



Ministry of Foreign Affairs

Opportunities for Port Development and Maritime sector in Mexico

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Investment opportunities in the Port Development Sector Early 2019

Preface

In this report current and future business opportunities in the Mexican port development sector are identified. This report is the product of a detailed examination of Mexico's plans for the development of its ports and maritime sector. The aim of the report is to map business opportunities for Dutch companies that operate in this sector and want to collaborate in Mexico's sustainable port development programs.

It is the objective of the Dutch Embassy to promote a mutually beneficial collaboration between Mexico and The Netherlands in the context of Mexico's ambitious drive forward in the development of its port and marine sector. Complementary to the available information published by the different governmental institutions, this report includes insights of several stakeholders from the Mexican government and local port authorities. Altogether, the information provided in this report is the product of information gathered from Mexican public institutions combined with information provided by key companies that possess expert knowledge regarding sustainable port development.

Firstly, a schematic overview of the institutional port framework will be laid out in order to have a basic understanding of the institutions that have the authority over ports in Mexico and how they are regulated. The agencies in charge of ports will be the primary line of contact for companies who are interested in the development opportunities that will most likely crop up in 2019 and beyond.

Thereafter, a short introduction is given on Mexico's primary ports along with their most recent modernization and expansion projects that they went through during the previous 6-year presidential term of Enrique Peña Nieto. Once Mexico's main ports are introduced, the report will turn its attention to the ports located in Mexico's eastern Gulf Coast. As offshore exploration and deep-sea activities in the Gulf of Mexico are on the rise thanks to Mexico's Energy Reform of 2013, the ports on the Gulf coast are facing a large increase in energy-related activities that go through their enclosures for which they need adequate infrastructure to function properly as service points.

This is followed by a sketch of the infrastructure development plans of the incoming President Andres Manuel Lopez Obrador (AMLO) regarding the port and maritime sectors. Those plans include among other things, harnessing the idea of the Special Economic Zones (SEZs) that were introduced by the previous president, and expanding them to revitalize Mexico's south- and southeastern region, which has not seen significant investments from the central government in the past 30 years.

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1. Introduction

For its size, the Mexican economy generates surprisingly little sea cargo, due to trucking being the dominant modality in international trade - mostly to and from the US - and a large domestic manufacturing base that serves the Mexican market. Mexico's port system still has much potential to grow but modernization and expansion of certain ports is required, as well as the efficiency with which the ports operate need improvement. Both are areas in which Dutch knowledge and investment could contribute.

Along its 11,500 KM of coastline, Mexico has 117 functional ports. The main ports located in the western Pacific Coast are Lázaro Cárdenas, Manzanillo, Ensenada and Salina Cruz. At its eastern coast facing the Gulf of Mexico the seaports of Veracruz, Altamira, Coatzacoalcos and Dos Bocas are the largest and currently most important ports. Lázaro Cárdenas and Veracruz have been designated as Mexico's "super ports" due to their size and economic impact in the surrounding area and the rest of the country.

The most recent figures show that in the period January – November 2018, Mexico's national port system handled a total of 291,7 million tons of cargo, a 3.9% increase compared to the same period in 2017 (SCT, 2018). The type of cargo that made the largest contribution to the total amount of cargo transported through Mexico's ports were the petroleum and petroleum-based products with 118,4 million tons, equivalent to 40.6% of the total share (SCT, 2018). With this data it becomes clear to what extent Mexico's ports are dependent on the energy sector's activities. It is expected that this dependency on the energy sector will continue and perhaps even increase in the coming years because Mexico's new president AMLO has vowed to construct a new refinery and reposition Pemex at the center of all of Mexico's activities in the energy sector.

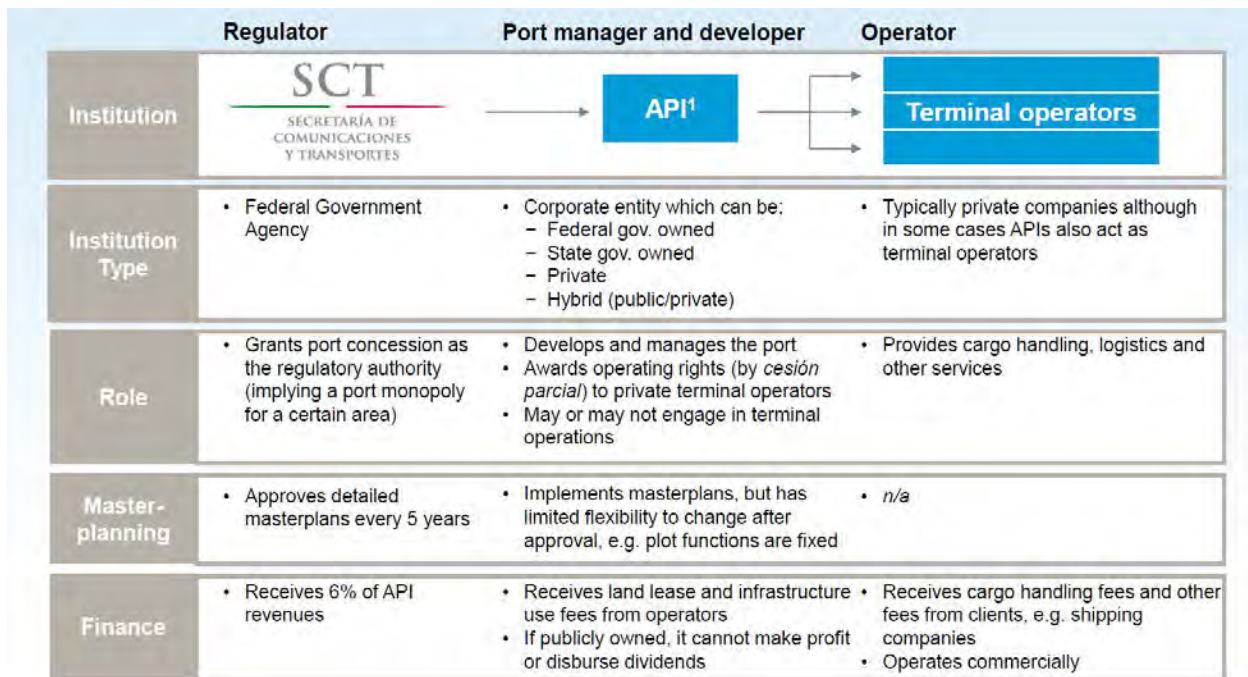
After petroleum and derivatives mineral bulk is the second most handled type of cargo in Mexico. 69.8 million tons were handled corresponding to a 23.9% of the total cargo share. This is followed by 49.2 million tons of containerized cargo corresponding to 16.9% of the total. Then comes general cargo that contributed to 8.7% of the total cargo share in Mexico with 25.3 million tons. Other types of cargo such as agricultural bulk amounted in 2018 to 5.6% of the total cargo handled with 16.2 tons and non-petroleum based fluids took up 4.3% of the total cargo share with over 12.6 million tons (SCT, 2018). Good to note is that an 8.8% increase in the containerized cargo throughput was registered between 2017 and 2018, which amounted to 6.3 million TEUs (standardized measure of container units). Such a large increase in the container units is undoubtedly a result of investments made during the previous presidential administration.

