

## 7 Action Plan

The latest version of the Action Plan has been elaborated based on the information reviewed until the first days of April 2016. While the monthly monitoring report is primarily focused in UF2.2 and UF3.1 and 3.2, the Action Plan was reviewed for all the UF. It will be completely updated as each EIA/PAGA is presented and approved by the ANLA. It is important to clarify that some of the actions do not correspond to an ongoing non-compliance, but they are aimed to strengthen the current measures.

The current status of the Action Plan has been evaluated with the following color coding:



Solved






On track







Pending

### 7.1 Updated Action Plan



PS/E P	UF	Problem Description	Proposed action	Documents / Enforcement indicator	Deadline	Responsible	Current State
PS 1	2 y 3	Risks and impacts identification. Licenses.	Once the Environmental license is obtained for UF 2 and UF 3, the independent engineer must identify the risks and impacts, and if necessary, update the corrective Action Plan PASA.	Environmental License Resolution, adopted for the National Authority of Environmental Licenses (ANLA) and the Environmental Impact Assessment (EIA).  Independent Engineer's Environmental and Social Due Diligence (ESDD) about the identification of risks and impacts.  Action plan modification	Construction Start date for UF's 2 (October 16 <sup>th</sup> , 2016) and 3 (August 16 <sup>th</sup> , 2016).	Concessionaire  Independent Engineer	 The concessionaire is executing the identification of risks and impacts for UF 2.2. For UF 3.1 and 3.2, the advance is 100%.



PS 1	UF1, UF4, UF5	It is necessary to implement an information recording and result verification system, which is not evidenced in the Due diligence.	Create and implement the information recording and results validation system for the socio-environmental policy.	Information and verification system implemented.	January 2nd, 2016	Concessionaire	 <p>The information and verification system is considered in the environmental management System. Control formats for environmental programs were reviewed.</p>
PS 1	All	There has not been included any information in the ESDD about the Integral Management Plan of the concessionaire that supports the Socio-Environmental Assessment and Management System.	Submission of the information from the concessionaire about the Integral Management Plan that includes the socio-environmental assessment and management system and its compliance mechanism. Preparation of the ESDD by the independent engineer (once the information is obtained). In case of noncompliance, to update the	Integral Management Plan. Independent engineer's ESDD Action plan modification.		Concessionaire  Independent Engineer	 <p>The Integral Management Plan from the Concessionaire considers the Socio-Environmental management and its respective follow-up mechanism.</p>


			Action Plan PASA.				
<b>PS 1</b>	1,4 y 5	Neither assessment nor monitoring systems are evidenced for the compliance of the permits and environmental licenses (Adaptation program of the environmental guide - PAGA, Environmental License, EIA, ESDD).	Include and define the scope of the follow-up report for permits and environmental licenses.	Follow-up report and monitoring of compliance.		Concessionaire	 The environmental Management System considers the monitoring to permits and licenses. Control charts were evidenced.
<b>PS 2</b>	All	There is no information about the monitoring of labor policies of the concessionaire included in the ESDD, which supports the compliance of the aspects of this performance standard.	Information about the monitoring system that guarantees the compliance of the internal work regulations of the concessionaire must be included.  Additionally, the information about the Social management plan applicable to post-construction	Follow-up and monitoring systems that guarantee the compliance of the internal work regulations of the concessionaire.  Special Socio-environmental Report.	During construction and operation phases.  Prior to the end of construction phase.	Concessionaire/ Independent Engineer	 Inside the environmental management system, there is considered a monitoring for licenses and permits. Control charts were evidenced

			stages must be included (May have training programs).				
<b>PS 2</b>	All	The numerical information about the measures taken by the concessionaire for the benefit of the local population with new job opportunities was not included in the ESDD	Measurements and statistics related to hiring of people from the region must be provided.	Measures, ranges and statistics about the labor supply to local population.	Half-yearly reporting since March 30th.	Concessionaire/ Independent engineer	 Monthly reports submitted to the supervisor were reviewed. Statistics of labor supply to local population are evidenced.
<b>PS 3</b>	2.2	Prevention of pollution. For UF2, neither the management plan for prevention of water pollution due to the construction of Tesalia tunnel, nor the monitoring and follow-up are going to be defined until the approval of the EIA.	Once the Environmental License is obtained, the independent engineer has to prepare the ESDD, in order to define the prevention of pollution, and if necessary, to modify the Action Plan.  Monitor the bacteriological,	Environmental License. ESDD by the independent engineer. Corrective action plan that sets preventive, corrective and mitigation measures.	Prior to construction start date for UF 2 (October 16 <sup>th</sup> , 2016).	Concessionaire  Independent engineer.	 The Environmental License is pending where the measures for prevention of pollution would be defined. Action agreed with the concessionaire.



