts. In cases where the impacts and risks cannot be avoided or prevented, the ESMP identifies mitigation measures to ensure the Project's compliance with local laws and regulations, the IFC Performance Standards, and OPIC requirements. The level of detail and complexity of this program, priority measures, and actions are proportional to the potential risks and impacts.

² The Apatlahuaya is a tributary to the Zongolica which in turn flows to the Tonto River.

The ESMP is not meant to be an exhaustive list of actions and mitigation measures. It takes into account the most relevant considerations based on the site visits and document review. The ESMP should be treated as an amendable, flexible document and management program that will change and evolve in response to conditions and circumstances over the duration of the Project.

1.2.2 Scope and Applicability

The ESMP will apply to all parties involved in the construction and operation of the Project including Project staff and workers, contractors, and sub-contractors across the entire Project area. The Project will hire contractors to complete the construction work, and will make adherence to the ESMP a condition of all contracts. Therefore, during the Construction Phase, the contractor(s) will be responsible for implementing most of the measures outlined in this ESMP. However, the Project through the Owner's Engineer is ultimately responsible for assuring the measures outlined in this document are implemented, and the Owner's Engineer will supervise and oversee the Contractor's implementation of the applicable aspects of the ESMP during construction.

The Owners Engineer will have sole responsibility for implementing the Grievance Mechanism and for all community relations and communication programs as described in Section 3.3 of this ESMP to maintain a single line of communication with the community and avoid any conflict of interest if grievances are directed toward the contractors or subcontractors.

Where ESMP measures and actions are the primary responsibility of the Contractor(s), the Contractor(s) will also be responsible for having robust contractual agreements in place with sub-contractors to ensure applicable ESMP requirements are met as well as ensuring that all sub-contractors understand the requirements set forth in the ESMP.

1.2.3 Project ESMP Management Organization

The ESMP will be implemented through the Project's Owner's Engineer's office in Zongolica. The Project has maintained an office in Zongolica since October 2008.

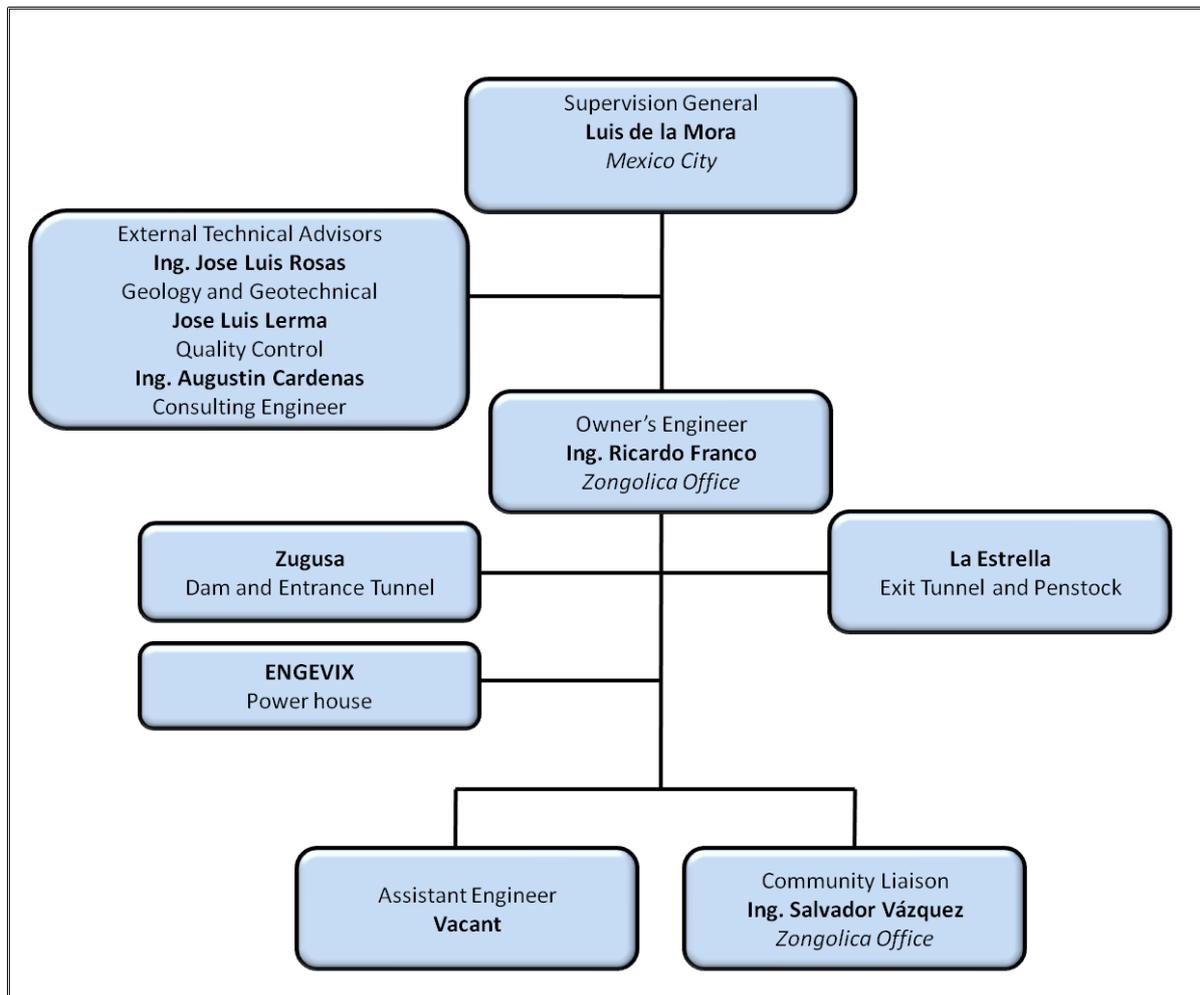
The Project's organizational structure is illustrated in Figure 2.1 below. Ing. Luis de la Mora, the developer's chief engineer, has overall responsibility for the ESMP as well as the engineering and construction of the Project. Ing. Ricardo Franco, the Owner's Engineer, will report directly to Ing. De la Mora. Ing. Franco will be based in Zongolica throughout the construction phase. Supporting Ing. Franco is Ing. Salvador Vázquez who has been working for the Project since October 2008 and has served as the community liaison officer for the Project throughout the public engagement and land acquisition process. Brief bios for both are presented below.

Ricardo Mariano Franco Nayar – has been working for the Veracruz Hydro Projects since April 2010, as the Owner's Engineer/Resident in Chief. He reports to the Project Manager and Chief Owner's Engineer, Luis de la Mora Ostos. Mr. Franco has extensive experience in public works and the civil engineering and construction sectors, in particular in construction of roads, highways, canals, dykes, ports, sewage systems, pipelines, tunnels, dams, and hydroplants (Zimapán, Trojes, Chilatán, El Gallo). He has extensive experience working with Luis de la Mora as resident Owner's Engineer in previous COMEXHIDRO projects. Mr. Franco holds a civil engineering degree from the Universidad Autónoma de México (UNAM), 1963, certificate number FANR-400417-GR0. Mr. Franco's main responsibilities as Owner's Engineer/Resident in Chief for the Veracruz project are:

- Supervise contractor works, both civil engineering and equipment and electromechanical installations.
- Manage and coordinate EPC and other contracts to meet or exceed construction schedules and budgets.
- Manage community relations at the government and landowner levels; process and resolve community complaints (grievance mechanism); and maintain records of material contracts including concessions, licenses, permits, resolutions, and agreements.
- Preparation of monthly reports that include program schedule progress against plan, budget progress against plan, compliance on all environmental and social/community aspects including grievances, water use and energy transmission matters.

