

Environmental and Social Review Summary (ESRS) Posorja Port Project - ECUADOR

Original language of the document: English

1. General Information and Overview of Scope of IIC E&S Review

DP World Posorja, S.A (“DPWP”, “Company” or “the Borrower”) was awarded in June 2016 a 50-year concession (“the Concession”) for the development, construction, operation and maintenance of a general purpose deep-water port (“the Port”, “the Project”) at the district of Posorja, located at about 85 km southwest of Guayaquil, Ecuador. The Concession was a result of a direct negotiation between the Company and the Port Authority of Guayaquil.

The project requires a total investment of over US\$1.0 billion and will be developed in two phases. The first phase to achieve an annual handling capacity of 800,000 twenty-foot-equivalent units (TEU) will have a footprint of approximately 100 hectares (ha). The port will offer a 15-meter draft compared with the current 9.75-meter draft at the existing Guayaquil port. The first phase, is expected to be completed by 2020. The second phase will expand the project’s footprint to a total of 350 ha due to the construction of in ground additional facilities. The financing of IDB Invest is intended only for the project’s first phase.

The Project consists of three main compounds:

- i) The Port, with a 400m long pier (to be extended 400 additional meters in phase two to reach a total length of 800m) designed to operate with Ultra Post Panamax Class E container ships, handle 15,000 TEU and provide a maximum draft of 15.5 m in phase one. It also includes a boatyard will be located immediately behind the pier and thereafter a container yard that will be configured to allow the operation of rubber-tire-gantry cranes (RTG);
- ii) The Navigation Channel, that will be formed by dredging¹ the marine soil and deepening the seabed to allow the access of vessels to the port and guarantee its normal operation; and
- iii) The Access Road, with an average width of 9.3 m and length of about 20km, that will be built over fragmented existing smaller roads.

The Environmental and Social Due Diligence (ESDD) was performed by IDB Invest with the support of the firm JGP Consultoria e Participações Ltda. It included site visits which took place from December 11th to 15th, 2017 and March 1st to 6th, 2018, and covered the Port, the Access Road, the Access Canal and the proposed biodiversity offset area located in the Puná Island. During the visits the team met with representatives from the following entities or worker associations: DPWP; the

¹ Expected dredging volumes are: access channel: 11,500,000.00m³; maneuvering area: 1,000,000.00m³; other (dense material): 500,000.00m³

Under-Secretariat of Marine and Coastal Management; the Municipal Board of Posorja; the Association of Artisanal Fishermen of Posorja; the Association of Welders of Posorja; the Association of Construction Workers of Posorja; China Harbour Engineering Company (CHEC)²; Herdoíza Crespo Construcciones (HCC)³; Jan De Nul (JDN)⁴; CVA⁵; Wildlife's Refuge Manglares El Morro; Ministry for the Environment of Ecuador (MAE); and Ministry of Transport and Public Works of Ecuador (MTOPE).

2. Environmental and Social Categorization and Rationale

The Project has been classified as a Category A (High-Risk) operation according with BID Invest's Environmental and Social Sustainability Policy since it will likely generate, among other, the following impacts: i) alteration of mangroves ecosystems; ii) modification of coastal morphology; iii) production of air emissions, noise, vibrations and dust from construction activities and operation of trucks and heavy machinery; iv) changes in local economy; v) production of solid waste and wastewater; vi) increase of safety risks to the local community from construction activities and from storage and handling of hazardous substances; vii) increase of risks of accidents and spills; viii) social stress due to the influx of workers; ix) increase of security hazards; x) impacts to marine life from dredging and dredge material disposal at sea; and xi) social stress due to involuntary resettlement. All of these impacts are deemed to be of medium to high intensity.

The Performance standards triggered are: i) PS-1: Assessment and Management of Environmental and Social Risks and Impacts; ii) PS-2: Labor and Working Conditions; iii) PS-3: Resource Efficiency and Pollution Prevention; iv) PS-4: Community Health, Safety and Security; v) PS-5: Land Acquisition and Involuntary Resettlement; vi) PS-6: Biodiversity Conservation; and vii) Sustainable Management of Living Natural Resources.

3. Environmental and Social Context

The Project is located at the district of Posorja and in the access road between the towns of Playas and Posorja. The latter is a small village (population of 24,000) whose main economic activities are: manufacturing which comprise about 34% of the population; fishing, especially artisanal, to which almost 22.5% of the people are engaged to; and commercial activities that are performed by the other 20.2 % of the population. Other important activities are industrial fishing (there are two factories) and shrimp farming.

The Project is situated at the end of the Guayas River estuary, in the Pacific Ocean. The surrounding area is of environmental importance because it comprises important mangroves and significant aquatic life. One important conservation area (Refugio de Vida Silvestre Manglares el Morro) that includes an estuary system and an offshore belt are located near the project site: i) Manglecito

² CHEC is the EPC contractor for the port.

³ HCC is the EPC contractor for the access road.

⁴ Ja de Nul is the firm in charge of the dredging activities for the access canal and maneuvering areas.

⁵ CVA is the supervisor contractor for HCC's works.

Island which host the largest colony of frigates in the country; and ii) Manglares del Morro, a wildlife refuge, part of the National System of Protected Areas of Ecuador, distinguished for having four species of mangroves (white, black, red, and jeli) and a concentration of sea birds (pelicans and seagulls).

4. Environmental Risks and Impacts and Proposed Mitigation and Compensation Measures

4.1 Assessment and Management of Environmental and Social Risks

4.1.a E&S Assessment and Management System

DPWP has not yet fully implemented an Environmental, Social and Health and Safety (ESHS) Management System nor has set ESHS standard guidelines to be followed by its contractors and subcontractors. However, CHEC, JDN, and HCC, have their own ESHS management systems in place which are based on local regulations and their headquarters standards.

DPWP has its own ESHS auditing and control process and two Engineering Contractors: Cullen Grummitt & Roe (CGR) for the port construction; and Consultora Vera y Asociados (CVA) for the access road. The ESHS auditing and control activities are based on the monitoring standards developed by the ESHS management system, on administrative issues determined in the project's environmental management plan and on current Ecuadorian legislation.

At the time of the ESDD visit CHEC's ESHS management system had just been adopted and therefore could not be evaluated in full. HCC, on the other hand, does have a ESHS management system in place and is working towards achieving ISO 14001 & OHSAS 18001 certification. JDN has implemented a strong ESHS management system based on their corporative standards and guidelines. CVA has a ESHS management System in place that has ISO 14001 and OHSAS 18001 certifications.

4.1.b Policy

DPWP has adopted a Safety, Occupational Health, Community and Environmental Policy based on the following goals and principles: i) to promote the good health, through elimination or prevention of incidents with personal injuries; ii) to protect the environment through the reduction of waste generation, minimizing the natural resources consumption, eliminating or preventing contamination; and iii) to collaborate with the creation of a safe and resilient society, through strategic investments in issues that affect individuals and the industry.

The policy states that its principal concerns are the health and safety of their workers and of the community in which DPWP operates, and the environment. It recognizes DPWP's role in the supply chain and its potential contribution to climate change⁶. The policy underlines the need to revise it every 2 years.

⁶ Therefore, it emphasizes the need on controlling the consumption of resources and the emission of greenhouse gasses.

The March 2018 ESDD visit was able to verify the Policy is being disclosed appropriately to DPWP's personnel including contractors and subcontractors⁷. CGR's, CHEC's, CVA's and HCC's EHS policies comply with PS1 requirements.

4.1.c Identification of Risks and Impacts

4.1.c.i Direct and indirect impacts and risks

The Port's Environmental and Social Impact Assessment (ESIA) lists several social and environmental impacts categorized as severe, moderate, neutral and irrelevant. Among the severe and moderate are those related to the effects on aquatic biotic (flora and fauna) and water quality. Regarding social impacts, the most important are those related to the local economy dynamics, the influx of people, changes in the productive activity, pressure on public services and effects on artisanal fishing.

Besides the ESIA that was presented, analyzed and approved by the Ministry for the Environment before the issuance of the corresponding environmental license, the following studies were also undertaken:

- i) Technical studies for the Access Canal works which included direct oceanographic data such as ocean currents, waves, tidal variations, river flows, salinity and winds.
- ii) A final impact assessment on morphology of the terminal⁸, which included the results of the hydrodynamic modeling of the relevant Project areas (port area and access canal), siltation study, bathymetric, geophysical and geotechnical survey. After analyzing the patterns of the ocean currents, the waves conditions, the marine and beach soil properties, and simulations carried out, the study concludes that the morphological activity in the area is very low. This study also provides satellite imagery (that shows virtually no change in the coastline in the last 6 years) to support this asseveration. Moreover, it also concludes that the works to be performed by the Project including the dredging have practically no influence on the parameters that determine the transport of sediments and morphological activity in the area, and thus such works will not have an impact on the morphological conditions in the surroundings of the terminal.
- iii) Impact assessment of the dredging activities⁹, performed to determine the annual siltation rates of the new Access Channel through hydrodynamic modelling and considering meteorological and oceanographic conditions, in terms of wind, waves, currents and morphology. This study concludes that the estimates of the annual siltation volume is of about 1.2 million of cubic meters (Mm³ or Hm³) and that the average associated siltation thickness over the entire approach channel of is approximately 15 cm.

