

Pando Monte-Lirio HPPs Project – Environmental and Social Action Plan (ESAP)

Issue	Actions	Timing	Responsible
<i>PSI- Social and Environmental Assessment and Management System</i>			
<p><u>EIAs not best practice and outdated</u>: Lack of good terrestrial and hydro-biological baseline data to (a) correctly assess magnitude and permanence of impacts, (b) adequacy of minimum flow, and (c) design appropriate mitigation measures and management plans.</p>	<p>Ecological baseline snapshot underway, to include (a) supporting evidence of status of natural habitats (critical/non critical), (b) the significance of potential conversion /degradation, (c) the adequacy of the minimum flow requirements to protect integrity of the aquatic ecology [see PS6], (d) identification of any issues associated with the worse-case potential daily flow fluctuation during the dry season, and (e) recommended actions to improve the ecological outcome of the projects.</p> <p>Development of the Water Quality and Aquatic Community Monitoring Program, which should include a detailed sampling protocol of physical, chemical, and biological characteristic of the Projects’ direct influence area, in a similar fashion than those developed for the pre-construction snapshot, to be applied for the construction and operation phases, with a clear definition of expected impacts and risks associated with the operational parameters (e.g. peak mode, constant generation, etc), and mitigation measures thereof.</p>	<p>Oct/15/2009</p> <p>Final snapshot baseline study and monitoring protocol for the Water Quality and Aquatic Community Monitoring Program.</p> <p>Monthly samples prior to commencement of construction, and ever three months thereafter until at least one year after start of operations.</p>	<p>EISA DDS</p>
<p><u>EIA of the Transmission Line</u> was being developed during the appraisal visit, and had not been approved by the ANAM.</p>	<p>EIA has been presented to the ANAM, and it is currently under evaluation. Final Environmental License and approved environmental, social and health and safety management plans to be presented to the Lenders</p>	<p>[TBD]</p>	<p>EcoAmbiente</p>
<p><u>Cumulative Impact Assessment (CIA)</u>: A total of 14 water concessions for energy generation have been granted in the CVR. Besides PyML there are seven (7) other hydroelectric projects with EIAs approved in the CVR basin: Paso</p>	<p>Under IADB leadership, the Lenders have engaged with the ANAM and other local authorities to develop a CIA, to determine the mitigating measure and control plans to assure the accumulated impacts are appropriately assessed and managed.</p>	<p>CIA process commencement prior to Board Approval</p>	<p>IADB with the support of other Lenders and EISA.</p>

<p>Ancho, Tizingal, El Alto, Bajo de Mina, Baitun, Bajo Frio and Burica. No CIA has been performed.</p>			
<p><u>Environmental Management Plans and Procedures:</u> The EIA presents only generic ToR of the EHS plans and procedure required. However, no detail environmental, social, and occupational health and safety plans are procedures were developed at the time of appraisal. These detail plans are needed for EISA to commence construction in compliance with the Environmental License and with IFC EHS requirements under PS1.</p>	<p>For construction, EISA must develop, and present in form and content acceptable to the Lenders:</p> <ul style="list-style-type: none"> (a) ESH Framework to manage all the components as a single Project, with clear policies, plans and procedures, responsibilities (e.g. final organization structure) and accountabilities. (b) Detailed maps of the location of the Project, including all the different components and other existing or pending developments (c) Detail EIA and PAMAs compliance matrix, outlining all the construction EHS plans and procedure (PAMAS) required by the EIAs and their implementation status. (d) Detail Access Road Improvement and/or Development Program, including a complete account of the existing access to be improved and the expected new access for the whole Project (including maps), with photographic evidence of the conditions at the start of construction, with the format to document the conditions at the end of construction, and details of required art-works and erosion prevention and control measures. (e) Information and Community Relation Plan (ICRP), which will include as a minimum stakeholders mapping and customized community development programs. <ul style="list-style-type: none"> a. Occasional Indigenous Migrant Population Study to verify no permanent settlements exist within project boundaries. (f) In construction site, (ii) present options that are 	<ul style="list-style-type: none"> (a) Prior to major construction works (b) Prior to major construction works (c) Prior to major construction works (d) Prior to construction of access roads (e) Prior to commencement of any construction (f) Prior to major 	<p>EISA DDS / Technical</p>