Salvador Vázquez García – a native of Zongolica, has been working for the Veracruz Hydro Project since October 2008. Mr. Vázquez has prior work experience in mechanical and technology systems in the automotive industry and in hazardous waste transport. Because of his personal acquaintance with landowners in the Project area, Mr. Vázquez played a key role in the early public engagement, land acquisition process and right of way acquisition processes. Mr Vázquez holds a mechanical engineering degree from the Instituto Tecnológico de Orizaba with a specialty in mecha-tronics. Mr. Vázquez will continue to serve as community liaison manager, reporting to the resident Owner’s Engineer, Ricardo Franco.

Figure 2.1. ESMP Organization Diagram



1.2.4 Project Community Engagement and Grievance Mechanism

The Project has maintained an office in Zongolica since October 2008. Ing. Salvador Vasquez, a mechanical engineer graduate and native of Zongolica, has managed the office since its opening. One of the main functions of the office has been to engage with the communities in the Project area of influence (Zongolica, Texhuacan, and Mixtla de Altamirano), in particular during the land and right of way acquisition process.

The office has also served as the primary mechanism for the Project's grievance mechanism. Villagers with concerns can visit the office during the week days and Saturday to speak to Salvador or his assistant. In addition, there is a register on the door where anyone can write a complaint or concern as well as leaving their name and contact details. The office logs all entries into a computer database including subsequent resolution or closure. To date no significant grievances have been received and the primary message has been desire for employment when the construction phase commences.

2 Legal Framework and Applicable Standards

2.1 Applicable Laws and Standards

OPIC requires that the Project is constructed and operated in compliance with Mexican law. The requirements described in this ESMP therefore reference Mexican laws and standards, requirements established in the Project's EIA authorization document, and supporting documentation (e.g., plans, programs, etc.). These requirements have then been supplemented (where necessary) with measures needed to meet international good practice (i.e., applicable IFC Performance Standards on Social and Environmental Sustainability ("Performance Standard" or "PS") and IFC General EHS Standards). The measures outlined in this document are intended to complement the requirements specified under Mexican law and should be fully implemented except where such implementation conflicts with Mexican Law

2.1.1 Federal

- Mexican Constitution (Constitución Política De Los Estados Unidos Mexicanos)
- General Law for Ecological Equilibrium and Environmental Protection (Ley de Equilibrio Ecológico y Protección al Ambiente –LGEEPA-)
- Regulation of the LGEEPA for Environmental Impact Assessment
- Regulation of the LGEEPA for the Control and Prevention of Contamination Generated by Air Emissions.
- Regulation of the LGEEPA for Ecological Zoning
- General Law for the Prevention and Integral Management of Waste, Ley General Para La Prevención y Gestión Integral De Los Residuos –LGPGIR-)
- Regulation of the LGPGIR
- National Water Law (Ley de Aguas Nacionales –LAN-)
- LAN Regulation
- General Law for Wild Life Protection
- LGPGIR Regulation
- Applicable Mexican Official Standards (NOMs).

2.1.2 State

- Law Number 62. State Law for Environmental Protection of Veracruz (Ley No. 62 Ley Estatal de Protección Ambiental del Estado De Veracruz)
- Law 847. Law for the Prevention and Integral Management of Urban Wastes and Special Management Wastes of the State of Veracruz (Ley De Prevención Y Gestión Integral De Residuos Sólidos Urbanos Y de Manejo Especial Para El Estado De Veracruz)

2.2 EIA Commitments

The EIA contains mitigation measures, environmental management programs and other commitments to social and environmental management. The Project must comply with all commitments in the Project EIA authorization document issued by SEMARNAT.

3 Environmental and Social Management Program

3.1 Summary

The following table summarizes the responsibilities of the Project and the Contractor(s) and Sub-contractor(s) (during construction) for managing social and environmental risks and impacts over the life of the project.

Issue	Project	Contractor(s) and Sub-Contractor(s)
General		
Applicable Laws and Standards	<p>Comply with all Mexican federal and state environmental, health and safety, community relations, and cultural resources legislation and standards applicable to the Project.</p> <p>Keep abreast of new laws, regulations, and standards that are applicable to the Project.</p>	<p>Comply with all federal and state environmental, health and safety, community relations, and cultural resources legislation and standards applicable to the construction work being performed.</p> <p>Keep abreast of new laws, regulations, and standards that are applicable to the construction work being performed.</p>
Organization and Responsibilities	<p>The Project has created a management unit, the Owner's Engineer Unit, to implement the ESMP over the life of the project. The unit consists of the Owner's Engineer and Assistant Owner's Engineer with an office in Zongolica.</p> <p>The Owner's Engineer will be responsible for assuring the implementation of all aspects of the ESMP as well as reviewing and approving plans developed by contractors and sub-contractors to comply with the ESMP.</p> <p>The Owner's Engineer will also be responsible for community relations and communications.</p>	<p>Appoint an EHS manager responsible for implementing applicable components of the ESMP to the contractors or sub-contractors component of Project construction.</p> <p>Implement aspects of the ESMP as instructed by the Owner's Engineer.</p>
Records and Documentation	<p>The Owner's Engineer will maintain records related to ESMP performance during the course of the construction and operational phase of the Project. These should include dates of incidents or accidents; spills, releases or other environmental damage; public complaints or grievances, and any modifications to the ESMP including changes or additions to specific measures outlined in the ESMP that are modified to improve performance in response to site conditions or circumstances.</p>	<p>Maintain auditable documents and records as necessary to show compliance with the ESIA and the measures detailed in the ESMP for the prevention and mitigation of the social and environmental impacts of the project.</p>

Issue	Project	Contractor(s) and Sub-Contractor(s)
Training	Provide regular ESMP induction and refresher training to Project staff, workers and contractors.	Regularly communicate and enforce the applicable requirements of the ESMP to employees, workers and contractors via training and signage around the job sites.
Worker Code of Conduct	Ensure understanding and compliance by all staff and contractors.	Ensure understanding and compliance by all staff and sub-contractors.
Change Management	Periodically review the ESIA and ESMP. Communicate major Project changes or ESMP changes to all stakeholders, including all communities in the Project area of influence, and contractors.	Update procedures and plans according to changes to the ESMP and communicate changes to subcontractors.
Management Failures	<p>If necessary, issue corrective action orders, work improvement notices, or temporarily suspend work.</p> <p>Implement a monitoring and response system to address failings identified by inspections and audits.</p>	<p>Take the necessary actions to correct any deficiencies within the time specified by the Project.</p> <p>Implement a monitoring and response system to address failings identified by inspections and audits.</p>
Monitoring	<p>The Owners Engineer will be responsible for continuous performance monitoring of all aspects of the ESMP including contractor performance and maintain records including dates of audits and relevant metrics (e.g., numbers of workers, waste volumes, hazardous wastes volumes). Quarterly reports should be prepared and provided to the External Environmental and Social Consultant who will carry out annual monitoring visits and prepare and annual report.</p> <p>The Project is required to implement an environmental monitoring program as per the EIA. Specific provisions regarding include solid waste management, hazardous waste management, air emissions, fauna and flora rescue plans and programs, reforestation activities, wastewater discharge, soil restoration plans among others.</p>	As relevant and directed by the Owner's Engineer, monitor and document the effectiveness of mitigation measures and environmental controls using appropriate metrics (e.g., numbers of workers, waste volumes, hazardous wastes volumes).

