

**INTER-AMERICAN DEVELOPMENT BANK**



**MEXICO**

**MANZANILLO PORT CONTAINER TERMINAL  
(ME-L1152)**

**ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT  
(ESMR)**

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## TABLE OF CONTENT:

I.	INTRODUCTION.....	5
II.	PROJECT DESCRIPTION.....	7
III.	KEY ENVIRONMENTAL AND SOCIAL IMPACTS, RISKS AND MITIGATION MEASURES.....	17
IV.	MANAGEMENT AND MONITORING OF ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY AND LABOR IMPACTS AND RISKS.....	25
V.	COMPLIANCE STATUS AND PROJECT STANDARDS.....	29
VI.	ENVIRONMENTAL AND SOCIAL REQUIREMENTS.....	34
VII.	ANNEXES.....	38
	1. E&S Action Plan	
	2. Institutional and Legal Framework	

## Acronyms and Abbreviations

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APIMAN	<i>Administración Portuaria Integral de Manzanillo S.A. de C.V.</i>
BEI®	Biological Exposure Indices
CHEC	China Harbour Engineering Company
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CONABIO	<i>La Comisión Nacional para el Conocimiento y uso de la Biodiversidad</i>
CONANP	<i>Comisión Nacional de Áreas Naturales Protegidas</i>
CROM	<i>Estibadores y Jornaleros del Pacífico</i>
DGGFS	<i>Dirección General de Gestión Forestal y de Suelos</i>
DGIRA	<i>Dirección General de Impacto y Riesgo Ambiental</i>
ESDD	environmental and social due diligence
ESMS	Environmental and Social Management System
ETJ	<i>Estudio Técnico Justificativo</i>
H&S	health and safety
HSMS	Health and Safety Management System
ICTSI	International Container Terminal Services, Inc.
IDB	Inter-American Development Bank
IFC	International Finance Corporation, Inc.
IMDG	International Maritime Dangerous Goods
INE	<i>Instituto Nacional de Ecología</i>
INEGI	Instituto Nacional de Estadística, Geografía e Informática
IUCN	International Union for Conservation of Nature
ISSTE	<i>Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado</i>
KPI	Key Performance Indicator(s)
MIA	<i>Manifestación de Impacto Ambiental</i> (Environmental Impact Statement)
MIA-R	<i>Manifestación de Impacto Ambiental Modalidad Regional</i>
IMO	International Maritime Organization
NIOSH	United States National Institute for Occupational Health and Safety
OSHA	Occupational Safety and Health Administration of the United States
SCF	structured and corporate financing
SCT	<i>Secretaría de Comunicaciones y Transportes de México</i>
SEMAR	<i>Secretaría de la Marina de México</i> (Ministry of the Navy)
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales

# ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT

## I. INTRODUCTION:

Country	<b>Mexico</b>
Sector	<b>Transport/Infrastructure</b>
Borrower	<b>Contecon Manzanillo, S.A. (CMSA)</b>
Transaction Type	<b>Project Finance</b>
Total Project Cost (in US Dollars)	<b>559,115,000.00</b>
IDB A-Loan	<b>117,000,000.00</b>
B-Loan/Co-Lenders	<b>IFC and other Lenders</b>
Environmental Category	<b>A</b>

### *Executive Summary:*

- 1.1 The Structured and Corporate Financing (SCF) Department of the Inter-American Development Bank (IDB) and the International Finance Corporation (IFC) are considering supporting the Contecon Manzanillo, S.A. (CMSA) container terminal (the “**Project**”). The Project consists of the design, development, construction, operation, and maintenance of a marine port terminal capable of handling Super Post Panamax ships. The shareholder for this Project is the International Container Terminal Services, Inc. (ICTSI). ICTSI is a private enterprise dedicated to the management, acquisition, development, operation, and functioning of container ports throughout the world.
- 1.2 The CMSA Terminal is located in the existing Port of Manzanillo, State of Colima, in the Pacific coast of Mexico (Figures 1-2). In January 2010, ICTSI and Mexican authorities signed a 34-year **concession contract** for the development and operation of the container terminal. CMSA is a subsidiary of ICTSI.
- 1.3 The Project has been classified as a **Category A** operation, due to its potential for significant adverse environmental and social impacts and risks. The **main impact** associated with the construction of the Project was the removal of the natural vegetation in 2007 by the port authority, which included 15.7 hectares of mangroves. Special emphasis was placed on the mangrove vegetation due to its protected status under Mexican regulations.<sup>1</sup> However, it is important to note that the original plan was to remove 30 hectares of mangroves, which was reduced due to an improved design that included a mangrove buffer zone that separates the Project from a nearby community. Also, as part of the Project’s compensation measures, mangrove reforestation already initiated for a total surface of 75 hectares in coordination with local stakeholders in nearby conservation areas. The removal of 15.7 hectares of

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<sup>1</sup> SEMARNAT. 2003. Official Mexican Standard NOM-022-SEMARNAT-2003, which establishes the specifications for preservation, conservation, sustainable management and restoration of the coastal wetlands in mangrove swamp areas. Ministry of the Environment and Natural Resources, published in the Official Gazette of Mexico on April 20, 2003.

mangrove habitats by the Project was not considered significant, due to its small size in comparison to the approximately 764,486 hectares of mangroves in Mexico in 2010, according to CONABIO.

- 1.4 Also, it is noteworthy that the Project will not cause **involuntary resettlement**, negative impacts to **indigenous communities**, or any other vulnerable communities such as fishermen. In a similar way, it is not expected any direct impact to protected areas or cultural sites.
- 1.5 Construction of the Project was 90 percent complete and operating at a 10 percent capacity in October 2013, during the Environmental and Social due diligence and site reconnaissance by the Bank (ESDD). It is expected that the CMSA terminal will be complete and ready to operate at full capacity in late 2014. Total project cost is estimated at approximately US\$559 million.
- 1.6 Port authorities are also considering other future developments to improve the port, including new road and rail infrastructure. However, because the CMSA terminal can operate at full capacity with the existing transportation infrastructure, **no associated facilities** have been evaluated as part of the due diligence process.
- 1.7 It is noteworthy that the risk of **floods and seismic activity** in the region is high. On the social aspect, it was identified **noise and visual impacts** on a nearby urban area during construction and operation. Mitigation of noise and visual impacts to this community was provided, with the construction of a visual and noise barrier and a buffer zone of mangroves between the community of Las Brisas and the port.
- 1.8 During construction, CMSA hired a specialized company, which had a **workforce of 150 workers**. During operations, CMSA will have a total of **487 employees**, approximately. It is anticipated that of this total, 265 would be unionized employees and 222 would be non-unionized employees.
- 1.9 It is important to note that Mexican authorities, through APIMAN (*Administración Portuaria Integral de Manzanillo S.A. de C.V.*), are responsible for compliance with the specific permits with appropriate cooperation from CMSA.
- 1.10 Once the shoreline was modified through filling to provide a location for terminal improvements, CMSA took over construction. The construction of terminal facilities was the responsibility of CMSA. CMSA hired China *Harbour Engineering Company* (CHEC) as the general contractor to build the wharf, the yard and other related terminal infrastructure. Also, CMSA hired Consultec to provide environmental monitoring services to document whether CHEC was complying with permit conditions.

**FIGURE 1-2**  
**Port of Manzanillo and the CMSA Terminal**



Source: Manzanillo Port Handbook. 2012.



## II. PROJECT DESCRIPTION:

### A. Key Project Infrastructure, Components and Schedule:

- 2.1 **Site Location:** The CMSA Terminal is located within the existing Port of Manzanillo in the Pacific Ocean, on the western coast of the State of Colima, Mexico.<sup>2</sup> The Terminal is located between 104° 15' and 104° 22' longitude west and 19° 00' to 19° 07' latitude north, with an altitude of 4 meters above sea level (masl). The total Port area is about 437-hectares including water, wharves, and storage areas.
- 2.2 A Master Plan (2000-2010) and a *Manifestación de Impacto Ambiental* <sup>3</sup>(MIA) (2004) were prepared for the port expansion in the northern sector of the port, including the current CMSA terminal location. In 2009 a revision to the original Master Plan and MIA addressed an increase in the amount of dredge material from 4,743,600 to 7,743,600 cubic meters to be removed in navigation channels inside the Port to accommodate the draft of vessels.
- 2.3 **Port Terminal and Facilities.** The CMSA terminal is a shipping facility that will be capable of handling 650,000 TEU containers. The Project site is approximately 72.4 hectares of landside facilities and 5.4 hectares of maritime facilities including:
- 2.4 **Wharf and Container Storage Area.** A 1,080 meter wharf serves as a vessel berth with a water depth of 16 meters below mean sea level. The wharf is made of concrete and extends the land area to the edge of the container berth. A culvert underneath the wharf provides a connection between the port and the mangrove habitat behind the container yard area. This mangrove strip is about 5 hectares and is located between the container yard and the community of Las Brisas. The wharf connects directly to the 72.4 hectares container yard where containers are stored in stacks. Runoff from the container yard drains to a wastewater treatment plant located at the Terminal.
- 2.5 **Intermodal Yard.** The intermodal yard supports both truck and train transport for containers. Trucks drive onto the yard and the containers are taken by a loader and placed onto the truck beds. The containers are also loaded directly from the stacks in the yard onto the train beds since the railroad tracks extend into the container storage yard. The terminal is designed to provide direct loading onto both trucks and trains thereby avoiding the need to truck containers between the terminal and the railroad yard.
- 2.6 **Cranes and Equipment to Move Containers.** Containers are transferred to and from ships by four rails mounted ship-to-shore cranes which are designed to move along the length of the berth. The ship-to-shore cranes transfer the containers between the ships and land side vehicles and yard tractors. Rubber tired gantry cranes are the main equipment used to transfer containers between trucks and the yard, reach stackers, which are smaller vehicles with a

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<sup>2</sup> The Port of Manzanillo began formally operating under a federal decree in the early 1970s and was subsequently chartered in 1993. *Administración Portuaria Integral de Manzanillo S.A. de C.V.* (APIMAN) is the especial institution and port authority responsible for managing, promoting developing, and maintaining the port and for developing appropriate infrastructure to facilitate international trade. As part of the initial development of the Port of Manzanillo, the natural shoreline and local hydrology was modified, as a result, part of the newly formed port area, including the current project site was colonized by mangrove species during a period of at least 10 years. When the existing ship channel was deepened in 2007, most of the mangrove habitat at the project site was removed and the area filled with dredged material as part of the terminal construction process. Therefore, when CMSA began construction of the Project in 2012, the ship channel had already been deepened and the dredged material used as fill for the project site.

<sup>3</sup> 2009 SCT Manifestación de Impacto Ambiental Puerto de Manzanillo Programa Maestro 2000-2010.



long arm, are used as auxiliary equipment to lift and transport containers on land. Using the rubber tired gantry cranes and the reach stackers, containers can be stacked for storage or can be loaded on and off of trucks and rail cars.

