



Ministry of Foreign Affairs

Market Analysis - Port Sector

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International.*

Market Analysis - Port Sector

July 2020



Source: Port of Santos – General View, 2020.



Sources: 1 - Canal Rural, 2019; 2 - deno.oceanica.ufrj.br, 2016; (3) Transpetro, 2020; (4) Porto do Açú, 2020; (5) Jornal GGN, 2016; (6) Santos Brasil, 2020.



This report has been prepared by José Di Bella Filho, supported by Ties de Leijer and André de Fazio Neto, and coordinated by Jörgen Leeuwestein and Robbert Appeldoorn of the Embassy of the Netherlands in Brasilia and published by RVO.

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The objective of this report is to provide the reader with a wide range of information to obtain a view of Brazil, focused on the port sector.

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GLOSSARY

ABTP	BRAZILIAN PORT TERMINALS ASSOCIATION
ABTRA	BRAZILIAN RETROPORT TERMINALS ASSOCIATION
ABRATEC	BRAZILIAN CONTAINER TERMINALS ASSOCIATION
ADM	ARCHER DANIELS MIDLAN GRAINHOUSE
AGEO	AGEO TERMINAIS E ARMAZÉNS GERAIS
AMAGGI	AMAGGI COMMODITIES and AMAGGI LOGISTICS AND OPERATION
ANTAQ	NATIONAL WATER TRANSPORTATION AGENCY
APM	APM TERMINALS
APPA	ADMINISTRAÇÃO DOS PORTOS DE PARANAGUÁ E ANTONINA – PORT AUTHORITY
ATP	PRIVATE USE TERMINALS ASSOCIATION
BNDES	BRAZILIAN SOCIAL ECONOMIC DEVELOPMENT BANK
BUNGE	BUNGE BRASIL - GRAINHOUSE
CADE	ADMINISTRATIVE COUNCIL FOR ECONOMIC DEFENSE
CARAMURU	CARAMURU ALIMENTOS - BRAZILIAN TRADING GRAINHOUSE
CARGILL	CARGILL GRAIN WAREHOUSE
CCCC	CHINA CONSTRUCTION COMMUNICATION COMPANY
CDC	COMPANHIA DOCAS DO CEARÁ – CEARÁ PORT AUTHORITY
CDP	COMPANHIA DOCAS DO PARÁ – PARÁ PORT AUTHORITY
CDRJ	COMP. DOCAS DO RIO DE JANEIRO – RIO DE JANEIRO PORT AUTHORITY
CDSS	COMP. DOCAS DE SÃO SEBASTIÃO – SÃO SEBASTIÃO PORT AUTHORITY
CEU	COAL ELECTRICITY UNIT POWER GENERATION
CIPP	COMPANHIA DE DESENVOLVIMENTO DO COMPLEXO INDUSTRIAL - PORTO DO PECÉM
CLPI	PORT LOGISTICS INTELLIGENT CHAIN
CODEBA	COMPANHIA DAS DOCAS DO ESTADO DA BAHIA – BAHIA PORT AUTHORITY
CODESA	COMP. DOCAS DO ESPÍRITO SANTO – ESPÍRITO SANTO PORT AUTHORITY
CODERN	COMP. DOCAS DO RIO GRANDE DO NORTE – PORT AUTHORITY
CODESP	COMPANHIA DOCAS DO ESTADO DE SÃO PAULO – SANTOS PORT AUTHORITY
COFCO	COFCO INTERNATIONAL BRASIL - GRAINHOUSE
COPERSUCAR	COPERSUCAR S.A. - SUGAR AND ETHANOL COOPERATIVE
CSN	COMPANHIA SIDERURGICA NACIONAL S.A.
DEPOT	EMPTY CONTAINERS STORAGE YARD
DNIT	NATIONAL DEPARTMENT OF INLAND TRANSPORT INFRASTRUCTURE
DPW	DUBAI PORT WORLD
DTA	DTA ENGENHARIA LTDA - PORT AND ENVIRONMENTAL ENGINEERING CO
EPL	FEDERAL GOVERNMENT'S PLANNING AND LOGISTICS COMPANY
EVTEA	TECHNICAL, ECONOMIC AND ENVIRONMENTAL FEASIBILITY STUDY
FGV	GETULIO VARGAS FOUNDATION – ECONOMIC RESEARCH INSTITUTE
FOB	FREE ON BOARD
INPH	NATIONAL INSTITUTE FOR PORTS AND HIDROWAYS RESEARCH
LDC	LOUIS DREYFUS COMPANY BRASIL S.A. - GRAINHOUSE
LNG	LIQUIFIED NATURAL GAS
LPG	LIQUIFIED PETROLEUM GAS
LOA	SHIP LENGTH OVER ALL
LPC Latina	LPC LATINA ENGINEERING COMPANY
MI	MINISTRY OF INFRASTRUCTURE
MM ton	MILLION METRIC TONS
MPF	FEDERAL PUBLIC ATTORNEY
MRS	MRS LOGISTICA S.A.- RAIL CONCESSIONARY
MSC	MEDITERRANEAN SHIPPING CO

PNLP	BRAZILIAN NATIONAL PORT LOGISTICS PLAN
PoR	PORT OF ROTTERDAM
PPI	INVESTMENT PARTNERSHIP PROGRAM
REDEX	SPECIAL YARD FOR ADUANA SERVICES
RUMO	RUMO LOGISTICA S.A. – RAILROAD CONCESSION
SEP	SPECIAL SECRETARY OF PORTS – ex BRAZILIAN MINISTRY OF PORTS
SNPTA	NATIONAL SECRETARY OF PORTS AND WATER TRANSPORTATION
TCP	CONTAINER TERMINAL OF PARANAGUÁ
TCU	UNION COURT OF AUDITORS
TEGRAM	GRAIN TERMINAL OF MARANHÃO
TEMADRE	MADRE DE DEUS OIL TERMINAL
TIL	TERMINAL INVESTMENT LTD
TIPLAM	TERMINAL INTEGRADOR PORTUÁRIO LUIZ ANTONIO MESQUITA
TPI	TRIUNFO PARTICIPAÇÕES E INVESTIMENTOS S.A.
TPPP	PRIVATE TERMINAL PORTO PONTAL
TPY	METRIC TONS PER YEAR
TUP	PRIVATE TERMINAL
UFRS	FEDERAL UNIVERSITY OF RIO GRANDE DO SUL
UFSC	FEDERAL UNIVERSITY OF SANTA CATARINA
UFPA	FEDERAL UNIVERSITY OF PARÁ
UnB	FEDERAL UNIVERSITY OF BRASILIA
USP	UNIVERSITY OF SÃO PAULO
VLI	VLI MULTIMODAL S.A.
VTMSI	VESSEL TRAFFIC MANAGEMENT INFORMATION SYSTEM
ZPE	EXPORT PROCESSING ZONE

PREFACE

Brazil is the largest economy in Latin America and its continental size makes the port sector essential to its international commercial trade. Almost 95% of Brazilian cargo flows through the port system, with more than 215 port installations around the country. Brazil is one of the most important commodity exporters (agribusiness, iron ore, and crude oil), which requires a continuous growth of its port infrastructure capacity and investments to expand global trade.

According to the recent report of the National Water Transport Agency (Antaq), the Brazilian port system handled about 1.1 billion tons in 2019, representing a 31.5% growth over the last nine years. Iron ore export counts for one-third of this total weight. Crude oil export increased by 37% in the last year thanks to pre-salt exploitation, and agribusiness had one of the best crops with a total of 148.1 million tons soya and corn handled through inland and deep-sea port terminals.

Brazil, where cargo is transported over thousands of kilometers before reaching the export gateways, needs urgent modernization and expansion of its infrastructure (ports, railways, waterways and highways). The Private Investment Partnership Program (PPI) offers an important investment opportunities to meet these requirements.

The regular framework regarding the development and operation of the port industry is provided by the Port Act (Law nº 12,815/2013) and its Decree nº 8,033/2013, which regulates the law. This framework sets new terms for the exploration of Private Use Terminals (TUP), Cargo Transshipment Stations (ETC), Tourist Facilities in Ports (IPT) and small-scale port facilities. Furthermore, port administrations are focusing more on capacity and performance to promote the sector development. Private terminals, authorized by the Brazilian Federal Government through a simplified administrative process, now handle two-thirds of all cargo and offer opportunities for investors, operators and for innovative and sustainable equipment and services.

Since 1993, public port terminals have been leased to private investors. The Brazilian government is now planning to auction another 22 port terminals with a total estimated investment of about US\$ 1.75 billion from private-sector sources. In addition, feasibility studies are being contracted to evaluate the privatization of public port authorities or the concession of the port management. The worldwide attention given to these opportunities is a positive signal that interested parties are engaged to work with Brazilian ports in the next 30+ years to come.

The Netherlands has a long trade history with Brazil. Many Dutch companies are doing business in Brazil and several have been active in this country for over a hundred years. The Netherlands is known for its knowledge and technology in port management, operation and equipment. The Brazilian government and Brazilian companies see the Netherlands as a reliable and competent business partner and Dutch companies are very welcome in this country.

This market study shows the business opportunities for Dutch companies and knowledge institutes in the auctioned leased port terminals and in the upcoming concessions in the PPI. Brazil's port sector presents several opportunities, ranging from innovative and sustainable technologies, products and services, up to the development and management of public and private terminals and ports. This study also provides a realistic overview of the potential political, social, economic and environmental risks of the indicated business opportunities through a comprehensive SWOT-analysis.

Of course, as in the rest of the world, Brazil's port sector is affected by the Covid-19 pandemic. In the short term, this influences container cargo volumes and it might have an impact on agribusiness and food exports. However, I am convinced that after this challenging period, the Brazilian economy, its commodity exports and the port market will recover. Moreover, the upcoming concessions in Brazil offer a unique opportunity to enter one of the world's largest port markets.

The Embassy in Brasilia, the Consulates-General in São Paulo & Rio de Janeiro and the Netherlands Business Support Offices in Belo Horizonte & Porto Alegre are ready to support your business to enter this promising and challenging market. Please feel free to contact us so we can provide you with updated information.

COME ON BOARD AND SET COURSE TO BRAZIL!

Cornelis van Rij
Ambassador of the Kingdom of the Netherlands in Brazil

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1. INTRODUCTION

The purpose of this report is to provide information on business opportunities in Brazilian ports and port terminals for Dutch companies and research institutions. The presented portfolio of opportunities is in line with the projects and programs of the Brazilian Federal Government - promoted by the Investment Partnership Program (PPI) - including the leasing of port terminals in public ports, the concessions of the management or privatization of public ports, dock companies, as well as the investment opportunities in and partnerships with private use terminals.

Brazil is a country of a continental dimension and is one of the most important producers and exporters of commodities. Practically 95% of all Brazilian foreign trade is handled by Brazilian ports, with port facilities along its extensive coast and rivers. In 2019, the Brazilian port system handled more than 1.1 billion tons, of which two-thirds in private use terminals and one-third in leased terminals in public ports. These ports are connected to its hinterlands by highways, railroads and rivers, using the extensive logistic corridors. Cargo is often transported from more than 1,000 kilometers away from the producing areas to the ports of export. Due to the continuous growth in cargo demand, the Brazilian port sector is in ongoing development, implementing improvements in its infrastructure, as well as modernizing existing port terminals to handle the new Post-Panamax and VLCC vessels. This development occurs in all segments of the national port sector; in public ports, as well in leased and private terminals.

Brazil handles around 10.5 million TEUs per year, of which about 40% is dispatched at the Santos port complex terminals alone. Although the volume of general cargo in containers has been reflecting the impact of the period of economic recession in Brazil, the need to attend ships of greater capacity has forced the container terminals to amend their contracts with the Brazilian government, assuming obligations to adjust the capacity of the port facilities. The terminals have been hiring works for the expansion of wharves, new handling equipment and cargo control and management systems. It is expected, however, that the economic impact caused by Covid-19 will postpone these works.

This report provides information of the Brazilian Federal Government available in official studies, such as the National Plan of Port Logistics (PNLP) and the Master Plan of ports, which were recently updated by the Ministry of Infrastructure. This document also includes the guidelines of the Investment Partnership Program (PPI) and sector studies prepared by the Federal Brazilian Planning and Logistics Company (EPL).

Also, a description and general characteristics of the 15 most important port complexes in Brazil can be found in this document. These complexes were selected from the 10 largest public ports and the 10 largest private terminals, based on the 2019 cargo movement statistics published by Antaq.

Furthermore, it presents the opportunities for investments and service providers in public ports, and in leased and private terminals, which are necessary to ensure the development of the country's trade.

A SWOT analysis was performed, including the potential business opportunities, as well as institutional, social-economic and environmental risks of doing business in Brazil.

Although Brazil has a bureaucratic business culture and a complex sector regulation with several regulating and controlling instances, the country has a solid and democratic governmental system. The government has implemented several measures to develop the port sector. The law regulating the sector was amended in 2013 (Law nº 12.815/2013), providing incentives for new private port facilities and promoting the capacity increase of the Brazilian port system. The PPI is planning the auction of 22 port terminals in public ports, of which 15 are scheduled in 2020.

The pandemic caused by Covid-19 has impacts on economies around the world, and certainly the Brazilian economy will be affected as well. However, the consumer demand for agricultural and mineral products and commodities will likely maintain the trade flow, especially to and from China, which should reduce the impact on the cargo volumes handled in the Brazilian ports.

2. ORGANIZATION AND PRIVATIZATION OF THE BRAZILIAN PORT SECTOR

2.1. Changes in Port Legislation

Port modernization commenced in 1993 with the port sector law (Law no 8.630/93), and was improved by Law no 12.815/2013 with the removal of regulatory barriers for private use terminals, thus focusing on the capacity increase in Brazilian ports. As a result, the changes in the Brazilian port framework promoted the privatization of port services through the leasing of terminal areas in public ports. This new legal framework brought progress to the segment, as the private companies responsible for modernizing port facilities brought a higher level of efficiency and an increase of private investments.