It remains to be seen what concrete plans AMLO has for the port sector but it is certain that he is looking to give Pemex, the national oil company, a boost after it was forced to give up its monopoly of the oil industry and compete with foreign companies. Mexico has large oil reserves but is still a major importer of gasoline from the United States. AMLO wants to break this dependency and aims to do this with the construction of new refinery at Dos Bocas. This and other projects are discussed later in chapter 4.

2. Institutional Port Framework

The Mexican government promotes the development of its strategic ports to enhance the country's exceptional geographical location, and thereby boost exports, international trade, as well as the economy of its internal market. The Mexican government grants concessions of Mexico's most prominent ports to private companies through a duly constituted entity known as Integral Port Administration (*Administración Portuaria Integral* - "API"), which is entrusted with the planning, programming, development, utilization, exploitation and operation of the ports.

The organizational structure looks as follows:



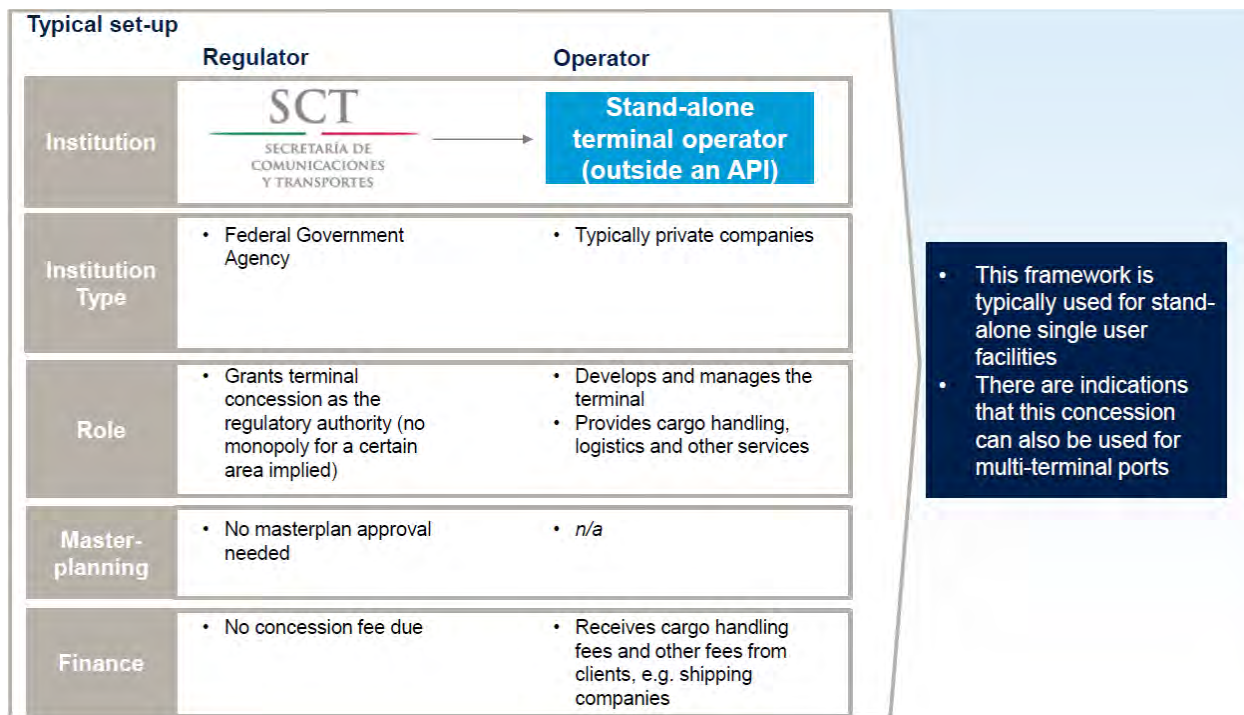
Source: SCT, 2018

The APIs were created in the National Development Plan (1989-1994) to assume responsibility over the administration of port premises. There are federal, state owned and private APIs. The mission of the APIs is to stimulate industrial investment, consolidate services and generate business opportunities. It is through the APIs that foreign investors and companies usually coordinate their port development projects.

Major port development projects, called masterplans, must go through the API. This entity is granted concessions by the Ministry of Communications and Transport (*Secretaría de Comunicaciones y Transportes* - "SCT") to manage the port and implement those masterplans. It is the SCT who approves the masterplans and those projects generally have a duration of 5 years.

The SCT is in charge of the Mexican Port System through the General Coordination of Ports and Mercantile Fleet (*Coordinación General Portuaria y Marina Mercante* - "CGPyMM"). The CGPyMM is the entity responsible for national port policy and tasked with promoting the role of Mexican ports in the global trade arena.

The SCT also grants concessions to stand-alone terminals (outside an API). The most common stand-alone terminal is from Pemex, the state-run oil company that is once again becoming the most important decision maker in the national energy sector thanks to AMLO's socially oriented administration.



Source: SCT, 2018

The CGPyMM coordinates 16 APIs, which are state-owned companies with concessions in 16 strategic federal ports. Those ports have their own API as they are considered to be of national importance. Other minor ports come under the jurisdiction of an API that covers the entire state.

Terminals, facilities and services in the nationally strategic important ports are operated by private firms by means of Partial Assignment of Rights contracts underpinned by the Law on Ports and Mercantile Law and are allocated via public tenders.

Furthermore, in 2017 the Mexican government established the Trust Fund for the Reinforcement of Port Infrastructure (*Fondo para el Fortalecimiento a la Infraestructura Portuaria - "FIPIORT"*) from profits generated by APIs, under the auspices of the CGPyMM.

The most recent change that underpins the development of Mexico's national ports is the appointment by AMLO's administration of Javier Jiménez Espriú as the new Minister of the SCT. The new SCT minister also started assembling his own team and appointed important figures relevant for Mexico's ports namely, Ing. Héctor López Gutiérrez, now head of the CGPyMM. Also, another important member of Espriú's team is Lic. Claudia Cynthia Sanchez Porrás who is the National Director for Ports taking on a wider range of topics in her portfolio.

By February 2019 the presentation of the SCT's maritime and port team was completed after assigning all the APIs. The directors of the 16 APIs are the following:

API Lazaro Cardenas: Ing. Raul Antonio Correa Arenas

API Manzanillo: Cap. Hector Mora Gomez

API Altamira: Ing. Ricardo Correa Chairez

API Veracruz: Ing. Miguel Ángel Yáñez Monroy

API Coahuila: Lic. Luis Antonio Luna Rosales

API Topolobampo: Lic. Benjamín Suarez Ruiz

API Dos Bocas: Lic. Alberto Sánchez Juárez

API Ensenada: Lic. Luz Alicia Iturbe De Garay

API Guaymas: Mtro. Víctor Abraham Larios Velázquez

API Mazatlán: Lic. Jorge Alejandro González Olivieri

API Progreso: Lic. Agustín Arroyo Toledo

API Puerto Madero: Ing. Roberto Alfredo Mendoza Sánchez

API Salina Cruz: C.P. Ricardo Tapia Ríos

API Tampico: Ing. Horacio Nájera Franco

API Tuxpan: Ing. Marcial Guzmán Díaz

API Puerto Vallarta: Constanza Mónica Suarez Jiménez

3. Mexico's strategic ports and their recent development

The following section will provide an introduction to Mexico's main ports and an overview of the numerous investments that were made during the last presidential term to develop the nation's ports.