Issue	Project	Contractor(s) and Sub-Contractor(s)
Environmental		
Air Emissions and Ambient Air Quality	Minimize vehicle emissions, dust, and stationary source pollution by properly maintaining vehicles, installing emission control devices, and using dust suppression practices.	Minimize vehicle emissions, dust, and stationary source pollution by properly maintaining vehicles, installing emission control devices, and using dust suppression practices.
Wastewater and Ambient Water Quality	Minimize water pollution and maintain ambient water quality by treating wastewater, managing discharges to surface waters, and monitoring water quality in the Project area of influence.	Minimize water pollution and maintain ambient water quality by treating wastewater, managing discharges to surface waters, and monitoring water quality in the Project area of influence.
Hazardous Materials Management	<p>When possible, the Project should avoid or minimize the use or generation of hazardous materials.</p> <p>It is anticipated that the primary types of hazardous wastes used or generated will be fuels, lubricants, oily and/or solvent impregnated rags, and hydraulic fluids. In order to comply with Mexican regulations, the Owner's Engineer will assure that Contractors maintain and implement Hazardous Materials Management Plans as detailed in Section 3.2.3 below.</p> <p>The Project will outsource hazardous waste collection, transport and disposal to a licensed contractor.</p> <p>The Owners Engineer will also assure that all contractors use the authorized hazardous waste collection and disposal contractor(s) and apply the SEMARNAT required spill prevention, control and countermeasure plans (SPCC Plan).for the management of spills or releases of hazardous or toxic materials (see HM-04 below).</p>	<p>When possible, the construction Contractor(s) should avoid generating or using hazardous materials.</p> <p>The hazardous waste contractor will be responsible for complying with Mexican laws regarding hazardous waste management including collection, transport and disposal.</p>
Waste Management	<p>The Owners Engineer will assure that Non-Hazardous Wastes generated by the project are documented, transported, and treated or disposed of in accordance with national law and international best practice. Non hazardous wastes are to be safely transported and disposed of at licensed facilities.</p> <p>The Project will outsource non-hazardous solid waste collection, transport and disposal to a licensed contractor.</p>	<p>The non-hazardous waste contractor will be responsible for complying with Mexican laws regarding non-hazardous waste management including collection, transport and disposal.</p>

Issue	Project	Contractor(s) and Sub-Contractor(s)
Noise	Supervise all contractors' equipment and vehicles to ensure that noise reduction devices are installed on all machinery (where possible). There are no villages or residences in close proximity to the construction areas, so noise issues with the public are not anticipated. However, if noise complaints are received, the Owner's Engineer would implement the SEMARNAT approved monitoring plan (Plan General de Vigilancia Ambiental).	Install noise reduction devices on all machinery (where possible), and ensure that noise monitoring is conducted during all Project phases.
Soil Erosion and Sediment Control	Ensure that erosion control techniques are employed by all contractors during construction and operation of the Project including deployment and installation of erosion control mechanisms such as silt fences, stabilization of slopes, and re-vegetation of cleared areas.	Adhere to the Project's erosion and sediment control measures including use of silt fence devices down slope of all excavations and disturbed ground, stabilization of slopes, and re-vegetation of cleared areas.
Biodiversity and Natural Resource Management	Plans for flora and fauna rescue and vegetation clearance were developed by the EIA contactor and approved by SEMARNAT under the land use change in forested areas permit (Estudio Technico Justicavativo para el Cambio de Uso de Suelo en Terrenos Forestales). This included inventory of tree species and the re-forestation plan to mitigate the removal of approximately 13 hectares of forest at the dam site. The Project has agreements with landowners to reforest 40 hectares of land to meet the SEMARNAT reforestation requirements, and the reforestation will commence at the end of Project construction as required by SEMARNAT. Contracting for the actual removal of trees is the responsibility of the Project and the Owner's Engineer. Biodiversity monitoring will be conducted in accordance with the SEMARNAT approved plan from the EIA (Plan General de Vigilancia Ambiental).	The Project will outsource biodiversity monitoring.
Social and Community		
Stakeholder Engagement	<p>The Project through the Owner's Engineer will continue the existing community engagement.</p> <p>Salvador Vásquez will serve as the Community Liaison officer for the Project.</p>	<p>The contractor(s) and sub-contractor(s) should avoid direct contact with the community when possible. If stakeholder engagement is required, treat stakeholders with respect.</p> <p>Report any complaints, disputes, or damage caused by the Contactor or Contractor's activities to the Project's Community Liaison Officer, Salvador Vásquez.</p>

Issue	Project	Contractor(s) and Sub-Contractor(s)
Vehicle and Traffic Safety	Restrict vehicles to designated areas. Inform Contractors of speed limits and vehicle safety measures. Install signage to warn of project vehicles, utilizing Project staff if necessary.	Restrict vehicles to designated areas. Inform workers of speed limits and vehicle safety measures. Install signage to warn of Contractor's vehicles.
Labor	The Owner's Engineer should assure that the Contractor adheres to all Mexican and applicable international labor codes and practices.	The Contractor(s) must assure that labor practices are in accordance with Mexican labor laws.
Cultural Heritage		
Chance Find Procedure	In accordance with the SEMARNAT EIA authorization document, in the event that any cultural heritage is encountered, works must cease and the Owner's Engineer would notify the Instituto Nacional de Arqueología e Historia (INAH). The INAH would then dispatch a specialist to review the site or materials and make a decision as to next steps. The Owner's Engineer must communicate the requirements to the Contractor(s).	The Contractor(s) must communicate the chance finds procedures to all workers and sub-contractors and assure that it is being implemented. In the event of an apparent cultural heritage encounter, the Contractor(s) must immediately notify the Owner's Engineer.

3.2 Detailed Environmental ESMP Requirements

The following tables detail the specific requirements for the management of activities and processes which can lead to adverse impacts on society and the physical and biotic environment in the Project area of influence.

For each general category of impacts, the ESMP contains a table that includes the following:

Reference Code: Each component of the ESMP has been assigned a unique alphanumeric code for quick reference. These are organized by section of the ESMP.

- AN = Air Emissions, Ambient Air Quality, Dust, and Noise

- WW = Water and Wastewater
- HM = Hazardous Materials Management
- WM = Waste Management
- ES = Erosion and Sediment Control
- SC = Soil Contamination
- BN = Biodiversity and Natural Resource Management
- CR = Community Relations and Grievance Mechanism

Issue: General description of the topic. One or more mitigation measures/actions may be included under an individual issue.

Mitigation Measure/Action: Describes the requirement.

Responsible Party: The Owner's Engineer will have ultimate responsibility for supervising the ESMP implementation by the Contractors. The different components of the Project have very different profiles in terms of potential environmental and social risks and impacts (e.g., tunnel, penstock, power house and dam). Second, there is no single EPC contractor. Different contractors will be employed for different components, but not all contractors have yet been selected, hence it is not yet possible to assign responsibility to specific firms or individuals. Therefore, it should be recognized that the term *Contractor* as used in this initial version of the ESMP is generic, but that as the Project goes forward, specific responsibilities for certain aspects may be assigned to specific contractors by the Owner's Engineer.

Source Reference: This states the source of the mitigation measure/action (e.g., location/construction permits, measures described in the EIA documentation, the IFC Performance Standards, the IFC General EHS Guidelines, other International Good Practice documentation, etc.). The text from existing documentation is often summarized and the user should make reference to the original source documentation for the full requirements. Elsewhere additional material has been included to supplement the existing materials or provide clarification. In such instances, a reference is provided to direct the user to the additional information.

In some instances, mitigation measures from Project-specific documents have also been supplemented with best practice health and safety management measures to meet OPIC policy and International Good Practice. This is indicated in each instance.

3.2.1 Air Emissions, Ambient Air Quality, Dust, and Noise

This section applies to all Project works or tasks that may generate emissions, dust or noise. The potential environmental and social impacts include:

- Dust generated from excavation, soil movement and stockpiles, earthen roads and vehicle traffic, or other sources;
- Exhaust emissions from vehicles, machinery or motors;
- Noise and vibration from the use of explosives, operation of pile drivers, machinery, concrete mixers, cranes, transport of materials, equipment and people or other sources.