2.2. Brazilian Port Sector Regulation

The Brazilian port sector has different characteristics in comparison to the European regulatory model, particularly regarding the ports model used in the Netherlands. The planning and development policy of the Brazilian port sector is determined by the National Secretariat of Ports and Waterway Transport (SNPTA), subordinated to the Ministry of Infrastructure and its regulation by the autonomous agency, the National Agency of Waterway Transport (Antaq).

The Brazilian port system includes two distinct port models:

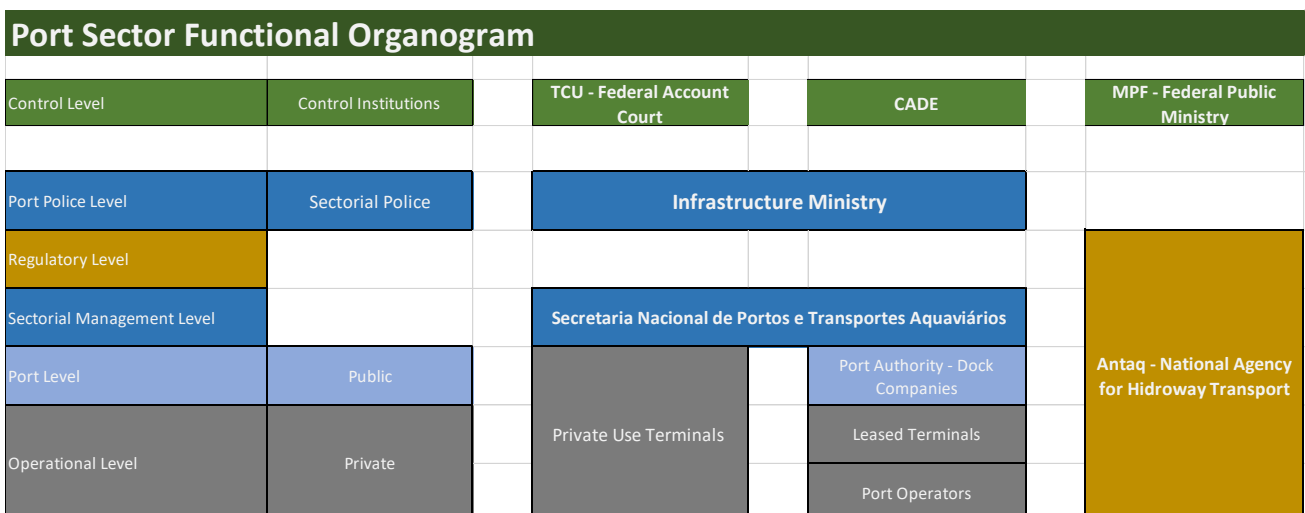
- **Terminal areas leased in public ports** (similar to the landlord model), which are leased through a public auction conducted by Antaq; and
- **Private Use Terminals**, which are authorized by the Ministry of Infrastructure, through an analysis of Antaq in a simplified administrative process, in an area located outside the areas of public ports.

In Brazilian public ports, as in the European Landlord model, the administration of public port areas and facilities is performed by the port authorities, which are subordinated entities of the Ministry of Infrastructure. However, the port management and administration of some Port Authorities were delegated to State governments, such as in the ports of Rio Grande, Paranaguá, São Francisco do Sul, Imbituba, Itaquí, Recife, Maceió, and Cabedelo, or to municipalities such as in the Itajaí (SC) and Santana (AP) ports.

Private terminals play a significant role in the handling of solid bulk (ore and grain) and liquid bulk (crude oil and fuel), accounting for the largest cargo volumes in the country.

However, the bureaucratic processes in the country are complex, which complicates the needed improvements in leased terminals. The processes are still centralized at Antaq and in control bodies, such as the Federal Court of Accounts (TCU). The current federal administration has been working to reduce the effects of centralization by providing greater autonomy to the port administrations and by the acceleration of bidding processes for port terminal leases.

Despite the still existing centralization of decisions and the existing sectoral policy, several private terminals and multipurpose port complexes have been authorized under the new law. The country now has more than 215 authorized private terminals, of which about 181 are operative.



2.3. Terminals Leasing and Ports Privatization and Concession

The concession of port activities to the private sector initiated in 1993, by means of a new port program, in which the cargo operation was transferred to the lessees of terminals in public ports, meaning that cargo handling was transferred to private initiative. However, the port administration or port authority remains public and is responsible for the infrastructure of the public port complex.

The port terminal leases are conducted through public bids of areas with the obligation to invest in infrastructure and equipment. The lessees pay a fee to the Port Authority, proportional to the financial result of the contract, divided into two parts. One part is proportional to the terminal area, and the other is a variable proportion related to the volume of the handled cargo. Terminal lease contracts can be drawn for periods of up to 35 years and be renewed until a maximum of 70 years. At the end of the contract, all port facilities return to the Port Authority.

The Federal Government has begun to contract studies to define the models for the privatization or concession of the management of its public ports. The Port Authorities of the ports of Espírito Santo (Codesa), Santos (Codesp) and São Sebastião (CDSS) are listed by the PPI for its auction.

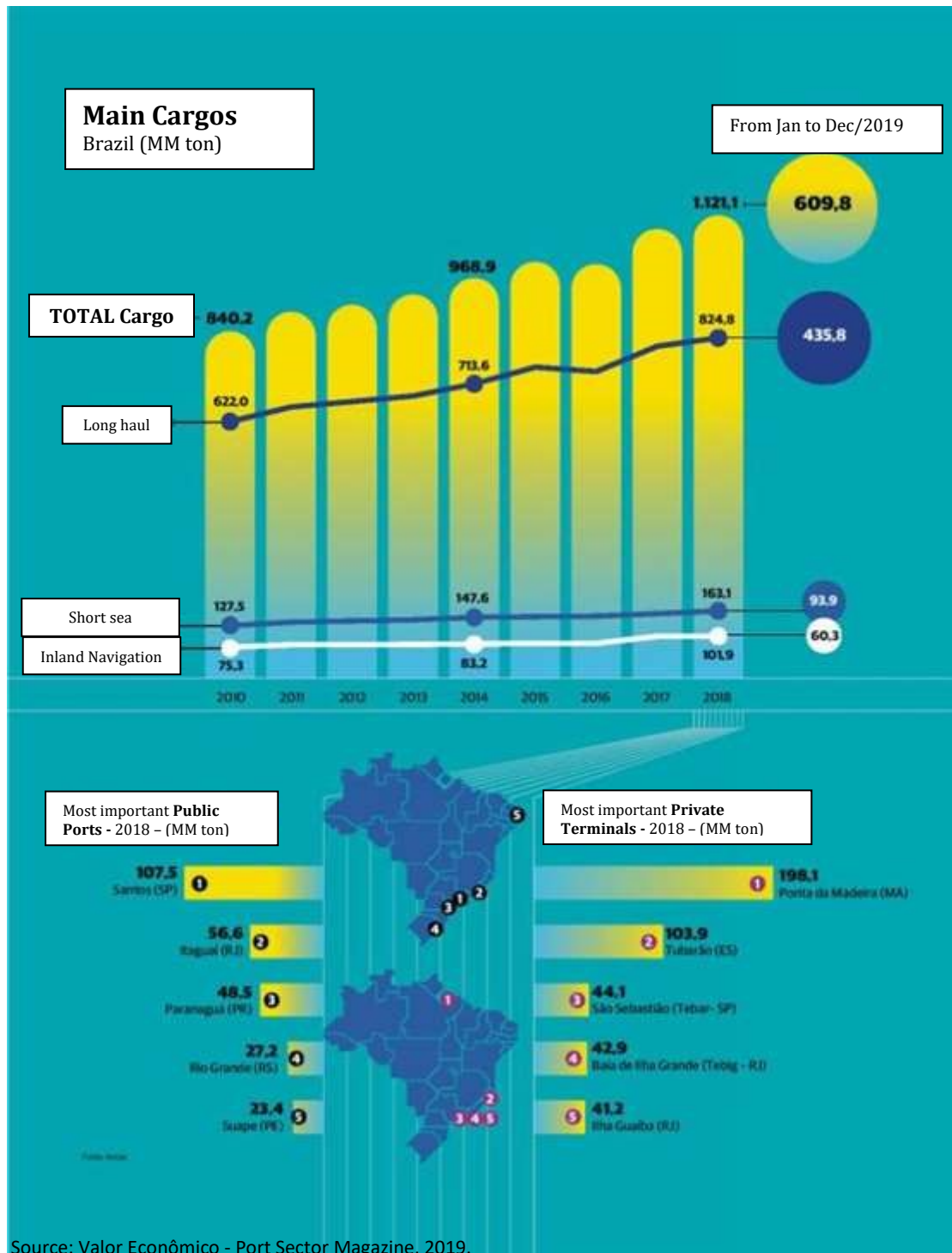
The Brazilian legislation makes a distinction between privatization and concession of ports. In terms of privatization, all assets and contracts are transferred to the private initiative. In the port concession, only the management of assets and contracts are delegated to the private initiative for a period of up to 35 years, and the contracts may be extended to a total of 70 years. At the end of the port concession contract, all assets and contracts are returned to the Federal Government.

3. MAIN PORT COMPLEXES IN BRAZIL

The Brazilian port system, comprising public ports and private use terminals, serves a country of continental dimensions, where important commodities such as agribusiness products, iron ore and crude oil are exported in large volumes of bulk cargo, together with container cargoes, such as meat, fruit, auto-parts and consumer goods.

Statistics published by Antaq indicate that, in 2019, 1.104 billion tons of cargo was handled in the Brazilian port system, consolidating a growth of 35% in the period from 2010 to 2019. In 2019, the main cargoes were iron ore (367.8 MM t), crude oil and oil products (224.7 MM t), soybeans (92.4 MM t) and corn (55.7 MM t). However, in this particular year, there was a 39.2 MM t decrease in iron ore due to the accident at the Brumadinho mine (MG), owned by the mining company Vale S.A. The handling of oil increased by about 37% due to oil exploration in the Pre-Salt. Although the handling of soybean has decreased by about 10%, corn exports increased by ten MM t; about 58% more than in 2018.

The table below shows the cargo handling in Brazilian ports from 2000 to 2018.



In 2019, exports and imports by sea totaled 794.8 MM t, with vessels exporting to 160 different countries, and receiving cargo from 141 countries. Exports in 2019 totaled 643.4 MM t, while imports totaled 151.4 MM t.

The Netherlands stands on fourth place when considering the export volumes of Brazilian products in 2019, due to its hub function through the Ports of Rotterdam and Amsterdam.

Cargo handling statistics published by Antaq (2020) show that China, USA, Malaysia, the Netherlands and Japan are the main destinations for Brazilian cargo, while the main imports come from the USA, China, Argentina, Russia and Colombia.




Maritime Navigation



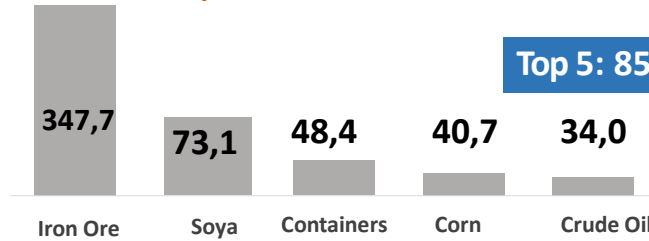
Export

Main destinations

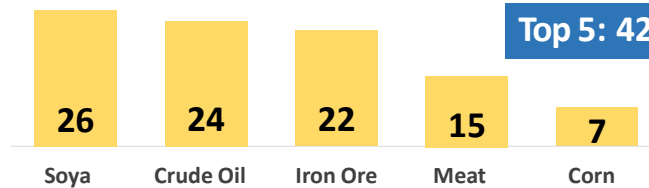
MM t

- 1º  China: 312,2
- 2º  USA: 34,0
- 3º  Malasia: 31,2
- 4º  Netherland: 25,7
- 5º  Japan: 24,7

Export (MM of t)



Export (FOB – billion US\$)



Fonte: Comexstat - MDIC



Maritime Navigation

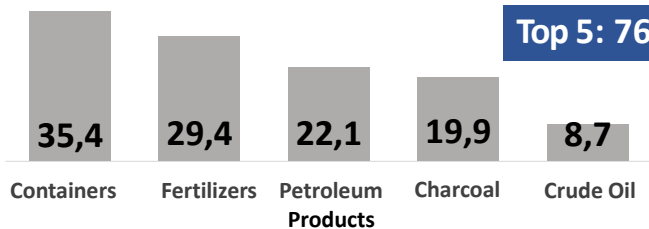
Import

Main Originations

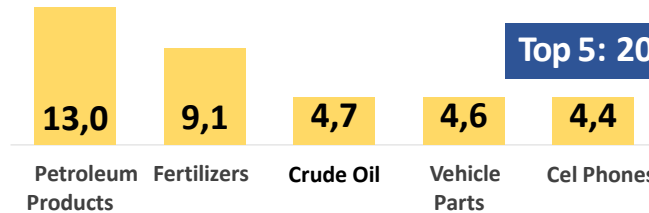
MM ton

- 1º  USA: 39,3
- 2º  China: 12,4
- 3º  Argentina: 10,5
- 4º  Russia: 7,9
- 5º  Colombia: 7,1

Import (MM ton)



Import (FOB – billion US\$)



Fonte: Comexstat - MDIC



The Brazilian port system currently has 35 public ports (Port Authorities) and 215 private port facilities (TUP). The terminals leased in public ports handled 34% of the country's total cargo in 2019, showing a growth of 2.5% tons compared to 2018. Agricultural bulk cargoes accounted for about 61% of the total handled cargo in the country and 71% of the total containerized cargoes, indicating the importance of leased terminals in public ports for these types of cargoes.

In 2019, private terminals handled about 66% of the country's total cargo, showing a growth of 3.4% compared to 2018. Of this total, 88% was mineral bulk, 77% liquid bulk and 65% general cargo (cellulose, granite, and wood-based materials) were handled in private terminals.