Source: gob.mx/puertosymarina, 23/07/2016

As part of a series of major reforms and initiatives, the administration of Enrique Peña Nieto invested € 4,3 billion in the Mexican port sector during its six year term that ended in December 2018. In May 2014 the Mexican government released a multi-year National Infrastructure Plan (PNI) that outlined the major programs and projects of the presidential term. The PNI included plans for the development of the port sector resulting in numerous port development projects, some of which are discussed in further detail below.

Eighty percent of the funds for the development projects in the port and maritime sector came from private funding, which allowed the operational capacity of the ports to increase from 260 million tons of installed capacity in 2012 to 530 million tons by the end of 2018 (gob.mx, 2018). The ultimate goal was to duplicate the installed capacity of the ports in Mexico and this goal was successfully reached. All in all, the results of the PNI have been largely successful. In 2012, Mexico was placed 75th in the Global Port Infrastructure Index, and currently stands in 57th place (WB, 2018). An improvement of 18 places. The development of its port infrastructure also placed Mexico at the center of attention on the multilateral front. In 2016, Mexico was awarded the presidency of the Inter-American Committee on Ports of the Organization of American States.

Besides the major projects that will be discussed below, several smaller investments were made in other minor ports as well. Until 2018 € 424 million were devoted to the ports of Topolobampo, Tampico, Laguna de Pajaritos, Matamoros, Guaymas, Ciudad del Carmen, Seyba playa and Puerto Vallarta.

3.1 Ports in Mexico's Pacific Coast

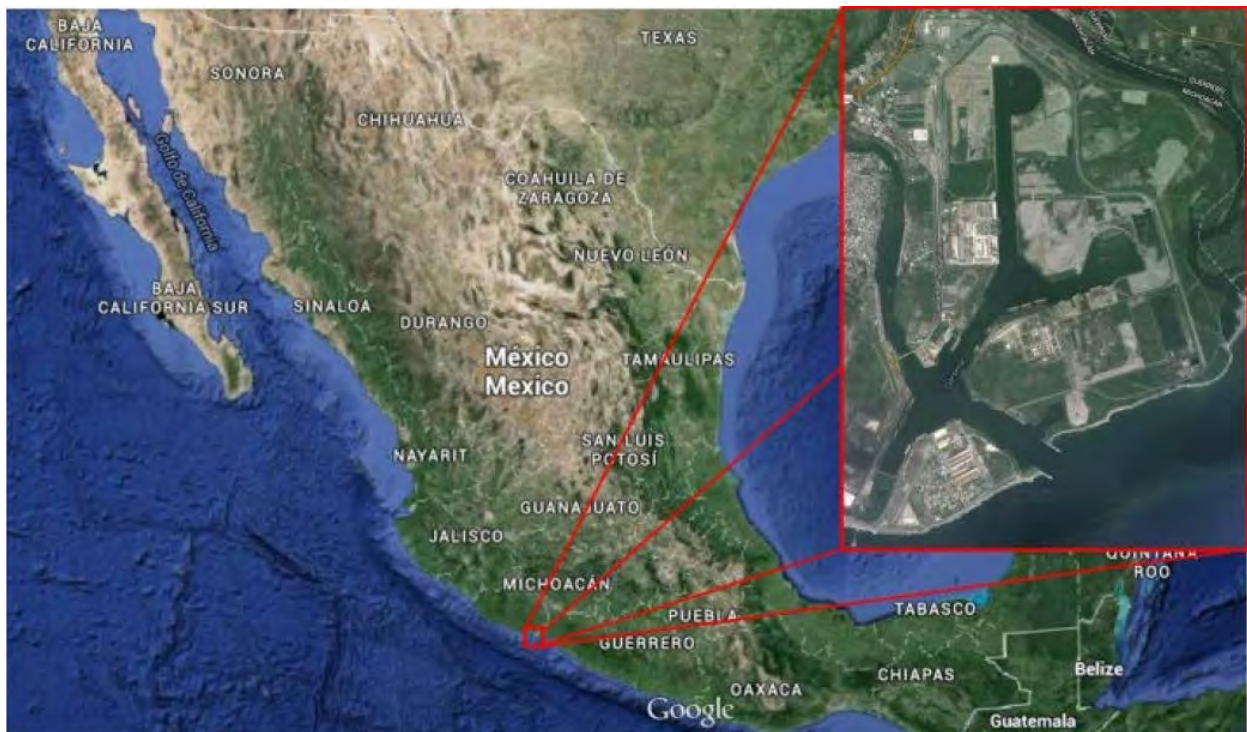
3.1.1. Lázaro Cárdenas

The port of Lázaro Cárdenas is a key Mexican seaport, located in the state of Michoacán it is one of the largest deep-water seaports in the Pacific Ocean basin. The port was primarily established as an industrial port, equipped to handle dry bulk and liquid cargo, but has been steadily growing and adapted to handle containers and other material as well. Today, the port holds adequate infrastructure to receive the largest vessels (up to 165 thousand tons) and all types of cargo. It has 5 public terminals and 4 private terminals. Lázaro Cárdenas is a large and dynamic port that has the potential to grow even further and has high level logistics and port operators.

This port is one of Mexico's main gates for the exchange of goods and merchandise with Asia and North America, and holds the 2nd place in vessel's operational productivity among all the ports in the American continent. Besides having good connections to the main distribution centers in all of Mexico, the port has direct access by railroad to the distribution centers in the United States. The railroad is privately-owned with 15 intermodal terminals operated by Kansas City Southern de Mexico. Also, the Salamanca-Lázaro Cárdenas gas pipeline ends in this port.

The port's main imports include iron ore pelletizing systems (Michoacán is Mexico's biggest producer of iron ore), coal, iron alloy and gasoline/diesel. Its main exports are iron ore, automobiles, wire rod, and aluminum billets.

Some of the companies present in this port are APM Terminals (Dutch), SAAM SMIT (Dutch), Arcelor Mittal, Maersk Line, Mexshipping, Pemex, Fertinal, and AEROMAR among others.



The port's most recent development

With a projected timeline of 2013-2019, the masterplan of the pacific seaport of Lázaro Cárdenas is nearly finalized. This project consists of an extension of the port through the development of four new terminals that is estimated to cost a total amount of € 471 million (approx. 920 billion MXP). A new container terminal, a general cargo terminal, a specialized vehicle terminal and a grain terminal are being added, which are expected to have an immediate impact on Mexico's local and international trade

growth. The Dutch company APM Terminals is involved in the construction of Lázaro Cárdenas' Terminal 2 (TEC 2), Latin America's first semi-automated deep-water terminal. This investment project allows the port of Lázaro Cárdenas to strengthen its position as the second-busiest port in the country. It is expected that the annual throughput capacity will increase with 1,2 million TEU's as a result the expansion (SCT, 2016). Following the final phase of development expected between 2027 and 2030, the terminals will have a capacity of 4.1 million TEU (APM Terminals, 2018).