⁷ For instance, DPWP has posted the policy contents all over the CHEC's camp.

⁸ Impacto del Terminal Posorja en la Morfología, Royal HasKoning, DHV, 2017.

⁹ Royal HasKoning, DHV, Ap.2017.

The ESDD, however, found the following gaps:

- i) The capture of ichthyofauna (using techniques approved by FAO) needs to be carried out along the Gulf of Guayaquil, in order to establish the total fish biomass as well as the total fish biomass for commercial purposes.
- ii) Sampling monitoring points need to be increased to allow the generation of better stabilization of the curves.
- iii) The timeframe for the monitoring needs to be expanded to include possible season-related variations of the biotic environment.
- iv) One (1) point to monitor surface water, sediments, ichthyofauna and aquatic macroinvertebrates needs to be established downstream the area of influence of the Project.

Regarding the Access Road ESIA's, the following gaps were also identified:

- i) The environmental baseline needs to be completed with the monitoring of surface water;
- ii) Considering that the vegetation present along the access road (shrubs and herbaceous vegetation) is of low biological importance, a monitoring for the biotic environment (vegetation and fauna) must be developed, to later establish the monitoring frequency;
- iii) An update of the social baseline and the development of a stakeholder map must be completed; and
- iv) Expropriation process is underway by the MTOP needs to be adjusted to comply with the principles of PS 5.

4.1.c.ii Cumulative impact analysis

As per request of IDB Invest, DPWP developed a Cumulative Impact Assessment¹⁰ following the guidelines established in PS1. The timeframe considered was a period of five years (2017-2022) and a spatial delimitation that included four parishes of Guayas Province: Posorja, General Villamil (Playas), Puná, and El Morro. The assessment considered the following projects: i) the port; ii) the access road; iii) a 20 Km transmission line (parallel to the access road) that will provide energy in a sustained fashion to the port; iv) a fuel pump station for the port; v) the three industrial fishing companies nearby (NIRSA, Sálida del Ecuador, Servigrup); vi) 220 shrimp farms located near the port; vii) a shipyard¹¹; and viii) a steel, an aluminum and a cooper plants as well as a diesel engine factory that are to be built and operated within the adopted time framework.

Among the relevant Valued Environmental and Social Components (VECs) the following can be mentioned: i) air quality; ii) noise; iii) quality of the surface water; iv) landscape; v) marine biodiversity; vi) protected areas; vii) immigration; viii) social perception; ix) economy; x) industrial

¹⁰ Evaluación y gestión de Impactos acumulativos Proyecto Integral Puerto de Aguas Profundas de Posorja, CARDNO ENTRIX AMÉRICAS S.A., March 2018.

¹¹ As part of the large industrial park (Polo de desarrollo Industrial de Posorja) currently planned nearby the port.

and commercial infrastructure; xi) access roads; xii) maritime routes; xiii) basic infrastructure; xiv) public health; and xv) artisanal fishing.

The study developed a Cumulative Impact Mitigation Plan that assigning specific responsibilities to DPWP and to the sponsors of the projects considered in the analysis, and that also includes several recommendations to be followed by third parties and the governmental entities.

4.1.c.iii Analysis of alternatives

The Port ESIA have a chapter on alternative analysis. However, it does include a technical justification for the project implementation location based on the following facts: i) excessive costs in the operation of existing Guayaquil Port (especially due to dredging); ii) impossibility of maintaining drafts greater than 9.5m in the Guayaquil Port access canal due to high sedimentation process; iii) the proposed location for the proposed port in Posorja offers better options as the Guayaquil Port: its oceanographic conditions are ideal, drafts of more than 18 m can be easily be achieved, the ocean currents and waves will prevent sedimentation of the canal; v) soil and geological conditions in Posorja are much better; vi) the terrestrial accessibility of the site is very good; vii) the disposal location of dredged material from the access canal and maneuvering area, will be the same as the one that is currently receiving the dredging material for the Guayaquil Port access canal; and viii) according to bathymetry analysis, the access canal route to the new port will require less dredging than the actual access canal to the Guayaquil Port.

Notwithstanding when revising other technical documents¹² seven different locations for the port were analyzed. The main conclusions of that analysis are the following: i) Punta de Santa Elena, which has some environmental and urban concentration disadvantages but also good natural conditions of climatology and depth; ii) stretch of coastline between Punta Ancon and Punta de Santa Elena which has presence of rocky seabed and protected areas in the neighborhood and also is very exposed to climatic agents; iii) Chanduy, which is heavily exposed to climatic agents, has important bedrock and the 10m bathymetric line is very far from the coast (high dredging costs); iv) Engabao, that has better depth conditions, the access to channel is shorter but is an area very highly exposed to climatic agents; v) coastal strip between Posorja and Playas, that has a shallower seabed (higher dredging volume) a high degree of urbanization and is an area with environmental protection; vi) Posorja which has very good natural depth conditions but will require dredging an access channel; and viii) Puná Island, that requires ground connection through a viaduct with the mainland and is an area with environmental protection.

After considering the wave, wind, ocean currents, costal dynamics, tides, bathymetry, geology, geotechnics, topography, terrestrial connectivity, degree of urbanization and environmental conditions for each alternative, the most convenient one resulted the option located in Posorja. Thereafter, three different project layouts were also analyzed for this option and from them the actual proposal was selected.

¹² Report of locational alternatives assessment for the port, developed for the Ministry of Transportation (MTO), dated August 2014: PRIMERA FASE DEL PLAN MAESTRO DEL PUERTO EXTERIOR DE GUAYAQUIL, INFORME FINAL (ACCIONA/ISDEFE)

For the Access Road construction, only two options were analyzed in the ESIA: i) the zero option, this is not to construct the road; and ii) constructing the road over fragmented alignments of existing smaller roads. Since once in operation it is estimated the traffic to and from the port will increase dramatically if compared with the actual conditions and therefore will induce an oversaturation of the actual access roads, the zero option was discarded. The second option resulted in the most convenient since it uses an already intervened corridor and takes advantage of existing -yet not connected- pieces of existing roads.

Despite the latter, MTOP's previous engineering studies¹³ also considered several alternatives for the road that included different options for its horizontal and vertical layouts (topography, longitudinal gradients, earth movements, compensation between cut and fill, materials to be used in the landfill). The final layout of the road also considered the fact that it had to serve not only the port but also the Regional Development Pole that is planned for the region.

Regarding the lending sites of material for the road, DPWP had initially decided to procure them from one of the quarries (Tricsa) which met the project needs in terms of volumes and quality of the material. But, since this quarry was located nearby a hill named "Cerro del Muerto", an archeological sensitive site catalogued as such by National Institute for Cultural Heritage (INPC), the Company has decided not to proceed and to use material from another quarry (Tucho) that had environmental permit granted by the MAE (and therefore an approved closure plan) and that could provide the material with no restrictions.

In November 2017, the MAE authorized an update for the Project's EMP and allowed DPWP to use the excess material that resulted from the leveling of the terrain (cutting areas inside the Project site) in the backfilling of the platforms if the deep-water port. This situation avoided the need of bringing the material from quarries located about 35 km from the project and prevented the generation of undesired environmental impacts¹⁴.

4.1.d Management Programs

The Port and Access Road works have their respective Environmental Management Plans (EMP) that were approved by the Ministry for Environment of Ecuador (MAE) and are in the process of implementation. Both plans are adequate and include the following programs: i) impact prevention and mitigation; ii) waste management; iii) environmental education and training; iv) community relations; v) emergency and contingency response; vi) occupational health and safety; vii) biodiversity management; viii) revegetation and rehabilitation; and ix) follow-up and monitoring. However, and in order achieve better results in mitigating risks, there is an opportunity for improvement in the following subprograms: i) information and communication; ii) indemnification and social compensation; iii) local workforce recruitment; and iv) environmental training.

The Access Road Monitoring Programs (EMP) that comprises the plans for prevention, control and mitigation of negative environmental impacts, waste management, management of fuels and

¹³ GEOESTUDIOS S.A Feasibility Report: "Actualización de los estudios del proyecto Playas-El Morro-Posorja de longitud estimada de 20 km. Estudio de mejoramiento del acceso al Refugio de Vida Silvestre Manglares El Morro de 200 m de longitud". MTOP, December 2012.