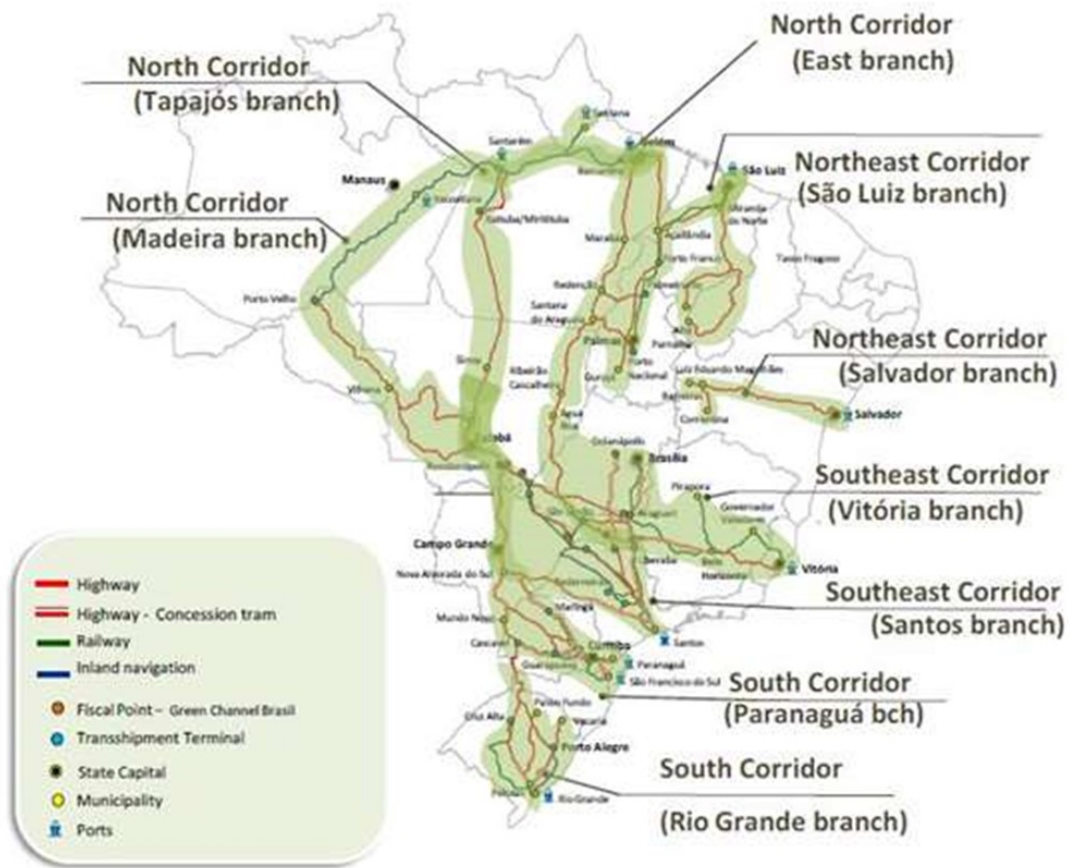
3.1. Logistic Export Corridors

The export logistics of agribusiness and mineral cargoes follow the so-called 'export corridors', which connect the various production zones to the main ports of export. These strategic main export corridors are divided into:

- **North Corridor, Madeira river branch**, connecting the production areas of the State of Mato Grosso (MT), by highway to Porto Velho, in the State of Rondônia (RO), by waterway (rivers) and to the port of Itacoatiara, in the State of Amazonas (AM), and to the port of Santarém, in the State of Pará (PA).
- **North Corridor, Tapajós river branch**, connecting the production areas of the State of Mato Grosso (MT), by highway, to Miritituba, north center of the State of Pará (PA), by waterway to the ports of Santarém (State of Pará), Vila do Conde (State of Pará) and Santana, in the State of Amapá (AP).
- **North Corridor, East branch**, connecting the production areas of the eastern region of the State of Mato Grosso (MT), by highway, to the ports of Vila do Conde (State of Pará).
- **Northeast Corridor, São Luis (State of Maranhão) branch**, connecting the production zones of the States of Tocantins (TO), Maranhão (MA), Piauí (PI) and Bahia (BA), by highway and railways, to the port of Itaqui (MA).
- **Northeast Corridor, Salvador branch**, connecting the production areas of the western area of the State of Bahia (BA), by highway, to the ports in the region of Salvador (State of Bahia) and Aratu (State of Bahia).
- **Northeast Corridor, Vitória branch**, (State of Espírito Santo) connecting the production zones of the central region, in the state of Bahia (BA), Minas Gerais (MG), Goiás (GO) and Distrito Federal (DF), by highway and railway, to the port complexes of Vitória and Tubarão (State of Espírito Santo).
- **Northeast Corridor, Santos branch**, one of the most important grain export corridors, connecting the production regions of the eastern State of Mato Grosso (MT), in the States of Goiás (GO) and São Paulo (SP), by highway and railway, to the Port of Santos.
- **South Corridor, Paranaguá branch**, another important grain export branch, connecting the producing regions of the States of Mato Grosso (MT), Mato Grosso do Sul (MS), São Paulo (SP) and Paraná (PR), as well as a portion of Paraguay's production area, by highway and railway, to the port of Paranaguá.
- **South Corridor, Rio Grande branch**, connecting the production zones of the States of Rio Grande do Sul (RS), Santa Catarina (SC) and Paraná (PR), by highway, railway and waterway, to the port of Rio Grande (RS).

The following figures, prepared by the Planning and Logistics Company (EPL), summarize the main agribusiness export corridors and iron ore and pig iron export corridors.

Map – Strategic Transport Corridors – Agribusiness Export



Source: EPL, 2017.

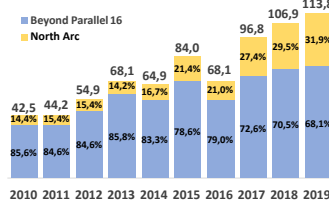
The North Corridor – Tapajós branch, has a large grain cargo capacity installed in Miritituba (PA), called the ‘Arco Norte’ (in English “North Arc”).

The conclusion of the paving of the BR-163 highway in the beginning of 2020, reduced the costs of road freight by about 25%, according to press reports. The implementation of a new railroad linking the production regions of western Mato Grosso to Miritituba, the “Ferrogrão”, should further increase the volumes of this region to the ports of the North Arc: Santarém (PA), Vila do Conde complex (PA) and Santana (AP).

The following figure shows a statistical survey, published by Antaq (2020), which shows the evolution of grain volumes in the North Corridor, in the Tapajós river branch.

NORTH ARC

Export North Arc – Soya and Corn



+491%

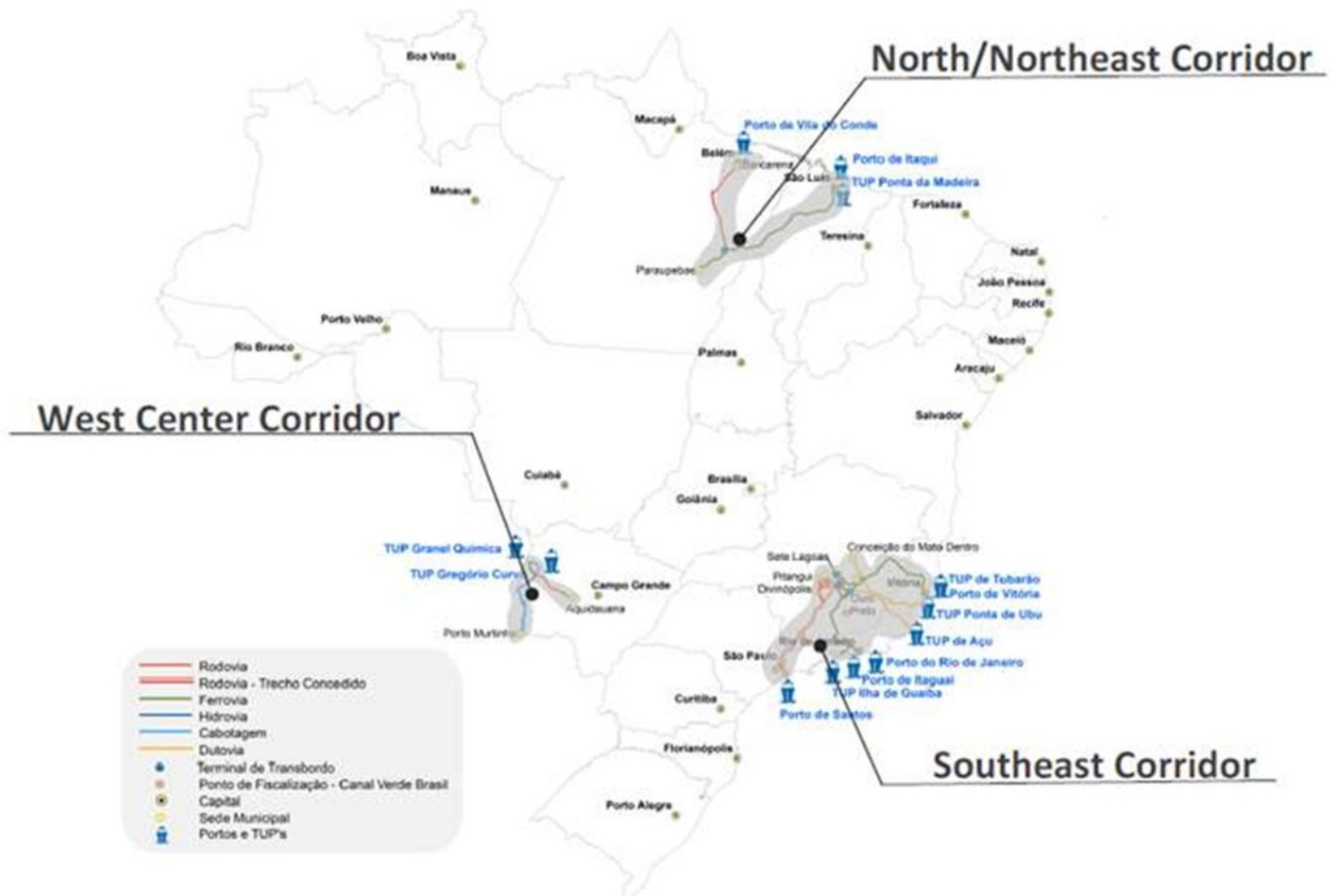
This is the volume increase in the last 9 years from the beginning of Arc North ports and terminals operation for export of soya and corn bulk cargo.

This is **30,1 millions (ton)**

over 2010 export volumes through North Arc

The map below, prepared by the EPL (2017), indicates the three main export logistics corridors for iron ore.

Mapa - Export Logistic Corridors for Iron Ore and Pig Iron

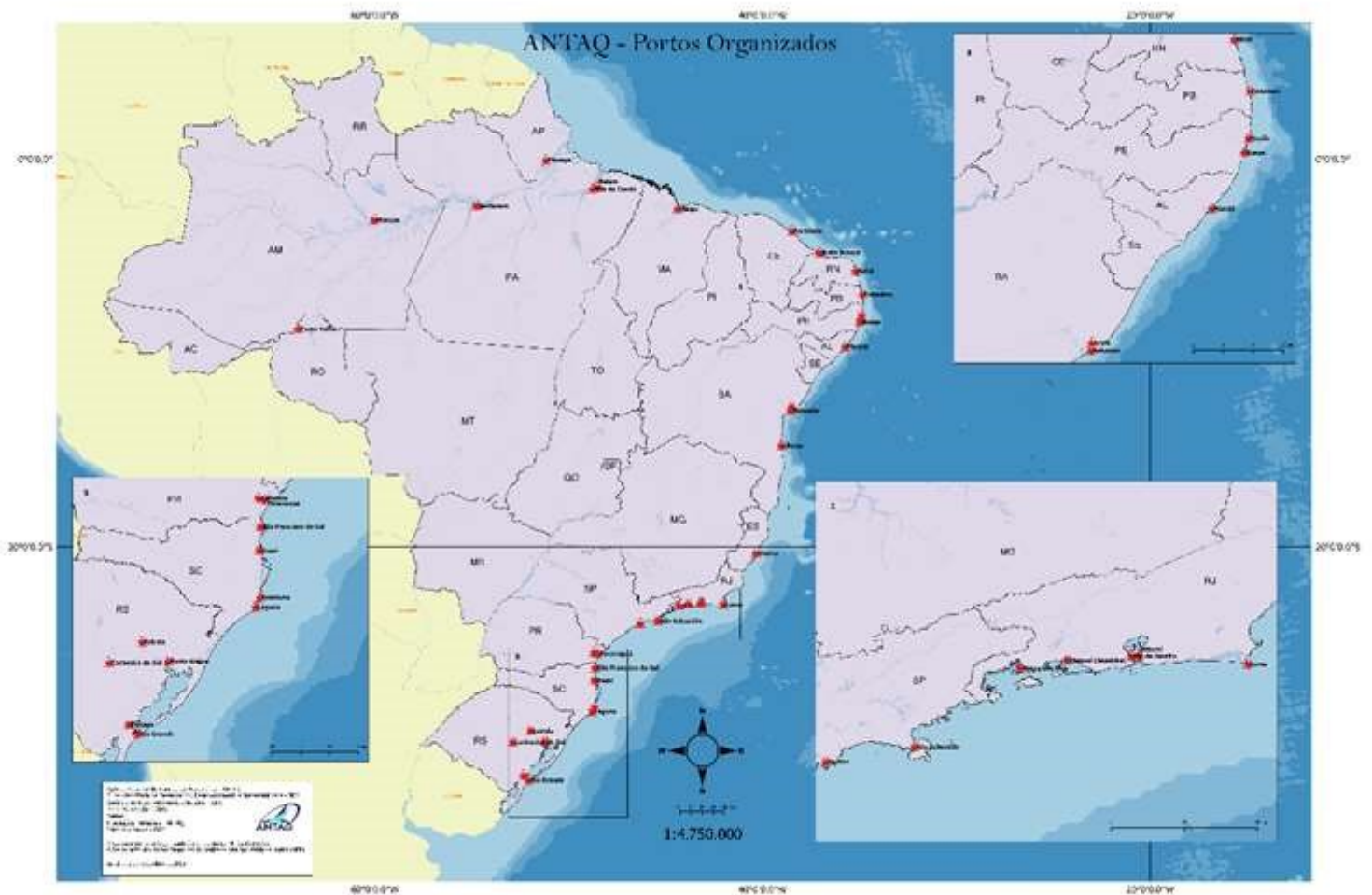


- The North / Northeast Corridor connects the iron ore production regions of the Carajás pole (State of Pará), by a high capacity railway, to the port of Itaqui (State of Maranhão) and to the Ponta da Madeira terminal (State of Maranhão), operated by Vale S.A. Pig iron is transported by highway through the region of Marabá, in south of the State of Pará, to the port of Vila do Conde in Pará.
- The Central-West Corridor connects the production regions of Corumbá, in the west of the State of Mato Grosso do Sul (MS), by waterway to ports in the Prata river in Uruguay and Argentina.
- The Southeast Corridor connects the iron ore production regions in the State of Minas Gerais (MG) by railway to the ports located in the southeast region, such as Itaguaí (RJ), Açú and Rio de Janeiro, in the State of Rio de Janeiro, private use terminals (TUP) in Tubarão and to the port of Vitória, in the state of Espírito Santo (ES), and the Santos Port, in the State of São Paulo (SP).