- 2.7 **Auxiliary Buildings and Facilities.** The intermodal yard contains a variety of buildings that accommodate terminal activities, including an office building, vehicle maintenance area, temporary hazardous materials storage facility, a small medical and emergency response facility, and a wastewater treatment plant. The on-site wastewater treatment plant will treat all runoff from the yard, including rainwater, but it will not handle any domestic wastewater from the terminal or ship-related waste. The port contracts with separate companies for disposal of ship wastes including sanitary and oil wastes. Treated effluent from the on-site wastewater treatment plant will be discharged to the municipal sanitary sewer system for further treatment.
- 2.8 **Sound Attenuation Barrier and Mangrove Buffer Zone.** There is a remaining strip of mangrove habitat between the CMSA terminal and the adjacent Las Brisas neighborhood that will be maintained as a conservation area and to serve as a buffer zone between the CMSA terminal and Las Brisas. A noise attenuation wall was constructed by APIMAN and is partially completed between the neighborhood and the terminal.
- 2.9 **Operations.** The terminal was constructed and is partially being operated by CMSA under a long-term lease with APIMAN. In October 2013, the terminal was operating at 10 percent of its capacity. General operations at the CMSA terminal include loading and unloading of container ships and other land site operations. Container terminal operations are similar in ports around the world and consist of a ship docking alongside the berth and cranes that unload containers from the vessel onto a yard tractor. The yard tractor moves a container for storage into the container yard. Once the crane has lifted the container from a ship it will either be directly loaded onto trucks or railway wagons or will be stored, by stacking, for later delivery. These operations are consistent with container ports throughout the world. Similarly, the relationship between a port operator and the owner or the port authority is also consistent.
- 2.10 **Future Expansion.** The CMSA terminal is the first phase of a two-phase project. It is anticipated that a similar facility will be built adjacent to the CMSA terminal with a wharf length of approximately 700 meters. Port authorities are also considering other developments to improve the port, including new road and rail infrastructure.
- 2.11 **Associated Facilities.** Although there may be future infrastructure upgrades to the regional rail system to handle port traffic, these facilities will not be essential to handle the Project operations. In the Port area, highways and roads that support Port truck traffic have been elevated over the past few years to separate the truck traffic from neighborhoods and local traffic, therefore, it is expected that there will be little impact to local traffic and neighborhoods surrounding the Port. Because the CMSA terminal can operate at full capacity with the existing transportation infrastructure, no associated facilities have been evaluated as part of the due diligence process.
- 2.12 **Project Workforce.** During Construction, CMSA hired a specialized company for the construction of the port, China Harbour Engineering Company (CHEC), which had a workforce of 150 Chinese citizens temporarily located in a trailer park on the construction site. An external consultant firm, *Consultoría Técnica* (Consultec), supervised the

environmental compliance during construction activities. During operations, it is expected that a total of 487 employees, approximately. It is anticipated that of this total, 265 would be unionized employees and 222 would be non-unionized employees. The non-unionized or Direct employees or *Empleados de confianza* are personnel hired directly by CMSA, including housekeeping/cleaning staff, security staff, and upper- and mid-level managers. Union laborers are members of the *Unión de Estibadores y Jornaleros del Pacífico* (CROM). Designated for the work at the port, CMSA hired the union laborers directly under a collective agreement, which specified the benefits, salaries, and work force levels. Union laborers are divided into 3 shifts of 8 hours each.

- 2.13 **Project Schedule and Costs.** Construction of the Project was 90 percent complete and operating at a 10 percent capacity in October 2013, during the Environmental and Social due diligence and site reconnaissance. Construction of the last 10 percent was being completed and the site was in the process of being handed over to the operator by the contractor. It is expected that the CMSA terminal would be complete and ready to operate at full capacity in late 2014. Total project cost is estimated at approximately US\$559 million.

## **B. Environmental and Social Settings:**

- 2.14 The Project site has a tropical sub humid climate with summer storms and an average annual temperature of 26.4 degrees Celsius. The relatively short Colima coastline is 160 kilometers (km) long, running from Boca de Apiza to Cerro de San Francisco, facing the town of Barra de Navidad in Jalisco. The tide in the Port of Manzanillo is classified as mixed semidiurnal. According to the information from the MIA, the port area is in a low-risk zone for most natural disasters. However, the risk of floods and seismic activity is high in the region.
- 2.15 **Biological Baseline.** The MIA compiled lists of flora, fauna, and protected species previously inhabiting the impacted mangrove community and aquatic fauna of associated marine habitats, **data mostly obtained from literature review**, and are summarized as follows:
- i) **Vegetation.** The MIA reported 15 native species of aquatic and semi-aquatic vegetation for the study area and 14 exotic tree species and 4 exotic shrub species, but their abundance or frequency were not assessed ecologically.
  - ii) **Birds.** The MIA reported 165 bird species for the region, including 48 migratory and 117 resident species. Also, based on the literature and field observations, the dominant migratory bird populations found in the Manzanillo mangroves included 48 species.
  - iii) **Mammals.** Of 44 species reported for the region, the most common mammals are the six species listed in the MIA, while only three species were reported from field samplings in the Manzanillo mangroves, prior to their conversion.
  - iv) **Reptiles.** Amphibians and reptiles together total 40 species known in the region, 3 of which are dominant species. Of the five species and genera of reptiles found in the lost mangroves, three were dominant.
  - v) **Aquatic Fauna.** The biodiversity data submitted for environmental impact authorizations and land-use change through the MIA and ETJ were incomplete since aquatic fauna were not described. This is a gap in the MIA baseline study, impact analyses, and evaluation of the project's ecological impacts to aquatic biota and to the

support of local, artisanal, and commercial fisheries. Marine fish recorded in the region were not mentioned in the MIA, however, the ETJ identified 30 species of marine fish as the most commercially important of the 109 species found along the Colima coast. For more information see Section VI and the ESAP in Annex 1.

- 2.16 Although the preceding biodiversity data represents most of the fauna existing in the Manzanillo mangroves before their removal, several additional species were rescued from the project site. A complete list of wildlife rescued from the project site appeared in the "**Rescue and Wildlife Relocation Program**", prepared by APIMAN.
- 2.17 Evidence indicates that the recently converted mangroves did not exist prior to development of the original port. As seen in the 1970 aerial photograph presented in Figure 2-1, there were no mangroves in the immediate project area. After 1972, when the ocean outlet channel was widened, an increased, diurnal influx of tidal marine waters into the lagoon enhanced conditions needed for mangrove survival, growth, reproduction, and expansion to the Project area. It was evident in other aerial photographs that half of the mangroves had been removed as of June 2009, indicating that their conversion started after 2007. See Figure 2-2. The vegetation coverage in the Project area included 98 hectares of different vegetation types that are described in Table 2-1. The only critical vegetation type found in the Project area included 29.12 hectares of mangroves.

<b>TABLE 2-1: Vegetation coverage in the Project Area</b>		
<b>Vegetation Types</b>	<b>Hectares</b>	<b>Percent</b>
Cohune palms (rain tree)	24.90	25.40
Spiny forest	41.57	42.40
<b>Red and White mangroves</b>	<b>29.12</b>	<b>29.70</b>
Tule vegetation/coastal dunes	2.45	2.50
<i>Total surface</i>	<i>98.04</i>	<i>100.00</i>

FIGURE 2-1

**Pre-1970 Aerial Photograph of Port Area and Lagoon**



FIGURE 2-2

**Satellite Image of Mangrove Community and Overall Project Area (December 23, 2005)**



- 2.18 **Protected Natural Areas.** In Mexico, there are various types of protected natural areas: federal, state, municipal, community, communal, and private. The protected natural areas

under federal jurisdiction are managed by the *Comisión Nacional de Áreas Naturales Protegidas* (CONANP). Although there are four protected natural areas within the State of Colima, **there are no protected natural areas** within the project site and any direct impact or risk.

- 2.19 **Social-Economic Baseline.** The Municipality of Manzanillo is located in the Southeastern region of the State of Colima on the west coast of Mexico. Manzanillo is bordered by the municipality of Armería to the southwest, the Pacific Ocean to the south, the municipality of Coquimatlán to the northeast, the municipality of Minatitlán to the north, and the state of Jalisco to the northeast and west. Manzanillo is the most populated municipality with 161,420 inhabitants, which comprises 24.3 percent of the state's population.<sup>4</sup> The municipality of Manzanillo contains the City of Manzanillo and outlying communities ("colonias") such as El Colomo, Las Brisas, and many other smaller communities.
- 2.20 Due to its strategic geographical location on the Pacific coast, Manzanillo offers important logistical and economic support for the entire state and various regions of the country. In particular, its port and tourism activities make it the driving economic force in Colima. The Port of Manzanillo is the national leader in the management and transport of containers and the municipality is the principal tourism destination in the state.
- 2.21 The existing port is in close geographic proximity to the urban footprint of Manzanillo and the smaller settlements within the municipality. Of particular note, the community of Las Brisas is located immediately adjacent to the development area of the port. According to documentation provided by CMSA and reviewed prior to the site visit along with interviews conducted during the site visit, there were no known human settlements located within the development area prior to construction of the terminal.
- 2.22 **Demographics.** Manzanillo's population is mostly young and urban. According to data obtained in 2005 from *Instituto Nacional de Estadística, Geografía e Informática* (INEGI),<sup>5</sup> 55.7 percent of the population is less than 30 years of age, and 86.8 percent live in an urban setting. This concentration of population leads to a high coverage and efficiency of public services and contributes to the low level of marginalization in Manzanillo. The significant proportion of youth indicates continuous growth of available labor. The variety of economic activities in the municipality constitutes a strong attraction for migrants from other municipalities or states in the region, increasing the local population and creating pressure on the provision of public services and infrastructure.
- 2.23 The gender distribution of the population in Manzanillo is almost equally distributed with nearly 50 percent of inhabitants corresponding to each gender category. By age group, the number of women in the 0 to 14 years old category is slightly greater. In the 20 to 34 year old age group, the number of men is slightly higher than the number of women. This age group distribution may correspond to the economic dynamics of the municipality, which attract a greater number of male workers, mostly in the 20 to 34 age category.

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4 Ayuntamiento de Manzanillo. Plan Municipal 2009-2012 del H. Ayuntamiento de Manzanillo. <http://148.235.70.104/periodico/peri/13022010/sup08/80021301.pdf>.

5 Instituto Nacional de Estadística, Geografía e Informática. <http://www.inegi.org.mx/>.



- 2.24 During the last three decades, the population growth of Manzanillo has been the highest in the state, with the urban population steadily increasing in proportion to the total population. The municipality also has a large influx of people from around the region due to the municipality's robust economy from port activity, tourism, and commerce.
- 2.25 **Indigenous Populations and Cultural Heritage Sites.** According to the MIA there are no indigenous populations residing in or around the Port of Manzanillo. The closest location of indigenous population is in the city of Colima, which is 100 km east-northeast of the port. Maps viewed during the site visit as well as an interview conducted with the APIMAN environmental director confirmed the distance from the port to the closest indigenous population. In addition, according to the MIA there are no cultural heritage sites associated with the footprint of the project, nor with the affected communities surrounding the port.
- 2.26 **Health.** There are a number of endemic diseases in the area, including a high reported incidence of dengue fever in the municipality of Manzanillo and Colima. According to data provided by the University of Colima in 2009, 4,982 cases of dengue were reported; 3,935 of these reported incidents were classified as dengue fever and 1,047 as hemorrhagic fever, resulting in 6 reported deaths. This positioned the state among the top three states in the country with the highest number of reported cases of dengue. Manzanillo is also considered a medium-risk area for the incidence of cholera.<sup>6</sup>
- 2.27 **Economic Context.** According to the MIA, the Port of Manzanillo is the principal commercial port in the Mexican Pacific. It receives a significant percentage of products from the western regions, and the center of the country. This production represents more than 60 percent of the country's Gross Domestic Product (GDP). During the site visit, it was noted that the Manuel Álvarez Thermoelectric Plant (run by the Federal Electricity Commission) is located here. This plant supplies electricity to the entire State of Colima. Excess capacity is transferred to the national network. In addition to the intense activities associated with the port and tourism, the economy of Manzanillo is composed of agriculture, fishing, minerals processing, and electrical energy generation. The local economy is diversified, providing stable economic growth for the municipality and its tax base.
- 2.28 The manufacturing sector provides 5.3 percent of the municipal GDP. Primary economic activities, cattle ranching, forest use, fishing, and hunting contribute 1.7 percent of the GDP, and construction provides 1.3 percent. Although fishing activity constitutes a relatively small contribution to the municipal GDP, the practice of artisanal fishing is an important activity for the subsistence and generation of income for low-skilled socio-economic groups in the municipality, particularly in the nearby area of Las Brisas. These impacts are provided in further detail in Section III.
- 2.29 **Employment.** With regard to the port, activities that include manual labor, terminal and installation operations, industry operating at the port, provision of services, officials, shipping agencies, customs, transportation services, and the continuous investment in infrastructure constitute the current total of 8,000 jobs at the port. This represents 30 percent of the labor force in Manzanillo and 8 percent of the state's labor force.