The objective is to prevent, minimize or mitigate impacts to air quality and/or receptors caused by engine emissions, dust, noise and/or vibration generated during the various phases of the project.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
AN-01	Emission Reduction Measures	All vehicles and machinery, in particular internal combustion engine equipment, should have regular, scheduled preventive maintenance service and vehicles must maintain valid air emissions verification certificates.	The Project and Contractors	Mexican Law/EIA
AN-02		Vehicles and machinery, in particular internal combustion engine equipment, should be inspected prior to use to ensure the equipment is in good condition and air emissions and chance of spills and releases are minimized.	Contractors	Mexican Law/EIA
AN-03	Dust	During land clearing and construction operations, the contractor(s) is required to control and suppress dust emissions on earthen or gravel roads, staging and other areas cleared of vegetation during the construction process by wetting with sprinkler trucks or other methods..	Contractor(s)	Mexican Law/EIA
AN-04	Emission Control Devices	If contractors are to maintain fixed air emission sources (e.g., generators) for extensive periods (e.g., months), installation of air emission control devices to mitigate and minimize air emissions from operation should be considered. All fixed source air emissions in Mexico are required to comply with applicable standards (Normas Oficiales Mexicanas –NOMs-) that regulate combustion gases and particles.	Contractor(s)	IFC General EHS Guidelines – Air Emissions and Ambient Air Quality and Mexican Law/EIA
AN-05	Mobile Emissions Sources	In order to minimize the generation and adverse impacts from air emissions from fixed sources the project developer should ensure that mobile sources of air emissions such as Project, contractor and subcontractor vehicles and machinery are in good operating condition and are provided with adequate maintenance. As feasible, the use of newer vehicles or vehicles that have air emission verification certificate (certificado de verificación vehicular de emisiones) is recommended.	Contractor(s)	IFC General EHS Guidelines – Air Emissions and Ambient Air Quality

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
AN-06	Noise Monitoring	As no communities or residences are located near to the four construction areas of the Project, it is not anticipated that Project related noise will cause public impacts. However, if noise complaints are received, the Project should implement the SEMARNAT approved noise monitoring plan (Plan General de Vigilancia Ambiental).	Owner's Engineer	Mexican Law/EIA
AN-07	Noise Control Measures	As practical and feasible, machinery and equipment should be equipped with noise reduction devices, limiting the hours of operation of sources (e.g. vehicle traffic through communities, heavy equipment operation)).	Contractor(s)	Mexican Law/EIA
AN-08		Noise reduction devices should be included on the equipment maintenance program and inspection protocols.	Contractor(s)	Mexican Law/EIA

3.2.2 Water and Wastewater

This section applies to all Project works or tasks that involve water and wastewater including direct or indirect discharges into the environment of water, waste water and/or storm water and the ecological flow release and water quality of the release as required by CONAGUA. Potential sources of environmental and social impacts include:

- Domestic wastewater from Project facilities, including sanitary effluent, kitchen and laundry, etc.;
- Industrial waste water from construction areas including warehouses, equipment maintenance areas, staging areas of cement, water softening, etc.;
- Water discharge from the excavations of tunnels;
- Rainwater discharge from all construction sites and areas including temporary cleared areas, roads and staging areas.

The objective is to avoid, minimize and control adverse impacts to public health and safety and the environment caused by waste water and storm water from processes related to the Project and monitoring of the ecological flow release.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
WW-01	Ecological Flow Metering and	The Project must install flow metering and monitoring equipment and monitor water use and water discharge to demonstrate compliance with permitting requirements.	Owner's Engineer/Contractor(s)	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
WW-02	Monitoring	The ecological flow of the Apatlahuaya River must be monitored with a SCADA system. Flow monitoring should be continuous	Owner's Engineer/Contractor(s)	Mexican Law/EIA
WW-03		Annual ecological flow monitoring reporting should be prepared and submitted to the authorities.	Owner's Engineer	Mexican Law/EIA
WW-04		The washing of machinery, vehicles and equipment in any surface water body (river, stream or channel) is prohibited.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WW-05	Surface Water Protection Measures	Signage indicating the prohibition of washing machinery, vehicles and equipment in surface water bodies should be installed.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WW-06		Discharge of solid or liquid wastes of any type to surface or groundwater is prohibited.	Owner's Engineer & Contractors	Mexican Law/EIA
WW-07	Surface Water Protection Measures	Signage regarding the prohibition of the discharge or disposal of any wastes to surface and ground water bodies should be posted throughout the construction area.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WW-08		Sanitary and process wastewater discharges from Project related operations, including workers camps, should not be discharged to soils or surface water bodies without a discharge concession permit issued by the National Water Commission (CONAGUA). If the project requires the discharge of wastewater, the Project must ensure that water discharges complies with Mexican Official Standards (NOMs) applicable to wastewater discharge criteria.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WW-09		Monthly water quality monitoring upstream and downstream of the Project is required under the SEMARNAT authorization. Parameters include biological oxygen demand, nutrients (Total Nitrogen, Total Phosphorous), oil and grease, total suspended solids, total coliform bacteria, and turbidity. CONAGUA has contracted with an external firm to carry out the water quality monitoring. The Project should obtain these reports for quarterly reporting	Owner's Engineer & Conagua Contractor	Mexican Law/EIA
WW-10	Wastewater Discharge	Sanitary and process wastewater discharges from project operations should be monitored as required by the NOMS to ensure compliance with water quality discharge criteria.	Owner's Engineer & Contractor(s)	Mexican Law/EIA

3.2.3 Hazardous Materials Management

This section applies to all work or tasks involving the use or handling of hazardous materials and substances during the Project. Hazardous materials can be classified according to type of hazard (such as explosives, compressed gases, toxic or flammable gases, flammable liquids, flammable solids, radioactive materials, corrosives, etc.). When a hazardous material cannot be used for its original purpose but still retains its hazardous properties, it is still considered a hazardous waste and needs to be disposed of properly. Hazardous wastes are controlled by SEMARNAT in Mexico. Hazardous materials include:

- Elements, substances and or wastes that represent a risks to human health or the environment (e.g., fuels, lubricants, solvents, pesticides, herbicides, corrosives and other toxic substances);
- Waste materials resulting from the maintenance of Project machinery (such as oily rags, used oil filters, oils, cleaning materials and discharges of oils and fuels).
- Soils contaminated by spills or other discharges or hazardous materials.

The overall objective is to prevent or, if prevention is not possible, minimize uncontrolled releases of hazardous materials (including explosions and fires) during the production, handling, storage and use of these materials. The Project should implement the following measures:

- Prioritization of hazardous materials based on hazard analysis identified through the social and environmental assessment;
- When possible, make every effort to avoid or minimize the use of hazardous materials.
- Avoid uncontrolled releases of hazardous materials into the environment or uncontrolled reactions that could lead to fires or explosions;
- Use mechanical controls (containment, automatic alarms and automatic shutdown systems) depending on the nature of the danger;
- Management controls (procedures, inspections, communications, training, etc.) to address the residual risks that have not been avoided or which have not been dealt with through the implementation of engineering controls.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
HM-01	Environmental Risk Assessment and Accident Prevention Program	If the Project is to use any hazardous material which is included on the national List of Hazardous Activities and if the storage, use or generation of a listed hazardous substance by the Project exceeds the threshold limits established in the list, the Project is required to prepare and submit to SEMARNAT an Environmental Risk Assessment in addition to preparing and submitting for approval an Accident Prevention Plan.	Owner's Engineer	Mexican Law/EIA
HM-02	Hazardous Waste Generator Registration	The Project will register as a Small Quantity (>400 kg/year<10 m. Tons/year) hazardous waste generator for the construction phase and a Micro (<400 kg/year) during operation. The Project should declare all hazardous wastes sources (i.e., spent oil, oily and solvent impregnated rags, fluorescent lamps etc.).	Owner's Engineer	Mexican Law/EIA
HM-03	Hazardous Waste Management Plan	As a Small Quantity generator, the Project is required to have a plan that: <ul style="list-style-type: none"> Identifies the main hazardous waste streams (e.g., spent oil, oily and solvent impregnated rags, spent hydraulic fluid, used batteries) categorized as to the nature of the hazard (e.g., flammable, toxic, caustic, etc.); Identifies the hazardous waste hauling contractor the Project will engage and the contractor's authorization license (see HM-08 below); and Identifies the hazardous waste receiving operator and their authorization license (see HM-09 below); and Retains chain of custody documentation. As a Small Quantity generator, the Project need not submit the plan to SEMARNAT but must have it available at the Project offices.	Owner's Engineer	Mexican Law/EIA
HM-04	Spill and Release Management and Reporting	The Project must enforce an overall spill/release contingency program as per SEMARNAT requirements and assure that all Contractors are aware and compliant with the program. Measures to address potential spills and releases, including emergency response, must be communicated to all Contractors. Spill containment equipment must be available at the site(s). The program includes training, spill prevention guidelines, procedures for cleanup and disposal, follow up, and reporting. Spills or releases must be contained, cleaned up and if required, remediated. Any spill which exceeds one cubic meter in total volume must be reported to SEMARNAT and the Federal Attorney for Environmental Protection (PROFEPA).	Owner's Engineer & Contractor(s)	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
HM-05	Storage	<p>Hazardous waste should be stored so as to prevent or control accidental releases to air, soil or water resources in the area. Measures taken should include:</p> <ul style="list-style-type: none"> • The waste should be stored in a manner that prevents mixing or contact between incompatible wastes and allows for the inspection of containers to identify leaks or spills. • Containers holding hazardous waste must be sealed and protected from direct sunlight, wind and rain. • Storage systems should include secondary containment systems where liquid hazardous wastes are stored in volumes greater than 220 liters. The available volume of secondary containment should be at least 110 percent of the largest storage container or 25% of the total storage capacity (whichever is greater). • The Project should maintain an updated register of waste in storage, and maintain material safety data sheets for each waste. • Project should provide employees all available information about the compatibility of chemicals, including labeling each container to identify its contents. • Conduct regular inspections of storage areas for waste and documentation of findings. 	Contractor(s) & Owner's Engineer	IFC General EHS Guidelines – Waste Management
HM-06		The hazardous waste should be located as far as possible from surface water bodies and flooding areas, but sufficiently close as to facilitate the transport and storage of the wastes	Contractor(s) & Owner's Engineer	Mexican Law/EIA
HM-07		The hazardous waste room or storage area should be cleaned, dismantled and material reclaimed. Activities should include remediation activities if required and cleanup and collection of spilled material. A laboratory sampling involving soil contamination penetration tests should be conducted if stains are observed.	Contractor(s) & Owner's Engineer	Mexican Law/EIA
HM-08	Collection and Transport	<p>The internal and external transport of waste should be carried out by licensed hazardous waste haulers contracted directly by the Project so as to avoid or minimize discharges, emissions and risks for employees and for other people. Measures should include:</p> <ul style="list-style-type: none"> • All hazardous waste containers designated for external transport must be sealed and bear the appropriate labels showing the contents and associated hazards. • Containers must be properly loaded in the vehicles before leaving the site and must be accompanied by a shipping document (i.e. a statement) in describing the waste(s) and the associated dangers. • Properly documented and accurate manifests of wastes transported must be maintained. These manifests must show the Project as the registered generator. 	Owner's Engineer and selected Hazardous waste removal contractor	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
HM-09	Treatment and Disposal	All hazardous wastes generated by the Project during construction and operation are required to be disposed through a federally authorized contractor. The disposal and treatment facilities are required to hold permits from SEMARNAT; transporters are required to maintain a permit from SEMARNAT and the Federal Secretariat of Communication (SCT). Staff responsible for the removal, storage, and treatment of hazardous waste, must be authorized and have the skills and knowledge necessary to carry out this work.	Owner's Engineer and selected Hazardous waste authorized disposal contractor	Mexican Law/EIA
HM-10	Hazardous Waste Generation from Contractors and Subcontractors	To avoid the generation of hazardous wastes from contractors and subcontractors and the potential for soil and/or groundwater contamination, on-site maintenance of machinery, equipment and vehicles should be prohibited or avoided as possible.	Owner's Engineer	IFC General EHS Guidelines – Waste Management
HM-11	Documentation of Hazardous Waste Disposal and Management	The Project is required to use the manifest system and official manifest documentation for hazardous waste disposal and/or treatment. The manifest should be maintained on-site for a period of 10 years.	Owner's Engineer	Mexican Law/EIA
HM-12	Adequately Manage and Store Hazardous Wastes.	Hazardous waste generated by the Project during construction and operation should be managed and stored in a safe manner as to prevent potential soil or groundwater contamination. Hazardous Waste should be: <ul style="list-style-type: none"> • Stored at a dedicated hazardous waste storage area that complies with regulatory requirements; • Handled and stored according to compatibility characteristics (flammable, reactive, acid etc); • In adequate containers (based on the waste characteristics) which prevents spills or releases; • Stored on-site at the hazardous waste storage area for no more than six months; • A generation and storage logbook should be maintained. The storage logbook should reflect entrance and exits from the hazardous storage room 	Hazardous Materials Contractor(s) & Owner's Engineer	Mexican Law/EIA
HM-13	Hazardous Waste Generation Reporting	The volumes and types of hazardous wastes generated must be documented and reported to the federal environmental authority (SEMARNAT) through the annual Operation report (Cédula de Operación Annual).	Owner's Engineer	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
HM-14	Site Log	The Owner's Engineer shall maintain onsite logbooks at all times. A logbook which notes all incidents in writing including date and time, description of the incident, responsible party, and response.	Owner's Engineer	Mexican Law & COMEXHIDRO Policy

3.2.4 Waste Management

This section applies to all Project work or tasks involving the generation, segregation, temporary storage, collection, transportation and disposal of non-hazardous waste, both solid and liquid. Non-hazardous solid waste generated in construction and operation, including:

- Construction waste such as domestic trash and garbage, inert construction wastes such as wood, concrete rubble, metals, and packaging and containers (except those previously used to contain hazardous materials which should be included in the hazardous stream in Section 3.2.2 above);
- Rubbish, trash and garbage generated by construction, construction workers and camps;
- Sanitary wastes such as septage (e.g., the solids fraction from septic tanks and toilets); and
- Office waste.

The Project should implement a non-hazardous waste program at the outset and identify licensed receptor facilities in the Project area. The objective is to prevent and control informal and random disposal of waste and littering. The following principles should be put into practice:

- Whenever possible, avoid or minimize the generation of waste by reducing waste generation at the source (e.g., give preference to inputs with less packaging).
- In cases where the generation of waste cannot be avoided, provide for and promote waste recovery, reuse, or recycling; where waste cannot be recycled, recovered or reused, provide for the safe destruction or disposal at a licensed landfill.
- Contract with a licensed waste hauler or create a waste hauling unit.
- Develop and maintain a register of Project waste generated and where disposed.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
WM-01	Sanitary Waste Management	The Project must install and maintain sanitary facilities for staff and workers. If portable toilets are used, there should be a minimum of one (1) toilet for every 20 workers present at the site. Separate facilities must be provided for men and women.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
		The portable toilets and/or lavatories should be located in the vicinity of the area where project work is being conducted. The location should be readily accessible to workers		
WM-02		Sanitary wastes from septic tanks or portable toilets should be removed off-site by a licensed specialist company licensed or registered for the management of septic tanks and the haulage of septage. Preferably the septage waste hauler should maintain permits (if applicable) and should have adequate equipment such as tanker trucks equipped with pumps and collection systems.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-03		The Project must maintain a register of the maintenance and cleaning of lavatory septic tanks and portable toilets. A chronogram with specific dates must be developed and followed by the contractor providing maintenance and cleaning.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-04		The obligation for contractors and subcontractor employees to use portable toilets and lavatories should be included in contractual arrangements. Signage on the obligation on the use of toilets should be posted in working areas. Contractors and subcontractors that are found to be in non compliance with the requirement will be fined and responsible for any necessary cleanup activities.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-05		Signage indicating the prohibition of disposing other wastes along with sanitary waste should be clearly posted at portable toilets and lavatories.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-06		Sanitary waste should be properly disposed at authorized facilities.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-07		The Project and Contractor(s) must ensure that there are adequate containers for collecting solid wastes and recyclable wastes. Containers should be available at all times and should be located near areas where work is being conducted.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-08	Non-Hazardous Solid Waste Management	As applicable, the Project must become registered as a non-hazardous waste generator or obtain applicable permits with the state or municipal environmental authority.	Owner's Engineer	Mexican Law/EIA
WM-09		All wastes generated by the Project during construction and operation are required to be classified and categorized. Non-hazardous waste should be assessed to determine recycling and reuse opportunities. Wastes generated by the Project should be disposed and handled in accordance with its characteristics and disposed at authorized locations which maintain adequate infrastructure for the specific waste types. As applicable, non hazardous wastes should be disposed at federally, state or municipal facilities which maintain all applicable permit requirements.	Owner's Engineer	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
WM-10		The Project will contract with a licensed non-hazardous waste removal contractor.	Owner's Engineer	Mexican Law/EIA
WM-11		Waste generation and disposal logbooks recording generation volumes, disposal or recycling volumes and final disposal or treatment should be maintained by the Project. Records that reflect the handling of wastes (invoices, manifests, receipts) should be kept on file by the Project.	Owner's Engineer and Waste Removal Contractor	Mexican Law/EIA
WM-12		Non-hazardous wastes should be temporarily stored (prior to off-site disposal) at specific waste stations in safe conditions which prevent spills, releases, dispersion or contact with storm water. When feasible, waste should be stored in closed containers clearly labeled for the types of wastes to be deposited and with closable lids to prevent overflow and minimize access by domestic or wild animals. Two waste containers per waste classification (i.e. plastic, steel scrap etc.) should be available at each station. Waste containers should be emptied weekly or biweekly as needed. Piles of construction debris or organic or inorganic wastes removed during land clearing operations and or during land preparation operations should be prevented from contaminating water bodies with sediment by using silt fences or other means.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-13		A waste storage and disposal logbook should be maintained, and all waste containers or storage areas should be included on the logbook.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
WM-14		Monitoring and surveillance to ensure adequate waste management practices is the responsibility of the Owner's Engineer.	Owner's Engineer	Mexican Law/EIA
WM-15		Recyclable wastes should be removed off-site by authorized waste recycler. Residence time on the Project site(s) should be as brief as possible.	Owner's Engineer	Mexican Law/EIA
WM-16		Decommissioning	Waste system decommissioning activities should focus on the removal of septic and sewage collection systems. Permanent septic tank should be stabilized with lime and properly closed. Movable or portable tanks should be removed of-site.	Owner's Engineer
WM-17	Site Log	The Owner's Engineer should maintain a logbook which notes all significant events in writing including date and time, description of the incident or accident, responsible party, and response.	Owner's Engineer	COMEXHIDRO Policy

3.2.5 Erosion and Sediment Control

This section applies to all Project jobs or tasks that may cause soil erosion, down slope or downstream sedimentation, and/or drainage of wetlands or other water bodies through the disturbance of the ground or soil surface. Potential environmental and social impacts include:

- Erosion caused by rainfall runoff on disturbed or exposed soil from earthworks such as vegetation clearance and grubbing and or grading and excavation;
- Sedimentation in surface drainage networks, which may influence the quality of natural river systems and biological systems that make use of this water;
- Loss of vegetation resulting in soil degradation and loss of habitat for terrestrial fauna

The objective is to prevent, minimize or mitigate the impacts of soil erosion and sedimentation. Soil erosion can be caused by exposure of soil surfaces to rain or wind during Project activities. The mobilization and transport of soil particles, in turn, can adversely impact water quality and ecology from turbidity and total suspended solids and subsequent deposition or sedimentation.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
ES-01	Soil, land and water body protection	<p>The Project is required to ensure the implementation of the SEMARNAT approved Soil Management Program (Programa de Manejo y Restauracion de Suelos del Proyecto Hidroelectrico Veracruz). Specific soil management provisions and requirements exists for diverse sections of the project such as the pressurized pipeline, power house and electrical substation, spillway, discharge exit, regulation tank and ditch, access roads, material storage areas and transmission lines. The developer must ensure that contractors comply with specific soil restoration activities for these areas including:</p> <ul style="list-style-type: none"> • Minimize extent of disturbed areas at any one time and stabilize with non-invasive herbaceous species as soon as feasible, even on a temporary basis. Soil stockpile areas should be treated similarly. • Along water course, stabilized berms or silt fences should be used to prevent sediment discharge to water bodies during rain fall events. • As possible try to maintain the natural slope of terrain. • If a cut slope is overly steep or unstable, create terraces (battering). • When activities are completed, assure that all slopes are returned to a natural angle of repose and are stable. • Avoid the filling or obstruction of natural drainage ways. If natural drainage ways must be crossed or otherwise impacted, install culverts of adequate size or bridges. Culverts should be sized for four times estimated average flow. • All stony material should be placed in a stable angle of repose and stabilized. • Do not mix, bury or otherwise cover steel scrap, wood, plastic, tires or any other waste. • For temporary usage sites (e.g., storage areas, shops, camping areas and offices), measures should be taken after cessation of use to restore the soil conditions such as plowing or mechanical tilling to reduce compaction followed by re-vegetation with native species. 	Owner's Engineer & Contractor(s)	Mexican Law/EIA & International Best Practice

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
ES-02	Prevention of Surface Water Contamination	The introduction of any machinery such as backhoe into streams or rivers is prohibited.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-03	Storm water runoff management	After any grading, excavation or other land surface disturbance, excavations should be filled and the ground surface stabilized by re-vegetating or covered with jute netting or geo textile fabrics to minimize erosion. Slopes should be restored to a stable angle of repose to ensure safety and stability and secured with appropriate means such as native vegetation, natural and/or geotextile fabrics, or shotcrete on very steep slopes.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-04		For larger cleared areas, storm water retention basins should be created to capture sediment laden runoff. Retention basin side slopes should be constructed with a 1.5:1 ratio with a discharge flow of no greater than 0.80 m/s. Native herbaceous vegetation and or jute netting/geotextile fabrics should be used to stabilize/protect all side slopes and disturbed areas from direct rainfall and potential erosion by surface runoff	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-05	Surface water management	All surface channel drains and ditches should be lined with rock (e.g., "rip rap"), geotextile fabrics or shotcreted as necessary to prevent erosion by running water.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-06		The discharge points of all surface channel drains or ditches should be constructed with rock, geotextile fabrics or shotcrete to prevent erosion by running water.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-07		Soil and sediment management activities should be conducted in accordance with the Soil Restoration Management plan contained in the Project EIA in order to avoid discharge of sediment to surface waters.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-08		Herbaceous and shrub vegetation should be planted in the areas near the banks of the reservoir, conduction tunnel, spillway, Power House and transmission line. Reforestation and re-vegetation should be in accordance with the Integrated Management Plan for Flora contained in the Project EIA.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
ES-09	Site Log	The Owner's Engineer should maintain a logbook which notes all incidents in writing including date and time, description of the incident, responsible party, and response.	Owner's Engineer	COMEXHIDRO Policy

3.2.6 Soil Contamination

This section applies to all Project jobs or tasks that may cause soil contamination. Possible sources of soil contamination include:

- Oils and grease from vehicle maintenance;
- Hydrocarbons from vehicle refueling;

- Cleaning materials and solvents; and
- Other hazardous and non-hazardous wastes generated from Project activities;