With the new container terminal, the port is expected to become a major container facility due to congestion at the U.S. ports of Los Angeles and Long Beach. In preparation for the port's increased capacity, the rail- and highway infrastructure running north-south through the center of Mexico has been upgraded in recent years. APM Terminals Lázaro Cárdenas offers the fastest on-dock intermodal rail access with highly secured daily unit trains to Mexico City, which can save up to 5 days compared to other ports. Lázaro Cárdenas has been designated by Mexican port experts as one of Mexico's two 'super ports' because of its technologically advanced terminals and the tremendous economic impact it has on the surrounding area and the entire country.

3.1.2. Port of Manzanillo

The port of Manzanillo is located in the state of Colima approximately 350 KM north of the port of Lázaro Cárdenas. Together with the ports of Lázaro Cárdenas and Veracruz, the port of Manzanillo completes the top three of largest Mexican ports. Many experts consider the port of Manzanillo as Mexico's finest and most important port. Not only does its sheer size make the port a valuable contributor to the country's overall economy, Manzanillo boasts with the latest technology and port infrastructure. According to the Mexican Secretariat of Economy, the port has attracted the most foreign and domestic private investment in the country in the period 2014/15 (SE, 2017). In 2016, the port administration was awarded the Clean Port Award given by the federal environmental authority, which the API of Manzanillo is especially proud of and had made it its goal to continue being the national benchmark for clean and sustainable ports in Mexico.

While industrial goods are the main focus of the port of Lázaro Cárdenas, the port of Manzanillo is considered the main entrance of container shipping in Mexico's west coast. The main imports handled by the port are consumer goods such as clothing, household appliances, food, fertilizers, steel products, paper and spare parts, but agricultural products such as wheat, sorghum, oats, livestock, and various sorts of minerals also constitute an important part of the port's throughput. The principal exports going through the port of Manzanillo are beer, tequila, cars, cement, sugar, copper, carbon, glucose and resin. This port handles most of the consumer good cargo for the Bajío and Mexico City area. Given its location, it also acts as an important port for Asian importers and exporters.

The port's most recent development

Together with the Inter-American Development Bank, the Mexican Federal Commission of Electricity (CFE), and the local port authority, the Mexican government planned a € 350 million modernization project for the port of Manzanillo between 2013 and 2015. The modernization project consisted of the design, construction, operation and maintenance of a new container and logistics facility along with the development of a new general cargo terminal. The first phase of the project involved the construction of a two-berth 720 meter-long deep water quay deck to accommodate a wide range of vessels, including the newest post-Panamax ships. Among the new equipment installed are 4 last-generation fully automated post-Panamax cranes that will reduce loading and offloading times by half.

Separated from the port enclosure of Manzanillo but still under the jurisdiction of the API of Manzanillo lies the Laguna de Cuyutlán. It is a lagoon, a type of closed bay with one entrance, where a thermoelectric plant and an LNG station are located. The lagoon counts with the minimum level of infrastructure required for it to be called a port and in 2017 the API Manzanillo performed several feasibility studies for an extension. The port of Cuyutlán's main business is being the entrance point of LNG. This is one of only three ports in Mexico that have LNG-specific infrastructure, the other two are

Rosarito in Baja California state and Altamira. In terms of capacity and services specialized in LNG Mexico is not very strong. It is an area where Dutch technology and companies offering services may find significant opportunities.

3.1.3. Port of Ensenada

The Port of Ensenada is located in the far north-western corner of Mexico in the state of Baja California. It is a medium sized natural seaport and the main port-of-call for major cruise lines and pleasure boats in Mexico. Although the tourism industry is the port's main activity, the port authority administers two cargo terminals as well. The port's main exports are cotton, limestone, crushed rock, bagged stones and sand, and are directly shipped to ports in Hong Kong, Korea, Japan, Malaysia and other Asian countries. The port authority devised plans in 2011 to dredge parts of the port to allow for the entry of post-Panamax vessels which would also relieve congested areas from the port of Long Beach, but this plan never went through.

The port's most recent developments:

In 2017, the port handled 230,185 TEUs of cargo and it is expected that the 300 thousand milestone will be surpassed soon. During the last administration, investments in the Port of Ensenada amounted to approx. € 100 million euros (\$ 2 billion MXP), which have benefited the containerized cargo shipping through the port with a 100% increase in throughput, as well as a 50% increase of cruise ship dockings and 85% general cargo increase according to the General Director of the Ensenada Port Authority, Hector Bautista Mejia.

3.1.4. Port of Salina Cruz

Salina Cruz is located in the south of the country in the state of Oaxaca near the mouth of the river Tehuantepec. The Gulf of Tehuantepec where the port is located has no natural harbor but with the construction of two breakwaters it was possible to build one. This location was chosen as the Pacific Terminal of the Tehuantepec National Railway that runs along the Tehuantepec Isthmus corridor to the port of Coatzacoalcos in the Gulf Coast. Several proposals have been made for modernizing the inter-oceanic rail connection, but this will be discussed later in the report as it involves one of the new president's major development plans. So far, a new general cargo berth has been installed at Salina Cruz with a total investment worth of € 14 million (\$ 280 million MXN). Also, in October 2018 the API of Salina Cruz partially ceded its rights and obligations to Pemex for the use and exploitation of a federal marine zone the size of more than 3 million m² (API Salina Cruz, 2018).

From the point of view of commercial cargo throughput, Salina Cruz is just a regional port. However, due to the large quantity of fuels that is supplied through this port and its redistribution to the rest of the country, Salina Cruz may be counted as a port of national importance. In 2018 (excluding December), the port handled 7.3 million liters of petroleum and derivatives, averaging 750 thousand liters every month (API Salina Cruz, 2018). Apart from the API of Salina Cruz, Pemex also operates its own terminal in this port to provide service for the cabotage routes between this port and all other Pemex terminals along the Mexican Pacific Coast. In total, Salina Cruz is responsible for 5% of the Mexican maritime transport in the country. Salina Cruz remains a relatively small port but with huge growth potential thanks to the Trans-Isthmus corridor that will be discussed later on.

Pacific Coast Total Cargo Throughput Data January - November 2018

(All numbers in tons of cargo; M = million, K = thousand)

2018	General Cargo	Containerized Cargo	Agricultural Bulk	Mineral Bulk	Petroleum & Derivatives	Other Fluids	Total Cargo
Lázaro Cárdenas	2.54 M	8 M	251 K	14.79 M	2.36 M	714 K	28.7 M
Manzanillo	1.52 M	20.23 M	1.56 M	4.65 M	2.97 M	-	30.93 M
Ensenada	203 K	1.46 M	80 K	516 K	-	60.9 K	2.3 M
Salina Cruz	23 K	27 K	36 K	3 M	7.3 M	20 K	7.4 M

Source: SCT, 2018

3.2 Ports in the Gulf of Mexico

Opportunities for port development and the maritime sectors are plentiful in Mexico's eastern coast given the developments in the offshore and deep-sea exploration industries in the Gulf of Mexico. As a consequence of the growth in the energy sector, demand for port development projects are also on the rise because many of these ports are going to function as service points for the activities of the energy industry and need facilities with proper infrastructure to accommodate for the demands.