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6 Secretaría de Salud de Colima. Resumen de Atención a Epidemias..

- 2.30 **Tourism.** Tourism associated with sport fishing and beach activities are a significant contributor to the municipal GDP, since Manzanillo is positioned as the main tourist destination within the State of Colima. From 2007 to 2008, 70.9 percent of visitor influx to hotels in the area generated 2,963.8 million Mexican pesos (approximately US \$225 million). In 2008 the state received 842,966 visitors, 73 percent allocated to the Manzanillo area. It is important to note that one of every two lodging establishments is located in this municipality. In 2008 there were 88 tourism establishments, including hotels, villas, and condominiums. The community of Las Brisas supports tourism in the municipality due to its proximity to the coast. Several small hotels and other lodging facilities are located along the main coastal boulevard in Las Brisas. The major resort hotels are located outside of the Las Brisas community along the coast.
- 2.31 There is also a significant influx of tourist activity into the Municipality of Manzanillo with the arrival of cruise ships. During 2008, 28 cruise ships docked in the Port of Manzanillo, with 56,346 disembarking passengers positively impacting the city's economy by touring the city's historical center and beaches, and regional cultural attractions located outside of the municipality. According to the MIA, expansion of the existing cruise ship terminal is anticipated as part of the Municipal Development Plan with the goal of increasing tourism activity in the region.
- 2.32 **Artisanal Fishing.** Artisanal fishing is a source of economic livelihood in the smaller settlements of the municipality, such as Las Brisas and Cuyutlán. Some fishermen still use the port navigation channel although it is an exclusion area established by APIMAN due the safety risks posed by the large vessels. No survey data were included in the MIA addressing artisanal fishing within the port because of the fishing restrictions imposed by APIMAN. However, small fishing vessels are still present within the restricted area from time to time. It is APIMAN's responsibility for enforcing the exclusion area. Fishing also takes place from the Port's shoreline such as along the port breakwater where informal interviews were conducted during the Bank's environmental and social due diligence.
- 2.33 Although there is a lack of data on the level of artisanal fishing activity in and around the Port, the exclusion zone within the Port area would have likely kept the level of fishing activity low prior to terminal development as well as on an ongoing basis during terminal operations. The fact that documentation of the public outreach and grievance program does not show a record of complaints from fishermen supports the conclusion that fishing within the Port was very limited.

### C. Project Alternative Analysis

- 2.34 The 2004 MIA prepared for the expansion of Manzanillo Port, including the CMSA Terminal, states that there are no reasonable alternatives to the port infrastructure proposed at the CMSA Terminal location. Construction of the container terminal in association with an existing port facility offered a number of significant advantages to another location along the coast including: i) Minimizing environmental and social impacts; ii) Joint use of existing infrastructure and transportation facilities; iii) Joint use of existing emergency response systems including equipment and personnel; iv) Minimizing new dredge areas for channels; and, v) Reducing overall cost because of infrastructure sharing.

### III. KEY ENVIRONMENTAL & SOCIAL IMPACTS, RISKS AND MITIGATION MEASURES

#### A. Environmental Impacts during the Construction Phase.

##### *Conversion of Natural Habitats*

- 3.1 The main impact associated with the construction of the Project was the removal of the natural vegetation, which included 15.7 hectares of mangrove habitat; 41.6 of spiny forest; and 24.9 of palm grove.<sup>7</sup> Special emphasis was placed on the mangrove vegetation due to the protected status that mangroves have under Mexican regulations.<sup>8</sup>
- 3.2 The 15.7 hectares of mangroves removed was primarily composed of red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*), and other native species commonly found in Mexican mangrove communities. Although the MIA originally indicated an impact of 30 hectares of mangrove habitat during the environmental impact assessment, the Manzanillo Port Authority proposed conserving an additional 5.0 hectares as a germplasm bank, which was approved in Authorization Letter S.G.P.A./DGIRA.DDT.1383.05 dated November 22, 2005.
- 3.3 On June 12, 2009, the Manzanillo Port Authority obtained authorization from SEMARNAT to modify its Project,<sup>9</sup> wherein it was proposed to expand the width of the mangrove buffer strip from 10 to 60 meters, which reduced the impact on the mangrove habitat by 9.34 hectares to a total of 15.7 hectares of habitat that was later removed. While the actual area of impacted mangroves was reduced to 15.7 hectares, the final authorization maintained the condition stipulated in the original authorization which established that 25 hectares of mangrove habitat would be affected and were to be compensated with habitat restoration at a ratio of 3:1, which translates into a mandatory restoration area of 75 hectares of mangrove habitat (even though the actual impact was to remove only 15.7 hectares).
- 3.4 **Occurrence of Protected Species.** The mangrove species found at the site were designated as Mexican special protection status in 2004, and then they became classified as threatened species in Mexico in 2010. Table 5-8 shows individuals of protected species that were rescued and relocated from the Project site during the process of vegetation clearing.<sup>10</sup> None of these species are considered as EN or CE by IUCN.

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7 Page 283 of the Regional MIA for the Project.

8 SEMARNAT. 2003. Official Mexican Standard NOM-022-SEMARNAT-2003, which establishes the specifications for preservation, conservation, sustainable management and restoration of the coastal wetlands in mangrove swamp areas. Ministry of the Environment and Natural Resources, published in the Official Gazette of Mexico on April 20, 2003.

9 DGIRA-SEMARNAT. 2009. Official Resolution Letter No. S.G.P.A./DGIRA/DG/3467/09 dated June 12, 2009.

10 API-Manzanillo S.A. de C.V. 2012. Programa de Rescate, Captura y Reubicación de Fauna Silvestre catalogadas por la NOM-059-SEMARNAT-2001. México, 27 págs.



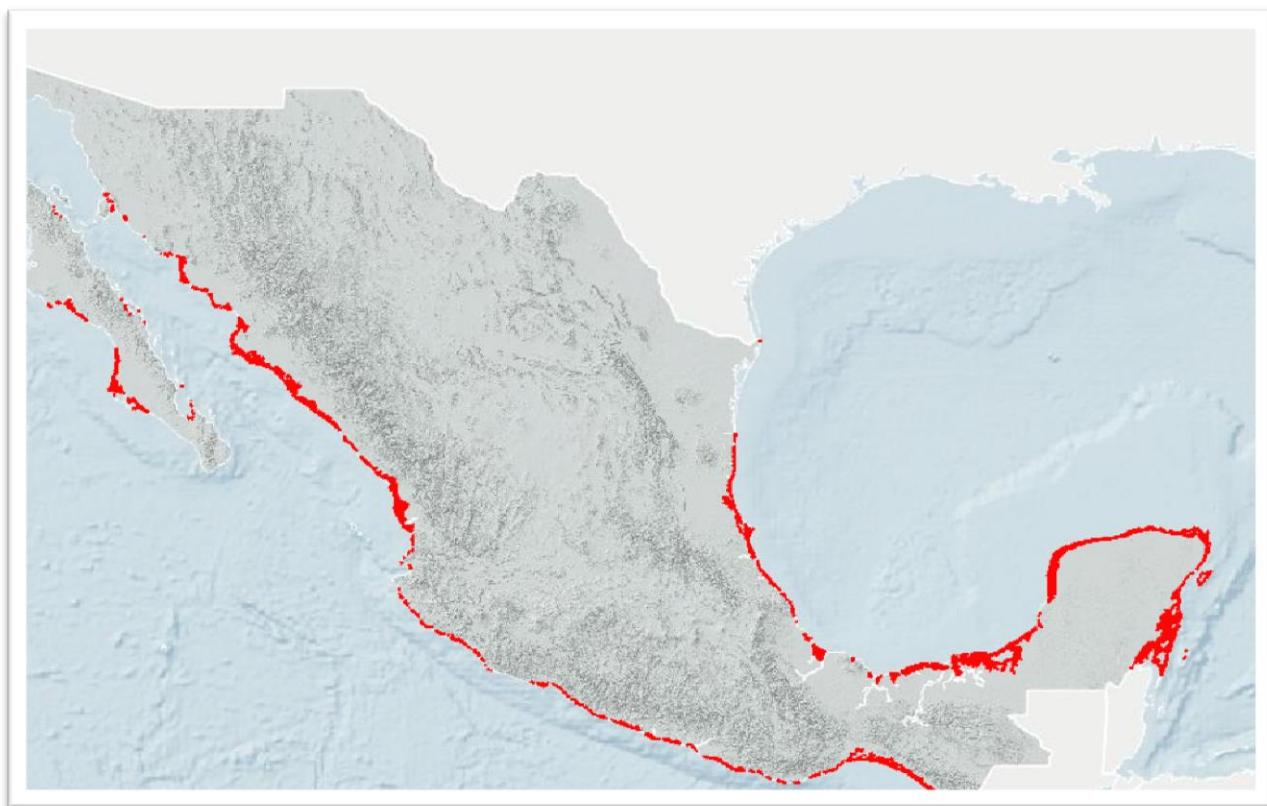
TABLE 5-8

**List of Protected Species Relocated from the Cleared Areas**

<b>Protected Species</b>	<b>Common Name</b>	<b># Indivi duals Reloc ated</b>	<b>Protection Status – Mexico<sup>1</sup> and IUCN</b>
<i>Syrrhophus modestus</i>	Blunt-toed chirping frog	83	Endemic with Special Protection in Mexico; Not yet assessed for inclusion on International Union for Conservation of Nature (IUCN) Red List
<i>Iguana iguana</i>	Green iguana	250	Non-endemic with Special Protection in Mexico; Not yet assessed for inclusion on IUCN Red List
<i>Ctenosaura pectinata</i>	Spiny-tailed Mexican iguana	80	Endemic and Threatened in Mexico; Not yet assessed for inclusion on IUCN Red List
<i>Boa constrictor</i>	Boa	9	Non-endemic but Threatened in Mexico; Not yet assessed for inclusion on IUCN Red List
<i>Crocodylus acutus</i>	<b>American crocodile</b>	1	Non-endemic but Special Protection in Mexico; Considered a <b>Vulnerable species in the IUCN Red List</b>
<i>Aspidoscelis lineatissimus</i>	Colima whip-tail lizard	28	Endemic with Special Protection in Mexico; Not yet assessed for inclusion on IUCN Red List

<sup>1</sup> NOM-059-SEMARNAT-2001 and NOM-059-SEMARNAT-2010

- 3.5 As seen in the preceding table, one individual of the American crocodile was rescued and relocated from the cleared mangroves. While this is an IUCN Vulnerable Species, because of the overall size and location of the mangrove area, it is not likely that this specific area of mangroves would be considered as crucial for the survival of this species. The mangrove area removed was not unique in the region nor did it represent a significant proportion of the overall available mangrove habitat in Mexico, estimated to be approximately 764,486 hectares in the entire country, according to recent studies by Conabio in 2010. See Figure 3-1 below for more information on mangrove distribution in Mexico.