¹⁴ Related to the extraction of material from quarries.

chemicals, and industrial safety and occupational health; were included in the ESIA chapter. During the field visits, it was possible to verify that the adopted actions are adequate.

However, as the Access Road ESIA environmental baseline must be revised¹⁵ and the impact risk assessment updated. Consequently, and even though the vegetation present along the corridor (shrubs and herbaceous vegetation) is of low biological importance, new monitoring programs shall be proposed. Terrestrial fauna monitoring programs must be fully described, as well as the vegetation monitoring programs and the water quality monitoring programs for watercourses to be intercepted by the road.

As part of the update to the Community Relations Plan that is being carried out, DPWP is developing a Stakeholder Engagement Plan (SEP), which includes a map of stakeholders.

4.1.e Organizational Capacity and Competency

DPWP has established a core organizational structure with role definition, responsibilities, and authority to implement the EHS Management System as per IFC PS1. So far, DPWP has appointed the following staff: i) a EHS officer with managerial responsibilities for E&S issues reporting directly to DPWP General Manager; ii) a Sustainability Coordinator, who is responsible for stakeholder engagement and public consultation; iii) a full-time environmental expert, whose responsibilities is to overlook the correct execution of the EMP; iv) a corporate HSE manager, who supports the E&S local team; and v) a Human Capital Manager, who is in charge of managing labor issues. The Company is in the process of incorporating an occupational, health and specialist to work on site.

So far, the “core” EHSMS has been able to undertake and manage all the necessary actions and issues.

4.1.f Emergency Preparedness and Response

The EMP includes an emergency response plan that considers the following scenarios: i) first aid loss; ii) environmental loss; iii) legal and third parties; iv) corporate responsibility and image; v) community affairs and human rights; and vi) security.

CHEC has an Emergency Response Plan that comprises its construction activities, that needs to be updated¹⁶ and approved by its Administration to be in effect. During the ESDD it was not possible to find an evidence of a drill plan fulfillment and of its corresponding action plans.

HCC has an Emergency Response Plan for the road construction that considers all possible adverse events during the construction activities, but that also does not consider the legal, corporate responsibility, community affairs and security scenarios and probable losses.

¹⁵ See section 4.1.c.i of this document.

¹⁶ The plan need to include: i) a communication flowchart among CHEC, DPWP, and related third parties; ii) an approved medical evacuation plan (MEDEVAC); and iii) the legal, corporate responsibility, community affairs, security scenarios, and probable losses.

JDN, that until January of 2018, was in charge of the dredging activities for DPWP, had an Emergency Response Plan that, in compliance with international regulations, includes MEDEVAC and MARPOL¹⁷, but does not consider environmental management plan requirements. Notwithstanding, and as part of the Quality, Health, Safety and Environment (QHSE) Implementation Plan for dredging activities JDN has a protocol that follows ISO 9001, ISO 14001 and OHSAS 18001 standards and accepted practices in the sector for cases of emergency, and there is always a shift manager or emergency response coordinator on duty to ensure a 24/7 coverage. The main parts of the protocol include: i) an emergency contact number; ii) the need of a separate job description of the shift manager to be available and known to all designated personnel, as well as a shift schedule; iii) a pocket list with emergency contact numbers that has to be carried by staff after or fixed to their helmets after having participated in an emergency training course; iv) the need of having a list of first aid providers and other necessary emergency response people (e.g. firefighters) available on site and posted on all available bulletin boards; and v) standard emergency instructions in form of specific response diagrams according to the type of works to be performed including those for: a) marine injuries; b) maritime emergencies, b site or on-shore situations, c) in-office situations, and d) adverse weather conditions.

DPWP has prepared and adopted an Emergency Response Plan that comprehends all of the most likely adverse events and a flowchart of communication and response between its contractors and interested parties.

4.1.g Monitoring and Review

DPWP, CHEC, HCC, and JDN have developed the environmental monitoring plans based on the approved PMA. Quarterly reports with the monitoring results are presented to MAE. On monthly basis, contractors submit internal reports to DPW covering environmental actions taken and monitoring results.

4.1.h Stakeholder Engagement

The local employment plan is managed by the municipal GAD¹⁸. Potential workers are requested to provide this office with their personal data to populate a data base that is thereafter used by DPWP to select their potential workers.

Even though some of the major stakeholders have been identified for the Project, some additional efforts are needed to: i) produce a formal stakeholder map that can allow DPWP define priority actions for its communication plan, and ii) develop a Stakeholder Engagement Plan (SEP). The map, that will be constantly updates, and the SEP are currently under preparation.

As part of the update to the Community Relations Plan that is being carried out, DPWP is developing a Stakeholder Engagement Plan (SEP)¹⁹, which includes a stakeholder map. The plan defines the

¹⁷ International Convention for the Prevention of Pollution from Ships.

¹⁸ Decentralized Autonomous Government (GAD for its meaning in Spanish).

¹⁹ The preparation of the SEP followed the AA1000 Stakeholder Engagement Standard 2015.

best mechanisms to engage the people and delineates the strategic means to include distinct groups of interest.

4.1.h.i Disclosure of Information

In compliance with Ecuadorian legislation, DPW has held 3 formal meetings with the population: two for ESIA approval and for EMP updating, and one to obtain the mangrove concession. The first one took place in October 2016, was held in the city of Guayaquil and included several communities of the Project's area of influence. The second one, held in November 2017 after the approval of the updated EMP was obtained, aimed at informing the community about the new activities that were incorporated to the Project. The last one was held in June 2017 in the communities of Puná and Posorja. In all of the three cases, the local authorities, the residents of the district of Posorja and the communes of Isla Puná, Posorja, Data de Posorja, and Puerto El Morro were invited through written announcements disclosed in the health center, the police station, the municipal GAD facilities and the local media, and a general invitation broadcasted through the local radio stations.

4.1.h.ii Informed Consultation and Participation

The process of consultation and participation was carried out by DPWP as part of the legal requirement for the ESIA approval under the environmental applicable law. Even though the meetings held comply with PS1, they will need to be complemented once the Stakeholder Map and the Stakeholder Engagement Plan are developed.

In the case of the access road, since according to the Ecuadorean legislating it does not require an environmental license, there was no legal need to have a public hearing. Nonetheless, DPWP, as part of the agreements reached during the ESSD and following the guidelines established in the Stakeholder Engagement Plan, has been working closely with the communities to be displaced by the construction of the access road. In this sense and as part of the information disclosure process, in March, an informative meeting was held with the community and government entities with a two-fold objective: i) to inform them about the Project's progress; and ii) to capture their concerns about the Project.

Furthermore, periodic meetings have been held with all the parties involved in the ROW easement process (government, land owners, land occupiers, vulnerable groups) to reach an understanding on how the resettlement will be undertaken.

4.1.i External Communication and Grievance Mechanisms

Ongoing communications with the population are currently being made mainly through the President of the Posorja Municipal GAD²⁰. This is a limiting factor as his outreach has not been entirely effective in achieving the participation of all stakeholders.

²⁰ Mr. Jorge Bachón, President of the GAD Parroquial of Posorja.

CHEC has established a channel to capture questions and suggestions from its employees and the population. Even though DPWP has placed a mailbox at the entrance of the project's camp facilities to capture complaints, suggestions and queries from the population, most of the external claims are channelized through the municipal GAD. In this sense, DPWP has been updating its grievance mechanism and procedures for the registration and monitoring external complaints so that the channels and means to capture and processing grievances are more explicitly defined, and the process is more transparent. This updated mechanism also has the possibility of capturing anonymous claims and contains instances of appeal.

4.1.j Ongoing Reporting to Affected Communities

At the time of visit the only evidence of information disclosure was specific to environmental instruments, such as the ESIA and the Port's EMP update. Very little information disclosure related to the road was available. In response to this situation, DPWP is designing a plan to disseminate periodic reports to the communities impacted by the Project.

4.2 Labor and Working Conditions

4.2.a Working Conditions and Management of Worker Relationships

DPWP implemented a Human Resources (HR) policy that explicitly states the adoption of the IFC Performance Standards.

CHEC has an internal working regulation that complies with Ecuadorian legislation. This means that the working week is of five days and the working day is of 8 hours in normal conditions. The regulation also establishes that works schedules and the days off may vary by the type of work after prior agreement with the employee and that working shifts can also be of 22 workdays and 8 days off, or 10 workdays alternating with 4 days off.

With regards to the Chinese workers, they are under a different work system: they have shifts of 6 days a week and have one day off, but after 6 months of work, they have one month of vacation. As of March 2018, CHEC had 300 workers employed, 80 of whom are Chinese and 220 Ecuadorians. The CHEC site camp has accommodations only for Chinese workers as Ecuadoreans are lodged in the villages near the Port. The camp has been divided into two areas: one for the administrative staff and engineers; and a second for the workers. The facilities in the first area are made of a prefabricated material. Each room, equipped with air conditioning, is designed for two people who share a complete restroom (toilet and shower). In the second one, the dwellings are made from adapted shipping containers that lodge up to 6 workers. The containers have air conditioning but no sanitary facilities, since collective toilets and showers have been placed in another adapted container and are available for all workers.