So far, 3 of the 5 new ports that were commissioned in Peña Nieto's PNI for the Gulf of Mexico have been completed. The ports of Matamoros, Tuxpan and Seyba playa are finished and construction is nearly finished in the port of Ciudad del Carmen and the 'New' Port of Veracruz.

3.2.1. Ports of Altamira, Tampico & Matamoros

The port of Altamira, facing the Gulf of Mexico located in Mexico's northern state of Tamaulipas, was conceived as part of a strategy to create new national hubs for economic development in the 1980s. The Mexican government chose regions of the country where industrial activity could be launched in an environment that combined all the elements that would make productive and logistic chains more competitive. Mexico's federal government recognized that the Port of Tampico needed to be expanded, but there was not enough space available and expansion was impossible. Therefore, Mexico developed a new deep-water port at Altamira, about 24 kilometers north of Tampico, to supplement the cargo traffic handled by the Port of Tampico. Both Tampico and Altamira are considered strategically important and therefore have individual APIs granted to each one of them.

At this moment, Altamira conducts 5 lines of business. It handles container cargo, mineral bulk, agricultural bulk, petrochemicals and general cargo. Altogether the different plants at Altamira create a strong logistics platform that offers numerous competitive advantages and benefits to both established companies and investors. This port is Mexico's most important commercial center in the Gulf coast for the petrochemical industry (the only port in the Gulf Coast that has LNG-specific infrastructure) and second most important in automobile handling. Apart from petrochemicals and automobiles, the port also handles general, dry and liquid bulk, containers and oversized automobiles. Half of the cargo going through this port have origins and destinations in Mexico's northern states such as Tamaulipas, Nuevo Leon, and Coahuila, whereas 28% of the cargo goes to or comes from the central regions of San Luis Potosi, Zacatecas, Guanajuato and Queretaro. This port is connected to 125 ports, most of which lie along the Atlantic Coast. Its strategic location allows for a quick and easy access to the main economic hubs in the country. Furthermore, the border with the United States is just 500 km away granting it easy access to the American markets.

In total, the port has 12 terminals and 17 berths in operation, but has the potential to add another 80 berths. It is the 4th port nationwide in terms of total throughput, and with still over three thousand hectares open for development Altamira is on top of the list in terms of growth potential and opportunities. The API of Altamira is already in possession of 50 hectares of land near the port

designated for development. Overall, the total throughput of the port of Altamira has increased 38% since 2012. This increase is composed by an 88% increase in general cargo, an astounding 314% increase in automobile handling, 64% increase in containerized cargo and a 23% increase of mineral bulk (API Altamira, 2018). According to the local port authority, the throughput of containerized cargo that will pass through Altamira is expected triple throughout the 2019-2020 period.

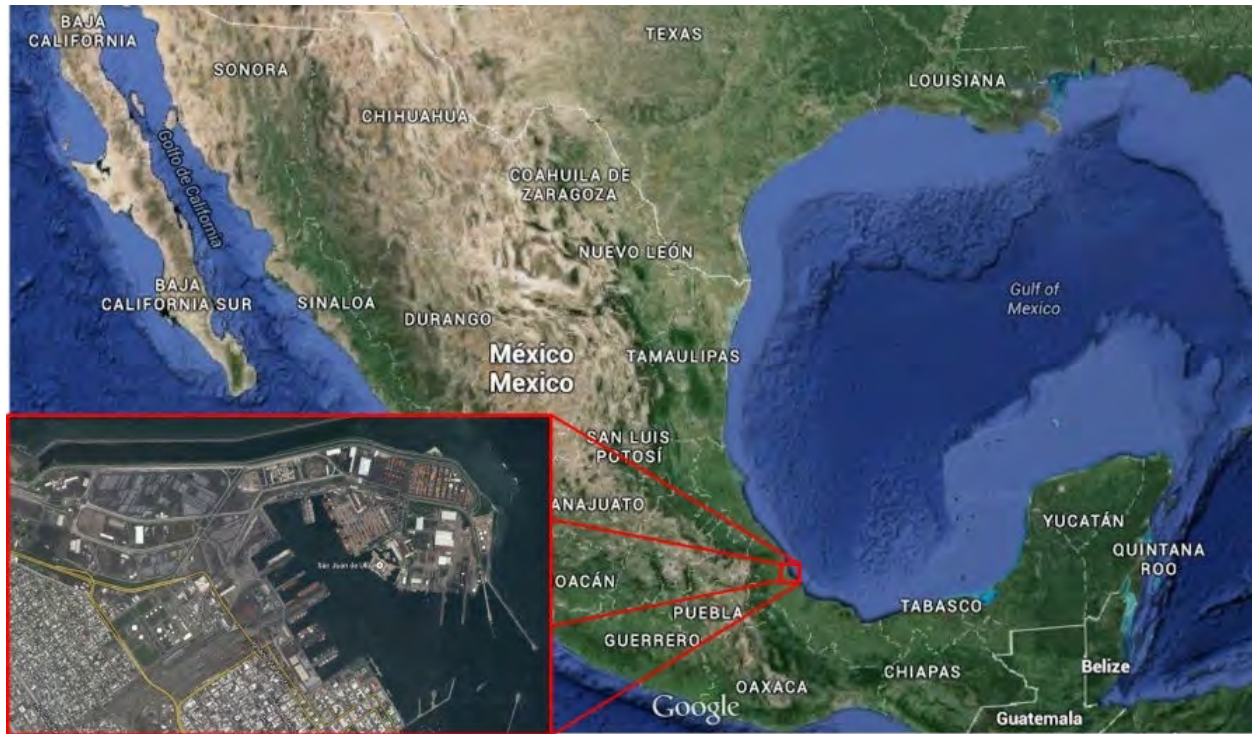
The port of Matamoros, located in the most north-eastern corner of Mexico close to the US border, faces certain challenges that push investors into Altamira's arms. The port was commissioned for renovation and expansion during the previous administration but did not succeed in attracting sufficient funds and investors. One problem is the port's proximity to the Mexico-US border and the port of Brownsville, which lies practically on the other side of the border in the state of Texas. The port of Brownsville is a much larger and advanced port that is able to offer lower prices and thus be more competitive. There has not been any lack of ambition from the port authorities of Matamoros to attract investors though. On the contrary, Matamoros is a port under development that welcomes investments and the port authorities have been very vocal in their desire to attract foreign investment. The problem is that the security conditions in the Matamoros region are very poor and this is unsettling for investors. Adding this problem with the suffocating competition coming from the port of Brownsville has made it very difficult for the Port of Matamoros to pose as an attractive port for foreign investment.

The port's most recent development

During the previous presidential term, the port of Altamira underwent modernization for € 179 million (\$ 3.86 billion MXN) of which a major portion was used for the extension of its channels by dredging. In November 2018, the port handled 21.8 million tons of cargo that amounts to a 9% increase compared to the year before (API Altamira, 2018). According to the general director of the API of Altamira, Jose Carlos Rodriguez Montemayor, the port is growing thanks to infrastructure investments that have arrived in the last few years and Altamira is looking to continue this trend. Its modern facilities and the area in which Altamira was built allows for further expansion of the port with relative ease. The latest upgrade for the port arrived in December 2018 when the company Cooper T. Smith de Mexico, running a terminal specialized in agricultural-bulk and general cargo, received a new fully automated mobile crane type LIEBHERR LHM 550 that is capable of working with post-Panamax generation ships.