**FIGURE 3-1. In red, mangrove distribution in Mexico. Conabio, 2010.**

### *Dredging Impacts*

- 3.6 The original project considered dredging of 4,743,600 m<sup>3</sup> at a depth of 16.0 meters to allow for the transit of fourth generation large vessels; however, the authorization to modify the Project was granted for a final dredging of 7,743,600 m<sup>3</sup>. The site for final disposal of dredging material was not modified and the entire amount of dredged material was used for fill on the terminal yard.
- 3.7 In addition to the dredging performed by APIMAN to deepen the Port channel to a depth of 16 meters below mean sea level, the CMSA terminal obtained permits to dredge their berth and construct the wharf. On February 3, 2012, the SEMAR issued a permit for discharge of water from depositing 378,715.84 cubic meters of dredged material at the CMSA Terminal (wharves 18 and 19). The authorization required monitoring for suspended solids and other chemical parameters. On October 30, 2012, the SEMAR issued another permit to dredge an additional 275,179.50 cubic meters of material from the berth and wharf area and place it on the landside of the CMSA Terminal.
- 3.8 Based on the chemical analysis of dredge material in a sample report dated August of 2005, prepared by Laboratorios ABC<sup>11</sup> there were no constituents that would categorize the material as hazardous according to Mexican norms.

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<sup>11</sup> Agosto, 2005. Laboratorios ABC Química Investigación Análisis S.A. de C.V. "Protocolo de Muestreo de Sedimento de Intersección Canal de Acceso Para la Determinación de su Peligrosidad" Cliente: APIMAN.

- 3.9 Based on conversations with Port staff, there are few existing industries that dispose effluents in the Port. The sources of pollutants cited were the existing sewage plant and urban runoff. The new terminal has been designed and constructed not to discharge any wastes to the any water bodies.

### *Social and Economic Impacts*

- 3.10 Since the construction phase of the Project was completed prior to the environmental and social due diligence site visit, the focus of the social impact review consisted primarily of an audit. The potential adverse social impacts that were identified related to Project construction phase in the MIA and observed during the site visit included: i) Impacts to Las Brisas community from construction activities; ii) Health and safety issues related to inappropriate solid waste disposal and wastewater transport and treatment during construction; and iii) Health and safety risks to the local community from construction vehicle traffic passing through Manzanillo.
- 3.11 To adequately assess the impact of the construction activities, IDB operational guidelines, and IFC performance standards were evaluated against findings and observations from the site visit, interviews with personnel and community members, and information provided in the MIA. The results are presented in the following paragraphs.
- 3.12 **Noise and visual Impacts.** There was a negative noise and visual impact to Las Brisas community during construction that had been partially mitigated prior to the start of construction associated with pile driving activities. Although noise monitoring was referred to in the monitoring reports, no specific data were presented.
- 3.13 **Improper Solid Waste Disposal.** During the construction phase of the project, the Chinese workforce (consisting of 150 workers) lived on site at the construction area in an on-site housing unit. According to information obtained from interviews at the site with the construction supervisor (PREDESA), the wastewater and solid waste generated at the CHEC on-site housing unit was not handled adequately, and a complaint was made to CHEC and communicated to CMSA by APIMAN. Subsequently, CHEC constructed a wastewater treatment plant for domestic waste at their on-site housing unit, but did not obtain the legal permits until after the housing unit had been abandoned and the workers had left the site. The monitoring reports also documented the effective response to controlling construction waste discharges.
- 3.14 **Vehicle Traffic Impacts.** There was an increase in vehicular traffic from construction related traffic. Through CMSA site interviews, it was determined that during construction, all trucks and heavy equipment belonging to CHEC remained within the port and did not enter Manzanillo. Construction traffic was not measured and documented in the environmental monitoring reports. However, the impacts of the increased construction traffic were kept mainly on site and outside of neighborhoods due to the separation of port traffic facilitated by recent infrastructure upgrades built by third parties.
- 3.15 **Social Impacts from Mangrove Removal.** A minor negative economic impact would have likely resulted from clearing the 15.7 hectares of mangroves within the port due to the removal of a resource for the community. The community of Las Brisas, which is located immediately adjacent to the north of the port, experienced an impact to artisanal fishing and collection of mangrove wood for crafts and household uses. All indications are that the

level of economic impact was very low due to the exclusion of fishing from the port and the use of the mangrove area for small-scale wood collection. As a compensatory measure, APIMAN undertook actions to repave, illuminate, and add green space along the main city boulevard.

- 3.16 During the site visit to the community of Las Brisas, five interviews with local fishermen were conducted. Three of the fishermen were recreationally fishing for self-consumption, and said that they do not depend on their catch for economic livelihood. The remaining two fishermen were catching octopus and shells, the former to sell to restaurants, and the latter to use for artisanal crafts. These two fishermen voiced the complaint that the catch has significantly decreased since the latest port expansion activity. Neither had registered their complaints through APIMAN's grievance mechanism. In addition, these issues were not raised during the EIA public comment period.
- 3.17 **Impacts on Coastal Resources.** One of the advantages of locating the new terminal within the existing Port of Manzanillo is that impacts to coastal resources were minimized. The removal of the mangroves may have affected recruitment of aquatic organisms both within and outside of the port. However, the required creation of 75 hectares of new mangrove habitat is intended to compensate the potential loss to aquatic biodiversity. Given the limited area of mangroves removed and their location inside the port, the impact would likely have been minimal and thus the terminal development would not have adversely affected the long-term fishing resources in the coastal area.
- 3.18 **Health and Safety Impacts.** Occupational hazards associated with the construction of the Project are typical of a medium scale construction work. Health and safety concerns during construction include the following hazards: i) transportation of equipment and materials to and within the site; ii) handling and storage of materials on site; iii) use of cranes and other heavy equipment; iv) work on scaffolding, platforms, and other heights, v) welding, excavations and trenching; vi) confined-space work; vii) electrical work; viii) hydraulic work; ix) fire, explosion, spill, and other emergencies; and, x) hygiene and general sanitary conditions.

## **B. Environmental Impacts during the Operation Phase.**

- 3.19 Impacts associated with the operation of the new container terminal will represent an incremental increase to the overall impacts associated with the Port of Manzanillo. These will include an incremental increase in dredging to maintain adequate water depth, increased air emissions from additional ship traffic, and increased possibility for accidental pollutant releases from ships. The incremental increase in dredging will impact both benthic fauna and fish. These impacts are expected to be periodic and of relatively short duration. Potential impacts associated with additional pollutant releases from the increased number of ships will be addressed through adherence to on-going health and safety requirements implemented through APIMAN. Operations will produce additional solid and sanitary waste, which must be managed properly, in accordance with the General Law for the Prevention and Comprehensive Management of Waste in Mexico. Overall, it is expected that impacts to the environment during operations can be effectively mitigated and will therefore be minor.
- 3.20 None of the documents reviewed during the environmental and social due diligence, including the MIA (2009) addressed greenhouse gas emissions from the CMSA Terminal

or the Port of Manzanillo. The additional shipping traffic promoted by the CMSA Terminal will not in itself increase shipping on a global basis and will likely not have much of a measurable effect of global greenhouse emissions. Engines used to power the container ships contribute to greenhouse gas emissions through the combustion of fuel. This can include bunker oil and the release of CO<sub>2</sub> and other contaminants. It has been estimated that global shipping contributes about 3 percent of the world's total greenhouse gas emissions.<sup>12</sup> The International Maritime Organization (IMO) has published the most comprehensive study of the release of greenhouse gases from ships<sup>13</sup> and they contain policy recommendations that address technological and fuel selection measures to reduce greenhouse gas emissions from ships. These recommendations focus on changes that the ships' owners should make to ship design, fuel choices, and operational changes to reduce their greenhouse gas emissions.

### *Social Impacts during Operations*

- 3.21 Increased Vehicular Traffic. The MIA states that the increased vehicular traffic to and from the port will be compensated by the improved interior road network inside the port and increased parking and on- and off-loading areas for cargo. The loading and unloading times will be decreased so that the traffic "bottlenecks" will be decreased in and out of the port. In addition, the "Puerto-Ciudad" agreement with the municipality will carry out road infrastructure improvements within the municipality to improve traffic conditions around the port.
- 3.22 Impacts on Fisheries. Although there is a lack of data on the level of artisanal fishing activity in and around the Port, the exclusion zone within the Port area would have kept the level of fishing activity low prior to terminal development as well as during terminal operations. The fact that documentation of the public outreach and grievance program does not show a record of complaints from fishermen supports the conclusion that fishing within the Port was very limited and therefore the impact on fishing would be minimal.
- 3.23 Health and Safety. According to the document IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals – April 30, 2007, the following health and safety impacts in general are of particular concern during operation of ports: i) Physical hazards; ii) Chemical hazards; iii) Confined spaces; iv) Exposure to organic and inorganic dust; and, v) Exposure to noise. After reviewing the information provided by CMSA as well as the site visit of the terminal facilities, a written health and safety plan based on a potential risk analysis of the terminal was developed. There are a number of health and safety procedures developed, and a comprehensive health and safety plan or system will be required by the IDB and other Lenders. A number of risks were identified during the site visit, and proposed management/mitigation measures will be discussed in Section III and will be included in the attached Action Plan. The CMSA must prepare appropriate health and safety plans to comply with in country requirements as well as with 2007 IFC EHS General and Industry Specific Guidelines, and the IDB and other Lenders requirements.
- 3.24 Relevant health and safety issues/risks include:

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<sup>12</sup> European Commission. [http://ec.europa.eu/clima/policies/transport/shipping/index\\_en.htm](http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm)

<sup>13</sup> IMO. 2009. Second IMO GHG Study.

- i) **Risk of fire and explosion.** This is linked to “hot work” operations (welding, oxy-cutting, grinding, etc.) within or near potentially explosive atmospheres, the storage of hazardous waste where rags are stored impregnated with lubricants or oils, used oils, etc., located next to a maintenance shop where hot work is conducted. A written procedure, “Manual for Cutting and Welding Work,” though available on-site, is not implemented in daily activities.
- ii) **Risk of handling hazardous substances.** The handling of potentially hazardous substances can involve risk to human health as well as risk of fire and explosion. It will be recommended to CMSA that the International Maritime Dangerous Goods (IMDG) code be followed, as well as procedures that contemplate these risks and required safeguards. See further discussion in the Action Plan section of this document.
- iii) **Mechanical risks.** (falls from a different level, falling objects, trapping, blows, lifting loads, flying particles in mechanical processes, etc.). This type of risk is associated with the handling of loads mechanically (hoisting loads and placing containers). There is not a clear separation between areas that are designated for the exclusive use of pedestrians where operating equipment is prohibited and vice versa. There is no clear visual delineation between these areas or signaling that prohibits entry. The flow of vehicles within the terminal also is not signaled.
- iv) **High Noise risks.** This risk is associated with continuous work in an environment with high noise levels (usually higher than 80 dB(A), especially in places near heavy machinery operation and continuous movement of trucks.
- v) **Risk due to temperature stress.** This type of risk is associated with the performance of tasks in excessively warm environments, during which the body cannot dissipate the amount of heat necessary to maintain an adequate internal temperature. For this situation, we suggest incorporating and following NOM-015-STPS-2001 recommendations and mitigation measures.