			<p>physical and chemical characteristics prior to the beginning of construction of the UF2, and to establish the Base Line.</p> <p>Measurements during construction and operation of the works, comparing to the baseline, in order to be able to verify the damage and take contingency measures.</p> <p>Implement an action plan that establishes prevention, correction and mitigation measures.</p>			
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PS 3	1,2, 3.1, 4 y 5	<p>Prevention of pollution.</p> <p>The PAGA establishes the base line and monitoring, but the ESDD does not contain a record for the development of the base line of: water quality, air quality, gas emission, and emission of sound. The parameters that have to be taken into account are:</p> <p>Noise: dB (A)</p> <p>Air quality: SO2, NO2, PM10</p> <p>Water quality: pH, DBO, DQO, total nitrogen, total phosphorus, oils and lipids, total suspended solids, total coliforms.</p>	<p>Annex the documents where the base line established by the PAGA is evidenced.</p> <p>Set the frequency of monitoring during construction.</p>	<p>Base Line documentation, established by the PAGA</p> <p>Annual Monitoring.</p>	<p>Prior to the start date of each UF.</p> <p>1.1: April 15th, 2016 UF 3.1: May 7th, 2016 UF 4.1: September, 2016 UF 5: December, 2016</p> <p>Each year in the start date</p>	Concessionaire	 <p>The base line was evidenced in the PAGAs for the parameters set.</p>
PS3	ALL	<p>Calculations of gas emission</p> <p>The Colombian regulations for CO2 emission quantification, define</p>	<p>CO2 emissions can be quantified according to statements of PS3 for projects higher than 25.000 tons</p>	<p>Publication and spreading of a report of CO2 emissions of the Project, each year.</p>	<p>Annually, from June 1<sup>st</sup>, 2016.</p>	Concessionaire.	 <p>The quantification of CO2 emissions has not started yet.</p>


		a standard that is lower than the one set in the PS of the IFC. Requires a clarification (Arup)	of CO2 annually. The concessionaire must prepare a document that includes detailed information about CO2 emissions from the activities of the project annually.				
<b>PS 3</b>	All	Prevention of pollution. Set the base line and monitoring for PM2.5, ozone.	Pre-construction Phase. Perform the base line for the measurement of PM2.5 and ozone. During construction: Define follow-up and monitoring periodicity.	Base Line  Periodicity	A month before the start date of construction of each UF  Each year,	Concessionaire	 No measures of PM2.5 and ozone have been performed.
<b>PS 4</b>	All	Security personal. When the concessionaire assigns direct or contract workers to provide security to staff, assets and facilities; it must evaluate the risks of	Submit the protocols and regulations with which the vigilance Company works. With this information, the independent	Submit the protocols and regulations with which the vigilance company operates. Prepare the ESDD with the information submitted, in order to identify the risks of security and vigilance, and to define if a study plan of vigilance and	Prior to Project Finance.  March 30th, 2016. May 30th, 2016 June 15th 2016.	Concessionaire  Independent engineer	 The protocol of the vigilance company was submitted.


		having this kind of staff inside and outside the project.	engineer will prepare the ESDD to identify the risks of security and vigilance, and to define if a study plan of security and vigilance is required based in those risks detected. This plan will turn into a corrective action plan. It has to accomplish international regulations that will include rules, formation and protocols of behavior.	security is required, according to those risks detected. Study plan of vigilance and security, if needed. Update the Action Plan			
<b>PS 5</b>	All	Compensation – Resettlement. The system for social compensation offered by the project to the communities located along the road is not clear. Detailed information that describes the inventory conducted,	Submit the detailed social compensation system that describes the inventory conducted, the mechanisms of compensation and how does it is implemented in	Submittal of the information of the social compensation system (resettlement), within the framework of the Resolution 545. ESDD by the independent engineer. Action plan if needed.	Prior to Project Finance  March 30 <sup>th</sup> , 2016. May 30 <sup>th</sup> , 2016.	Concessionaire  Independent engineer	 The compensation plan is currently in progress. An estimation of the number of future social units that are going to be compensated is available, and thus, included into the plan.