In terms expansion, the port is most of all in great need of covered storage facilities for general cargo, containerized cargo facilities, and petrochemical storage facilities. At this moment the port is only able to cover 30% of its needs. The port authority is also eyeing the construction of an intermodal dry dock that is going to require stowage machines and operators. Consequently, the port is looking for companies that can install and manage those new facilities.

3.2.2. Port of Veracruz



Source: Mexico's Port Infrastructure, January 2015

The port of Veracruz is the oldest port of Mexico and the largest trading port in the Gulf of Mexico. This port is often seen as the gateway for Mexico's automobile industry due to its two handling facilities specifically dedicated to automobiles. The automobile industry is concentrated in the center of the country in the states surrounding Mexico City.

The port of Veracruz completed an infrastructure restructuring process in 2012 with the restoration, strengthening and restructuring of existing piers, the construction of a new dock for agricultural bulks, and the expansion and reform of some of its quays. It has also dredged the harbor and navigation channel, reinforced the internal levees and constructed a 13,5 km urban bypass during this process.

The port currently operates 18 berths and has more than 600.000 m² of storage available. The main facilities of the port include a dedicated container terminal, agricultural-bulk terminals, a bulk ore terminal, multipurpose facilities and two dedicated vehicle handling facilities. The port is therefore equipped to handle containers, agricultural-bulks, mineral bulks, general cargo, liquid bulks and automobiles. Automobiles however remain the most important line of business, with over 700,000 vehicles per year, it is the largest vehicle-handling port in the continent (NALVPS, 2017).

Overall, the port receives more than 2500 ships annually operated by the world's major shipping lines, linking Veracruz with major ports in Europe, the United States, Latin America and Asia (via the Panama Canal). The port is designated as one of two Mexican "super ports" because of its leading position in the handling of automobiles, as well as its important contribution in the agricultural-bulks and container shipping areas. Without a doubt the port of Veracruz is one the country's most important ports handling over 26,5 million tons of cargo in 2018 (excluding December) (API Veracruz, 2018).

The major companies operating in the port of Veracruz are CICE, CPV, SSA, Hutchinson Ports (ICAVE), SEPSA, Vopak (Dutch), Cargill, Excellence, TMV, T.C.E., Apasco, SIP and Pemex.

The port's most recent development

The largest and most remarkable port development project of the previous administration's PNI is the expansion of the port of Veracruz. The project consists of the development of a "Northern Zone", comparable in size with the Maasvlakte 2 of the Port of Rotterdam. The Port Authority of Veracruz wants to relieve the port from its saturation by doubling its surface area and tripling the available capacity. In reality an entire new port is being built next to the existing one. The port authority's vision is to become the leading port organization in creating business opportunities, and its mission is to promote and maintain profitable port business by efficient transfer of cargo and best use of the port infrastructure. The port of Veracruz will boast state-of-the-art infrastructure and technology. The project's masterplan has a timeline of 2016-2019 with a projected investment cost of € 1,4 billion (\$ 28 billion MXN).



Source: proyectosmexico.gob.mx, 2016

3.2.3. Port of Tuxpan

Where some other Mexican ports have difficulties attaining last-generation ships, the port of Tuxpan, located in the north of Veracruz state, controls 18 docking stations where last-generation ships can moor without difficulties. The port facility occupies an area of 6,407 hectares, with spaces available for the development of new port projects. Over the past 15 years, the port has maintained a sustained growth rate in total cargo movement. The goal for installed capacity of the port in 2018 was 24.75 million tons of cargo.

The port receives and distributes over 40% of Mexico's gasoline imports. Historically it has been the main supplier for industries in the states of Queretaro, Hidalgo, Tlaxcala, Puebla, Morelos, Estado de Mexico and Mexico City. It also supports foreign trade with an installed capacity that enables the movement of general cargo, containerized cargo, vehicles, fluids, as well as mineral and agricultural bulk. The port has the potential to competitively attend the needs of the large automotive and aerospace industry clusters located in Mexico's central region.

Tuxpan has consolidated experience in handling petroleum products, fluids, general cargo, containerized cargo, agricultural and mineral bulk, and supporting the offshore activities of the energy industry. The port's specialized integral services include cargo inspection, underwater inspection, maneuvers, tendering and provisioning among others.

Some of the companies operating in Tuxpan are: Tuxpan Port Terminal, Transunisa, Pemex Logistica, FR Terminales, Smart Pass, Termigas, Tomza, CICSA, Marina Foy and Grupo HB among others.

The port's most recent development

The port of Tuxpan is the closest port to Mexico's principal production and consumer centers. The port participates in the Central Economic Inter-oceanic Corridor, maintaining land connections with the ports of Manzanillo and Lázaro Cárdenas, which are situated on the Mexican Pacific Coast. The modern Mexico City – Tuxpan highway is the virtuous circuit of connectivity between the Gulf and central Mexico, which sustains Tuxpan's intermodal competitiveness.

It has been the development of the modern highway infrastructure that has put the port of Tuxpan at the vanguard of intermodal services in Mexico. The modern highway turned the Port of Tuxpan into the port that is closest to Mexico City. It was built with the highest standards and was outfitted with intelligent highway systems to make it much safer. The new bypass road provides direct access to the port, decreases the risk of traffic accidents as well as travel time.

The port of Tuxpan is a pioneer in Mexico regarding the way public-private financing should be carried out for port infrastructure, whereby it was able to dredge its main navigation channel and its turn basin to a depth of 15 meters. Also, one of Mexico's newest port terminals is operating in Tuxpan, specialized in handling containers, general cargo and cars, with a capacity to mobilize 700 thousand TEUs and 100 thousand vehicles.

3.2.4. Port of Coatzacoalcos

The port of Coatzacoalcos, located in the south of the state of Veracruz, is the port hub that helped forge the emergence of the petrochemical industry in Mexico. It provides logistical support to over 95% of the production of petrochemicals in Mexico, which are processed in the dynamic industrial cluster adjacent to the port. Pemex has a refinery here next to four other petrochemical plants, as well as several private industries pertaining to this sector, both foreign and domestic, that have substantially increased their investments in 2016 thanks to Mexico's Energy Reform.

The port also has a train ferry, the only one in Mexico, with a regular intermodal door-to-door service without transfers, and a direct connection to railways in Mexico, United States and Canada. The train complements the port services with infrastructure tailored for deep-sea commerce and cabotage, mobilizing materials for nearby industries, as well as goods for local consumption and a variety of products from the region, exchanging merchandise with over 30 ports worldwide.

The port has consolidated experience in petroleum and derivatives, chemical products, fluids, agricultural and mineral bulk, general cargo, unitized cargo (containers and trains), and oversized and heavy cargo for the petroleum industry. The port's specialized integral services include warehousing, ship-yard-ship transfer, loading and unloading maneuvers, pilotage, mooring and others.