3.25 **Natural Disasters.** The Manzanillo Port could suffer significant economic losses due to natural disasters and climate change as an increase in sea level could damage its infrastructure and negatively impact access to the facilities and navigability. It is important to note that during the due diligence process, an Independent Engineering was hired to undertake several technical studies, including an analysis of Sea Level Rise (SLR) for the Port of Manzanillo. This study presented three different climate change scenarios corresponding to 0.5; 1.0; and 1.5 meters by the year 2100, using existing tidal records of at least 40 years extrapolated to future dates to forecast potential sea level scenarios. This study concluded that all scenarios at Manzanillo yielded water elevations below the established marine facility elevation. The worst case scenario indicates 0.8 meter increase in average water level at the terminal over a 50 year period. This is not likely to seriously impact terminal operations and given the generally expected economic life of 40 to 50 years for a marine terminal, it is most likely that facility upgrades will be needed after this period of time, which could include modifications or reconstruction of the wharves to meet future sea level changes and strengthening to meet expectations of larger crane and cargo loading. Considering this context, a system of local monitoring for sea level rise will be suggested to CMSA and APIMAN in order to establish a historical record for future analysis.

- 3.26 In this way, the Bank, through a TC, is supporting APIMAN in the preparation of a Plan for Climate Change Adaptation. A specialized consulting firm is being hired to identify key areas within the port in need for climate change adaptation and a road map for its implementation by the Port Authority. It is expected that the TC will foster the creation of local associations to prepare and respond effectively to climate change. The TC is currently benefiting from active collaboration with the IFC that conducted the Climate Change Adaptation assessment of the Terminal Marítimo Muelles del Bosque in the Cartagena Port, Colombia. This previous experience will be used as a model to conduct the first assessment on climate change adaptation for a Mexican port. This component will require ample coordination efforts to ensure that Mexican climate change frameworks and the initiatives of the different Ministries are effectively taken into account. The Project Team expects to have a first draft of the study by the end of 2014, ready for dissemination and publication by the second quarter of 2015. In addition, CMSA contingency planning includes preparation for natural disasters, giving special emphasis to flooding and seismic activities. Also, IDB/IFC review of the terminal engineering will address the adequacy of design for contingencies. For more information, see the Technical Cooperation for this Project at the following link: Strengthening Port Infrastructure Sustainability in Manzanillo. ME-T1239 <http://www.iadb.org/en/projects/project-description-title,1303.html?id=ME-T1239>
- 3.27 **Indirect and Cumulative Impacts.** Potential cumulative impacts of the Project include indirect incentives to additional land use change, air emissions including greenhouse gas constituents and discharges into the marine environment that could affect overall water quality. The removal of 15.7 ha of mangrove habitat is being compensated at a ratio of approximately 4.8 to 1 and is not expected to result in a net adverse effect to biodiversity in the general area of the project. Therefore, the project should not result in a significant degradation of mangrove habitats. Air quality emissions would be increased due to the increased ship traffic locally. However, the terminal would not cause an increase in ship traffic in the overall region since the number of ships visiting the Mexican coast would depend on market demand. Therefore, the terminal would not result in a significant cumulative increase in air quality contaminants. Discharge of contaminants into the marine environment could occur from terminal yard storm water runoff or during maintenance dredging activities.
- 3.28 The degree to which the terminal contributes to cumulative water quality degradation is expected to be minimal due to the design of the terminal which has incorporated treatment of storm water prior to discharge to the municipal waste water treatment system. Off discharge of wastes from ships at the port will be collected and properly treated. The maintenance of the port channel and the terminal berth to accommodate post-Panamex ships is regulated by APIMAN and SEMAR (Secretaría de la Marina de México). There are regulations for testing the quality of the maintenance dredge material and specific offshore locations for discharging the material. These measures are expected to minimize the potential impacts of terminal operations on water quality to a minimal level. Therefore, the Project's contribution to cumulative impacts is minimal due to the compensation and mitigation measures incorporated into the Project's design. In addition, the construction of the new terminal within an existing port facility allows for the use of existing infrastructure and facilities, thus minimizes overall impacts compared to the development of a completely new port facility.

- 3.29 **Positive Impacts.** Positive impacts resulting from the project include: i) Increase in regional economic potential resulting from the increased cargo handling capabilities; ii) Increased capacity to move manufactured goods in and out of Mexico; iii) Increased employment at the terminal; iv) Creation of indirect employment in Manzanillo to conduct Terminal support activities; and v) Increased capacity for Post-Panamex ships along the coast of Mexico.

#### IV. MANAGEMENT AND MONITORING OF ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY AND LABOR IMPACTS AND RISKS

- 4.1 **Planning, Design and construction Phases.** Locating the new container terminal at an existing port served to mitigate/offset many of the impacts associated with a green field port development. Locating the terminal at the existing Manzanillo Port reduced the overall need for dredging and impacts to natural vegetation as well as concentrating the port activities in a single area. Ships using the new terminal will be able to use existing navigation channels and aids to navigation. Co-locating the new terminal at the existing port also improved the ability of both infrastructures to share infrastructure and land-based transportation facilities.
- 4.2 Major mitigation and compensation measures carried out during the construction phase include: rescue and relocation of wild fauna, reforestation and restoration activities, offset of adverse impacts from increased traffic, implementation of visual and noise barrier and construction of an onsite wastewater treatment plant.
- 4.3 **Rescue and Relocation of Fauna.** Rescue and relocation of fauna was carried out for a total of 639 animals, including the following species: green iguana (*Iguana iguana*) under special protection with 250 individuals; the black iguana (*Ctenosaura pectinata*) endangered, with 80 individuals; boa (*Boa constrictor*), endangered, with 9 individuals, the twelve-lined whiptail (*Aspidoscelis lineatissima*) with 28 individuals under special protection, and the American crocodile (*Crocodylus acutus*) under special protection, 1 individual. The individuals were relocated in the vicinity of Laguna del Valle de Las Garzas.<sup>14</sup>
- 4.4 **Reforestation and restoration activities** were initiated by APIMAN in Laguna del Valle de Las Garzas, using red mangrove and white mangrove seedlings. A total of 10.3 hectares have been reforested, with 0.8 hectares in Laguna de San Pedrito Lagoon and 9.5 hectares in Laguna del Valle de Las Garzas. The IDB and IFC have included legal requirements for a financial mechanism that will ensure Project compliance regarding mangrove reforestation as part of the compensation measures. See attached Action Plan.
- 4.5 Laguna del Valle de Las Garzas was demarcated with concrete posts and barbed wire, which allows for better management of the area. There has been collaboration with the Municipality to perform infrastructure works such as roadways and transportation,

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<sup>14</sup> Manzanillo Port Authority. 2013. 2007-2012 Progress Report on the Program for the Rescue and Relocation of Wild Fauna catalogued by NOM-059-SEMARNAT-2001. Project: "Manzanillo Port, Master Development Program for 2000-2010". Mexico, 27 pp.



sanitation drainage, storm water collectors, street paving, breakwater remodeling, rehabilitation of green areas, among others.

- 4.6 There is a native vegetation buffer area of approximately 5 hectares in the northwest side of the Project and a 60 meter- wide buffer strip on the perimeter bordering the town of Las Brisas. Canals were built to supply the water needed for survival of the mangroves. In addition to the native vegetation barrier, a perimeter wall was built for noise and visual mitigation.
- 4.7 APIMAN signed an agreement with SEMARNAT in Colima for the performance of the necessary studies to declare El Chupadero Estuary as a Protected Natural Area, located outside the Project area. The technical justification studies to declare El Chupadero Estuary an ANP have been prepared and are under evaluation by SEMARNAT.
- 4.8 Support was given to a Non-Governmental Organization (NGO) campamento tortuguero through civil engineering work delivered in November 2011. Campamento Tortuguero is a NGO whose mission is to foster the protection of sea turtles and improve their reproduction success in Mexico.
- 4.9 Mitigation measures have been implemented to offset adverse impacts to the community from **increased traffic and related safety hazards**. APIMAN has built several raised roads and railroad lines that do not cross municipal roads, but instead function entirely outside of the municipal environment. APIMAN staff provided information indicating that roads had been built by APIMAN that lead directly from the port to the highway to circumvent the municipal area and associated traffic. Because of this effort, there was minimal impact to the community of Manzanillo from operation of trucks and heavy machinery during construction.
- 4.10 **Mitigation of noise and visual Impacts** to the adjacent Las Brisas community was provided. The community of Las Brisas approached APIMAN as intermediary to hold discussions about the adverse noise impact during construction activities. As a result, APIMAN negotiated the construction of a visual and noise environmental barrier along the strip of mangroves between the Las Brisas and the Port. According to the visual inspection conducted during the site visit, it appeared that the wall did not conform to structural requirements that would effectively mitigate noise from increased vehicular traffic or drilling activities related to the port expansion. APIMAN has subsequently agreed to complete construction of the wall during the third quarter of 2014.
- 4.11 **Waste Mitigation** efforts. Improper disposal and handling of solid waste and wastewater at the site during construction was mitigated through the installation of a small wastewater treatment system. Waste was treated before it was discharged in accordance with municipal requirements.
- 4.12 **Measures during Operation Phase.** A number of mitigation measures for the operation phase have been developed that are intended to reduce the potential for impacts. One of the main issues is the potential negative impacts to water quality in the harbor, for which, the following mitigation measures were required: i) Establishing within the rules of operation of the APIMAN the prohibition on dumping burned oil and hydrocarbons in general, or liquid chemicals of any type, into the ocean or drainage system in order to prevent contamination of these water bodies; ii) Establishing within the rules of operation the

prohibition for discharging bilge water into the ocean, as set forth in the Regulations of the National Water Act; iii) Preventing materials from falling into the inner harbor during the loading, unloading, and handling of bulk materials using piers, tarps, and/or nets; iv) Prohibiting the maintenance of ship hulls in the port, unless this activity is carried out at authorized port facilities designed for such purpose; and, v) Offsetting impacts of increased vehicular traffic to and from the port.

- 4.13 A number of mitigation measures are being implemented to offset potential impacts associated with operational phase transportation activities associated with the new terminal. In this way, APIMAN and the local municipality have undertaken infrastructure improvement works to repave, illuminate, and add green space along the main city boulevard.