The camp has also two dining rooms: one exclusively for all Chinese workers, which has a fully equipped kitchen, a cook who prepares Chinese food, tables and chairs in an air-conditioned environment; and one for Ecuadorian workers, adapted from a shipping container with poor ventilation. For the latter, is food supplied by a company from Posorja, which brings the pre-prepared meals and distributes them at lunchtime.

As of January 2018, HCC had 138 workers coming mainly from Guayaquil, Playas and Posorja. They are employed under shifts of 24 working days and 6 off. Each employee works 12 hours per day and overtime is paid according to the local legislation. All of them have health and accident insurance, legal benefits and 15 days of vacation per year. For their 6-day break, the company provides them with mobility to their place of origin.

HCC has a camp with a capacity for 300 workers in the city of Playas. Rooms are of single occupancy but toilets and showers are shared. The camp, intended for men accommodation only, has several recreation areas such as TV room, soccer field, and spacious dining rooms. Local female workers return to their homes at the end of each working day. Non-local working women are accommodated in houses near the construction site that are either owned or rented the company.

4.2.a.i Workers' Organizations

Currently there are no workers unions nor any association to reach collective agreements within CHEC. However, no reference to freedom of association was found in the CHEC work regulations. HCC does not have a formal worker union but it does have a "Workers' Committee", which in representation of the workers negotiates with the company working conditions and contracts.

4.2.a.ii Non-discrimination and Equal Opportunity

CHEC has a HR procedure that details the personnel selection and hiring processes, but which does not explicitly refer to equality of opportunities and no discrimination. However, internal working regulations mention that the personnel selection is not based on gender, race, sex nor religion. Moreover, they must comply with the Ecuadorean law that clearly establishes non-discrimination and equal opportunities for all potential workers despite their sex, religion or race.

4.2.a.iii Retrenchment

CHEC has not a retrenchment plan since once the project is terminated all of its Chinese workers will be repatriated to China and most likely they will be put in the roster of possible workers for other projects they have under execution. Even though the number of Ecuadorean workers is much less than the Chinese, CHEC has not yet adopted a retrenchment plan for them.

HCC does not have a retrenchment plan as their practice is, whenever possible and once a project is finished, allocate their workers in other projects it has in execution.

DPWP will need to prepare a retrenchment plan for the whole port workforce

4.2.a.iv Grievance Mechanism

Even though not a formal internal grievance mechanism, CHEC has a procedure to handle complaints and grievances from its workers. For this purpose, a mail box has been placed at the camp's entrance, but so far has not received any complaint.

HCC does not have a formal internal grievance mechanism. However, it has established a mechanism by which complaints or requests of information from the employees need to be addressed to HR department through e-mail or by telephone.

JDN does not have a formal grievance and complaints mechanism in place, but only some internal procedures that establishes that any complaint should be channeled through the vessel's captain.

4.2.b Protecting the Workforce

The Ecuadorian labor law prohibits child and any form of forced labor. Contracts signed between CHEC and its Chinese workers comply with the local law as they were presented and approved the Ministry for Labor of Ecuador. The ESDD process did not find any evidence of labor or forced work.

4.2.c Occupational Health and Safety

The EMP (applicable to the project and all subcontractors) states in the Health and Safety plan that all hazards must be identified and assessed for all employees and contractors.

DPWP has developed a Risk Assessment Study to identify the most important hazards for the construction stages of the port terminal, the access road and the dredging activities, and generate as a result preventing and response actions that are being implemented by the contractors and supervised by DPWP and Engineering Supervision Companies.

CHEC has prepared a risk matrix. However, the hazard identification only considered the basic activities that where performed at the beginning of the Project and does not take in to account subcontractors activities. Likewise, HCC has prepared a risk matrix that includes a hazard identification and risk analysis but does not consider subcontractors activities and personnel exposure.

4.2.d Workers Engaged by Third Parties

As stated above, workers for the construction phase are engaged directly by the Project contractors (CHEC, HCC and JDN) and their subcontractors. The overall workforce estimated for the peak of construction is 400 (composed by 80 Chinese workers and 320 locals), plus around 280 workers for the road construction.

All contracts must comply with Ecuadorean law that specifically estates non-discrimination, equal opportunities, and no child or forced labor.

4.3 Resource Efficiency and Pollution Prevention

4.3.a Resource Efficiency

4.3.a.i Greenhouse Gases

The Greenhouse Gases Impact Prevention Program²¹ set out in the EMP (for the operational phase) has the following main activities: i) the establishment of a procedure or program for energy efficiency (identifying measures to minimize the use of fuels, looking for alternative sources of energy, minimizing their carbon footprint, among others); ii) the implementation of an energy efficiency Program, which will deal mainly with processes optimization and the efficient use of energy to improve productivity; and iii) the adoption of an adequate classification process of solid waste, avoiding the disposal of waste that can be recycled, and thereby decreasing emissions from landfills near the project area.

4.3.a.ii Water Consumption

The Project currently has no programs focused on awareness of water consumption for the construction and operation phases. However, DPWP currently has a tracking matrix that allows to determine the amount of water and energy consumed by each the contractor of the project.

4.3.b Pollution Prevention

Programs for solid and liquid waste management are set out in EMP for both port and access road works. The programs have classification, segregation, temporary storage, waste reduction, transportation and final disposal procedures, and are suitable for the Project.

The handling, storage and transportation of chemicals impacts prevention program was set out for the management of hazardous materials. This program provides the key actions for the correct handling hazardous materials such as fuels, oils, greases, paints, among others. In addition, it includes the criteria for locating places in which hazardous materials can be handled and stored and the procedures for adequate storage, maximum permissible volumes, permits, safety signs, and others. During the construction camp and work fronts inspections, it was noticed the good management of hazardous materials. The hazardous materials storage was isolated, waterproofed, covered, containment dike and restricted access.

The EMP has a set of activities aimed at preventing and reducing air, soil and water pollution.

4.3.b.i Noise, Vibration and Air Quality

The monitoring of noise, vibration and air quality is adequately described in the EMP and cover the Project's implantation and operation phases.

²¹ Programa de Prevención de Impactos por Gases de Efecto Invernadero.

The noise and air quality monitoring on access road will start in March 2018. Likewise, the port monitoring of the same parameters it is already being executed since 2017. So far, preliminary results show compliance with both the national legislation and the international standards.

4.3.b.ii Effluents

Even though the Project has no liquid discharges to the environment²², the Liquid Effluents Management Program²³ proposed in the EMP foresees control and monitoring measures to address the correct functioning of the sewage systems that will be implemented as part of the Project. It includes actions to verify their efficiency, and to monitor the chemical toilets to be used in the work fronts and the disposal of effluents, as well as the personnel training activities, among others. The effluents monitoring subprogram proposed along with this program, establishes the need of monitoring the physical and chemical parameters of the effluents in quarterly fashion.

4.3.b.iii Estuary Water Quality

The Impacts on Water Resources Prevention Program proposed to monitor water quality, foresees actions to control the effluents generated during the operation of the Project to protect adjacent water resources. The surface waters monitoring subprogram includes the monitoring of the water quality at distances located 300m upstream and downstream of the discharge points checking periodically the variation of the following parameters: pH, conductivity, dissolved oxygen, total dissolved solids (TDS), total suspended solids (TSS), total solids (TS), temperature, turbidity, Aluminum (Al), Arsenic (As), Barium (Ba), Boron (Bo), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chrome (Cr), Chrome Hexavalent (Cr⁺⁶), Tin (Sn), Strontium (Sr), Iron (Fe), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Lead (Pb), Silver (Ag), Potassium (K), Selenium (Se), Silicon (Si), Sodium (Na), Vanadium (V), Zinc (Zn), oils and fats, total coliforms (TC), fecal coliforms (FC), biochemical oxygen demand (BOD), chemical oxygen demand (COD), phenols, TPH, and surfactants.

JDN (as part of their contract with DPWP) had contracted the GRUENTEC Laboratory to perform surface water monitoring in 16 points along the proposed access channel. The sampling results included in the last Quarterly Monitoring Report²⁴ presented two parameters above the maximum permissible limit (MPL): aluminum and iron. These results that are alike those contained in the previous quarter monitoring campaign are most probable a consequence of anthropogenic activities in the region such as punctual and diffuse discharges inside the Guayas River estuary by the industries settled in “Estero Salado” or by the agriculture or shrimp farming activities that are common in all the area.

So far, three monitoring campaigns have been carried out (July 2017, October 2017 and January 2018)

²² In the camps liquid effluents are disposed in septic tanks, grease traps and chemical toilets which are cleaned periodically by companies approved certified and approved by the Ministry of the Environment.