		the mechanisms of compensation and its implementation is needed.	the Project. With this information, the independent engineering will prepare the ESDD				
<b>PS 6</b>	1.2, 3.1, 4.1 y 5	Prevention and conservation of biodiversity. The PAGA sets an area of influence and a base line with the abiotic and biotic characterization, but it does not define the follow-up and monitoring.	Document the follow-up and monitoring system for the area of influence and base line with abiotic and biotic characterization.	Document the monitoring system.  Periodical follow-up report.	Prior to start date of each UF UF 1: April 15th, 2016. UF 3.1: May, 2016 UF 4.1: September, 2016 UF 5: December, 2016.  Each year, having as reference the start date.	Concessionaire	 A monitoring system is being established for the UF's with PAGA.
<b>PS 6</b>	TOD AS	Supply Chain. There is no evidence in the ESDD that the source of the supplies is directly generated by the concessionaire or the suppliers, and given the case, if these ones have the permits required, in such a way that the habitat is not going to be affected negatively.	The concessionaire must submit the supporting information that evidences that the supply chain is produced by means of certificated suppliers that have the required permits to work.	Submittal of the certificates of the suppliers of the supply chain for each UF.	Until the start day of construction of each UF. UF 1: April 15th, 2016. UF 2: October, 2016 UF 3: may, 2016. UF 4: September, 2016. UF 5: December, 2016.	Concessionaire	 Supporting certificates of suppliers are going to be submitted at the beginning of construction.


<b>PS6</b>	1.1	<p>Materials supply.  <i>Construction phase.</i>                      The documentation for the design of the rubble and excavation material Management Area (ZODME) was not at the level of a detail design.</p> <p>(Arup will review this point).</p>	<p>Proportion analysis of external stability and analyze the internal stability for the gabions wall. In general, is recommended to locate the gabions wall in a mass, 6 to 10 degrees towards the retained hillside.</p> <p>Clarify the foundation details of the gabions wall.</p> <p>Is recommended for the embedment of the foundation to be twice the expected scour Depth. The concessionaire must include specifications for the filling material and the geotextile</p>	<p>Documentation of the design, validated by the independent engineer.</p>	<p>Prior to start date of works. April 1st, 2016.</p>	<p>Concessionaire</p>	 <p>The detailed design of the ZODME's is being developed. So far, the Concessionaire has acquired 63% of the volume needed.</p>


			filter fabric between the wall and the filling gabions.				
PS6	5	<p>Disposal of materials. The volumes to be eliminated are not consistent with the capacity of the ZODME. In Chapter 5, a ZODME is proposed with a total volume of 226.800 m3; however, by the reutilization of a 6% of excavation material, the estimated volume for disposal is 1.786.000 m3. The concessionaire has the intention to use 135.000 m3 of fillings and ramparts, with 28.000 m3 of landfills.</p>	<p>Submit to authorized third parties, in case that the volume set overcomes 1.786.000 m3.</p> <p>Define a percentage of excavation material from dumps.</p> <p>Evaluate the possibility of increasing the capacity of the ZODME established, having into account the environment and inside the characterized area of influence.</p> <p>Donate remaining material to areas outside the ones included in the</p>	<p>Obtaining of permits for more ZODMES and add them into the PAGA</p>	<p>Prior to construction start date. December, 2016.</p>	<p>Concessionaire</p>	 <p>Permit certificates for the ZODME are evidenced.</p>