The objective is to prevent, minimize, or mitigate soil contamination related to project activities in the Project’s area of influence. If soil contamination occurs, it must be properly treated and the contaminated soil disposed of in accordance with Mexican regulations.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
SC-01	Vehicles and Equipment Maintenance	Vehicle and machinery maintenance is permitted only at dedicated and licensed sites.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
SC-02		Vehicle and equipment maintenance is prohibited anywhere else on site, at federal right of ways, roads, storage places or camping areas.		
SC-03		Signage prohibiting on-site vehicle maintenance at should be installed.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
SC-04		Vehicle tires should be properly disposed as in Non-hazardous Waste Management above. Disposal of tires in surface water bodies or within the project area is prohibited.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
SC-05	Soil or Groundwater Contamination	Signage indicating the prohibition of improper tire disposal should be installed.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
SC-06		If soil or groundwater contamination is caused due to activities associated with Project activities, the Project is required to conduct soil and groundwater remediation activities. Prior approval from PROFEPA for remediation activities is required.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
SC-07		Vehicle and equipment maintenance can be performed only at dedicated sites. If maintenance is required to be provided onsite, the Project should prepare a maintenance program which considers specific maintenance dates, evaluates waste stream generated and ensure adequate disposal and storage of generated hazardous wastes.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
		If maintenance is to be provided on-site, the maintenance activities should be conducted at dedicated areas. The areas should be equipped materials in order to prevent spills or releases.	Owner's Engineer & Contractor(s)	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
SC-08	Hazardous waste & soil and ground water contamination protection	Contaminated soils should be removed and treated as Hazardous Wastes as specified in Hazardous Waste management above or treated in situ.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
SC-09	Site Log	The Owner's Engineer should maintain a logbook which notes all incidents in writing including date and time, description of the incident, responsible party, and response.	Owner's Engineer	COMEXHIDRO Policy

3.2.7 Biodiversity and Natural Resource Management

This section applies to all jobs or tasks that may cause risks or impacts to the flora, fauna, ecosystems, or natural resources in the Project's area of influence. Possible sources of impacts include:

- Vegetation clearance;
- Pollution of water, air, or soil;
- Hunting or fishing;
- Earth movements and excavations; and
- Noise.

The objective is to prevent, minimize, or mitigate adverse impacts to natural resources and ecosystems, (including flora and fauna) that are related to Project activities in the area of influence.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
BN-01	Vegetation Clearance	Plans for flora and fauna rescue and vegetation clearance were developed by the EIA contactor and approved by SEMARNAT under the land use change permit (Estudio Tecnico Justicavativo para el Cambio de Uso de Suelo en Terrenos Forestales). This included inventory of vegetation to be removed including tree species and the re-forestation plan to mitigate the clearance of vegetation from approximately 13 hectares at the dam site. The Project has acquired 40 hectares for reforestation, and the reforestation will commence at the end of Project construction as required by SEMARNAT. Contracting for the actual removal of trees is the responsibility of the Project and the Owner's Engineer.	Owner's Engineer	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
BN-02		Vegetation clearance should be conducted manually and in a controlled manner. The vegetation clearance process should use axes, machetes and if necessary saws. Tree stumps should not exceed 30 cm in height.	Owner's Engineer	Mexican Law/EIA
BN-03		As practical, wastes generated from the vegetation clearing should be ground into mulch and spread around the cleared areas to reduce potential erosion.	Owner's Engineer	Mexican Law/EIA
BN-04		The cleared vegetation wastes should be immediately disposed at an authorized municipal landfill or disposal site or if of commercial value sold. Non-hazardous waste disposal permit or authorization should be obtained.	Owner's Engineer	Mexican Law/EIA
BN-05		It is strictly forbidden to: use the slash and burn method for vegetation clearance, employ the use of any defoliating agents, or to burn the woody waste material.	Owner's Engineer	Mexican Law/EIA
BN-06		It is forbidden to dispose of woody waste material from the clearance along or near riverbeds, streams, gullies, or natural drainage systems.	Owner's Engineer	Mexican Law/EIA
BN-07		Hunting and Fishing	Hunting and fishing activities by contractors or subcontractors is strictly prohibited within the Project area. The taking of natural vegetation is also prohibited.	Owner's Engineer & Contractor(s)
BN-08	Signage indicating the prohibition of fishing and/or hunting prohibition should be installed. Signage indicating the prohibition of collecting vegetation should also be posted.		Owner's Engineer & Contractor(s)	Mexican Law/EIA
BN-09	Fauna Protection	The Project should ensure full implementation of the Integrated Fauna Management Plan submitted to SEMARNAT.	Owner's Engineer	Mexican Law/EIA
BN-10		Flora relocation and reforestation should be conducted in accordance with the Integrated Flora Management Plan submitted to SEMARNAT.	Owner's Engineer	Mexican Law/EIA
BN-11		The Project is required to ensure the implementation of the SEMARNAT approved Soil Management Program (Programa de Manejo y Restauracion de Suelos del Proyecto Hidroelectrico Veracruz). Specific soil management provisions and requirements exists for diverse sections of the project such as the pressurized pipeline, power house and electrical substation, spillway, discharge exit, regulation tank and ditch, access roads, material storage areas and transmission lines. The developer must ensure that contractors comply with specific soil restoration activities for these areas.	Owner's Engineer & Contractor(s)	Mexican Law/EIA
BN-12	Biodiversity Monitoring	The Project is required to implement the biodiversity monitoring activities contained in the approved EIA (Plan General de Vigilancia Ambiental). The Project will outsource this component to an external firm.	Owner's Engineer and Contractor	Mexican Law/EIA
BN-13	Ecological Restoration	The Project is required to re-vegetate all areas temporarily disturbed during construction and establish nurseries to provide the plant material required.	Owner's Engineer	Mexican Law/EIA

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
BN-14	Site Log	The Owner's Engineer should maintain a logbook which notes significant activities and findings in writing including date and time, description, responsible party, and action or response.	Owner's Engineer	COMEXHIDRO Policy

3.3 Detailed Social and Community Requirements

3.3.1 Community Relations and Grievance Mechanism

This section applies to all Project jobs or tasks that involve direct or indirect engagement of local communities and other stakeholders.

Potential areas of stakeholder interest include:

- Economic impacts of Project activities (including job availability);
- Adverse environmental impacts; and
- Social impacts of construction activities including worker camps and imported labor.

The objective is to inform stakeholders about project activities, maintain a system to solicit stakeholder input, consider stakeholder wishes when making Project decisions, and avoid conflict.

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
CR-01	Community Relations	The Owners Engineer office will be responsible for all community relations, including the Grievance Mechanism, and keeping the communities informed regarding project activities and scheduling such as blasting for the tunnel works and significant traffic events that may directly or indirectly affect the surrounding communities. The Project has maintained an office in Zongolica since October 2008 staffed by Salvador Vasquez, a native of Zongolica. The existence and location of the office is well known to the greater community	Owner's Engineer	IFC Performance Standards 1,2, and 4
CR-02		Contractors and subcontractors should as feasible avoid or minimize direct contact with communities and residents unless specifically directed or approved by the Owner's Engineer.	Owner's Engineer & Contractor(s)	
CR-03		Project employees, contractors and subcontractors are required to treat all people of the communities and their leaders with respect and adhere to the principles of the Code of Conduct (Annex A).	Owner's Engineer & Contractor(s)	

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
CR-04		Contractors and sub-contractors should immediately report any complaints, disputes, disagreements or other negative interactions with any person to the Owner's Engineer, however slight they may appear.	Owner's Engineer & Contractor(s)	IFC Performance Standards 1,2, and 4
CR-05		Report promptly to the Owner's Engineer any property or resource damage caused by the Project.	Owner's Engineer & Contractor(s)	
CR-06		Communities should be informed in advance of plans to visit them and / or fly over them. In the event a helicopter landing is needed, agree to this with the community in advance to ensure that there will be a safe place to land without disturbing or endangering residents or their animals/livestock.	Owner's Engineer	
CR-07		The Project's Code of Conduct to be communicated to all contractors is attached in Annex A. The following practices are prohibited within the Project area or neighboring communities: <ul style="list-style-type: none"> • Molesting women or girls • Sexual harassment • Soliciting prostitution or hiring prostitutes • Littering or polluting water resources • Crossing private property without express from the Project (Owner's Engineer) • Accepting services or favors from the community or individuals, except under written permission by the Project • Obtaining an economic benefit from activities in the Project area which are not directly related to the contracted services. 	Owner's Engineer & Contractor(s)	
CR-08	Community Relations	Security contractors hired by the Project (if any) should comply with the following: <ul style="list-style-type: none"> • Comply with federal state and municipal laws and regulations • The use of firearms or other weapons is generally not permissible except under extraordinary circumstances. 	Owner's Engineer & Contractor(s)	IFC Performance Standard 4
CR-09	Public Communication	The Project should develop and implement a communication strategy for informing residents and other communities in the Project area regarding the status of the Project and/or construction activities and relevant issues (e.g., normal hours of construction, significant events such as traffic disruptions, blasting schedules).	Owner's Engineer	IFC Performance Standards 1,2, and 4