²³ Programa de Gestión de Desechos Líquidos o Efluentes.

²⁴ DP World, November 2017.

4.3.b.iv Sediments

The sediment monitoring subprogram associated with the Dredging Activities Impact Prevention Program establishes a quarterly monitoring to evaluate the following parameters: conductivity, pH, sodium adsorption ratio, As, S, Ba, Bo, Cd, Co, Cu, total Cr, Cr⁺⁶, free Cyanide (CN⁻), Sn, Fluorine (F), Fluoride (F⁻), HG, Mo, Ni, Pb, Se, V, Zn, and total petroleum hydrocarbons. The sites monitored are the inner marine water (Canal del Morro); inland marine water (Gulf of Guayaquil), berth and pier area, north of the area where the berth and the turning basin will be implemented, and existing canal.

As of November 2017 (as part of compliance with one of the measures established in the EMP), two sampling exercises were made in two specific points (SED-5 and SED-6) where a total of 9 samples were collected at depths that varied from 1 to 13m. Also, in October 2017, JDN carried out a physicochemical analysis in 21 sampling points along the canal.

The results of the monitoring demonstrated that, overall, most of the parameters presented concentrations equals to or lower than the Physical Baseline (PB) and the maximum permissible values (MPV), even though the MPV are defined for soils and not for marine sediments. Two samples, presented pH values above the adopted MPV; all samples presented high values for sulfur, above MPV, condition that is also observed for the ESIA baseline. Hence, the variation of the concentration of these parameters is attributed to the high organic loads that are carried by the Guayas River when it enters the estuary area.

So far, three monitoring campaigns have been carried out (July 2017, October 2017 and January 2018)

4.3.b.v Bioaccumulation

The monitoring of bivalves was established to estimate the bioaccumulation of heavy metals in the trophic chain. This monitoring was carried out by the firm Cardno, using for this purpose the same sampling areas as those used for the sediment monitoring.

The samples were collected in the seabed surface, through a Van Veen dredge, with four replicates per sampling stations, following the methodology proposed by FAO (1981). Even though bibliographic sources show the existence of around 44 species of macroinvertebrate that belong to 5 Phyla²⁵ and that sixteen species of bivalves have apparently been recorded in this area, the latest monitoring results did not register the presence of bivalves in the sampling points. The latter may be the result of a high anthropic influence which may have generated habitat deterioration and contamination of the sites.

The water quality and sediments monitoring for the dredging activities is currently being conducted in an adequate way as to allow identify the alterations in the areas directly affected by the Project. The sampling of water and sediments are being collected in the same sampling points.

²⁵ Cnidarians, Mollusca, Annelida, Echinodermata and Arthropoda.

Even though sampling is being performed according to the monitoring plan, an update of the monitoring program that considers adding one (1) monitoring downstream to monitor surface waters, sediments, ichthyofauna and aquatic macroinvertebrates

4.4 Community Health, Safety and Security

4.4.a Community Health and Safety

The ESIA has a specific chapter that deals with the project's risk analysis. This analysis considers non-routine situations that can be generated by the Project, such as fires, spills, uncontrolled explosions, or that may have a natural origin and affect the normal operation of the project, such as earthquakes, floods, lightning, among others. The methodology used is based on the UNE standard 150008:2008 – Environmental Risk Analysis and Assessment (Spanish standard). Identification of hazards is based on interaction matrices. Estimates of probability and consequences are supported by the information presented in the Activities Description of the Project (Chapter 7 of ESIA) and baseline (Chapter 6 of ESIA). This methodology is appropriate to the project's size and characteristics when considering the obtained results.

The risks identified for the community, considering the port location closer to the artisanal fishing activities and industrial fishing companies and the level of recruitment of local labor are: i) traffic accidents; ii) vessels collisions; iii) operation failures; iv) exposure to several disease transmission risks through the introduction of non-endemic diseases; and v) drug, human and animal trafficking. Concerning E&S risks to the project, the following can be mentioned: i) strikes of workers or suppliers, ii) interruption of activities caused by community members and stakeholders; i) security risks such as assaults, robberies, and kidnappings; iii) damage to the equipment and facilities; and iv) sabotage and terrorism risks.

The risk assessment was sufficient and adequate to the Project's characteristics. Therefore, DPWP needs to maintain procedures to manage all associated environmental and social risks. In this sense, the Company updated the risk matrix to identify all the labor, environmental, operational and natural risks and to avoid negative effects on the communities living in its direct area of influence.

CHEC has adopted a Traffic Management Plan that considers the following aspects: i) identification of traffic hazards; ii) speed limits and speed zone restrictions; and iii) traffic controls such as information signs, temporary roadways, pedestrian routes, vehicle routes and parking. Its scope and goals involve however only the pier and container yard construction, so the mitigation measures are to be implemented inside the Project's area.

So far DPWP has not adopted a general Project Traffic Management Plan that considers the Project's direct and indirect areas of influence and that includes a tight coordination with local traffic authorities.

4.4.a.i Infrastructure and Equipment Design and Safety

A report of the Independent Engineer²⁶ (IE) concludes that the extent of detail and engineering quality of the project are high, and that the technical specifications and designs of the different project components are complete and conform with local and international guidelines and standards. The review, however identifies minor climate-related shortcomings (unlikely to influence negatively the overall technical feasibility of the project) which, according to the IE's judgement, can easily be overcome as the project advances. These include, among other: i) temperatures consideration in the Health and Safety Operational Plans and Terminal Operational Manual; ii) hydrodynamic analysis of joint occurrence of winds and currents to determine some maritime structures final designs; iii) winds berthing and mooring analysis to determine winds operational limitations for some maritime structures final designs; iv) wind speeds and annual occurrences and potential wind loading for the successful deployment of the cantitravel construction process; v) water level harmonic analysis determined by atmospheric pressure, and wind and wave set-ups to determine some maritime structures final designs; vi) detailed sediment hydrodynamic studies to estimate the annual maintenance dredging volumes; and vii) slope stability and settlement analysis to limit exposure to seismic events.

4.4.a.ii Hazardous Materials Management and Safety

The EMP includes a Chemical Handling, Storage and Transportation Impact Prevention Program, which provide measures to prevent, minimize and mitigate the incidence of adverse impacts from chemical handling, storage and transport during the Project's construction phase, such as: i) management of fuel, machinery, and heavy equipment; ii) location of maintenance areas, fuel and chemical storage facilities and minimum distances from waterbodies; iii) the need to use safety data sheets (MSDS) for all hazardous product; iv) protocols for handling and using flammable products; v) storage and manipulation of oils, lubricants, and greases; vi) location and technical specifications of oil and grease traps; and vii) proper utilization of signs.

The Access Road's EMP also includes measures for appropriate hazardous product handling and management which are like the ones just detailed previously. The ESDD verified the application of these measures and confirmed that all hazardous products were adequately being handled, managed and stored and that they were adequate and sufficient to prevent pollution and to reduce the risk of accidents, such as leaks, spills, explosions, and fires.

4.4.a.iii Community Exposure to Disease

As part of the Port's ESIA, information on morbidity of the entire area of influence of the project, was gathered from all health centers, clinics and hospitals of the Project's. DPWP will coordinate and collaborate with the local public health institutions to establish medical brigades and deliver training activities for the prevention of diseases due to the presence of foreign personnel.

²⁶ Moffat & Nichol (M&N)

4.4.a.iv Emergency Preparedness and Response

The EMP has an Emergency Response Plan (ERP) framed in the following principles: i) safeguarding the integrity of the Company's personnel, contractors, staff for complementary activities, and visitors; ii) protecting the environment; iii) protecting the facilities, equipment, machinery, and vehicles related to the Company's operations; iv) minimizing the loss of workdays; and v) reducing, eliminating and controlling its effects once an emergency has occurred by containing, recovering, repairing the damage, and replacing materials used during the emergency.

ERP applies to all the personnel (direct workers, contractors, staff for complementary activities and visitors) who are at the facilities of the Project. The plan foresees 4 scenarios levels: i) level 1: very low, with local response from contractors; ii) level 2: moderate, which calls for local response and activation of the crisis management process and intervention from DPWP management team; iii) level 3: high, that implies the activation of the crisis management process and support from the Regional Office and in coordination with local stakeholders such as authorities and communities; and iv) level 4: catastrophic, that calls for the activation of the crisis management process, support from the Regional Office and support from the Global Head Office in Dubai, as well in coordination with local stakeholders such as authorities, communities and media handling.

CHEC, HCC and JDN maintain updated emergency response plans.

4.4.b Security Personnel

The security of the Project's area is CHEC's responsibility. For this purpose, CHEC has hired the services of COMAXSEG a local firm that provides the necessary personnel to control the entrance gate and the Project's premises.