			Environmental License, only if it meets the authorization and licenses from a competent environmental authority and in compliance to Article 59 and Act 1682 2013.				
PS7	2, 3, 4 y 5	<p>Communities:</p> <p>Initial Consultation</p> <p>In the project area, the processes for recognition of ethnic communities have been identified, as well as a preliminary court order for the native community Escopetera and Embera Chamí, in order to make them participants of the benefits of the project.</p> <p>The certificate 20152109178 from INCODER (Colombian institute</p>	<p>Verify the state of court judgments of indigenous communities.</p> <p>Draw up a document with the analysis of potential impacts of the Project (identified in base line for the EIA).</p>	<p>Final judgment of the court.</p> <p>Declaration from the INCODER. In case it is in favor of communities, a new consultation must be made to the ministry of interior, as well as a new initial Consultation. Concessionaire's analysis report.</p>	<p>During the first monitoring, each year in the construction phase.</p>	<p>Concessionaire</p>	 <p>The certificates of INCODER were reviewed, and it is reported that there are no ethnic communities in the area of influence of the Project.</p>

		for rural development) determines that the coordinates sent by the concessionaire don't cross or overlap with territories legally transferred to indigenous reservation or black communities. However, a vicinity relationship of proximity is established with the ethnic group of communities Embera Chamí.					
<b>PS8</b>	2,3,4 y 5	Environmental: Archeology <i>Construction Phase</i> According to the results obtained during the archeological field studies phase, which determined that the project area has an archeological potential qualified as medium-high, and estimated the probability of	Include in the work calendar for these UF a minimum of 45 days of warning time to the Colombian Institute of anthropology and history (ICAHN for its Spanish acronym), and for the archeological recovery.	Work Schedule adjustment. Training talks Supporting documents of agreement or arrangement with museums for relics transfer.	From the beginning of construction phase of each UF. UF 2: October, 2016. UF 3: May, 2016. UF 4: September, 2016. UF 5: December, 2016.	Concessionaire	 Proposed measures will be taken into account for the construction phase.

		archeological findings, the area is considered to have a risk of significant findings.	Include training talks during the excavation phases to train the operations staff about the protocol in case of findings. Take prior measures with museums or municipal cultural institutions to guarantee the protocol for archeological relics transfer, according to the archeological management plan of the project.				
<b>EP2</b>	2.1, 2.2, 3.1, 3.2, 4.1, & 5.	Permits and licenses <i>Construction phase and Preliminary phase (The project has a different calendar depending on the UF).</i> Neither licenses, PAGA nor permits have been obtained yet. The construction works for a UF	Delay the beginning of the Works, if necessary, until the date of the licenses' approval and/or the permits and PAGA, required for the interventions programmed for	Issuing of licenses and permits and the modification to program, if necessary.	Prior to beginning of works in each UF.	Concessionaire	 Permits and licenses pending are in progress. So far, the Concessionaire has complied with the proposed schedule and no delays are expected. The environmental license for UF3.1 was obtained.

		cannot start until the permits or licenses are approved for it.	the corresponding UF. Once the license is obtained, submit it to the independent engineer who performs the compliance analysis for the performance standards of the IFC, to update then the action plan.				
<b>EP4</b>	All	<p>Management Plans fulfilling. <i>All the phases</i></p> <p>The environmental and social measures required to provide a good performance are reunited in the system of social and environmental management for each UF. The gaps found during the analysis have been added to</p>	<p>The concessionaire must accomplish all the measures set in its socio-environmental management plan, proposed in the PS1 from the IFC.</p> <p>In addition, it has to have into account the additional measures included in this action plan</p>	A more extensive monitoring of performance.	First monitoring during construction works.	Concessionaire	 <p>The concessionaire has elaborated a Social and environmental management system that accomplish the PS1.</p>

		this action plan of the Equator Principles.	of Equator Principles.				
<b>EP10</b>	All	Spreading <i>Preliminary Phase</i> A summary of EIA and PAGA must be available through internet	The concessionaire must upload either the EIA or the full PAGA or a summary of these ones, to its web page.	Summaries of EIA and PAGAs uploaded on the web page of the concessionaire.	Prior to the beginning of Works in each UF. UF 11: April 16 <sup>th</sup> , 2016. UF 2: October, 2016. UF 3: May, 2016. UF 4: September, 2016. UF 5: December, 2016.	Concessionaire	 The information has not been updated in the web page.