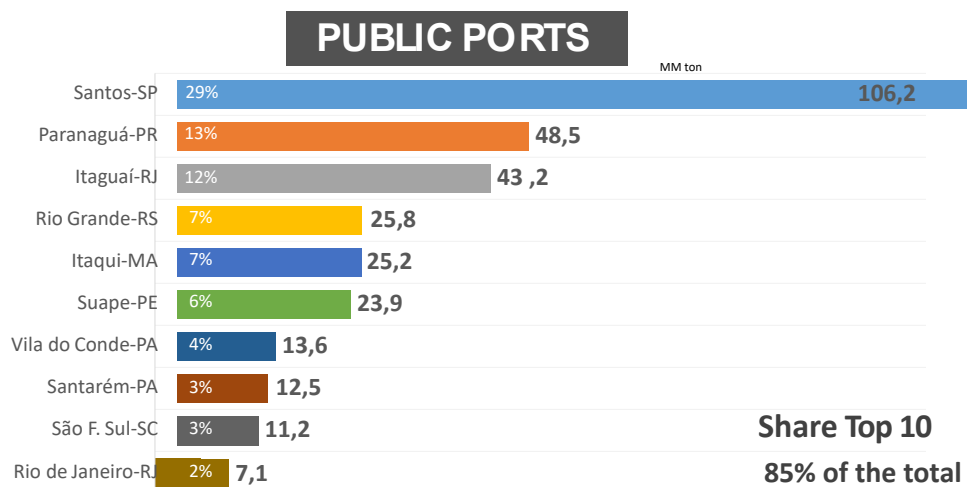
3.2. Most important Public and Private Port Complexes

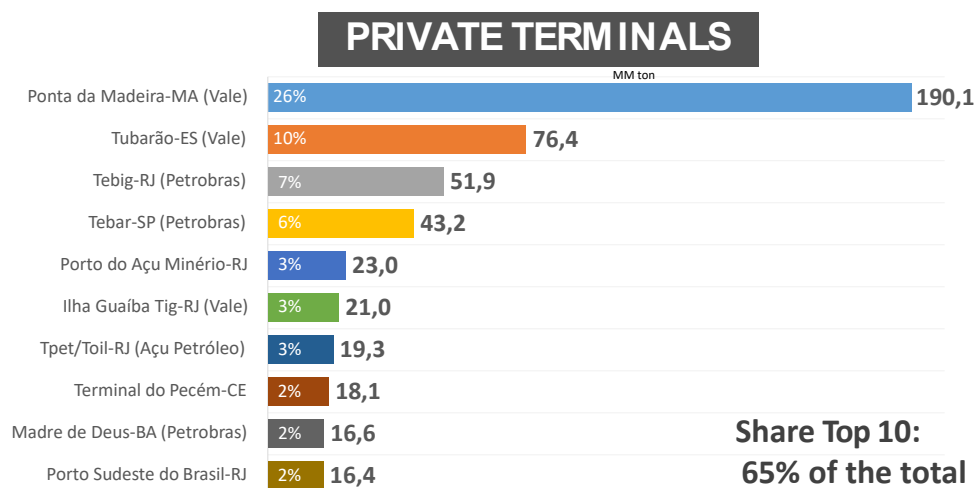
Although most Brazilian ports are located at the country's extensive coastline, there are also deep-sea ports located at large navigable rivers, such as the Amazonas and Madeira rivers, located respectively in the Amazonas (AM) and Rondônia (RO) States, as well as at the Lagoa dos Patos, a lagoon in the State of Rio Grande do Sul (RS).

The figure, provided by Antaq (2015), shows the geographical position of public ports in the country.



Statistics from Antaq (2019) indicate the ten main Brazilian public ports and the ten main private use terminals (TUP), sorted by volume of cargo handled (import and export).





3.3. Overview of Public and Private Port Complex

Below, the main characteristics of the 15 most representative port complexes in Brazil are displayed. These complexes were selected from the ten largest public ports and ten largest private terminals according to the 2019 cargo movement statistics, published by Antaq.

3.3.1. Port Complex of Santos

The Santos port complex is the most important in the country, representing more than 27% of the total goods in terms of value, when all foreign trade movements are considered. When measured in volume (ton), Santos handles almost 50% of the agribusiness bulk cargo and 40% of the total containers in the country.



Source: Port of Santos, 2020.

The Santos public port has about 41 lessees and, additionally, operates six private terminals, with emphasis on the DP World container terminal (Dubai Port) and the private bulk terminal Tiplam, operated by Valor da Logística Integrada (VLI), with equity participation of VALE S.A., Mitsui and Brookfield.

Cargo handling in the port complex – discharging and loading, in the period 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ (Thousand tons) YEAR						
PORT COMPLEX	SANTOS	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	17.143	18.703	19.124	9,1%	2,2%
Containers	out bound	24.671	24.736	24.599	0,3%	-0,6%
General Cargo	In bound	381	953	649	150,5%	-31,9%
General Cargo	out bound	4.474	5.130	4.829	14,7%	-5,9%
Liquid and Gas Bulk Cargo	In bound	7.386	7.052	7.200	-4,5%	2,1%
Liquid and Gas Bulk Cargo	out bound	7.883	8.244	7.485	4,6%	-9,2%
Break Bulk	In bound	9.258	10.606	11.572	14,6%	9,1%
Break Bulk	out bound	54.180	53.464	54.034	-1,3%	1,1%
TOTAL IN BOUND		34.168	37.315	38.545	9,2%	3,3%
TOTAL OUT BOUND		91.208	91.574	90.947	0,4%	-0,7%
TOTAL IN + OUT BOUND		125.376	128.889	129.491	2,8%	0,5%

3.3.2. Port Complex of Paranaguá/Antonina and Porto Pontal

The Paranaguá port complex is the second most important hub for agribusiness and container cargo exports and the main port for fertilizer imports.

Located in the Southeast region of the country, it has rail and road access connecting the grain and sugar production zones of the States of Paraná (PR), Mato Grosso do Sul (MS) and São Paulo (SP), as well as the production from eastern Paraguay.



Source: APPA Port of Paranaguá, 2020.

Cargo Handling in the port complex – discharging and loading, in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	PARANAGUÁ	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	3.168	3.352	3.493	5,8%	4,2%
Containers	out bound	5.148	5.346	6.020	3,9%	12,6%
General Cargo	In bound	125	129	127	3,3%	-1,9%
General Cargo	out bound	1.698	1.458	1.196	-14,1%	-18,0%
Liquid and Gas Bulk Cargo	In bound	7.344	5.852	5.734	-20,3%	-2,0%
Liquid and Gas Bulk Cargo	out bound	1.157	1.355	1.083	17,1%	-20,1%
Break Bulk	In bound	9.611	10.555	10.440	9,8%	-1,1%
Break Bulk	out bound	24.292	25.364	24.842	4,4%	-2,1%
TOTAL	IN BOUND	20.249	19.888	19.794	-1,8%	-0,5%
TOTAL	OUT BOUND	32.295	33.524	33.141	3,8%	-1,1%
TOTAL	IN + OUT BOUND	52.544	53.412	52.934	1,7%	-0,9%

3.3.3. Port Complex of Itaguaí

The port complex of Itaguaí, in the south of the State of Rio de Janeiro (RJ), consists of the public port of Itaguaí, former port of Sepetiba, and several private use terminals (TUPs) that handle bulk minerals.



Source: Port of Itaguaí Sepetiba TECON CAU/RJ, 2014 .



Source: Sudeste Port Terminal Porto Sudeste, 2020.

Cargo handling - discharging and loading, in the port complex in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	ITAGUAÍ	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	1.385	1.653	1.208	19,3%	-26,9%
Containers	out bound	1.422	2.010	1.361	41,4%	-32,3%
General Cargo	In bound	121	157	99	30,3%	-36,8%
General Cargo	out bound	3.724	3.766	3.582	1,1%	-4,9%
Liquid and Gas Bulk Cargo	In bound				NA	NA
Liquid and Gas Bulk Cargo	out bound		169		NA	-100,0%
Break Bulk	In bound	7.229	7.802	7.885	7,9%	1,1%
Break Bulk	out bound	98.871	100.476	74.558	1,6%	-25,8%
TOTAL	IN BOUND	8.735	9.611	9.192	10,0%	-4,4%
TOTAL	OUT BOUND	104.017	106.421	79.501	2,3%	-25,3%
TOTAL	IN + OUT BOUND	112.752	116.032	88.693	2,9%	-23,6%

3.3.4. Port Complex of Rio Grande

The port complex of Rio Grande, located in the very south of the country in the State of Rio Grande do Sul (RS), is characterized by the agribusiness cargoes handling from the southern region of Brazil and also by the handling of fuels, fertilizers and containerized cargo.



Source: Port of Rio Grande Revista Modal, 2018.



Source: Rio Grande Navigation Channel portoimagem.wordpress.com, 2010.

The port is connected to the grain production zones, by the highways and railway operated by Rumo. Fluvial navigation at the natural lagune, the Lagoa dos Patos, also meets the demand for bulk cargo products, wood chips, and containerized general cargo.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	RIO GRANDE	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	2.700	2.802	2.336	3,8%	-16,6%
Containers	out bound	5.809	5.819	5.359	0,2%	-7,9%
General Cargo	In bound	1.114	1.596	1.695	43,3%	6,2%
General Cargo	out bound	2.199	2.821	3.391	28,3%	20,2%
Liquid and Gas Bulk Cargo	In bound	2.767	2.541	2.395	-8,1%	-5,8%
Liquid and Gas Bulk Cargo	out bound	1.312	1.243	1.275	-5,2%	2,5%
Break Bulk	In bound	6.738	6.583	6.011	-2,3%	-8,7%
Break Bulk	out bound	18.498	19.915	18.223	7,7%	-8,5%
	TOTAL IN BOUND	13.318	13.523	12.436	1,5%	-8,0%
	TOTAL OUT BOUND	27.818	29.798	28.247	7,1%	-5,2%
	TOTAL IN + OUT BOUND	41.136	43.320	40.684	5,3%	-6,1%

3.3.5. Port Complex of Itaqui and Ponta da Madeira

The port complex of Itaqui is located in the northern region of Brazil, near São Luiz, the capital of the State of Maranhão (MA). It comprises public port facilities and the private terminal at Ponta da Madeira, which is the largest iron ore export port complex in Brazil and able to operate VLCC – Valemax vessels.



Source: Ponta da Madeira Vale Terminal and the public port of Itaqui, Porto e Notícias, 2019.

The public port is equipped with drafts compatible with Panamax ships for handling agricultural bulk, cellulose, fuel and general container cargo.

Cargo handling - discharging and loading, in the port complex in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	PTA MADEIRA/ITAQUI	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	0	0	12		
Containers	out bound	0	0	1		
General Cargo	In bound	52	38	195	-27,0%	408,7%
General Cargo	out bound	1.455	999	1.051	-31,4%	5,3%
Liquid and Gas Bulk Cargo	In bound	5.851	6.623	7.028	13,2%	6,1%
Liquid and Gas Bulk Cargo	out bound	69	870	2.029	1156,0%	133,3%
Break Bulk	In bound	13.242	13.471	13.125	1,7%	-2,6%
Break Bulk	out bound	183.228	213.269	206.236	16,4%	-3,3%
TOTAL	IN BOUND	19.145	20.132	20.360	5,2%	1,1%
TOTAL	OUT BOUND	184.752	215.138	209.317	16,4%	-2,7%
TOTAL	IN + OUT BOUND	203.898	235.270	229.677	15,4%	-2,4%

3.3.6. Port Complex of Suape and Recife

The port complex of Suape and Recife is located in the Northeast of the country, in the State of Pernambuco (PE). The administration of the port of Recife is delegated to the Government of the State of Pernambuco and operates as a public port with its own port authority.

The Port of Suape has the capacity to operate ships of great draught and is strategically located as a potential hub for general cargo.

The Abreu e Lima refinery, operated by Petrobras, handles a large amount of oil and cabotage ships for fuel distribution in the North and Northeast regions of the country. The export of fruit, in reefer containers, as well as vehicles and auto parts are the main export cargoes.

The new railroad, the ‘Transnordestina’, operated by the CSN business group, should meet the demand for transportation of these cargoes. The construction of this railroad was stalled due to lack of financial resources, but construction work has been resumed in March 2020. The stretches in the State of Ceará is expected to be concluded by the end of this year.



Source: Port of SUAPE, Porto de Suape, 2020.