Some of the companies operating in Coatzacoalcos are: Pemex, Cemex, Vopak (Dutch), Terminales Transgolfo, Grupo Celanese, Pro Agroindustria, Ed&F Man, Oxiten, Grupo Trimex and Oleosur among others.

The port's most recent development

On April 27th 2017, the Coatzacoalcos underwater tunnel was officially opened after a 13 year construction process. The tunnel goes under the Coatzacoalcos River, connecting the cities of Coatzacoalcos and the petrochemical industry park of Villa Allende, reducing travel times from 30 minutes to just 3 minutes. The tunnel was built with the immersed tube method in order to reduce impact on urban areas. Although the project was marred by delays and overextension of the budget, the city of Coatzacoalcos now operates the first underwater tunnel of Mexico and Latin America.

3.2.5. Port of Dos Bocas

The port of Dos Bocas is located in the state of Tabasco, AMLO's native state. The port was constructed out of Pemex's necessity to have a shipping and exporting center near the oil field in the Gulf coast called "Sonda de Campeche", as well as from the inland oil fields in the region. Starting in 2005, the port began to diversify with the construction of a multipurpose terminal, looking for commercial activity and the development of new product lines and the creation of an industrial park. Today the port has some commercial activity but its activities in the oil and gas sector remain as the port's main line of business.

The port of Dos Bocas offers a competitive advantage for the specialized activities of the petroleum industry due to its proximity to the oil and gas deposits off its coast. Dos Bocas is the principal logistics center for the industrial and commercial sectors of the region. On average, the port of Dos Bocas receives 6 thousand ships a year with approximately 8 million tons of cargo. The high level infrastructure and port facilities are supplemented by nearly 60 companies that offer different specialized port services.

There is an industrial park of 70 hectares located inside the port compound, which is ideal for the development of the activities needed in the petroleum industry operating in the Gulf of Mexico. Possible areas of investment in this port are located in:

1. Management of agricultural and mineral bulk
2. Integral platform for maintenance and repair service
3. Maintenance and repair of boats
4. Management and storage of fluids
5. Dry and refrigerated containerized cargo
6. Logistics services
7. Specialized services to the oil industry
8. Manufacturing and processing plants
9. Development of regular cabotage and transoceanic shipping routes

The port's most recent development

In 2018, the port of Dos Bocas requested an extension of the area it was initially awarded as a result of the bidding rounds of the energy reform performed in 2015, 2016, 2017 and the first semester of 2018. Many shallow water blocks were assigned in the Gulf of Mexico, some of which are located off the coast of the state of Tabasco within the area of influence of the port of Dos Bocas. Additionally, one of AMLO's plans is the construction of a new refinery around the harbor enclosure of Dos Bocas.

3.2.6. Port Frontera

The port of Frontera is also located in AMLO's home state Tabasco, 90km of the state's capital Villahermosa near the mouth of the river Grijalva. Frontera is a small sized port focused mainly on cabotage routes because it counts with very little dredging and is therefore unable to accommodate larger vessels. The port has limited infrastructure; there is one quay used mostly for the petrochemical industry, one quay designated for the fishing industry and one private quay. Previous feasibility reports made in 2015 by Arcadis and the Port of Rotterdam have noted that the port needs substantial investments to lift the port to a level where it can be regionally competitive. However, Arcadis is still interested in the port, as well as the other companies that were involved in the report such as Damen, Boskalis and Naviera Integral.

It is highly likely that many changes will come in 2019. The Singaporean companies Jurong International and Keppel for example have both recently participated in infrastructure projects for the modernization of Progreso's facilities and the construction of a new shipyard respectively. So far several small investments have been made, but it is likely that more investments will follow. If they take place, they will most likely be focused on infrastructure connected to the activities of the energy sector.

Due to the increased activities as a result of the energy reform at the new exploration zones located off the shores of Tabasco, the port of Frontera now finds itself positioned in a strategically important location. Although Frontera does not have an exclusive API designated to it like Dos Bocas – the API Tabasco is in charge of Frontera - the port is now a potential focus point of the new government. Next to AMLO's increased interest for this port, it has also attracted the attention of the energy sector and both are now exploring if it is possible to use this port as a service point. This is why Frontera has the potential to produce many investment opportunities although it is still unclear what the exact plans for the port are.

The strategic location is one important factor, the other factor is the simple fact that the port is located in AMLO's home state Tabasco. It is expected that AMLO will allocate more funds to Tabasco and other

states in the south of Mexico so it is just a matter of time until it becomes clear if the port of Frontera will have the means to create those opportunities.

3.2.7. Port Progreso

Puerto Progreso is located in the state of Yucatan and it is the state's principal port. It is an all-round medium-sized port with its activities more or less equally balanced between the commercial, industrial and tourism businesses. Both the commercial and tourism activities of the port are steadily growing and the port is in urgent need of expansion because its only public terminal is quickly becoming saturated. The port needs more public quays to be able to continue handling sugar coming from Chiapas, salt from Yucatan and the components of windmills for a large wind-energy park being constructed in Yucatan among other things. Plans were made in the previous administration's PNI to expand the port but those plans were ultimately scrapped due to insufficient funds in the budget as a result of the global drop in oil prices.

According to Raul Torre Gamboa, the General Director of the API of Progreso, the port counts with all the necessary measures such as technical analyses, environmental permits and a construction plan to initiate the 60 ha extension project of the port's quays. It is still unclear whether the required € 74 million euros (\$ 1.6 billion MXN) will be allocated to the project; that decision is at the hands of the new government of President Lopez Obrador. Since AMLO's focus is to develop the south of the country and the port of Progreso is the main port in the Yucatan peninsula, there is some probability that AMLO will take on this project. There is also a talk of the creation of a logistics activity zone (*Zona de actividades logisticas – "ZAL"*). The ZAL, for which additional land outside the port will need to be acquired, is intended to give support in handling the port's cargo and it is a project that has been talked about a number of years.

The port's most recent development

Although the extension project initially did not go through, a \$ 700 million MXN investment for the creation of a new runway (viaducto alterno) did take place in 2016. The previous runway was already 70 years old and had its limitations as to oversized cargo and traffic capacity. The new runway, which is technically a bridge that connects the mainland with the quays that are a few hundred meters of the coast, has made the port of Progreso more competitive and a 5% increase in throughput was registered in 2017, one year after its completion (SCT, 2017).

During the period 2013-2018 the port experienced a 68% increase in total cargo throughput. This increase is comprised of a 360% increase in general cargo, 81% in containerized cargo, 52% more agricultural-bulk, 100% more hydrocarbon fuels, and 79% more cruise ships (API Tabasco, 2018).