## 8 General Recommendations

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The general recommendations proposed by Arup invite the Concessionaire to comply with the new action plan and reach full compliance with the Equator Principles and the IFC Performance Standards. In addition, some considerations included in the present section are related with the environmental, social and hydrological measures reviewed for this monthly monitoring report.

### Monitoring Analysis

- To reach compliance with all Equator Principles and IFC Performance Standards, special attention should be paid to Equator Principles 2 and 3 and IFC Performance Standards 1, 3, 5 and 6, which have items that require update and completion to achieve full compliance.
- The current status of permits and licenses reflect that there is a significant advance in their acquisition and no delays in the start dates are expected. The EIA of UF 2.2 is the only one pending to be completed. The Concessionaire should continue with the proposed schedule to avoid possible delays during the licensing process.

### Environmental

- In general terms, the Concessionaire is on track with the required procedure needed to obtain the license for UF 2.2. Monitoring reports will continue to comment upon the pending information of the EIA as they are completed.
- The Concessionaire must upload either the EIA or the full PAGA or a summary of these ones, to its web page.
- The Concessionaire must prepare a document for the quantification of CO<sub>2</sub> emissions.
- Continue with the acquisition and detail design of the ZODMEs until completing 100% of the volume needed.

### Social

- The PQRS mechanism for all UFs doesn't establish an agile and clear system for the classification of PQRS. Arup suggests to improve the PQRS mechanism which should be organized according to their status, functional unit and subject.
- There isn't a clear evidence of the number of meetings that were held with each stakeholder. Despite there are socializations reports, the number of participants is not included, making difficult to evaluate the acceptance of the meetings among the population.

- In UF3.1 and 3.2, there isn't a clear evidence of the presence or absence of ecosystem services for communities of the area of influence.
- The information on population included in the Demographic Component of the EIA does not include the number of inhabitants in each village of the area of influence.

In addition, the following information was requested to the Concessionaire and should be submitted for the next report:

- Updated version of the presentation used during the socialization meetings.
- Support of socialization meeting requests and flyers for UF 2.2 and UF3.1 and 3.2.
- Schedule of the third round of socializations for UF 2.2.
- Real estate portfolio for the property acquisition process.
- CVs of the contractor team that is developing the EIAs.

## Hydrogeological

Overall, the geotechnical and hydrogeological investigations are comprehensive and of good quality. However, some key pieces of information, not clearly evident in the high-level review of the hydrogeological related aspects considered for the Tesalia tunnel design, need to be provided by the Concessionaire and will be included in the upcoming monthly reports.

Recommendations and requests for additional information are separated into two categories: 1) "critical information", refers to information required to verify the appropriateness of the hydrogeological evaluation and resulting design; and 2) "additional information" is information not found in documents reviewed which we would expect to find (in other words documentation in line with international best practice).

Critical Information. The following are information required to conclude our assessment:

- The basis of design for the drainage system. In particular, whether peak groundwater inflow conditions been considered;
- Detailed explanation of mitigation measures to manage groundwater ingress during tunnelling across fault zones. This explanation should include estimates of groundwater ingress during construction, especially at fault zones;
- The results of a sensitive hydrological and hydrogeological receptor survey should be documented which evaluates the impacts of tunnel drainage on identified receptors. This assessment should also tie-in potential impacts to local communities, animal habitat, and vegetation which are dependent on at-risk hydrological and hydrogeological receptors; and

- Additional detail should be provided on monitoring network plans for both construction and operational phases (including monitoring of any at-risk surface waters).

Additional Information Requested:

- Details of the field permeability tests and interpretation, including a map showing the distribution of test locations and clarification of the estimated horizontal and vertical hydraulic conductivity;
- Numerical model construction details, including boundary conditions, parameter inputs, model calibration and sensitivity analyses results;
- Documentation on how recharge was utilised to develop the numerical groundwater flow model and to estimate the drainage system capacity; and

Clarification on whether estimates from steady state numerical modelling (i.e average inflow rate) was used to design the capacity of the drainage system. If so, an appropriate justification should be provided.

## Appendix A: Photographic Record

The following images show the workshop held on April 2<sup>nd</sup> 2016 with the indigenous community La Albania, UF 2.2.