Reference Number	Issue/ Impact	Mitigation Measure	Responsible Party	Reference
CR-10		Appropriate communication channels should be identified including posting of notices, regular meetings, signage, etc.	Owner's Engineer	IFC Performance Standards 1,2, and 4
CR-11	Quality of Life Effects	The Project should respect and consider potential effects on the quality of life and environmental conditions of the neighboring communities. The Project should make every effort to minimize adverse impacts to communities.	Owner's Engineer	IFC Performance Standards 1,2, and 4
CR-12		Access to resident's parcels or land without prior authorization by the owners or residents is strictly prohibited.	Owner's Engineer & Contractor(s)	IFC Performance Standards 1,2, and 4
CR-13	Grievance Mechanism	The Project must continue to maintain the existing Grievance Mechanism.	Owner's Engineer	COMEXHIDRO internal policy and IFC Performance Standard 1

4 References

- Asergen. 2010. "Information Memorandum, Impro Hydroelectric Projects Cerro de Oro and Veracruz". February 23.
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- URS. 2009. "Final Report Environmental Compliance Review, Veracruz Hydroelectric Project". August 2009.
- International Finance Corporation (IFC). 2007. "Environmental, Health, and Safety General Guidelines".
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ANEXO A – Código de Conducta

El Código de Conducta (COC) del Proyecto detalla el comportamiento requerido de su personal además de ciertas acciones prohibidas. Se aplica a todas aquellas personas que de alguna forma u otra representen el Proyecto (“personal del Proyecto”). Esto incluye a personal del Proyecto, contratistas, sub-contratistas, consultores y sub-consultores. Se aplicará al comportamiento en todo momento en que esté representando el Proyecto y hacia cualquier persona o propiedad.

Este Código de Conducta aplicará durante las fases de construcción, operaciones y cierre del Proyecto. El COC será proporcionada por escrito a todo el personal del Proyecto para ser leído, firmado y archivado en los archivos formales del Proyecto. En caso de haber revisiones, esta también será proporcionada por escrito a todo el personal del Proyecto para ser leído, firmado y archivado en los archivos formales del Proyecto.

El cumplimiento con este Código de Conducta es obligatorio. Se requiere que todo el personal del Proyecto que vaya o esté en campo lo lea, firme y se comprometa a cumplir con sus requerimientos y prohibiciones. El Proyecto establecerá sanciones para su incumplimiento y las comunicará por escrito a todo su personal.

Cualquier persona que observe o tenga conocimiento de alguna violación del presente Código de Conducta deberá informar de inmediato a su superior, con la certeza de que este antecedente será manejado con la confidencialidad que amerita y protegiendo la identidad del denunciante.

Los **objetivos** del Código de Conducta son:

- Asegurarse de que todo el personal del Proyecto adopte un trato respetuoso hacia las comunidades locales, sus recursos y el entorno; y
- Evitar y minimizar impactos adversos en las comunidades locales y/o sus recursos que el comportamiento del personal del Proyecto pudiera tener.

Algunos **impactos adversos** podrían incluir:

- Conflicto social entre las comunidades locales y personal del Proyecto.
- Riesgo de reducción o agotamiento de recursos naturales a causa de la pesca o la caza.
- Falsa información resultando en expectativas no realistas y no manejables, o en angustias y preocupaciones indebidas.
- Un incremento en la incidencia de crimen, del abuso de alcohol y/o drogas y de la prostitución.
- La propagación de enfermedades contagiosas.

Interacciones con Comunidades Locales

- El trabajo se desarrollará en un ambiente de respeto hacia las comunidades locales, sus recursos y el entorno.

- El Proyecto designará personas para representar el Proyecto frente a las comunidades y otros terceros. Estas serán las únicas personas autorizadas para dar información acerca del Proyecto. Si se le hacen preguntas a usted, debe proporcionarles el nombre y coordenadas de esta persona, lo cual le será proporcionado antes de ir a campo. Cualquier tipo de información que usted esté autorizada para dar, le será comunicada por escrito por esta persona.
- Minimizar el contacto directo con personas de la comunidad, salvo bajo un protocolo específico relacionado con trabajos específicos o en los casos en que el personal de seguridad es de la comunidad.
- Tratar con respeto a todas las personas de las comunidades y otorgar a sus líderes el respeto debido.
- Informar inmediatamente al responsable de las Relaciones Comunitarias del Proyecto de cualquier tipo de queja, discusión, desacuerdo u otra interacción negativa con cualquier persona, por más leve que le pareciera.
- Informar inmediatamente al responsable de las Relaciones Comunitarias del Proyecto de cualquier daño a propiedad o recurso ocasionado por el Proyecto.
- Informar anticipadamente a las comunidades de planes de visitarlas y/o sobrevolarlas y, en caso de necesitar aterrizar en helicóptero en una comunidad, acordar esto con la comunidad para asegurarse de que habrá un lugar seguro para aterrizar sin disturbar o poner en peligro a sus habitantes.

Restricciones Específicas

Está estrictamente prohibido:

- Molestar a las mujeres y/o niños/niñas.
- El acoso sexual.
- Consumir o portar drogas y/o alcohol mientras trabaje o esté en los terrenos/sitios del Proyecto.
- Intervenir sitios arqueológicos o cualquier patrimonio histórico-cultural.
- Intervenir o dañar a la vegetación, flora o cultivos de la zona.
- Cazar o pescar o de otra manera capturar animales.
- Recolectar frutas, semillas, leña u otro recurso en terrenos que no sean del Proyecto o se encuentran en áreas protegidas.
- Cortar árboles, aprovecharse del ganado o de cultivos locales.
- Botar basura o contaminar recursos de agua.
- Entrar al terreno de ajenos sin permiso explícito.
- Entrar al territorio de comunidades indígenas.
- Contratar a personas locales para realizar cualquier tipo de trabajo para el Proyecto sin el permiso explícito del responsable de las Relaciones Comunitarias del Proyecto.
- Aceptar servicios o favores de la comunidad o de personas individuales, salvo bajo la autorización explícita de el Proyecto.

- Portar cualquier tipo de arma mientras trabaje o esté en los terrenos/sitios del Proyecto a menos que sea personal de seguridad y debidamente autorizado y entrenado.
- Comprometer al Proyecto a cualquier tipo de acción o a proporcionar cualquier beneficio a las comunidades.
- Solicitar prostitución en las comunidades locales.
- Vivir en el área del Proyecto si el trabajador no es de allá.

Únicamente para Personal de Seguridad / Vigilancia

Únicamente personal debidamente entrenado y autorizado por el Proyecto para trabajar en seguridad puede ejercer este papel con el Proyecto. El personal de seguridad del Proyecto debe:

- Cumplir siempre con las leyes de Mexico.
- Usar fuerza únicamente en casos extraordinarios cuando la vida está en peligro y aun así haciendo todo lo posible para proteger la vida ajena.
- Ser discreto en el manejo de armas de fuego para no intimidar a las personas ni distorsionar la relación de buena fe con la comunidad.
- El uso de la arma es una medida extrema y no se debe sacar ninguna arma excepto en casos extraordinarios.

Patrimonio Cultural

Todo trabajador o visitante al sitio protegerá los recursos del patrimonio cultural de las comunidades locales de potenciales impactos o riesgos. Como tales se reconocen los sitios arqueológicos históricos y/o culturales, así como todos los correspondientes a sus manifestaciones culturales y/o ceremoniales. En caso del hallazgo de recursos culturales o arqueológicos, el trabajo se detendrá de inmediato y se informará a los supervisores.