Even though all guards can carry weapons, the latter are physically placed in the control booths and none of the guards actually carries them. As part of COMAXSEG requirements, all guards need to complete a training course in the use of firearms and to be authorized by the Department of Arms Control of the Ministry of Defense of Ecuador.

The ESDD was not able to verify whether DPWP or CHEC have identified and assessed security risks and to determine if the use of the services provided by COMAXSEG may represent a hazard for the community. However, so far, no complaint has been received by the community regarding the presence of the guards.

4.5 Land Acquisition and Involuntary Resettlement

4.5.a General

4.5.a.i Project Design

Project site was acquired to a single landowner. There was no need to resettle any people since the area selected for the Port was previously being used either for shrimp farming or agricultural activities. No dwellings were present in the site.

Even though the access road was designed to avoid resettlements, the constitution of its right-of-way (ROW) affects 429 plots and about 11 dwellings. It is being evaluated how many from the latter, correspond to vulnerable families²⁷.

4.5.a.ii Compensation and Benefits for Displaced Persons

The community relations plan describes the ROW easement process in a three-step procedure: i) the cost of the plots is appraised by a qualified technical team; ii) once assessed the value of the land, meetings will be held with the owners and the compensation value will be negotiated²⁸ until a favorable agreement is achieved; and iii) once negotiated, the affected people will then be given the necessary time to look for relocation alternatives and will notify the technical team of the date that the property will be available. As it can be noticed, there is a significant gap between this procedure and the one required by PS5.

Notwithstanding, updates to the Communities Relations Plan of the access road, will ensure that the land easement process will be compliant with the IDB Invest Sustainability Policy, specifically with the Involuntary Resettlement Plan Policy (OP-710) and Performance Standard No. 5 “Land Acquisition and Involuntary Resettlement”.

4.5.a.iii Community Engagement

Although DPWP has managed to establish a communication channel between the Project and the affected communities, there is no formal community engagement program for the people that are going to be affected by the construction of the access road.

Since the road and the corresponding ESIA were developed by MTOP, and therefore had to comply with the local law that focuses on informing and coordinating with only the plot owners, a meeting was held in 2013 with these people who were identified by overlapping the road’s layout with a land ownership map provided by the local municipalities (cadaster). This procedure left aside those people who have a precarious occupation of the land.

²⁷ Single mother of father families; families with more than 4 children; families with handicapped or old members; families whose plot is their only source of income.

²⁸ Once established the value of the plot to be eased, the negotiation level with the affected party is minimal, since even if the landowner does not accept the proposed price, the Ecuadorian law obliges to accept it anyway. Moreover, this procedure is only valid for landowners. Land-occupiers are not entitled to any compensation.

The ESDD evidenced that DPWP had recently established communication not only with the land owners but also with the 11 families that will be involuntarily displaced by the road construction.

Despite the latter, information disclosure to affected people has not been compliant with PS 5.

4.5.a.iv Grievance Mechanism

DPWP has established a preliminary grievance mechanism through which the affected community can canalize their complaints, concerns, suggestions or doubts about the Project. For this purpose, it has placed suggestion boxes in various parts of the Project site (including the entrance gates) where people can leave their grievances. Notwithstanding, there is no formal procedure on how the grievances are handled thereafter and how the final decision is communicated to the person who placed the grievance.

In this sense, DPWP has been updating its grievance mechanism and procedures for the registration and monitoring external complaints so that the channels and means to capture and processing grievances are more explicitly defined, and the process is more transparent. This updated mechanism also has the possibility of capturing anonymous claims and contains instances of appeal.

4.5.a.v Resettlement and Livelihood Restoration Planning and Implementation

Since the easement of the ROW was undertaken by the Ministry of Transportation and Public Works (MTO), it only followed the procedures contained in the Ecuadorean legislation²⁹. Therefore, neither the MTO nor DPWP were required to adopt neither resettlement plan nor a livelihood restoration plan to monitor the conditions of the people to be affected by the proposed works in the access road.

4.5.b Displacement

4.5.b.i Physical Displacement & Economic Displacement

Upon request of IDB Invest, DPWP is preparing an Involuntary Resettlement Action Plan (RAP) for the people that will be physically or economically displaced by the Project³⁰, following the guidelines contained in the Environmental and Social Sustainability Policy of BID Invest³¹. Specifically, the RAP will be compliant with the requirements contained in the IDBG Policy on Involuntary resettlement (OP-710) and in the Performance Standard No. 5 "Land Acquisition and Involuntary Resettlement", so that all adverse impacts resulting from physical and economic displacement are adequately identified and mitigated and the livelihoods of the affected people are restored after the displacement has taken place.

²⁹ This procedure focuses dealing only with plot owners, leaving aside people who have a precarious occupation of the land.

³⁰ People who have their dwellings in the "Olas del Pacifico" condominium sector, located in the corridor to be intervened by the construction of the access road, at about 5 km from the progressive 0+000, located the latter at the turnabout near general Villamil.

³¹ Which includes the Environmental and Social Policies of the Inter-American Development Bank Group -IDB and Performance Standards on Environmental and Social Sustainability of the International Financial Corporation's (IFC).

4.5.c Private Sector Responsibilities Under Government-Managed Resettlement

Initially, the construction of Playas-El Morro-Posorja road was thought to be developed by the MTOP. An ESIA was prepared in 2013, where only the plot owners were identified in the proposed road alignment. Hence and according to Ecuadorian regulations, the environmental management plan considered the expropriation mechanism as the only way to be used in the easement of the ROW.

Even though responsibility of the construction of the road has been transferred to DPWP as per the concession contract and now this facility is part of the Project, the easement of the ROW remains under the MTOP's responsibility. Despite this situation, DPWP has agreed to prepare a RAP and to execute all the needed actions to safeguard the rights of the people (plot owners or settlers) that are going to be displaced either physically or economically, especially with those whose conditions are deemed to be vulnerable. The RAP, that is currently being developed, will determine how DPWP will have to coordinate MTOP to guarantee the latter.

4.6 Biodiversity Conservation and Natural Habitats

4.6.a General

The setting of the Port in Posorja required the removal of approximately 10 hectares of mangroves that appeared to be in good condition. By the time IDB Invest performed the Environmental and Social Due Diligence DPWP had already removed the mangroves without assessing its biological and ecological characteristics.

Given this situation, IDB Invest contracted the firm EcoAnalysts, Inc. to perform a Qualitative Identification of Critical Habitats, taking as a reference the mangroves that are immediately nearby the removed forest. The results of this analysis show that PS 6 is triggered by construction activities of the Posorja Port Project, as well as Directive B.9 of the Environmental and Social Safeguards Policy of the IDB Group (OP-703). It concludes that even though the removed mangroves can be considered a natural habitat, based on secondary information and of the findings of the visit undertaken by their technicians, the likelihood that it would have been a critical habitat is extremely small, and therefore, the adoption of an offset can help to achieve a zero-net loss of biodiversity or a positive net gain, if done appropriately.

4.6.b Protection and Conservation of Biodiversity

Although the local legislation of various countries³² require a reforestation ratio for mangroves of 1 to 10 (this means ten hectares of reforested are per each deforested hectare), the Ecuadorean law only requires a ratio of 1 to 6. This means, for the Posorja Port, the reforestation area required by the environmental license is of about 60 hectares. The Qualitative Identification of Critical Habitats performed by EcoAnalyst Study questions, from the biological standpoint, the reforestation ratio

³² Colombia, Peru, Panama, Costa Rica.

required by the Ecuadorean legislation and states that that the “normal” ratio used in most of the cases is 1 to 10, and in some extreme conditions of 1 to 32.

DPWP has already begun the reforestation of these 60 hectares in an area authorized by the Under-Secretariat of Coastal Marine Management of the MAE located in the Puná island, across the El Morro Canal at about 17 km to the west of the Port. For this purpose, it has hired the Foundation Calisur, a local organization with a considerable experience in reforesting mangroves all over the Gulf of Guayaquil that also owns a mangrove nursery able to produce the needed number of specimens required (about 60.000 trees). The reforestation process will only use red mangroves (*Rhizophora mangle*) as this species is the precursor of other species such as the white mangrove (*Laguncularia racemose*) and the black mangrove (*Avicennia germinans*). Monitoring will be performed semiannually (with aerial photographs collected by drones) after the initial reforestation to check the seedlings conditions and, if needed, new sowing campaigns will be undertaken until a healthy forest is developed in the 60 hectares. So far, some 120,000 mangrove seedlings have been planted.

The participation of the communities of Puná is foreseen as part of the Reforestation Program mainly during sowing season and thereafter for the monitoring of the forest. They will also participate in the preparation and disclosure material related to the Port and to the offset.

After the 4 years follow up period for the new mangrove forest, the offset will be evaluated, and it will be determined if the zero-net loss of biodiversity or a positive gain has been achieved. If not, and until the latter can be clearly demonstrated, new sowing campaigns will be undertaken, and the reforested area will be expanded.