Cargo handling in the port complex – discharging and loading – from 2017 to 2019:

Port Handling Statistics		YEAR				
Source: ANTAQ (Thousand tons)		2017	2018	2019	2018/2017	2019/2018
PORT COMPLEX	SUAPE/RECIFE					
Containers	In bound	517	459	490	-11,2%	6,8%
Containers	out bound	524	463	487	-11,6%	5,2%
General Cargo	In bound	162	141	134	-13,0%	-5,0%
General Cargo	out bound	289	261	287	-9,7%	10,0%
Liquid and Gas Bulk Cargo	In bound	629	522	507	-17,0%	-2,9%
Liquid and Gas Bulk Cargo	out bound	420	412	382	-1,9%	-7,3%
Break Bulk	In bound	108	104	114	-3,7%	9,6%
Break Bulk	out bound	2	3	3	50,0%	0,0%
TOTAL	IN BOUND	1.416	1.226	1.245	-13,4%	1,5%
TOTAL	OUT BOUND	1.235	1.139	1.159	-7,8%	1,8%
TOTAL	IN + OUT BOUND	2.651	2.365	2.404	-10,8%	1,6%

3.3.7. Port Complex of Vila do Conde and Belém

The port complex of Vila do Conde and Belém, located in the northern region in the State of Pará (PA), comprises the public port of Belém, Outeiros and Vila do Conde (Barcarena), as well as several private terminals in the municipality of Barcarena which handle agricultural bulk cargo.

The public port of Belém, with terminals for wheat and fuels, operates with a reduced draught of about seven meters, while the port of Vila do Conde operates with draughts compatible with Panamax ships.



Source: Port of Vila do Conde, O Globo, 2019.



Source: Public Port of Belém – Fuel Terminals, ppi.gov.br, 2020.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	VILA DO CONDE/BELÉM	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	426	573	566	34,5%	-1,3%
Containers	out bound	919	839	841	-8,7%	0,3%
General Cargo	In bound	668	531	612	-20,6%	15,3%
General Cargo	out bound	1.361	1.102	1.334	-19,0%	21,1%
Liquid and Gas Bulk Cargo	In bound	4.195	3.004	3.192	-28,4%	6,3%
Liquid and Gas Bulk Cargo	out bound	1.028	911	885	-11,4%	-2,8%
Break Bulk	In bound	12.328	12.033	13.343	-2,4%	10,9%
Break Bulk	out bound	14.511	14.079	17.011	-3,0%	20,8%
TOTAL	IN BOUND	17.618	16.141	17.712	-8,4%	9,7%
TOTAL	OUT BOUND	17.819	16.931	20.071	-5,0%	18,6%
TOTAL	IN + OUT BOUND	35.436	33.072	37.784	-6,7%	14,2%

3.3.8. Port Complex of Santarém

The port complex of Santarém, in the State of Pará in the northern region, is located at the Amazon River channel, at the mouth of the Tapajós river. The complex handles general cargo, fuels and agribusiness bulk cargo.

The hub for river terminals in Miritituba (State of Pará), 400 km from Santarém by river navigation, has facilities for loading river barges. These terminals have large investments from several operators and grain houses with an estimated total capacity of 20 MM t per year.



Source: Santarém Public Port, hotelh2bc.com.br, 2018.



Source: Private River Terminal Hidrovias do Brasil – Miritituba, HBSA, 2020.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	SANTARÉM	2017	2018	2019	2018/2017	2019/2018
Containers	In bound					
Containers	out bound					
General Cargo	In bound	160	144	207	-9,8%	43,6%
General Cargo	out bound	180	214	270	19,3%	26,0%
Liquid and Gas Bulk Cargo	In bound	216	195	153	-9,7%	-21,3%
Liquid and Gas Bulk Cargo	out bound	1	1	3	43,7%	106,6%
Break Bulk	In bound	3.772	4.462	6.031	18,3%	35,2%
Break Bulk	out bound	3.950	4.608	6.296	16,7%	36,6%
TOTAL	IN BOUND	4.148	4.801	6.392	15,8%	33,1%
TOTAL	OUT BOUND	4.131	4.824	6.568	16,8%	36,2%
TOTAL	IN + OUT BOUND	8.278	9.625	12.960	16,3%	34,7%

3.3.9. Port Complex of São Francisco do Sul

The port complex of São Francisco do Sul is located in the south of the country in the State of Santa Catarina and includes the public port of São Francisco do Sul, as well as the private use terminal port of Itapoá. The private container terminal Port Itapoá belongs to a Brazilian investors group and the shipping company Hamburg Süd (Maersk) also has an equity interest.



Source: São Francisco do Sul Public Port, Redav Divulgação, 2020.



Source: Itapoá Private Container Terminal, portoitapoa.com.br, 2020.

The port of São Francisco do Sul, located at the bottom side of the Babitonga bay, has its relevance in the export of agribusiness cargo from the States of Paraná (PR) and Mato Grosso (MT), through the railway operated by Rumo.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	SÃO FRANCISCO DO SUL	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	2.606	2.840	3.504	9,0%	23,4%
Containers	out bound	4.271	4.299	4.499	0,7%	4,7%
General Cargo	In bound	2.386	2.281	2.380	-4,4%	4,3%
General Cargo	out bound	347	468	405	34,8%	-13,4%
Liquid and Gas Bulk Cargo	In bound	8.364	8.859	8.595	5,9%	-3,0%
Liquid and Gas Bulk Cargo	out bound					
Break Bulk	In bound	2.694	2.745	2.724	-6,8%	-4,0%
Break Bulk	out bound	6.334	5.906	5.669	4,2%	2,9%
TOTAL	IN BOUND	16.050	16.724	17.202	4,2%	2,9%
TOTAL	OUT BOUND	10.952	10.673	10.573	-2,6%	-0,9%
TOTAL	IN + OUT BOUND	27.002	27.397	27.775	1,5%	1,4%

3.3.10. Port Complex of Rio de Janeiro

The public port of Rio de Janeiro, located in the capital of the State of Rio de Janeiro in the southeastern region, comprises port facilities in the municipality of Niterói, in the metropolitan region of the city of Rio de Janeiro.

The public port of Rio de Janeiro has rail access through the MRS concessionaire and access to the highway network. Located in an urban region with a high population density, there are restrictions on cargo access to the public quay, which has been limiting its growth.

The public port is characterized for handling cargo in containers, vehicles, steel products, paper reels, chemicals, for the supply of vessels supporting offshore platforms, as well as for passengers on cruise ships.



Source: Public Port of Rio de Janeiro, Portal da Copa, 2015.



Source: Container Terminals – ICTSI and Multiterminais, Portal Marítimo, 2017.

The port complex of Rio de Janeiro aggregates several private use terminals specialized in the handling of liquid bulk operated by Petrobras, that meet the demand of the pre-salt oil producing basins and deep-water exploration in the Santos and Campos sedimentary basins.

Cargo handling in the port complex – discharging and loading – from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	RIO DE JANEIRO/NITERÓI	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	1.647	1.946	2.241	18,2%	15,1%
Containers	out bound	1.919	2.081	2.333	8,5%	12,1%
General Cargo	In bound	399	194	965	-51,5%	398,4%
General Cargo	out bound	695	703	566	1,3%	-19,6%
Liquid and Gas Bulk Cargo	In bound	9.160	10.672	11.223	16,5%	5,2%
Liquid and Gas Bulk Cargo	out bound	5.074	6.099	5.965	20,2%	-2,2%
Break Bulk	In bound	480	868	712	81,0%	-18,0%
Break Bulk	out bound	212	174	684	-18,1%	293,6%
TOTAL	IN BOUND	11.685	13.680	15.141	17,1%	10,7%
TOTAL	OUT BOUND	7.899	9.058	9.548	14,7%	5,4%
TOTAL	IN + OUT BOUND	19.584	22.738	24.689	16,1%	8,6%

3.3.11. Port Complex of Tubarão and Vitória/Barra do Riacho

The Tubarão port terminal, in the municipality of Vitória in the State of Espírito Santo (ES), is the second most important port for iron ore exports, operated by Vale S.A. The terminal handles coal and agribusiness cargo. The export of iron ore extracted from Vale S.A.’s mines in the State of Minas Gerais (MG) is transported by the Vitória-Minas railroad, which is operated by Vale S.A.

The port terminal of Tubarão has a capacity to load ships of large capacity, VLCC of 405,000 dwt, and operates with a draft of up to 18m.



Source: Tubarão Private Use Terminal, Terminal de Tubarão, 2020.



Source: Vitória Public Port, Sindamare Divulgação, 2020.

The public port of Vitória, located in the southeast region, operates leased terminals for handling containers, general cargo, steel products, fuels and by products.

The port administration of the ports of Vitória and Barra do Riacho, called Codesa, is the first port authority qualified by the Federal Government for its privatization or concession of the administration of its facilities. The studies were contracted by the Brazilian Development Bank (BNDES) and should have its concession model defined throughout 2020.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics		YEAR				
Source: ANTAQ		(Thousand tons)				
PORT COMPLEX	VITÓRIA/TUBARÃO/B RIACHO	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	970	1.003	1.037	3,5%	3,4%
Containers	out bound	1.637	1.657	1.742	1,2%	5,1%
General Cargo	In bound	238	381	322	60,4%	-15,3%
General Cargo	out bound	8.838	7.846	7.873	-11,2%	0,3%
Liquid and Gas Bulk Cargo	In bound	1.248	1.307	1.189	4,8%	-9,0%
Liquid and Gas Bulk Cargo	out bound	36	25	136	-31,0%	452,6%
Break Bulk	In bound	16.094	15.364	15.073	-4,5%	-1,9%
Break Bulk	out bound	109.092	104.366	76.375	-4,3%	-26,8%
TOTAL	IN BOUND	18.548	18.055	17.621	-2,7%	-2,4%
TOTAL	OUT BOUND	119.602	113.894	86.126	-4,8%	-24,4%
TOTAL	IN + OUT BOUND	138.150	131.949	103.747	-4,5%	-21,4%

3.3.12. Port Complex of Açú

The Açú port complex is situated in an area of 130 km², in the southeast region of the country, in the municipality of São João da Barra in the State of Rio de Janeiro. The port complex is a private investment, initiated by the EBX Group and, in 2014, its control was transferred to the EIG Group.

The Port of Antwerp established a partnership with the Port of Açú to operate the general cargo terminal and implement new operational and management practices for the Port.



Source: Private Use Terminal of Açú – General Overview of the Port Complex – São João da Barra (RJ), Prumo S.A., 2020.

The Açú port complex has become one of the most important export ports of commodities, such as iron ore and crude oil, multipurpose cargo and terminals to attend offshore industry and supply services.



Sources: (1) Crude Oil Ship to Ship and Iron Ore Operation, Porto do Açú, 2020; (2) Chouest Offshore Terminal, NF Notícias, 2018; (3) Multipurpose Terminal, Portal G1, 2019.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)			YEAR	
PORT COMPLEX	AÇU	2017	2018	2019	2018/2017	2019/2018
Containers	In bound					
Containers	out bound					
General Cargo	In bound	11	3	136	-70,3%	4247,7%
General Cargo	out bound	188	26	169	-86,4%	561,0%
Liquid and Gas Bulk Cargo	In bound	1.917	5.059	9.672	163,9%	91,2%
Liquid and Gas Bulk Cargo	out bound	1.906	5.126	9.662	169,0%	88,5%
Break Bulk	In bound	416	568	591	36,4%	4,0%
Break Bulk	out bound	16.068	3.300	23.114	-79,5%	600,4%
TOTAL	IN BOUND	2.344	5.630	10.399	140,2%	84,7%
TOTAL	OUT BOUND	18.161	8.451	32.945	-53,5%	289,8%
TOTAL	IN + OUT BOUND	20.506	14.082	43.344	-31,3%	207,8%

3.3.13. Port Complex of Pecém and Fortaleza

The Pecém port complex, located in the northeastern region, about 60 km from the city of Fortaleza (PE), is a private use terminal owned by the Government of Ceará State. The port complex is managed by the Companhia de Desenvolvimento do Complexo Industrial e Portuário do Pecém (CIPP), in association with the Port of Rotterdam (PoR).

The Pecém port terminal has the capacity to receive vessels with a draft of up to 15.4 m and comprises a steel mill industrial complex, a thermoelectric generating plant supplied by mineral coal and a government incentive area; the Export Processing Zone (ZPE). It also attends regular container shipping lines to export fruit in reefer containers.



Source (1) Port Sac Armazenagem, 2017. (2) Revista Portos e Navios - Port Complex of Pecém General View, 2018.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)		YEAR		
PORT COMPLEX	PECÉM/FORTALEZA	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	1.824	2.166	2.484	18,8%	14,7%
Containers	out bound	1.480	2.006	2.741	35,5%	36,7%
General Cargo	In bound	551	667	482	21,1%	-27,8%
General Cargo	out bound	2.736	3.037	2.920	11,0%	-3,8%
Liquid and Gas Bulk Cargo	In bound	2.732	2.331	3.223	-14,7%	38,2%
Liquid and Gas Bulk Cargo	out bound	385	255	461	-33,7%	80,6%
Break Bulk	In bound	10.860	11.456	9.893	5,5%	-13,6%
Break Bulk	out bound	310	265	263	-14,5%	-0,9%
TOTAL IN BOUND		15.967	16.621	16.082	4,1%	-3,2%
TOTAL OUT BOUND		4.912	5.563	6.386	13,2%	14,8%
TOTAL IN + OUT BOUND		20.879	22.184	22.468	6,2%	1,3%



Source: Port of Fortaleza – Mucuripe Bay, Petrobras Divulgação, 2020.



Source: Cruise Terminal Porto of Fortaleza, Agência Brasil, 2019.

The public port of Fortaleza, or port of Mucuripe, is located in the capital of the State of Ceará (CE). The port handles a large amount of fuel, receiving products by coastal and long-haul vessels. The port area has several fuel distribution centers that are connected to the CFN railway, which is part of the CSN concession group; the same one that is implementing Transnordestina railway.

3.3.14. Port Complex of Itajaí and Navegantes

The port complex of Itajaí and Navegantes is located in the south of the country, in the State of Santa Catarina (SC), about 150 km north of the state capital Florianópolis.