Gulf Coast Total Cargo Throughput Data January – November 2018

(All numbers in tons of cargo; M = million, K = thousand)

2018	General Cargo	Containerized Cargo	Agricultural Bulk	Mineral Bulk	Petroleum & Derivatives	Other Fluids	Total Cargo
Altamira	3.7 M	6.57 M	605.7 K	5.8 M	-	5 M	21.8 M
Tampico	1.4 M	34 K	84 K	1.2 M	4.7 M	8 K	7.5 M
Tuxpan	331 K	93 K	1.5 M	659 K	9.4 M	1.3 M	13.3 M
Veracruz	3.1 M	10.8 M	6.5 M	3.37 M	1.7 M	1 M	26.5 M
Coatzacoalcos	340 K	145.7 K	1.67 M	1.2 M	21.3 M	1.6 M	26.4 M
Frontera	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dos Bocas	2 M	-	5 K	4.7 K	28.9 M	40 K	31.1 M
Progreso	172 K	776 K	2 M	110 K	2.8 M	19 K	6 M

Source: SCT, 2018

4. Plans of the AMLO administration

On December 1st, 2018 Andres Manuel Lopez Obrador was inaugurated as Mexico's new president. AMLO is a left-leaning politician that wants, among other things, to boost the economy of the underdeveloped south of the country for the benefit of all Mexicans, especially for the lower-income groups. It was one of his most important campaign promises, which he reaffirmed during his inauguration speech. AMLO is committed to take the current 2% investment for the south of the country to a level close to 5% so that, along with private investment, investments will reach a total value of 25% of the national GDP. A large part of this new investment will go towards the provision of new infrastructure. Renovating and expanding the existing railways, port terminals and airports are some of the projects that will be developed in the next six years. According to some industry contacts, the new administration will focus on the development of the ports of Altamira, Progreso and the construction of a refinery at Dos Bocas.

Furthermore, it is expected that investments will flow toward the ports of Salina Cruz (Oaxaca) and Coatzacoalcos (Veracruz) to revive the Tehuantepec Isthmus corridor. The three ports mentioned, Dos Bocas, Coatzacoalcos and Salina Cruz, have been designated by the new government to be of strategic importance for the development of the southern- and south-eastern regions of Mexico. Together with the ports of Lázaro Cárdenas, Progreso, Seyba Playa and Puerto de Chiapas, these ports were designated as Special Economic Zones (SEZs) by the previous president. The designation of SEZ entails that in certain geographically defined areas the business and trade laws are different than in the rest of the country with the aim of increasing trade, investment and job creation. More flexible juridical and fiscal laws should encourage businesses to set up in the zones, which are located in places with high logistical and commercial value. The idea of the SEZs is something that AMLO is looking to harness and benefit from during his term in office.

AMLO's plan to revive the Coatzacoalcos – Salina Cruz Corridor across the Tehuantepec Isthmus is one of the four major infrastructure plans the new administration has for the upcoming years. This project aims to link the Pacific Coast with the Gulf Coast via rail and road in order to shrink shipping times that normally go through the Panama Canal. This is a large infrastructure project that aims to connect two ports that are on opposite coastlines. Naturally this is going to help the ports increase their throughput as well as encourage economic activity along the entire corridor.

4.1 Tehuantepec Isthmus Corridor

The modernization of the Tehuantepec Isthmus corridor, which must include investments in the ports of Coatzacoalcos and Salina Cruz, is one infrastructure megaproject that the new president wants to pursue. The Southern Economic Interoceanic Corridor, as it is officially called, aims to connect two ports on opposite coastlines. To the north is the port of Coatzacoalcos facing the Mexican Gulf coast in the state of Veracruz, and to the south is the port of Salina Cruz that faces the Pacific coast in the state of Oaxaca.



Source: transporte.mx, 2016

The corridor is what technicians call a dry canal, a corridor with rail infrastructure for freight trains and a road with a highway in certain sections. The layout presents few engineering difficulties; the terrain is virtually flat and lies between two mountain ranges. The distance between these two ports is 304 km by rail or 314 km by road, which is the shortest stretch of land connecting both oceans anywhere in the North American region. This corridor has strategic potential for international trade between the two oceans. AMLO has planned to allocate \$ 2,5 billion MXN (€ 115 million) of public resources for the project. At the moment of writing this report the project's budget had not yet been ratified.

The ports sitting on opposite ends of the corridor have certain infrastructure to exchange merchandise by rail, but urgently need renovation and expansion. The terminal at Salina Cruz in particular needs restructuring, the terminals are outdated and current capacity is below par. Moreover, the ports are interconnected through a network of pipelines, designed to transfer hydrocarbons and petroleum products. The national oil company, Pemex, installed a pipeline network to connect the two coasts by land. Coatzacoalcos is predominantly a supplier of petroleum and derivatives while Salina Cruz functions as an important distribution hub for numerous commercial centers along Mexico's west coast.

The commercial advantages of the corridor, not just for Mexico but for international trade as well, are immense. For example, Chinese products destined for the southern US would take one week less to arrive when compared to the length of the voyage when going through the Panama Canal. Oil cargo shipments leaving Houston, which normally take 16 days to reach the Pacific when going through Panama, would now take only 7 days to reach the waters of the Pacific Ocean. With modern ports at both ends, Mexico's trans-isthmus corridor not only should provide a tremendous logistical advantage to those maritime routes that involve the Panama canal, but also for the departure of regional goods.

Advantageous for AMLO is that both the port of Coatzacoalcos and Salina Cruz already have the SEZ status. A more favorable business and investment climate compared to the rest of Mexico is what characterizes the ports at this moment. The first step needed to realize AMLO's national development

plan is thus already in place. Currently, the port of Coatzacoalcos and Salina Cruz are contemplating a joint concession to run their respective container terminals. The idea behind offering a joint concession is that both ports are now in a way connected thanks to the planned corridor. If developed, the corridor will without a doubt help increase throughput for these ports. Therefore the infrastructure of terminals at both ports need adaptation and restructuring.

4.2 Refinery at Dos Bocas

The construction of a refinery at the port of Dos Bocas is another campaign promise of AMLO. Ever since the start of his presidential campaign AMLO called for the construction of a new refinery in his home state Tabasco with the ultimate goal of transforming Mexico into a self-sufficient country in its energy needs. The idea to emphasize energy security and make Mexico less dependent on imports from the U.S. is a sound one, but questions have been raised about the true impact of the refinery on Mexico's energy security and gasoline prices nationwide. Some obscurity exists as to the necessity to build an entire new refinery while there are other refineries in Mexico that need modernization.

With regard to the port of Dos Bocas, because it is a strategic zone for the revitalization of the energy sector in Mexico, the port was designated as a SEZ during EPN's administration. This is supposed to help bring investments, which the port needs. It is estimated that the new refinery will produce 300 to 400 thousand barrels a day and contribute to the local economy of Tabasco, especially in the municipalities of Centla, Paraíso, Cunduacan, Comalcalco and Cardenas according to Tabasco's governor Adan Augusto López Hernández. The investment for the first 3 years is estimated to cost \$ 2,2 billion MXN (\$ 100 million USD).

Due to the increased interest in Dos Bocas as a result of its designation as a SEZ and the initial face of the construction of the refinery that has already, a large wave of activity has surged in and around the port's premises as well as in the neighboring municipality. The official bidding rounds for the construction have not been announced yet, but the flattening of the terrain where the refinery is going to be began on December 9th 2018. As it is one of AMLO's aims to boost the state oil company Pemex, this project is going to be managed and run primarily by Pemex with the opportunity for international companies to collaborate and contribute under Pemex's guidance. It is expected that from now on all the projects related to the energy sector are going to be run this way. Under AMLO Pemex is going to take a leading role again. So far, companies from the U.S., Japan, China and Spain have offered their services to collaborate in the construction of the refinery.

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