	culturally and socially acceptable to indigenous peoples, and (iii) assures that it does not interfere with the preservation of their cultural heritage. This Study will also serve to assess if the Project changes of land use, has affected work availability at the plantation for indigenous migrant workers.	construction works	
	For operation, EISA must developed, and present in form and content acceptable to the Lenders: (a) Detail EIA and PAMAs compliance matrix, outlining all the operational EHS plans and procedure (PAMAS) required by the EIAs and their implementation status. (b) Detailed Ecological Flow Maintenance and Monitoring Program. (c) Detail Riverbed Protection and Erosion Control, including planed erosion protection for (i) the impacts expected from peak operation mode (special emphasis associated to potential Pando's daily fluctuation during dry season), and (ii) operation and maintenance access service road. (d) Detail Reforestation Program. (e) Detail Upper CVR Basin Management Plan. (f) Community Relation and Engagement Plan.	(a) 1 yr before operation (b) 1 yr before operation (c) 1 yr before operation (d) 1 yr before operation (e) 1 yr before operation (f) 1 yr before operation	EISA DDS / Technical
<u>Training:</u> No EHS training or capacity building plans or programs were developed by the time of the appraisal site visit.	EISA must develop a training program for EISA personnel, as well as contractors and subcontractors on EHS management plans and procedures.	Preferably before commencement of major construction but at any case prior to Board Approval	EISA DDS
<u>Monitoring and reporting:</u> To comply with the environmental license EISA must hire an internal environmental inspector and an external consulting firm to monitor and report compliance with the EIA to the ANAM.	Hire the internal Environmental Inspector and the External Construction EHS compliance firm.	Prior to construction commencement	EISA DDS

<p>Additionally, as part of the Loan Agreement, EISA must agree with the IFC on the format template for the Annual Monitoring Report (AMR)..</p>	<p>Agree on the AMR format</p>	<p>Prior to financial closing, and to be a Schedule of the Loan Agreement</p>	<p>IFC and DDS</p>
<p><i>PS2- Labor and Working Conditions</i></p>			
<p>Since EISA is a new company, at the time of appraisal it did not have HHRR policies and procedures.</p>	<p>Present, in form and content acceptable to the Lenders a HHRR policy and procedures in compliance with PS2, including, as a minimum: (a) prohibition of any type of child and/or forced labor, (b) the implementation of equal opportunity and non-discriminatory hiring and promotion policies, (c) description and full disclosure of the workers/employees rights and duties, including freedom of association and collective bargain, (d) articulation of preferential hiring to members of the local communities and specially of the communities directly affected by the Project, and (e) a non-retaliatory Grievance Mechanism to received and process any employees complains or work related conflicts or issues.</p>	<p>Prior to Board Approval</p>	<p>EISA DDS</p>
<p>No occupational health and safety (OHS) procedures were available during the site visit.</p>	<p>EISA must develop and present in from and content acceptable to the Lenders detailed OHS procedures for the construction and operational Phases including (a) identification of the risks and hazards associated with each task / activity, (b) definition of the qualifications, training, restrictions, and personal protection equipment (PEP) required for each task, (c) description of the expected procedures to document near-misses, LTI and/or any other indicators, (d) mechanisms to handle breaches in compliance and/or any misconduct, (d) implementation of appropriate corrective measures to avoid repeat accidents / incidents, and (e) definition of the emergency response mechanisms, such as medical evacuation to near-by health centers and coordination with local authorities, fire-department, ambulances and hospitals. Special emphasis will be placed to the activities associated with the excavation of the two</p>	<p>Construction OHS procedures must be presented prior to the commencement of major construction. Operational OHS procedures at least one year prior to the commencement of operations</p>	<p>EISA DDS / Technical.</p>