#### **A. Environmental and Social Monitoring Programs**

- 4.14 **Construction Phase.** The following environmental monitoring and inspection programs were implemented during construction of the new terminal: i) water quality; ii) earth works; iii) stockpiles; iv) waste management; v) noise control; vi) mangrove and other environmental monitoring activities.
- 4.15 **Operation Phase.** The CMSA Environmental and Social Management Plan<sup>27</sup> includes the following monitoring programs:
- i) **Effluent monitoring program.** CMSA will monitor the quality of the waste water that will be discharged to the municipal sewerage system following initial pre-treatment. Additional details regarding the monitoring program are being developed, including the procedures and technical specifications for sampling, analysis and reporting. See recommendations section in this document.
  - ii) **Emission monitoring program.** CMSA will undertake a study of contaminants for future reference and actions as appropriate.
  - iii) **Noise monitoring program.** Indicates that monitoring will be done according to standard NOM-STPS-011. This can be applied to occupational noise, and environmental noise not considered as a fixed source under standard NOM0081-SEMARNAT-1994.
- 4.16 In general, it was observed that the information from CMSA is illustrative, and therefore each of the mentioned programs will be required to be developed formally, in addition to any other requirement included in Section VI of this document and the ESAP in Annex 1.
- 4.17 **Contingency Plan and Procedures.** CMSA has developed an emergency response plan that contains a vulnerability assessment, an inventory of resources that are available for deployment in case of an emergency, a risk analysis, and general procedures for different emergency scenarios. The emergency response plan also contains a description of the relationship and command structure with the APIMAN emergency response services.

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<sup>27</sup> Contecon Manzanillo, 2013 Environmental Plan, Contecon Manzanillo, S.A. de C.V., Mexico, 9 pages.

- 4.18 The terminal is served by a fire brigade distributed over three shifts. A trained paramedic or doctor is available for medical needs during each of the shifts. An ambulance is available with a 10-minute travel time to the Terminal.
- 4.19 The central emergency response center building has been completed and contained all of the necessary equipment and qualified personal to attend and support emergencies throughout the port. The Emergency Response Plan considers the following scenarios: earthquakes, tsunami, fire, explosions, bomb disposal, demonstrations, heavy rains, flooding, and hurricanes.
- 4.20 **Health and Safety plans for the operations phase** are currently being developed and will be finalized by the end of 2014. Specific health and safety plans for operations are dictated by Mexican norms. The health and safety procedures and standards to be adopted are those that attend the Mexican Norms and World Bank Environment, Health, and Safety (EHS) Guidelines - General EHS Guidelines: Occupational Health and Safety.
- 4.21 In addition to the limits stated in Mexican regulations, occupational health and safety performance should be evaluated against internationally published exposure guidelines, including:
- i) The Threshold Limit Value (TLV®) occupational exposure guidelines and Biological Exposure Indices (BEI®) published by the American Conference of Governmental Industrial Hygienists (ACGIH)
  - ii) The Pocket Guide to Chemical Hazards published by the United States National Institute for Occupational Health and Safety (NIOSH)
  - iii) Permissible Exposure Limits (PEL) published by the Occupational Safety and Health Administration of the United States (OSHA)
  - iv) Indicative Occupational Exposure Limit Values published by European Union member states
  - v) Other relevant similar sources
- 4.22 CMSA is developing standard operational procedures for environmental, health, and safety management. The company plans to develop an integrated management system based on ISO standards such as 14001, OSHA 18001 and 9001.
- 4.23 CMSA is currently developing, as part of its integrated management plan, policies for health, safety, and security of personnel at the port site. It was observed onsite that CMSA has a small emergency operations center with medical personnel on staff 24 hours and day, 7 days per week. The medical officer at the operations center attends all accident-related injuries at the terminal. If an injury is serious, the patient is transported to the hospital in Manzanillo.
- 4.24 A larger emergency operations center located just outside of the port gate is staffed and run by APIMAN. This operations center maintains full fire-fighting and medical equipment to address full-scale emergencies. This center also operates 24 hours a day, 7 days per week and serves local community needs as well as port emergencies.

- 4.25 **Environmental, Health and Safety Management.** According to the Agreement<sup>15</sup> signed between CMSA and APIMAN, the Concessionaire is required to comply with APIMAN's Quality and Environmental Policy and obtain certification for the quality management standard ISO 9001:2000, environmental management system standard ISO 14001:1996, and the Mexican legislation compliance certification Industria Limpia. The Concessionaire also is required to obtain accreditation no longer than 18 months after the start of operations at the Terminal.
- 4.26 CMSA started partial operations in August 2013 and would be required to become accredited to the Quality and EMS standards by February 2015, under the terms of the Agreement. CMSA has developed a master plan to implement the three management systems and will seek to become accredited to the Quality and EMS in 2014.
- 4.27 The Lenders will require that CMSA develop an ESMS and ESMP for the Project. These will be developed in line with Lender's requirements including good International Industry Practice (GIIP) and national regulations, and taking into account the principles of international standards applicable to management systems, such as the ISO 14001 for environmental management, and OHSAS 18001 for health and safety management. See attached Action Plan.
- 4.28 **Information Disclosure and Public Participation.** All community involvement and outreach has been and will continue to be conducted by APIMAN for all Port and Terminal activities. APIMAN was responsible for the community outreach activities for the project and did conduct public engagement activities associated with the development of the project. CMSA will work cooperatively with APIMAN and their on-going port specific community outreach activities.
- 4.29 APIMAN has been undertaken meetings routinely since 2010 with the affected community regarding the expansion of the port. Also, APIMAN assumes responsibility for addressing port development and operations activity grievances from the community. CMSA is not contractually responsible for this activity and does not have a separate grievance mechanism in place with the community. However, CMSA does work closely with APIMAN in addressing grievances related to the Project that are being submitted as part of the overall port grievance mechanism.

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<sup>15</sup> Contrato de Cesión Parcial de Derechos y Obligaciones, 35 clause page 22.

## **V. COMPLIANCE STATUS AND PROJECT STANDARDS**

### **A. Environmental and Social Appraisal Process**

- 5.1 The Lenders will require that CMSA develop an ESMS and ESMP for the Project. These will be developed in line with Lender's requirements including good International Industry Practice (GIIP) and national regulations, and taking into account the principles of international standards applicable to management systems, such as the ISO 14001 for environmental management, and OHSAS 18001 for health and safety management.
- 5.2 The health and safety procedures and standards to be adopted are those that attend the Mexican Norms and World Bank Environment, Health, and Safety (EHS) Guidelines - General EHS Guidelines: Occupational Health and Safety. Also, the Project is expected to comply with the IFC Performance Standards.
- 5.3 CMSA is domiciled in the Municipality of Manzanillo, Colima, Mexico and the operational licenses and permits are to be issued under the mentioned jurisdictions. Furthermore, the Project will be required to also comply with all applicable regulations in relation to environmental, social, labor, health and safety issues in Mexico.
- 5.4 Per the IDB and IFC's request, CMSA contracted the specialized services of CH2MHILL for conducting the Environmental and Social Due Diligence of the Project (ESDD), which field visit took place in October, 2013. The final ESDD report was submitted to CMSA, the IFC and the IDB in July, 2014, and was the main reference for this document.

### **B. Consistency with IDB Policies and Directives**

- 5.5 Based on Directive B.3 of the IDB's Environment and Safeguard Compliance Policy (OP-703), this initiative was classified as Category A by the Project Team due to its potential to generate moderate to high negative environmental and social impacts and risks.
- 5.6 The Policy Filters, depicts a summary of the Project compliance with the applicable requirements of the Environment and Safeguards Compliance Policy (OP-703), the Access to Information Policy (OP-102), the Natural Disaster Risk Management Policy (OP-704), and the Policy on Gender Equality in Development (OP-270). It is important to note that the Involuntary Resettlement Policy (OP-710) and Indigenous Peoples Policy (OP-765) were not triggered for this operation since it is not expected resettlement of families or affectation to indigenous communities. Considering the available information at the time of the Environmental and Social Due Diligence and based on the CH2MHILL's report and several meetings held with CMSA, it was determined that the Project is in compliance with all applicable IDB policies and directives, except for the pending items that will be or are being addressed by CMSA and included in the attached Environmental and Social Action Plan (ESAP). See Annex 1.
- 5.7 The OP-703 directives triggered were the followings: B.4 other risks, in relation to reputational risks and liabilities; B.5 environmental impact assessment as applicable to the container facilities in the existing Manzanillo Port; B.6 public consultations; B.7 supervision and compliance; B.9 natural habitats and cultural sites; B.10 hazardous materials; B.11 pollution prevention and abatement. For more information, see Table 8-1.

- 5.8 On June, 2013, the Environmental and Social Strategy (ESS) of this project was revised and cleared by the Bank's Environmental and Social Safeguard Unit. The IDB published the ESS in its website at the Public Information Center in July, 2013. The Environmental and Social Due Diligence took place in October, 2013 and the field visit also included several existing port facilities and meetings with local stakeholders. In a similar way, this ESMR was reviewed and published by the Bank in October, 2014.
- 5.9 The Project includes provisions for Bank monitoring of compliance with all policy requirements (see Section VI) according to Directive B.7. The IDB and the Lenders required that an Environmental and Social Action Plan be prepared by CMSA, to address current non-compliances identified during the ESDD. The draft ESAP is presented in Annex 1 of this document and a final version will be submitted by CMSA before the First Disbursement of the Loan.
- 5.10 It is important to note that the Project does not significantly convert or degrade natural and critical natural habitats, affect protected areas or damage cultural sites as per Directive B.9. However, given the importance of this Directive and the clearance of mangrove vegetation, this issue is further discussed in other sections of this document and in Table 8-1 and 8-2 below.

TABLE 8-1

**Compliance Summary with the IDB during construction and operation:**

<b>Policy</b>	<b>Compliance Status</b>
B.4 - Other Risk Factors	APIMAN is responsible for implementing many of the requirements under this Project; therefore, CMSA does not have control over effective compliance and this fact is a potential source for liabilities and reputational risks.
B.5 – Environmental Assessment Requirements	An environmental impact assessment (MIA) was prepared in 2004 for the port expansion in the north sector including the CMSA terminal location. In 2009 a modification to the original master plan and MIA was completed. The MIA was approved by SEMARNAT and thereby was deemed in compliance with the Mexican legal requirements. The MIA was a comprehensive evaluation that identified the primary impacts of the Project. Although there were issues that the MIA did not cover adequately, such as the existing condition of the mangrove habitat, it was a broad document that covered the important potential impacts related to port expansion and port development for construction and operation. During the ESDD several additional studies were undertaken and most of the weaknesses and data deficiencies were covered.
B6 – Consultations	Two consultation processes were undertaken during the MIA preparation and during APIMAN's meetings with local stakeholders. Also, CMSA participates in APIMAN's on going public consultation and grievance mechanism processes. Lastly, during the Bank's ESDD, several stakeholders were interviewed and informed about the Project, potential impacts and risks and the corresponding mitigation and compensation measures. This approach is consistent with the IDB requirements for information disclosure and public consultation for Category A initiatives.
B.9- Natural Habitats and	Overall construction of the new terminal within an existing port served to

TABLE 8-1

**Compliance Summary with the IDB during construction and operation:**

<b>Policy</b>	<b>Compliance Status</b>
Cultural Sites	minimize impacts to any potential natural habitats and cultural sites. A total of 15.7 hectares of mangrove habitat were removed along the shoreline prior to filling of the terminal site. The removal of the mangroves was conducted according to applicable Mexican Regulations that included fauna rescue and relocation measures. The cleared mangrove was not considered a Critical Natural Habitat and the surface affected was not considered significant. APIMAN is in the process of mitigating this loss through the establishment of 75 hectares of new mangrove habitat. There were no cultural sites identified in the Project area prior to terminal development. For more information, see Section III.
B.10 – Hazardous Materials	CMSA has a written procedure for handling hazardous materials; a permanent waste facility has been completed. The location of the new facility is separated from activities that conflict with flammable waste storage. The temporary facility, although it had secondary containment did not provide for the separation of incompatible wastes. To fully comply with IDB policies, this item will be included in the Action Plan for future measures and legal agreements.
B.11 – Pollution Prevention and Abatement	The terminal handles all of its storm water runoff by discharge through its waste water treatment plant. The appropriate measures for handling emissions of greenhouse gases is pending and therefore included in the Action Plan. However, construction of the new terminal would not lead to an increase in ship traffic worldwide and its associated emissions of greenhouse gases. CMSA will quantify its annual GHG emissions following the first year of operation. The IDB is developing a technical cooperation to assist APIMAN in evaluating GHG emissions at the port level.
OP-761 Gender and Equality	CMSA has no policy that limits employment of both women and men. To confirm full compliance with this policy CMSA will submit a formalized written human resources policy to reflect the specific requirements of both the IDB and the IFC. The IDB is developing a technical cooperation to assist APIMAN in evaluating gender access and equality at the port level.
OP-704 Disaster Risk Management Policy	CMSA has been taking measures and a written emergency response plan that covers these policy requirements. The IDB is developing a technical cooperation to assist APIMAN in evaluating climate change adaptation measures at the port level.