As a result of the ESDD, DPWP has agreed to expand the offset area from 60 to 100 hectares to achieve a reforestation rate of 1 to 10.

4.6.c Modified, Natural and Critical Habitat (CH)

4.6.c.i Legally Protected Areas and Internationally Recognized Areas

There is one important conservation area (Refugio de Vida Silvestre Manglares el Morro) that includes an estuary system and an offshore belt are located near the project site: i) Manglecito Island which host the largest colony of frigates in the country; and ii) Manglares del Morro, a wildlife refuge, part of the National System of Protected Areas of Ecuador, distinguished for having four species of mangroves (white, black, red, and jeli) and a concentration of sea birds (pelicans and seagulls). None of them will be affected by the Project.

During the ESDD site visit, interviews held with representatives of the Coastal and Marine Under Secretariat (Subsecretaria Marina y Costera) and local office of Conservation International, indicate that there are at least 7,400 hectares of well-preserved mangrove in the area under concession mostly with the Asociacion de Cangrejeros (who rely on these mangroves for their ecosystem services to collect crabs and shells).

4.6.c.ii Invasive Alien Species

Even though the Project will not use or introduce any invasive alien species, DPWP has agreed to prepare a ballast water management program for the port's operation phase, since alien species seeds seldom present in ballast water used by ships can involuntarily be introduced during ballast water exchange.

4.6.d Management of Ecosystem Services

DPWP will conduct an ecological assessment to determine if the mangrove offset sufficiently complies with the requirements of PS6 and if it, once the forest is mature, has produced a net gain in biodiversity.

4.6.e Sustainable Management of Living Natural Resources

The Environmental Management Plan (EMP) of the biotic natural resources includes the following plans: i) the Management of Biodiversity (P7-PGB); ii) Rehabilitation and Revegetation (P8-PPR) and iii) Monitoring and Follow-up (P9-PMS) which also contemplates the monitoring of fauna and flora. These plans include the sampling points, the phases of the project in which they will be implemented, deadlines and sampling method.

4.7 Cultural Heritage

The Project has received all necessary research and rescue permits. The Archaeological Resources Prevention Program provides two main actions to deal with chance findings: i) to have a permanent archaeological monitor during activities of cleaning and earth movement; and ii) in case of identifying archaeological resources during cleaning and earth movement, the event shall be reported immediately to INPC to get an authorization for the corresponding rescue activities.

In the port area archaeological investigations both inland and in the underwater portion (using magnetometry and divers) were carried out. During Inland Archaeological Prospection, 648 shovel-probes were conducted and only 62 gave positive results (ceramic, cultural baseline material, lithic artifacts, malacological cultural material). No major artifact that could have indicated the presence of an archaeological site was found inland.

Likewise, no historical or cultural material was found in underwater portion. However, remnant magnetic resonance emissions were identified by magnetometry which did not correspond to shipwreck patterns indicate the possible presence of metal objects bellow the seabed.

Protocols require that in case of any chance find, the National Heritage and Cultural Institute (Instituto Nacional de Patrimonio Cultural -INPC) must be immediately notified and the activities in that front suspended until an assessment by the INPC is made.

The archaeological survey carried out for the access road identified three probable sites: i) SITE 1, located on the road axis, on the abscissa 11+940, at the beginning of the road that led to El Morro,

which registered surface presence of malacological material mixed with ceramics and lithic; ii) SITE 2 located on the abscissa's right side (17+100), characterized by the presence of amorphous stones aligned in several meters; and iii) SITE 3 located on the abscissa 19+850, characterized by the presence of malacological ceramic and lithic cultural material. Although the material found is not archeologically important, DPWP executed the archaeological rescue of the three identified sites, on which it obtained the "Dictamen de Conformidad" by the corresponding authorities.

5. Local Access of Project Documentation

The ESIA of the project was available for consultation and suggestions until the public hearing day on the website of the Ministry of Environment of Ecuador³³. Currently, the ESIA, EMP Licenses and others can be accessed on the IDB Invest website (<http://www.iic.org/en/projects/project-disclosure/12177-01/posorja-port>).

6. Environmental and Social Action Plan (ESAP)

³³ <http://www.ambiente.gob.ec/contacto/>

**Environmental and Social Action Plan - ESAP
Posorja Deep-Water Port**

N°	Action	Deliverables	Proposed Deadline
1.0 Assessment and Management of Environmental and Social Risks and Impacts			
<i>E&S Assessment and Management System</i>			
1.1	Develop and implement for the construction phase an Environment, Social and Health & Safety Management System (ESHSMS) in line with Performance Standard 1, as well as with specific local regulations.	ESHS Management Construction Phase	Before Board of Director's consideration (BDC).
1.2	Develop and implement for the operation phase an Environment, Social and Health & Safety Management System (ESHSMS) in line with Performance Standard 1, as well as with specific local regulations.	ESHS Management Operation Phase	At least 6 months before Construction Completion date (CCD)
1.3	Appoint the following minimum staff to run the ESHSMS for the construction phase: i) a corporate environmental and social officer with managerial responsibilities for E&S issues; ii) a full-time social expert responsible as wells for stakeholder engagement and public consultation; and iii) a full-time occupational, health and specialist to work on site.	Copy of contracts or internal memorandum appointing these individuals.	Before March, 2018
<i>Identification of Risks and Impacts</i>			
1.4	Develop procedures for continued environmental and worker and community impact and risk identification and evaluation, contemplating DPW activities as well as those of contractors and subcontractors, with view to assuring timely planning of preventive and mitigation measures to control all material risks during the construction and operation phases of the project.	1. Copy of draft procedures	1. February 28, 2018
		2. Final version of the procedures	2. April 1, 2018
1.5	Update the environmental and social baseline of the port and access road areas of influence including a census (with a specific cut-off date) to determine the population to be affected by construction, including those without legal title to land, in line with social cadastre requirements for Resettlement Action Plans specified in IFC PS 5.	Updated Baseline Report	30 days before BDC
1.6	Prepare a Resettlement Action Plan (RAP) that includes all measures to compensate, indemnificate or to provide social assistance to people that are going to be displaced either phisically or economically.	Copy of RAP	Before BDC
1.7	Develop stakeholder maps identifying those whose livelihood depends on natural resources and/or ecosystem services.	Copy of stakeholder map.	Before BDC
1.8	Present an analysis of alternatives for port and access road.	Analysis of alternatives	February 15, 2018
1.9	Present an Environmental and Social Impact Evaluation (ESIE) with its corresponding Environmental and Social Management Plan (ESMP) of the new access road.	Access Road ESIE with its corresponding ESMP	Before BDC
1.10	Conduct fish catch surveys to understand current biomass catch volumes and to compare them with future catch volumes during dredging and once operation begins, and to determine whether a Livelihood Restoration Plan for fishermen (if impacts on fishing resources are found to be material) will be needed.	Report Fish Catch Survey	Before BDC and twice a year as part of the biotic monitoring during construction and by-annually during operation.
1.11	Update of environmental baseline for water quality (including benthic organisms) upstream and downstream of the dredging zones, as well as in the dredged seabed areas to identify potential	Water quality baseline update (based on monitoring results)	Before BDC and thereafter as a part of the Environmental and Social Compliance Reports (ESCR)

N°	Action	Deliverables	Proposed Deadline
	contaminants. Surveys should also be conducted in areas adjacent to the channel to serve as control zones.		
1.12	Present a Cumulative Impact Assessment that considers the two phases of the port, the access road and indirectly associated developments (such as the large industrial park currently planned).	Cumulative Impact Assessment Report	Before BDC
1.13	Continuously update the environmental and social risk matrix	Updated risk matrix	Periodic Environmental and Social Compliance reports (ESCR)
1.14	Prepare and continuously update a project-related legal matrix	Updated legal matrix	Periodic environmental and social compliance reports (ESCR)
<i>Emergency Preparedness and Response</i>			
1.15	Develop and implement Emergency Response Plans (ERPs) for the construction phase, including administrative and operational actions to control and mitigate any possible harm to the environment, people and potentially affected Communities, that include contractors and subcontractors.	Emergency Response Plan for construction phase	Before BDC
1.16	Develop and implement Emergency Response Plans (ERPs) for the operation phases, including administrative and operational actions to control and mitigate any possible harm to the environment, people and potentially affected Communities, that include contractors and subcontractors.	Emergency Response Plan for operation phase	At least 6 months before CCD
<i>Stakeholder Analysis and Engagement Planning / Disclosure of Information</i>			
1.17	Prepare and implement a Stakeholder Engagement Plan (SEP), which targets the population affected by the access road and the port that includes the training sessions and workshops indicated by DPW in its Community Relations Plan and contemplates detailed planning of information disclosure activities.	Stakeholder Engagement Plan	Before BDC
1.18	Present evidence of the implementation of the Stakeholder Engagement Plan (SEP).	Periodic reports on the implementation of the SEP	As part of the Environmental and Social Compliance reports (ESCR)
<i>Community project benefit sharing</i>			
1.19	Prepare and adopt a community project benefit sharing plan	Community project benefit sharing plan	Before BDC
<i>Grievance Mechanism</i>			
1.20	Design an external grievance mechanism (for stakeholders) that includes among other, the following characteristics; i) a grievance registration and response procedure with deadlines, responsibility distribution and resolution process; ii) the means by which grievances and/or requests for information can be submitted; iii) the tackling of any grievance; iv) the ways of registering a claim or a request for information; v) indicators to measure the effectiveness of the grievance redress process; vi) procedures to capture anonymous claims; and v) procedures in case of grievances that are received through a contractor or subcontractor.	Grievance Mechanism Procedure	Before BDC
1.21	Present evidence of the implementation of the external grievance mechanism (for stakeholders).	Periodic reports on the implementation of the grievance mechanism	As part of the Environmental and Social Compliance reports (ESCR)
2.0 Labor and Working Conditions			
<i>Human Resources Policies and Procedures</i>			