	tunnels. These procedures will be applied to the EPC contractors, and their compliance closely monitored and reported.		
<i>PS3 – Pollution Prevention and Abatement</i>			
No pollution prevention and abatement (PPA), nor emergency preparedness and response (EPR) procedures were available during the appraisal site visit.	EISA must present detail Pollution Prevention and Control measures for construction and operation, outlining (i) expected pollution sources (e.g. air emissions and noises, wastewater and solid and hazardous waste, explosives, tunnel excavation material, refuse, potentially acidic effluent from tunnel excavation, muddy waters) (ii) proposed emission standards to be applied, (iii) pollution control and mitigation measures and procedures (e.g. spoils disposal, erosion control, drainage and run-off management, explosive storage and handling), (iv) spill prevention and emergency response plan and (v) monitoring, and reporting procedures.	Construction PPA and EPR procedures must be presented prior to the commencement of major construction. Operational PPA and EPR procedures at least one year prior to the commencement of operations.	EISA DDS
<i>PS4 – Community Health, Safety, and Security</i>			
At the time of appraisal, no dam safety nor community risk awareness and emergency preparedness management plan was presented.	EISA must develop and present, in form and content acceptable to the Lenders an Early Warning and Emergency Response Plan and Community Relation and Engagement Plan. This first shall include community participation and assure to protect and preserve human life, third party properties (e.g. livestock, crops, land, buildings), and company assets, in that order of priority. The latter shall include disclosure of information on Dam Safety, Breakage Risk, and Bottom Discharge operations among the potentially affected parties, and disclose and socialize with the potentially affected communities or parties the Early Warning and Emergency Response Plan. The Emergency Response Plan will specify the roles of responsible parties when dam failure is considered imminent, or when expected operational flow release threatens downstream life, property, or economic operations that depend on river flow levels. They will	Information and Community Relations Plan (ICRP) prior to Board Approval. The Early Warning and Emergency Response Plan at least one year prior to date of initial filling of the reservoirs.	EISA DDS / Technical

	include the following items: (a) clear statements on the responsibility for dam operations decision making and for the related emergency communications; (b) maps outlining inundation levels for various emergency conditions; (c) flood warning system characteristics; and procedures for evacuating threatened areas and (d) mobilizing emergency forces and equipment.		
At the time of the appraisal, the company had not finalize the Code of Conduct to guide EISA as well as EPC employees on how to behave with relation to their co-workers as well as with third parties (e.g. near-by communities) for the construction available for construction personnel.	<p>EISA will present in form and content acceptable to the Lenders, a Code of Conduct for construction workers. This will outline appropriate behavior for their interactions with near-by communities and towns, especially in activities involving transportation and operation of heavy machinery in public roads, and clearly specify sanction associated to inappropriate conduct. This Code will include mandatory requirement Defensive Driving training for construction drivers, and schedule to avoid heavy traffic during school entrance and dismissal hours.</p> <p>Additionally, via its Information and Community Relations Plan (ICRP), EISA will implement Grievance Mechanisms to attend and resolve any complains or concerns that the affected communities may faced during the construction. (e.g. accidents, dead/lost domestic animals or livestock, damage to crops, dust / respiratory illness / complaints, etc)</p>	Code of Conduct prior to heavy construction commencement. Grievance Mechanisms as part of the Information and Community Relations Plan (ICRP) must be presented prior to Board Approval.	EISA DDS / Technical
<i>PS5 – Land Acquisition and Involuntary Resettlement</i>			
The project requires the acquisition of a total of 67.2 hectares of land, and the lease and/or right of way (ROW) easement of approximately an additional 96.6 hectares for the TL, roads, borrow and aggregate areas, and other ancillary facilities. The Company has been carrying negotiations without major issues/ conflicts, but there is no written procedures to describe and document the Land Acquisition Process.	EISA will develop, in form and content acceptable to the Lenders, a detailed Land Titling, Right-of-Way Easement and Access Permit Procedure, including a complete inventory of the different type and purpose of land acquisitions (e.g. willing buyer - willing seller purchased property, easement, <i>servidumbre de paso</i> , lease, or any other scheme), with photographic evidence of the conditions the properties or access were found, the formats to document conditions at the end of construction, and the standard legal language and	Procedure presented to the prior to Board Approval	Technical/ EISA DDS