TABLE 8-2

**Evaluation of Mangroves with IDB B.9 Directive on Natural Habitats and Cultural Sites:**

<b>IDB Habitat Categories and Criteria for Lost Mangroves</b>	<b>Criteria Met?</b>	<b>Ecological Rationale for Inter-American Development Bank (IDB) Critical <i>versus</i> Natural Habitat Determinations</b>
<p><b>Critical natural habitats</b> are (i) existing protected areas, areas officially proposed by governments for protection or sites that maintain conditions that are vital for the viability of the aforementioned areas; and (ii) unprotected areas of known high conservation value. Existing protected areas may include reserves that meet the criteria of the IUCN Protected Area Management Categories I through VI; World Heritage Sites; areas protected under the Ramsar Convention on Wetlands; core areas of World Biosphere</p>		

TABLE 8-2

**Evaluation of Mangroves with IDB B.9 Directive on Natural Habitats and Cultural Sites:**

<b>IDB Habitat Categories and Criteria for Lost Mangroves</b>	<b>Criteria Met?</b>	<b>Ecological Rationale for Inter-American Development Bank (IDB) Critical <i>versus</i> Natural Habitat Determinations</b>
Reserves; and areas in the UN List of National Parks and Protected Areas. Areas of known high conservation value are sites that, in the Bank's opinion, may be: (a) highly suitable for biodiversity conservation; (b) crucial for critically endangered, endangered, vulnerable or near threatened species listed as such in the IUCN Red List of Endangered Species; or (c) critical for the viability of migratory routes of migratory species.		
(i) existing protected areas, areas officially proposed by governments for protection or sites that maintain conditions that are vital for the viability of the aforementioned areas	No	There are no protected areas within the project boundary that meet the criteria of the IUCN Protected Area Management Categories I through VI; World Heritage Sites; areas protected under the Ramsar Convention on Wetlands; core areas of World Biosphere Reserves; IBAS, KBAs and areas in the UN List of National Parks and Protected Areas.
(iia) unprotected areas of known high conservation value that may be highly suitable for biodiversity conservation	No	The existing mangrove area is not considered to have been highly suitable for conservation due to: (i) its small size; (ii) its isolation from any other mangrove systems; (iii) its non-inclusion in a list of mangrove priority conservation sites compiled by the Government of Mexico as part of a detailed prioritization program; and (iv) its degraded status due to several reasons.
(iib) unprotected areas of known high conservation value that may be crucial for critically endangered, endangered, vulnerable or near threatened species listed as such in the IUCN Red List of Endangered Species	No	In the Project area, the MIA documented the presence of the American crocodile ( <i>Crocodylus acutus</i> ), a Mexican Special Protection and IUCN Vulnerable Species. One individual of this species was found and relocated during the mangrove clearance. However, because of the small size of the mangrove area and the relative abundance of similar habitat in the region, it is unlikely that the cleared mangrove was crucial for the above listed species. According to Conabio (2010), there are approximately 764,486.00 hectares of mangrove habitats in Mexico, from which, only 15.7 hectares were removed and will be compensated by 75 hectares of new mangroves on nearby areas.
(iic) unprotected areas of known high conservation value that may be critical for the viability of migratory routes of migratory species.	No	Site is located along the Pacific flyway and had been used by migratory species. However, because of the overall size and relative abundance of similar habitat in the region, the mangrove area would not be considered critical for the viability of migratory routes of migratory species.
<b>Natural Habitats</b> are biophysical environments where: (i) the ecosystems' biological communities are formed largely by native plant and animal species; and (ii) human activity has not essentially modified the area's primary ecological functions. Natural habitats may be sites that (a) provide critical ecological services required for sustainable human development (e.g., aquifer recharge areas, areas that sustain fisheries, mangrove or other ecosystems that help to prevent or mitigate natural hazards); (b) are vital to ensure the functional integrity of ecosystems (e.g., biological corridors, natural springs); and (c) have high levels of endemism. Natural habitats may occur in tropical humid, dry, and cloud forests; temperate and boreal forests; Mediterranean-type shrub lands; natural arid and semi-arid lands; mangrove swamps, coastal marshes, and other wetlands; estuaries; seagrass beds; coral reefs; underwater vents; freshwater		



TABLE 8-2

**Evaluation of Mangroves with IDB B.9 Directive on Natural Habitats and Cultural Sites:**

<b>IDB Habitat Categories and Criteria for Lost Mangroves</b>	<b>Criteria Met?</b>	<b>Ecological Rationale for Inter-American Development Bank (IDB) Critical <i>versus</i> Natural Habitat Determinations</b>
lakes and rivers; alpine and sub-alpine environments, including herb fields, grasslands, and páramos; and tropical and temperate grasslands.		
(i) the ecosystems' biological communities are formed largely by native plant and animal species	Yes	The mangrove area was a natural mangrove plant community dominated by native mangrove plant species ( <i>Rhizophora mangle</i> , and <i>Laguncularia racemosa</i> ) and inhabited by diverse native fauna. Species lists and historical photos show the mangroves had been relatively mature and dominated by native flora and fauna, with very few exotic or invasive plant species.
(iia) human activity has not essentially modified the area's primary ecological functions.	Yes	While present within the overall port complex, the mangroves were found to be surviving and providing many of the ecosystem services typically associated with Mangrove habitats. Human activity had not significantly modified or damaged the primary ecological functions of the mangrove area.

**VI. ENVIRONMENTAL AND SOCIAL REQUIREMENTS**

- 6.1 Based on the environmental and social due diligence conclusions, the conditions described below are required to be fulfilled in form and substance satisfactory to IDB:

**A. Throughout the life of the Loan**

- 6.2 The IDB will require within its Loan Agreement that the Project and each Project party (Sponsor/Borrower/Company and other Project/Environmental parties, including construction companies and operators, and any contractors and sub-contractors) will, at all times during the life of the Loan Agreement, comply with the following requirements:
- i) All applicable environmental, social, labor, health and safety, and labor regulatory requirements of each applicable country.
  - ii) All requirements associated with any environmental, social, health and safety, and labor related permits, authorizations, or licenses that apply to the Project, the Borrower or any party responsible for executing the Project or its mitigation measures.
  - iii) All environmental, social, health and safety, and labor requirements of the Project contracts and any subsequent modifications.
  - iv) All aspects and components of all of the Project's environmental, health and safety, social and labor documents.

- v) All relevant IDB policies such as the Environment and Safeguards Compliance Policy (OP-703), the Natural Disaster Risk Management Policy (OP-704) and the Disclosure of Information Policy (OP-102), the Involuntary Resettlement policy (OP-710), the Operational Policy on Indigenous Peoples (OP-765) and the Gender and Equity in Development Policy (OP-270) and their respective guidelines.
- vi) Applicable IFC Environmental, Health and Safety (EHS) Guidelines; such as the general EHS guidelines.  
<http://www1.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES>
- vii) Consultation with IDB before approving or implementing any and all non-trivial changes to the Project (including its environmental and social management and mitigation plans and any other environmental, social, health and safety and labor documents) or their respective timetables that relate to environmental, social, labor, or health and safety aspects of the Project. Included to the “non-trivial changes” are changes that go beyond any routine adjustments normally expected to happen in course of project construction and implementation. Non-trivial changes need to be communicated to the Bank, for example, changing a deliverable or an environmental standard or postponing significantly the performance of a requirement. Also, changes to its environmental and social management and mitigation plans and any other environmental, social, health and safety and labor documents and/or their respective timetables and/or responsible parties.
- viii) Notice of any and all noncompliance with any environmental, health and safety, social and labor requirement of the Loan Agreement and any significant environmental, social, labor, health and safety accident, impact, event, claim, material complaint or other known risk.
- ix) Ensuring that all the Borrower’s contractors hired for construction and Project activities comply with the applicable environmental, labor, social and health and safety regulations.
- x) Implementing ongoing information disclosure and consultation activities related to environmental, labor, social, and health and safety aspects of the Project, including disclosure of Environmental and Social Compliance Reports and, as applicable, participatory monitoring.
- xi) Implementing an environmental, health and safety, social and labor management system that is consistent with ISO 14001 and/or OHSAS 18001 and providing adequate resources for its implementation.
- xii) Comply with all the requirements indicated in the Environmental, Social, Health and Safety Action Plan.
- xiii) Addressing significant Project-related environmental and social impacts, risks and complaints not adequately mitigated.
- xiv) All risk management measures pertaining to any Associated Facilities.

**B. Prior to the Presentation of the Project to the IDB Board of Executive Directors**

- 6.3 The final version of the Environmental, Social, Health and Safety Action Plan (ESHSAP) that sets out the pending plans and activities with their associated milestones, deliverables, and due dates as agreed with the IDB.

**C. Prior to Financial Close**

- 6.4 Prior to the date of Financial Close, the Borrower must submit the following documentation:
- i) Environmental and Social Monitoring Agreement, which is the tripartite agreement between the IDB, the E&S Consultant and the Borrower for the independent monitoring of the project.

**C. Prior to First Disbursement**

- 6.5 Prior to First Disbursement of the Loan, the following conditions shall be fulfilled:
- i) The Borrower will submit all agreed upon environmental, social, health and safety and labor management or mitigation plans included in the ESHSAP with it corresponding due date as prior to First Disbursement.
  - ii) The Borrower shall certify compliance with all Environmental and Social requirements of the Loan Agreement.
  - iii) The Environmental and Social consultant shall certify compliance with all E&S requirements of the Loan Agreement.

**D. Prior to Each Disbursement**

- 6.6 The Borrower shall certify compliance with all environmental social, health and safety and labor requirements in the loan agreement, including any Corrective Action Plans if applicable.
- 6.7 The E&S consultant shall certify compliance with all E&S requirements of the Loan Agreement including any Corrective Action Plans if applicable.