N°	Action	Deliverables	Proposed Deadline
2.1	Present, including updated versions of their internal work regulations, the recruitment procedures and standard work contracts, of CHEC, HCC and Jan de Null and any other major contractor, which shows adherence to all the requirements of IFC PS 2, including: i) right of association; ii) non-use of child labor or forced labor; iii) fair treatment to immigrant workers; iv) non-discrimination; and v) safety at work and working conditions.	CHEC, HCC and Jan de Null and any other major contractor's Human Resources Policies	Before BDC
<i>Working Conditions and Terms of Employment</i>			
2.2	Monitor the accommodation conditions of CHEC workers, as well as the facilities available to Ecuadorian and Chinese workers (dining rooms, changing rooms, etc.) to verify that they are in compliance with PS 2.	Monitoring report	February 15, 2018 and thereafter in a quarterly fashion.
2.3	Submit translated copies of CHEC contracts of its Chinese workers to determine its compliance with Ecuadorian and international labor standards (ILO and IFC PS2).	Copy of Contractual Documents (translated)	End January 2018
2.4	Prepare and submit a worker retrenchment plan	Retrenchment plan	At least 6 months before CCD
2.5	As part of the ESMS, prepare a Contractors Management Plan to ensure that contractors are compliant with PS2.	Contractors Management Plan	Before BDC
<i>Worker Grievance Mechanism</i>			
2.6	Design and implement an internal grievance mechanism (for workers) that includes among other the following items; i) a grievance registration and response procedure with deadlines, responsibility distribution and resolution process; ii) the means by which grievances and/or requests for information can be submitted; iii) the tracking of any grievance; iv) the ways of registering a claim or a request for information; v) indicators to measure the effectiveness of the grievance redress process; vi) procedures to capture anonymous claims; and v) procedures in case of grievances are received through a contractor or subcontractor.	Revised Worker Grievance Procedure	Before BDC
<i>Occupational Health and Safety</i>			
2.7	Provide and assure (according with risk matrix) the use and proper personal protective equipment (PPE) for employees, contractors and subcontractors as well as any complementary requirements (uniforms, badges, etc.).	DPW Technical Norm or equivalent document	Immediately
2.8	Implement a Permit to Work (PTW) system including JSA (Job Safety Analysis)	Procedure	February 28, 2018
2.9	Develop and Implement a Training Matrix (according with risk matrix)	Training Matrix	February 28, 2018
3.0 Resource Efficiency and Pollution Prevention			
<i>Greenhouse Gases</i>			
3.1	Present an inventory of Greenhouse Gases for the construction phase (Scope 1), considering all significant sources of greenhouse gas emissions, including methane and nitrous oxide.	Greenhouse Gases Inventory	Before BDC
3.2	Present an estimation of Greenhouse Gases production for the operation phase, considering all significant sources of greenhouse gas emissions, including methane and nitrous oxide.	Greenhouse Gases Estimation	At least 3 months before CCD
<i>Energy and water consumption</i>			
3.3	Present an inventory of water and energy consumption the construction phase.	Inventory of water and energy consumption for construction phase.	Before BDC

N°	Action	Deliverables	Proposed Deadline
3.4	Present an estimation water and energy consumption the operation phase.	Estimation of water and energy consumption for construction phase.	At least 3 months before CCD
3.5	Develop and implement a Dredging Management Plan.	Dredging Management Plan	Before BCD
<i>Pollution Prevention</i>			
3.6	Monitor parameters (effluents, noise, air quality, water quality, vibration, sediment and others) to assure their concentrations are within the maximum limits established by both the national legislation and the international standards.	Evidence in Periodical Monitoring Reports	February 28, 2018 and thereafter in a quarterly fashion, except for air quality that will be done every six months.
3.7	Provide the list of the origin of the landfill materials as well as the corresponding environmental and transport licenses.	List of landfill material sources.	Before BCD
3.8	Present and adopt a closure plan for all active work fronts, quarries, deposit sites, camps and industrial areas	Closure plan	6 months before CCD
4.0 Community Health, Safety, and Security			
<i>Community Safety and security</i>			
4.1	Prepare and adopt a plan for the management and final disposition of hazardous materials and wastes	Hazardous materials and wastes management plan	Before BDC
4.2	Prepare and adopt a good conduct code for the security services firms	Conduct Code	Before BDC
4.3	As part of the ESMS, prepare and adopt a Contractor Safety and Security Management Plan to ensure contractors are compliant with PS2.	Contractor Safety and Security Management Plan	Before BDC
4.4	In coordination with local authorities and local representatives, prepare and adopt a basic community emergency and contingency response plan for the construction phase.	Basic community emergency and contingency response plan for construction phase	Before BDC
4.5	In coordination with local authorities and local representatives, prepare and adopt a community emergency and contingency response plan for the operation phase.	Community emergency and contingency response plan for operation phase	90 days before CCD
4.6	In coordination with local authorities, prepare and adopt a traffic management plan for the construction phase	Construction Traffic management plan.	Before BDC
4.7	In coordination with local authorities, prepare and adopt a traffic management plan for the operation phase.	Operation Traffic management plan	90 days before CCD
<i>Community health</i>			
4.8	In coordination with local health authorities, prepare a community health base line for the population located nearby the project	Community health base line	Before first disbursement
4.9	In coordination with local health authorities, prepare periodical community health reports to determine if the project has impacted the health situation of the communities located nearby.	Community health reports	Periodically as part of the ESCR.
5.0 Land Acquisition and Involuntary Resettlement			
<i>Resettlement and Livelihood Restoration Planning and Implementation</i>			
5.1	Develop and execute a Resettlement Action Plan (RAP) for the population to be affected by the new access road that includes all necessary corrective actions to bridge the gaps with respect to IFC PS 5 requirements, particularly with respect to vulnerable groups that may not have legally valid land titles and people that may suffer economic displacement.	RAP and evidence of the start of its implementation	Presentation of the RAP February 28, 2018. By monthly reports of its implementation.

N°	Action	Deliverables	Proposed Deadline
5.2	Perform the follow-up of all economic or physically displaced vulnerable family that was impacted by the project or its access road.	Monitoring reports	Every six months starting from the date the las vulnerable family was physically displaced.
5.3	Undertake a RAP Completion audit.	RAP Completion audit.	Three years after the resettlement has taken place
6.0 Biodiversity Conservation and Natural Habitats			
<i>Invasive Alien Species</i>			
6.1	Develop and execute a program to monitor the introduction of alien aquatic species by ship ballast after start-up of port operations that includes a baseline survey taken at least 3 months before start-up.	Aquatic Alien Species Monitoring Plan	At least 6 months before CCD.
6.2	Develop and execute a Biodiversity Action Plan (BAP) that: i) factors in the offset and the activities related to nearby protected areas; ii) is aligned with PS6; and iii) aims at achieving a net biodiversity gain.	BAP	Before CCD
<i>Management of Ecosystem Services</i>			
6.2	Expand the mangrove offset area to 100 ha.	Evidence of expansion	Before CCD
6.3	Monitor the mangrove offset to assess the net changes in biodiversity.	External consultant report	Before CCD
7.0 Cultural Heritage			
<i>Chance Find Procedures</i>			
7.1	Develop and adopt a Chance Finds Procedure (compulsory for all contractors and subcontractors) to be triggered should archaeological remains are found during construction, that assures immediate work stoppage, archaeological site delimitation, inspection by archaeologist, retrieval of remains and delivery to an appropriate institution for custody, with previous authorization of the responsible cultural entity as necessary.	Chance Finds Procedure and evidence of its acceptance and implementation by contractors and subcontractors	Before BDC