The public port of Itajaí and the private container terminal Portonave, installed at the mouth of the Itajaí river, have carried out dredging works and developed a maneuvering area for mooring container ships with a length of up to 350 meters. The public port's administration was delegated to the municipality of Itajaí (SC).



Source: Itajaí Public Port – APM Terminal, Prefeitura de Itajaí, 2020.



Source: Portonave Container Terminal, Assoc Emp. Itajaí (ACIN), 2012.

The private use terminal of Portonave is one of the most important container terminals in the country, and is owned by Terminal Investment Ltd (TIL); part of the Mediterranean Shipping Company (MSC). It is specialized in handling dry and reefer containers for the export of meat and industrial products.

Cargo handling in the port complex – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics						
Source: ANTAQ		(Thousand tons)			YEAR	
PORT COMPLEX	NAVEGANTES/ITAJAÍ	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	4.509	4.804	5.419	6,5%	12,8%
Containers	out bound	7.307	7.197	7.709	-1,5%	7,1%
General Cargo	In bound	15	40	94	159,5%	135,2%
General Cargo	out bound	217	192	117	-11,8%	-39,2%
Liquid and Gas Bulk Cargo	In bound	37	28	45	-23,2%	59,5%
Liquid and Gas Bulk Cargo	out bound			14	NA	NA
Break Bulk	In bound	1			NA	NA
Break Bulk	out bound	1		14	NA	NA
	TOTAL IN BOUND	4.563	4.872	5.558	6,8%	14,1%
	TOTAL OUT BOUND	7.525	7.388	7.853	-1,8%	6,3%
	TOTAL IN + OUT BOUND	12.088	12.261	13.411	1,4%	9,4%

3.3.15. Port Complex of Manaus and Itacoatiara

The port complex of Manaus is located in the north of the country, in the capital of the State of Amazonas (AM). It is an important hub for handling general cargo and containers to supply the city consumption goods and cargo produced in the electronic industrial hub of the Manaus Free Trade Zone.

The public port, located at the central part of the city of Manaus, attends the regional passenger transport and supplies the riverside cities along the Amazon River and its tributaries. The waterways are practically the only means of transport between Manaus and the rest of the country.



Source: Public Port of Manaus, Wikipedia, 2012.



Source: Container Terminals, Superterminais, 2020.

The private use terminals Superterminais and Chibatão, both operated by the regional companies Di Gregorio e Chibatão Group, are the main port facilities for the handling of containers that serve deep-and short-sea (cabotage) ships.

Other private terminals handle cement and wheat, and several other small river terminals transport electronics, motorcycles and other products for domestic consumption, connecting the industrial hub of Manaus (AM) to Belém (PA), by river transport in convoys, and then by highways to the major cities of Brazil.



Source: Inland Navigation Terminal – Bertolini (TBL), 2020.



Source: REMAN – Refinaria Isaac Sabbá, Petrobras, 2020.

The Isaac Sabbá oil refinery (Reman), operated by Petrobras, demands large volumes of oil extracted in the Amazon River basin, which is transported by cabotage and river convoys to other regions of the country, crossing a long stretch of the Amazon River.

The Hermasa private use terminal is situated about 150 km east of Manaus (AM), in the municipality of Itacoatiara (AM) and is operated by the AMaggi Group, the largest soybean producer in Brazil. This terminal handles soy and corn, produced in the western region of the State of Mato Grosso (MT).



Source: Private Terminal Hermasa – Itacoatiara, AMaggi, 2020.



Source: Private Terminal Novo Remanso – Project, IPAAM, 2019.

Cargo handling in the port complex of Manaus and Itacoatiara – discharging and loading – in the period from 2017 to 2019:

Port Handling Statistics				YEAR		
Source: ANTAQ		(Thousand tons)				
PORT COMPLEX	MANAUS / ITACOATIARA	2017	2018	2019	2018/2017	2019/2018
Containers	In bound	3.575	3.983	4.802	11,4%	20,5%
Containers	out bound	1.865	2.086	2.219	11,9%	6,4%
General Cargo	In bound	1.321	1.598	1.773	20,9%	11,0%
General Cargo	out bound	614	596	657	-2,9%	10,2%
Liquid and Gas Bulk Cargo	In bound	4.953	4.793	5.277	-3,2%	10,1%
Liquid and Gas Bulk Cargo	out bound	2.186	2.729	2.985	24,9%	9,4%
Break Bulk	In bound	4.810	4.789	4.933	-0,5%	3,0%
Break Bulk	out bound	3.963	4.535	4.867	14,4%	7,3%
TOTAL	IN BOUND	14.659	15.163	16.784	3,4%	10,7%
TOTAL	OUT BOUND	8.627	9.946	10.728	15,3%	7,9%
TOTAL	IN + OUT BOUND	23.286	25.109	27.513	7,8%	9,6%

4. OPPORTUNITIES IN PORT DEVELOPMENTS

The Brazilian port system has been expanding its capacity to meet the growing demand for port services and equipment with the implementation of new private terminals and leasing of terminals in public

ports.

As mentioned, the Brazilian Government has structured a program to coordinate and implement the auctions for infrastructure concession: the Investment Partnership Program (PPI). This program includes projects for the privatization and concession of ports, railways, highways, airports, energy and oil fields.

4.1. The Investment Partnership Program (PPI)

The Investment Partnership Program (PPI) was created in 2016 to expand and strengthen the interaction between governmental programs and the private initiative, to enforce the privatization program for infrastructure and the concession of public companies (Source: www.ppi.gov.br)

PPI has a single administrative structure, including the PPI Council and the PPI Secretariat. The Council is the collegiate body that evaluates and recommends the projects that will be qualified for the PPI program and which are presented to the President of the Republic. It also takes decisions on the implementation of concession and privatization contracts.

The Secretariat, linked to the Ministry of Economy, acts as a supporting body for Ministries and Regulatory Agencies for the implementation of the Program's activities. The objectives of the PPI are:

- To expand investment and employment of opportunities and stimulate technological and industrial development, in harmony with the goals of social and economic development of the country.
- To ensure the expansion of public infrastructure, with appropriate tariffs for the users.
- To promote broad and fair competition in the establishment of partnerships and in the provision of services.
- To ensure the stability and legal certainty of contracts, with the guarantee of minimum intervention in business and investments.
- Strengthen the regulatory role of the State and the autonomy of the regulatory state entities.

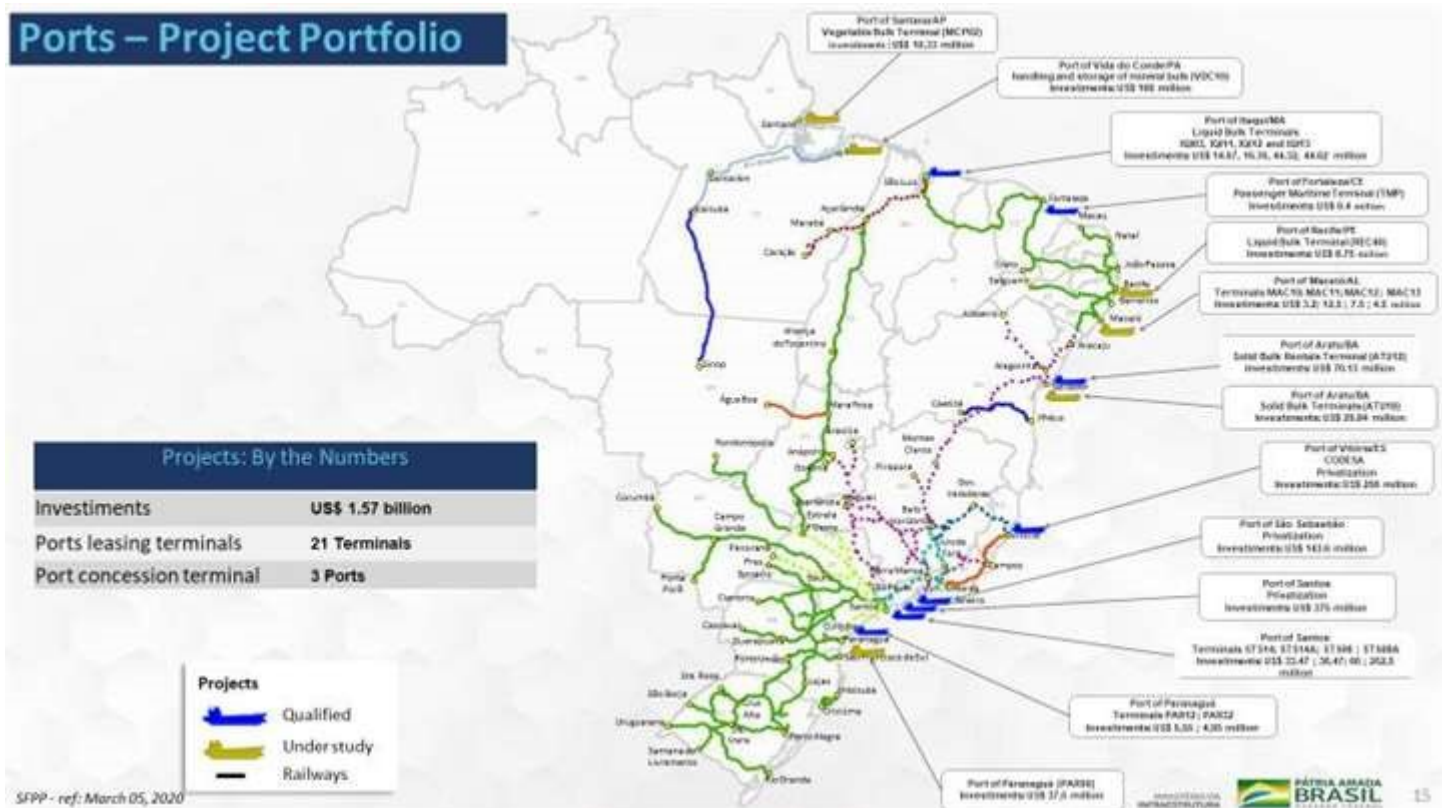
The PPI acts as a framework and an indicator of the Federal Government's priorities for new concessions and privatization of infrastructure assets.

Information about the concession and privatization procedures of the PPI program is continuously being updated and can be found through [this PPI link](#). In this online updated system, it is possible to consult detailed technical and investment information for each port, railway or highway.

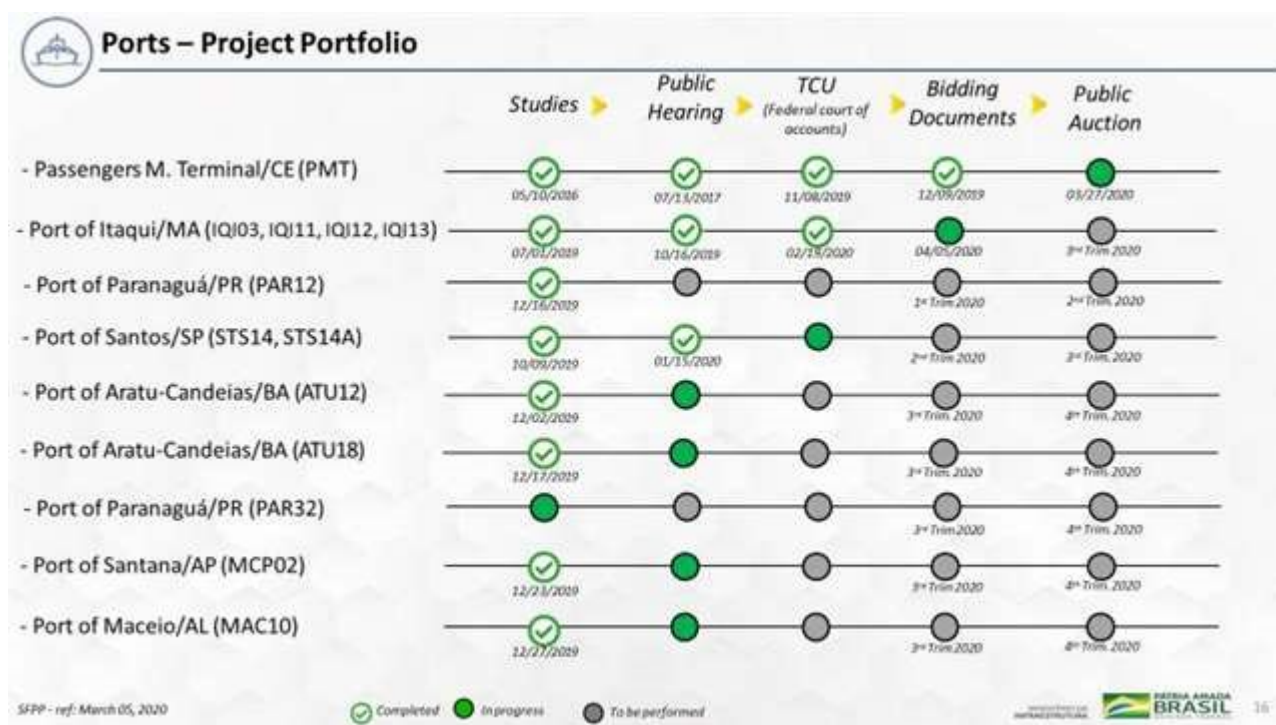
4.1.1. Opportunities in Leasing Port Terminals – PPI program

The port sector concession program includes auctions for the leasing of port terminals in public ports, mostly brownfield projects, but some greenfield projects are also expected. The program is also conducting the concession or privatization of port authorities; 7 companies under the direct management of the Brazilian Federal Government, and 14 other companies delegated to state or municipality governments.

The figure below, of the Ministry of Infrastructure, shows the port authorities' lease, concession and privatization projects, as well as the railroads that are to be granted during this and next years.