**E. Reporting, Monitoring and Supervision**

- 6.8 During the life of the Loan Agreement, the Borrower must prepare and submit an Environmental and Social Compliance Report, in form, content and frequency acceptable to IDB.
- 6.9 The Bank will monitor the Project's environmental, social health and safety, and labor aspects via direct Bank supervision (e.g., site visits, review of documentation, etc.) and will contract an external independent Environmental and Social consultant firm or individual to perform more detailed supervision actions during construction and operation. This supervision will be conducted by the IDB with the assistance of an external independent environmental and social consultant. All costs of supervision will be covered by the Borrower: (a) consultant costs and schedules will be as agreed upon in the Monitoring Agreement, (b) IDB annual supervision out-of-pocket expenses are estimated at \$15,000.00

6.10 In addition, the Loan Agreement shall also provide for:

- i) Rights for additional inspection, supervision, etc. generally at the expense of the Borrower. The Bank's right to contract for the performance of independent environmental, social, health and safety, and labor audit(s), or to conduct ad-hoc supervision, if the Bank deems necessary.
- ii) The Borrower's agreement to provide access to all relevant documentation, facilities and personnel and cooperate fully with any inspection or audit by the Bank or its designated consultants.
- iii) The Borrower's agreement to cooperate fully with the IDB's Independent Consultation and Investigation Mechanism (ICIM), provided that the ICIM covers its own costs.

## VII. ANNEXES:

### Annex 1: ESAP: Environmental and Social Action Plan

Actions	Evidence of Completion	Timing
<i>PS1- Social and Environmental Assessment and Management System / IADB OP-703 (B5,B6, B7 and B11)</i>		
1.- CMSA will design and implement an Integrated Quality, Environmental, Social and Health and Safety (QESHMS) management unit, and deploy a full environmental, social, and occupational health and safety team. This QESHMS will include an external communication and grievance procedure, laying out how to manage third party enquires or complains.	1.- QESHMS presented and a management unit established in form and function acceptable to the Lenders.	February 28 <sup>th</sup> , 2015
<i>PS2- Labor and Working Conditions / IADB OP-270 Policy on Gender Equity</i>		
2.- CMSA will develop a written HR policy in alignment with the Mexican requirements, IDB OP-270 and IFC PS2, including specific non-discriminatory policies and the development of an accessible and well-advertised internal grievance mechanism that includes opportunities for anonymous feedback, assures no retaliation, and provides accountability for the resolution of grievances.	2.- CSMA HR Practices and Procedures presented in form and content acceptable to the Lenders.	Condition to First Disbursement
3.- CMSA will prepare appropriate health and safety plans and procedures to comply with in-country requirements and consistent with good international industry practices (GIIPs) as those reflected in the World Bank Group's EHS Guidelines. <sup>16,17</sup>	3.- CMSA OHS Plans and Procedures presented in form and content acceptable to the Lenders.	Condition to First Disbursement
<i>PS6 –Biodiversity Conservation and Sustainable Natural Resource Management / IADB OP-706 (B.9)</i>		
4- CMSA and the Lenders will implement a financial mechanism to assure there is enough resources to compensate for any unmitigated mangrove loss, in the eventuality that APIMAN is unable to complete the restoration of at least the remaining 36.8 ha required to achieve compensation for the 15.7 ha cleared by the Project.	5.- Functioning financial mechanism included in the CTA	Condition to Financial Closure
5 - CMSA will implement an aquatic fish and invertebrate survey program to better characterize and monitor the aquatic environment of Laguna Valle de Las Garzas and the remaining mangrove areas in the harbor in order complement the baseline for important fish and invertebrate species in the estuary.	6.- Aquatic resource survey program in place in form and content acceptable to the Lenders.	March 31 <sup>st</sup> , 2015

<sup>16</sup> [http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui\\_EHSGuidelines2007\\_GeneralEHS/\\$FILE/Final+-+General+EHS+Guidelines.pdf](http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_GeneralEHS/$FILE/Final+-+General+EHS+Guidelines.pdf)

<sup>17</sup> [http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui\\_EHSGuidelines2007\\_PortsHarborsTerminals/\\$FILE/Final+-+Ports%2C+Harbors+and+Terminals.pdf](http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_PortsHarborsTerminals/$FILE/Final+-+Ports%2C+Harbors+and+Terminals.pdf)

## **Annex 2: Institutional and Legal Framework**

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### **APIMAN**

APIMAN is a decentralized entity of the Federal Government, which was formed in December 1993 and began operation in February 1994. APIMAN has a 50 year Concession Contract to manage, promote, construct, develop, and maintain infrastructure within the Port of Manzanillo, Colima. This Concession was granted by the Ministry of Communication and Transportation (SCT).

APIMAN is also responsible for obtaining and/or maintaining the Certification of Clean Industry or Environmental Compliance for the Port area and for ensuring that the port leaseholders and service providers within the port implement actions to prevent contamination and the preserve Port of Manzanillo environment. In addition, APIMAN is charged with monitoring regulatory compliance within the port and for compliance with agreements issued through the partial concession contract, regarding the rights and obligations for the operation and provision of port services that it issued to CMSA.

### **SCT**

SCT, *Secretaría de Comunicaciones y Transportes de México* (Ministry of Communication and Transportation) formed in November 1821, is the Federal Government agency whose principal function, according to the Organic Law of Federal Public Administration (Article 36), is to regulate activities, norms, and procedures related to Mexican transportation and communication.

The agency's principal objective is to promote safe, efficient, and competitive transportation and communication systems through a strengthened legal framework; to define public policy and design strategies that contribute to the sustained economic growth and balanced social development of the country; and to expand the coverage and accessibility of services, achieving the integration of the population and respecting the environment.

With regard to maritime development, the agency is responsible for constructing, reconstructing, and conserving maritime, port, and dredging activities, installing maritime signage, and providing information and security services for ocean navigation.

SCT is responsible with granting authorization for the expansion of Manzanillo Port, as well as issuing the permits required for the execution of construction works and operations led by APIMAN and CMSA. SCT also approved the partial concession contract for the provision of port services, which is led by APIMAN.

### **SEMAR**

*La Secretaría de la Marina de México* (SEMAR; Ministry of the Navy), is the Federal Government Ministry, formed in December 1994, charged with *inter alia* organizing for the Mexican Navy and with protecting Mexican waters, under the Organic Law of Federal Public Administration.

The Ministry's main objective is to serve as the military body charged with surveillance and safeguarding of the coastline, territorial waters, the Exclusive Economic Zone, and the Mexican air-ocean space, as well as the interior water bodies, canals, and navigable lakes. The Ministry performs topographic and hydrographic surveys along the coastline, islands, ports, and navigable channels, and manages the portfolio of ocean charts and relevant statistics.

Regarding the Port of Manzanillo project, SEMAR was charged with supervising and issuing authorizations and permits for dredging and landfill activities at the port. Dredging works were led

by a private enterprise HDK México S. de R.L. de C.V., which was contracted by CMSA and is authorized by APIMAN to carry out these activities.

### **CMSA**

CMSA is a subsidiary of ICTSI. Founded in December 1987 in The Philippines, ICTSI is a private enterprise dedicated to the management, acquisition, development, operation, and functioning of container ports throughout the world. In January 2010, ICTSI signed a 34-year concession contract for the development and operation of the container terminal in the Port of Manzanillo.

### **CHEC**

CHEC is an international contractor and a subsidiary of China Communications Construction Company Ltd (CCCC). CHEC has 50 foreign branches and business offices covering more than 80 countries and regions. Founded in 1980, CHEC is a business specializing in construction and basic infrastructure, such as naval engineering, dredging and recuperation, highways and bridges, railroads, airports, and other works. In September 2011, CHEC and CMSA signed a contract to develop the container terminal at the Port of Manzanillo.

### **Secretaría de Medio Ambiente y Recursos Naturales**

The Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) is the branch of the federal government charged with, among other things, the following duties:

- i) Encouraging the protection, restoration, and conservation of ecosystems, natural resources, and environmental goods and services, for the purpose of fostering their use and sustainable development.
- ii) Formulating and guiding national policy on natural resource matters, as well as matters involving ecology, environmental cleanup, water, environmental regulation of urban development, and fishing, with participation from other pertinent branches and offices, as long as the matters are not expressly under the direction of another branch.
- iii) Administering and regulating the use, and encourage the sustainable development, of Mexico's natural resources
- iv) Establishing, with participation from other branches and the state and municipal authorities, Official Mexican Regulations on the preservation and restoration of the quality of the environment.
- v) Monitoring and encouraging compliance with laws, regulations, and programs regarding natural resources, environment, water, forests, wildlife; and imposing the appropriate sanctions when appropriate.
- vi) Evaluating and reporting on the environmental impact statements for development projects presented by the public, social, and private sectors; deciding on environmental risk studies, as well as on programs for ecological accident prevention programs.

SEMARNAT includes the *Dirección General de Impacto y Riesgo Ambiental* (DGIRA; Environmental Impact and Risk Bureau) that is in charge of evaluating and deciding on environmental impact projects, and the *Dirección General de Gestión Forestal y de Suelos* (DGGFS; Forest and Soil Management Bureau) in charge of evaluating the land-use change and forest management. The Federal SEMARNAT Delegation in the State of Colima can also conduct this task and did so for this project.

### **PROFEPA**

*Procuraduría Federal de Protección al Ambiente* (PROFEPA; Federal Environmental Protection Agency) is the office of the federal government in charge of enforcing compliance with regulations

for five fundamental programs: i) inspection and monitoring for compliance with environmental legislation on the use of natural resources; ii) inspection and monitoring for compliance with environmental legislation on pollution sources covered by federal laws; iii) voluntary means and mechanisms for compliance with environmental standards; iv) environmental Justice, in its administrative, civil, and criminal aspects; and v) addressing public complaints on environmental matters. The first program is responsible for supervision of the Project.

### **La Comisión Nacional para el Conocimiento y Uso de la Biodiversidad**

*La Comisión Nacional para el Conocimiento y uso de la Biodiversidad* (CONABIO; National Commission for Understanding and Use of Biodiversity) is in charge of coordinating, supporting, and carrying out activities aimed at understanding Mexico's biological diversity, as well as its conservation and use for the benefit of society. In addition, CONABIO is responsible for establishing and operating the *Sistema Nacional de Información sobre Biodiversidad* (SNIB; National Biodiversity Information System) to supply data, information, and consulting to various users as well as to establish national and global biodiversity information networks, comply with international biodiversity commitments made by Mexico that may be assigned to the agency, and carry out actions aimed at the conservation and sustainable use of Mexico's biodiversity.

### **State of Colima**

The Project is located in the state of Colima. Colima's *Secretaria de Desarrollo Urbano* (SEDUR; Secretary of Urban Development) is responsible for issuing permits, licenses, and authorizations for the CMSA Terminal including Uso del Suelo. SEDUR also is responsible for land use and regulating construction in accordance with building codes.

### **Municipality of Manzanillo**

Manzanillo is a municipality in the State of Colima, with the City of Manzanillo as the municipal seat. The highest municipal official is the Mayor of Manzanillo. The municipal government also includes delegations from the outlying neighborhoods or "colonias" of the municipality. These include the Colonia del Pacífico, which also includes Las Brisas; Valle de las Garzas; Campos; Jalipa; Tapeixtles; El Colomo, which also includes Miguel de la Madrid; Salagua; Santiago, which also includes Pedro Núñez; and other smaller colonias. The Municipality of Manzanillo is responsible for issuing permits, authorizations, and licenses with regard to construction and operation of the Manzanillo Container Port within the municipal area.

### **The Ministry of Labor**

The Ministry of Labor is the institution responsible for overseeing compliance with and implementation of the provisions contained in Article 123 et al. of the Federal Constitution, as well as in the Federal Labor Act and its regulations. Its powers include: seeking a balance between production factors, intervening in employment contracts of any nationals who provide services abroad, promoting the development of training and education in and for employment, as well as conducting investigations, providing consulting services, and offering training courses for increasing productivity at work, studying, and ordering and overseeing the compliance of occupational safety and health measures to protect workers.