	compensation package to be negotiated with the land owners, either for purchases, easement, and/or access rights.		
Even though the EIA states that there are no rafting activities in the project direct area of influence, there seems to be contradictory information on the potential impacts and/or economic displacement on rafting activities / local tourism operators in the project area.	EISA has already identified three Rafting/Tourist Operators downstream from the project site and outside the project area of influence EISA will develop a Tourism Development Plan that will assure to integrate the tourist operators working in the CRV watershed.	Information and Community Relations Plan (ICRP) prior to Board Approval.	EISA DDS
<i>PS6 –Biodiversity Conservation and Sustainable Natural Resource Management –</i>			
According to Resolution No AG-017-2006 of March 6, 2006, the GoP established in a transitory fashion the minimum Environmental or Ecological Flow for users of the hydrological resources in Panama, as 10% of the reported average annual flow. However, it is unclear whether this 10% required by this GoP Resolution will preserve the ecological integrity of the CVR. Per the Natural Habitat definition of the Lenders EHS Policies and Performance Standards, there is the need to assess if the 10% minimum flow will generate a significant degradation of the CVR, with special emphasis on the Neotropical Otter (<i>Lontra Longicaudis</i>) foraging and feeding habitat and/or the migratory fishes life cycle and survival.	EISA must undertake or subcontract a study to assess (a) if the required minimum flow of (10% annual average flow) is sufficient to sustain the ecological integrity of the Chiriquí Viejo River corridor within the Project's area of influence, including the population of otter and migratory fish, (b) whether the ecological flow could be optimized by means of a proactive flow management plan; and (c) in the case a likely significant habitat degradation is documented and cannot be avoided, (d) propose mitigation and management measures to compensate or offset any net loss. CVR Watershed Level: EISA (e) will communicate the results of this study locally to the relevant authorities and different stakeholders (including other developers), and (f) will use its best efforts to engage all stakeholders on the implementation of a common approach to manage Ecological Flow at the CVR watershed level. Project Level: At project level, and as related to its direct footprint, EISA will develop, in form and content acceptable to the lenders: (g) Ecological Flow Management Plan, including a minimum flow reasonably expected to minimize impacts on the nutria and aquatic ecosystems,	Condition Precedent to First Disbursement.	EISA DDS / Technical

	<p>and as needed any additional mitigation /compensation / offset strategy needed to assure compliance with PS6, and (h) A preliminary design of a passage system for the migratory fish species and neo-tropical river otter aiming at sustaining a viable population along the CVR section directly impacted by the Project.</p> <p>The expected effectiveness of proposed mitigation measures above will be validated by appropriate independent experts to be agreed between the Lenders and the Sponsors (e.g. experts from Smithsonian, and/or UICN Otter Specialist Group)</p>		
<i>PS8 – Cultural Heritage</i>			
As a result of an Archeological Prospection Survey requested by the ANAM and performed by the Smithsonian, pre-Hispanic ceramic pottery was found in the Monte Lirio's area of influence (not direct impact area).	In compliance with PS8, the Company must develop a Chance Finds Procedure which will include (i) instantaneous stop of any construction work , (ii) contact and deployment of the field archeologist on-call, (iii) notification to the local authorities, and (iv) excavation, recovery, and documentation required thereof.	Prior to Board Approval	EISA DDS