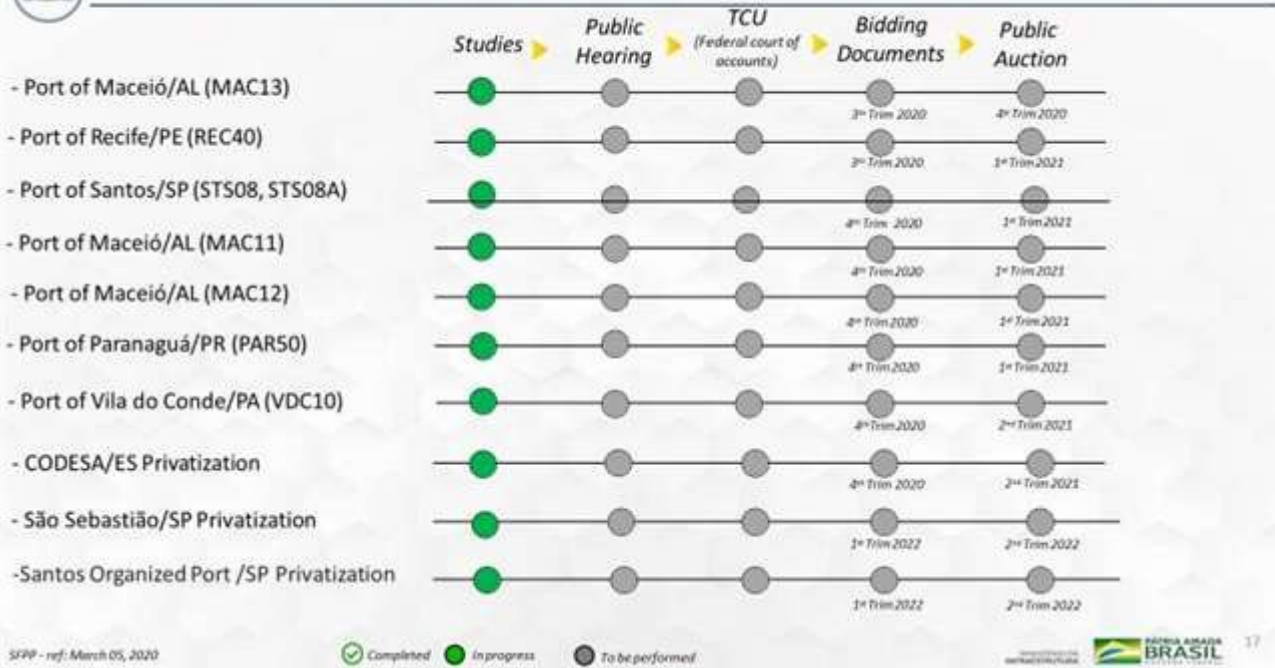


The charts below present the progress and schedule of biddings for to be leased areas in the public ports and privatization of the port authorities qualified in the PPI program.





Ports – Project Portfolio



4.1.2. Rail Program Sectors Serving the Main Ports

The existing railroad network attends the export flows of minerals and agribusiness, linking the production areas to the exporting ports. The expansion of the railroad network would have a direct impact on the port sector, inducing new demands and redistributing of some cargo flows.

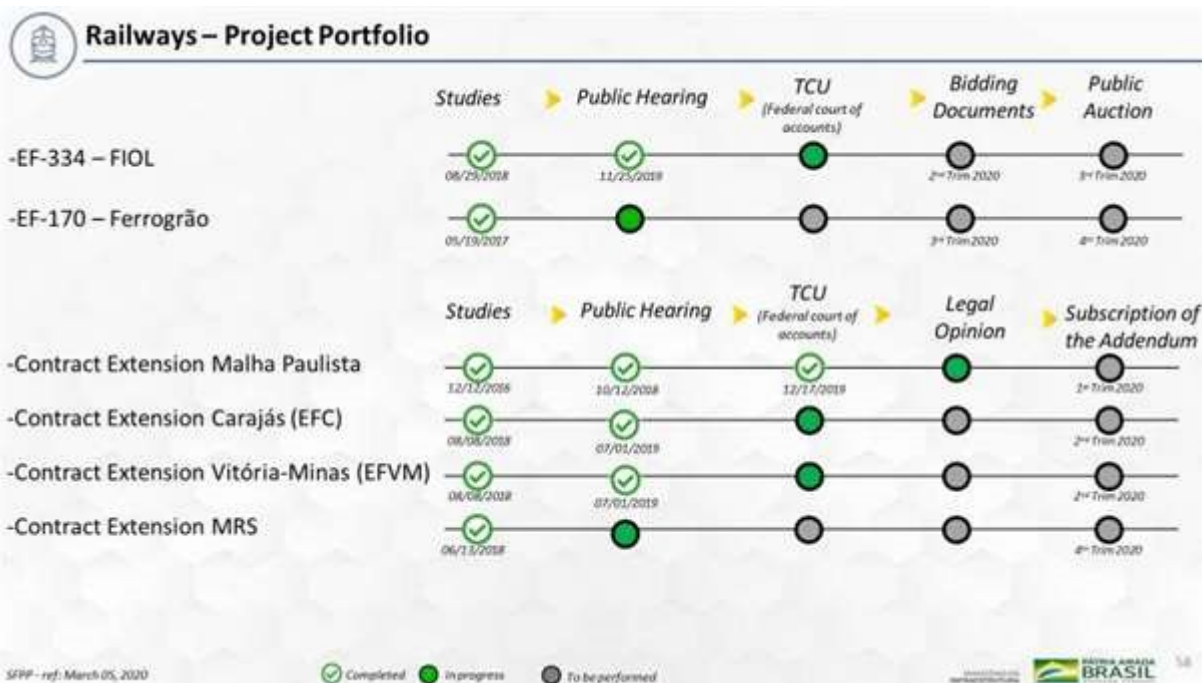
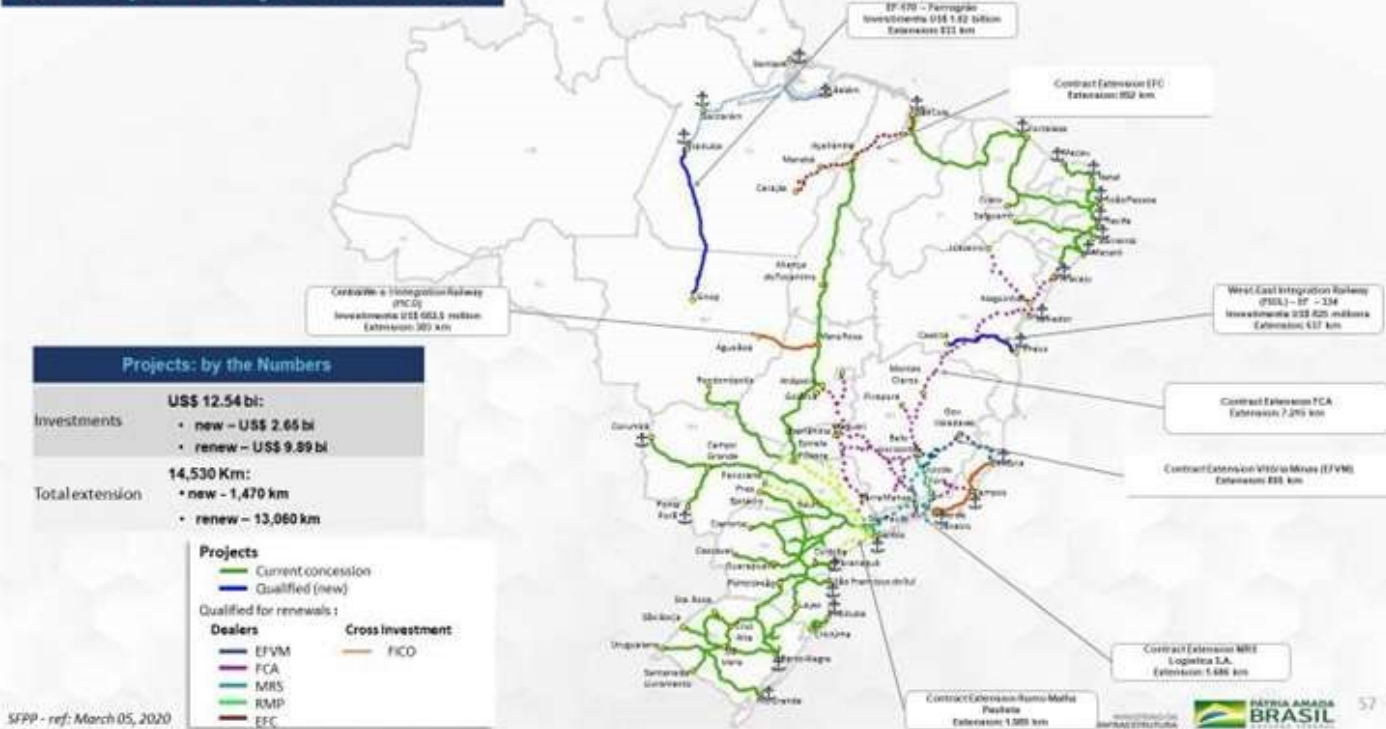
Railways concession program

As priorities for the expansion of the railway network, the PPI program chose the concession of FIOL and Ferrogrão. The Ferrovia de Integração Leste-Oeste (FIOL) links the iron ore producing and agribusiness areas of the western region of the State of Bahia to the ports located in the region of Ilhéus. The Ferrovia do Grão (Ferrogrão) is a greenfield enterprise that connects the grain producing regions in the west of the State of Mato Grosso (MT) to the ports in the State of Pará, in the region of Santarém and Miritituba. These two railroads are scheduled to be auctioned in 2020.

Railways in the process of extending concession contracts

Vale (mining), Rumo, MRS and VLI/FCA (agribusiness and general cargo), which operate the main railroads, are renegotiating their concession contracts. The early extension of these contracts will increase the legal security and the expansion of transport capacity, as well as providing a robust investment program in the whole railway network. The following figure shows the status of these negotiations with the Brazilian Federal Government.

Railways – Project Portfolio

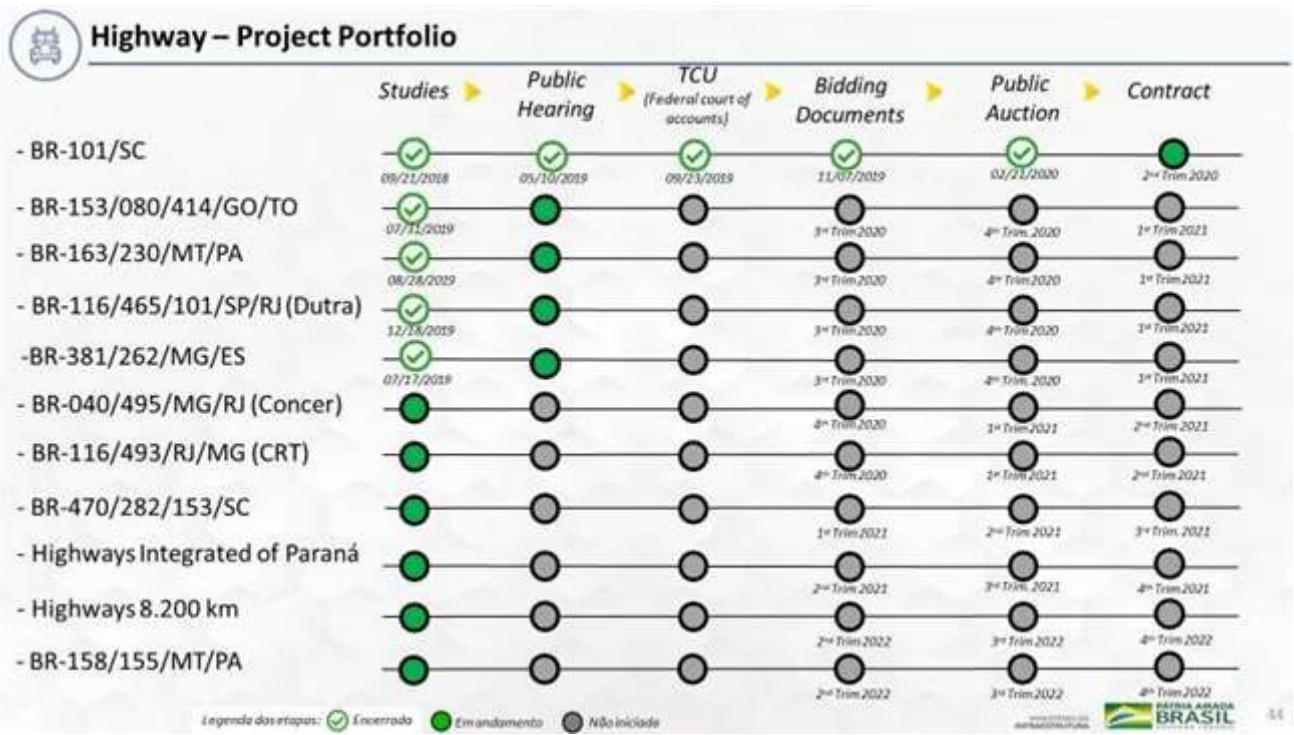
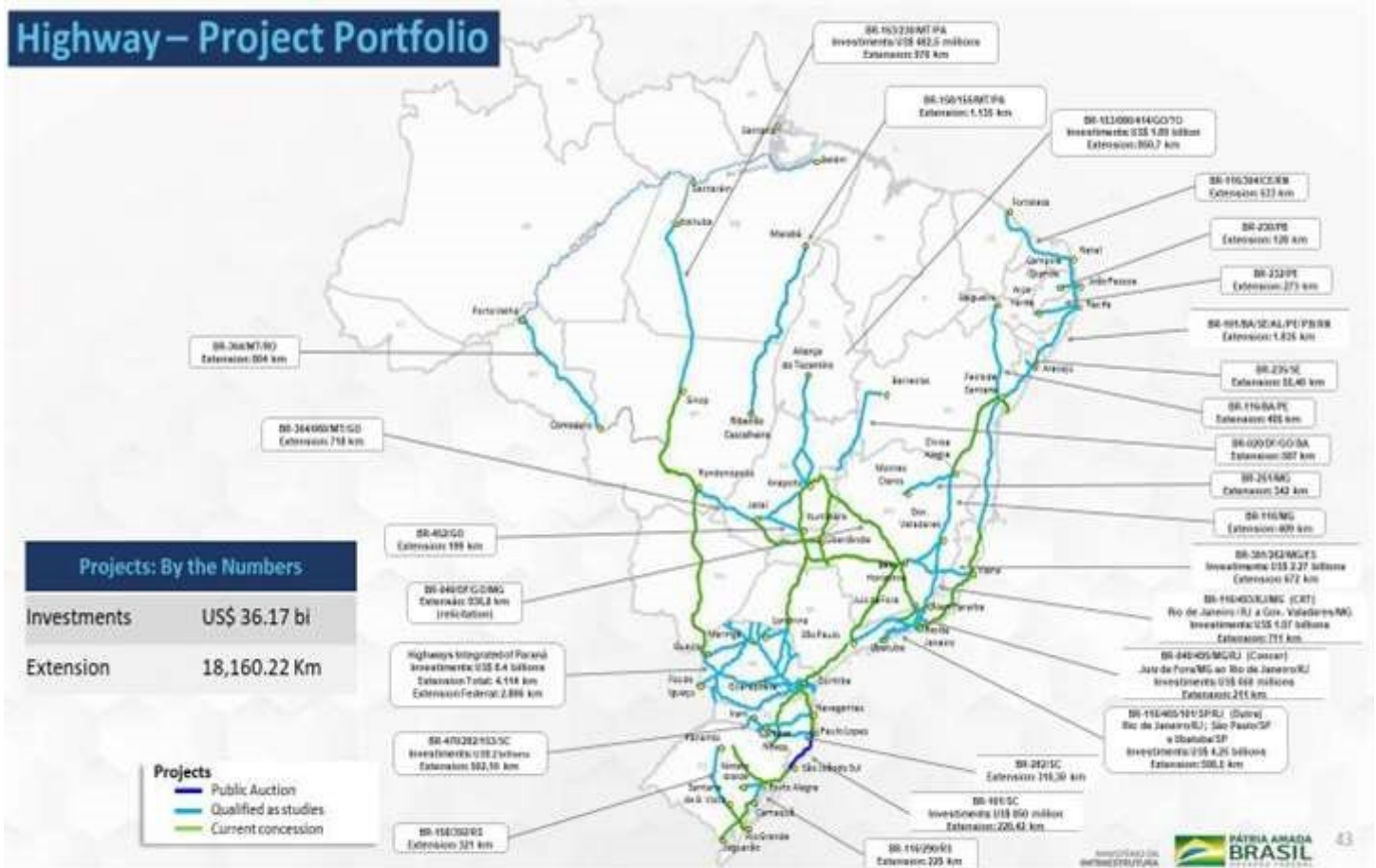


4.1.3. Highway Concession Program

The Brazilian Federal Government’s road concession program includes 18,000 km of roads. Many of these roads are important agribusiness routes that connect the production areas to the main exporting ports. The concession of other important roads at the coastal zone, on the east side of the country, should contribute to the development and cheapening of transport between large urban centers.

The concession auctions scheduled for the highway BR-153 – in the States of Goiás (GO) and Tocantins (TO) – will provide an important cargo transport axis between the north and south regions of the country. The

concession of the highway BR-163 – in the States of Mato Grosso (MT) and Pará (PA) – will allow the modernization of the important agribusiness export route destined for the ports of Arco Norte.



4.2. Opportunities for Services and Investments in the Brazilian Port Sector

This section sets out the opportunities of the participation and investment in leased terminals in public ports and in private terminals, as well as the opportunities of the privatization or concession of port authorities. The most relevant projects are presented below, divided by region and category; public or private enterprise.

4.2.1 Southern Region

The southern region includes the states of Rio Grande do Sul (RS), Santa Catarina (SC) and Paraná (PR). This region is one of the most developed in the country, and includes important agribusiness producing areas, meat industry (pork and chicken) mainly for the export, as well as automobile and household appliance industries for the Brazilian market and for export.

Planned biddings to lease public port terminals

The port of Paranaguá (PR) is expected to lease the following terminals:

PAR12 – Vehicle and parts terminal, with investments of US\$ 5.55 MM, IRR of 9.38%, and initial contract for 25 years.

PAR32 – General cargo terminal, vehicles and parts, with investments of US\$ 4.97 MM, uninformed internal rate of return (IRR) and initial contract for ten years.

PAR50 – Terminal for liquid bulk handling and storage, brownfield project with investments of 37.5 MM, IRR and contract term not yet defined.

PAR07 – Investment in the area will provide the terminal with the capacity to handle 5.1 million tons of agribusiness bulk per year. The project will enable private sector investments to be made in the order of BRL 328.0 million.

PAR08 – Investment in the area will provide the terminal with the capacity to handle 4.56 million tons of agribusiness bulk per year. The project will enable private sector investments to be made in the order of BRL 400.0 million.

PARXX – Investment in the area will provide the terminal with the capacity to handle 3.01 million tons per year. The project will enable private sector investments to be made in the order of BRL 193 million.

Investments in leased port terminals

- Tecon Rio Grande (RS) – The Wilson Sons holding group has been holding conversations with investors for the sale of the lease agreement.
- Tecon Imbituba (SC) – The Santos Brasil's holding group has held conversations with investors for the sale of the lease agreement.
- Tecon Itajaí – The APM Terminals holding group might have an interest in the sale of the lease due to port restrictions (draught, turning basin and small yard area of the terminal), as well as the fact that they are partners of the private terminal of Itapoá.
- Grain Terminals at Paranaguá (PR) public port, are under the analysis of the Federal Government to renew their leasing contracts and make investments to improve capacity. It is expected that the new owners of the leased terminals assume the investment of two new quays, improving six new berths to load grain bulk cargo.

Private use terminals and greenfield projects

Rio Grande (RS) port area

Rio Grande Shipyard, located near the port of Rio Grande (RS), has been showing interest to start port activities as a private terminal. The construction contracts for ships, oil platforms and platform modules with Petrobras are being concluded. The terminal will be equipped to handle general cargo.

Arroio do Sal/Torres area (RS)

To improve the competitiveness of the area around Caxias do Sul, in the North of the State of Rio

Grande do Sul, the Infrastructure Chamber Mobi Caxias aims to connect its production chains and agribusiness producing and industrial areas. The objective is to finance and modernize initiatives regarding infrastructural projects, such as railways, highways, and airports, as well as port terminals and a sea port on the northern coast of the State, in the area of Torres/Arroio do Sal.

Navegantes (SC) port area

Portonave – a private use terminal, operated by Terminal Investment Ltd (TIL/(MSC), in the city of Navegantes (SC), announced that it will invest R\$100 million this year to implement an increase in capacity with reinforcements in the ships berths and acquisition of new equipment.

São Francisco do Sul (SC), Babitonga Bay – port area

In the Babitonga bay region, several private terminals that have already been authorized by the Federal Government are to be implemented. Some of them are still in the process of analysis and should attract investors partnerships.

- Terminal of Santa Catarina Grains (TGSC) – grains.
- Terminal of Babitonga Grains (TGB) – grains.
- Porto Brasil Sul – Worldport – multipurpose cargo terminal – grain, container, general cargo, fuel, and LNG.
- FRSU Golar Power – floating unit for regasification, storage and dispatch of LNG.

Paranaguá port area

The Terminal Porto Pontal do Paraná (TPPP) is a container terminal authorized by the Brazilian Federal Government and has an interest in investors. TPPP is currently working on the authorization to install a new alternative route for truck traffic.

4.2.2. Southeast Region

The southeast region of Brazil comprises the States of São Paulo (SP), Rio de Janeiro (RJ) and Espírito Santo (ES).

This is the most populated region of the country, where the most important industries are concentrated. The ports of this region serve the agribusiness export corridors, receiving cargo by rail.

It also comprises the most important ports that receive crude oil originated from the exploration in deep-water and pre-salt fields and imports from other countries. This oil is transferred through pipelines to large refineries in the states of São Paulo and Rio de Janeiro.

Planned biddings to lease public port terminals

The Port of Santos has several port facility leasing auctions scheduled to take place in the coming months:

STS14 – greenfield paved area for general cargo handling (pulp), with an estimated capacity of 1.6 million tons per year. An estimated investment of US\$33.48 million, IRR of 9.38 and a 25-year contract period are under evaluation.

STS14A – greenfield paved area for general cargo handling (pulp), with an estimated capacity of 1.6 million tons per year. An estimated investment of US\$36.48 million, IRR of 9.38% and a 25-year contract period are under evaluation.

STS08 – brownfield area for handling and storage of liquid bulk, with 137 thousand m², which has been operated by Petrobras through a temporary contract. An estimated investment of US\$66.09 million, IRR and a lease period have not yet been defined.

STS08A – brownfield area for handling and storage of liquid bulk, with 305.7 thousand m², which is being operated by Petrobras through a temporary contract. An estimated investment of US\$251.53 million, IRR and lease period have not been defined.

Investments in leased terminals

- The container handling terminals in the ports of Santos (SP), Rio de Janeiro (RJ) and Itaguaí (RJ) are investing in expansion works of the berth length and cargo handling equipment to meet the new class of Post-Panamax vessels. Many of these terminals will demand training for the operation with the new automated technologies (without the use of operators) and yard planning.
- The grain and fertilizer terminals at the Port of Santos have been expanding their operational capacity to suit the transportation of their products by rail. Practically all terminals have signed contractual amendments to expand their duration with obligations to make investments. It is estimated that each terminal will invest around R\$400 million in new warehouses, ship loaders and product transfer belts. All this new equipment will have to meet new environmental regulations with severe restrictions on grain particulate emissions.
- New pulp handling terminals should be implemented at the Port of Santos to meet the growing export demand.
- Liquid bulk terminals, which handle oil, fuel and chemical products, should invest in increased storage capacity and new ship berths. The fuel distribution market is expected to undergo profound changes based on Petrobras' new policy of selling its own refineries and of charging prices aligned with the international market for fuel and oil products distribution.

Private use terminal and greenfield projects

New private use terminals are to be implemented to meet the growing export demand for agricultural bulk, iron ore, crude oil and services to attend offshore oil platforms, such as:

- Porto Central, a private terminal to be built in the city of Presidente Kennedy (ES), is an initiative of a local and international business group. A power generation plant (LNG), an industrial area and a private multipurpose port terminal are to be built to handle iron ore, ship-to-ship oil transshipment operations, containers, general cargo and services to supply vessels for oil platforms. The estimated investment is R\$ 3 billion.



Source: Porto Central – Conceptual Design.

- The private terminal Brites, to be implemented in the continental area of the municipality of Santos (SP), is an initiative of Triunfo Participations and Investments (TPI). The terminal will have seven berths for ships, which requires deepening dredging services and port facilities to handle agricultural bulk, fertilizers, general cargo (cellulose) and liquid bulk. Rail access should also be implemented to serve the cargo handled at the terminal. The implantation period was estimated in five years with investments of R\$2.85 billion. The TPI group participated in the implementation of the private container terminal Portonave, in Navegantes (SC), and are looking for partnerships with investors and joint ventures with specialized partners and port operators.
- Terminal Alamoá – private multipurpose terminal to be installed in the Alamoá region, city of Santos (SP), is an investment that has been conducted by entrepreneurs in the real estate business in Santos. The following facilities are planned: three berths for vessel berthing with deepening dredging works, and port facilities for handling agricultural bulk, fertilizer general cargo and liquid bulk. The port facilities will occupy an area of 90,000 m², with access to water and other nearby areas that total

another 120,000 m² to be occupied with warehouses. The owners have been looking for partnerships with investors and joint venture opportunities with specialized operators.

- Santorini Terminais e Armazéns Gerais is a private initiative terminal of the Empresa Brasileira de Terminais e Armazéns Gerais (EBT) group, for the installation of a greenfield terminal in the continental region of Santos (SP). The terminal is expected to handle 26 million tons per year of agricultural bulk and general cargo (pulp), with an estimated investment of R\$ 480 million. The terminal will be built in an area without access to the sea and its cargo will be moved in a terminal rented by the same group on Barnabé Island. The agricultural bulk cargo transport between the terminal and the pier will be transported by conveyor belts and the general cargo by trucks. The controlling group is interested in investment partners and joint ventures with specialized operators.
- DPW – a private container terminal situated in the continental area of Santos (SP) – is implementing an expansion of its storage area and ships berths to meet long-term contracts with the Brazilian company Suzano for pulp exports. This operation will require the acquisition of new cargo handling and storage equipment for the operation of containers and pulp. DPW has been analyzing new investments and partnerships for the construction of new vessel berths (2 x Panamax) for the handling of agricultural bulk and liquid bulk, as well as storage facilities and cargo handling equipment.
- Itaoca Terminal Marítimo (Itaoca Offshore) – private terminal to attend supply boats and oil offshores services to be constructed in Itapemirim (ES). Partnership of Petersen Offshores to build a 300m service pier, and more than 600,000m² of continental storage area. It also has road access to the BR-101 South highway, which is located 23km south of the site. (Source: [Terminal Itaoca](#)).

Port authority concession and privatization

The Brazilian Federal Government is hiring consulting companies in public bids to conduct the modeling studies, due diligence and the feasibility studies for the concession auctions. The government considers that different concession or privatization models shall be applied for each of the dock companies, and is working to obtain the best and most viable model for these companies.

The studies for Codesa have already been contracted and are being carried out by a consortium of consultancy companies headed by Price and Waterhouse. It is expected that still in the third quarter of 2020, the studies for Codesp and CDSS will be contracted in a public tender.

4.2.3. Northeast Region

The northeast region of the country comprises the States of Bahia (BA), Sergipe (SE), Alagoas (AL), Pernambuco (PE), Rio Grande do Norte (RN) and Ceará (CE). The port facilities in this region are mainly used to export fruit, transported in refrigerated containers, iron ore, bulk minerals and crude oil extracted from onshore and shallow water wells. They also serve the export of the grain production originating in the western region of the State of Bahia.

Planned biddings to lease public port terminals

The Brazilian Federal Government's leasing program has planned the bidding of the following terminals in this region:

PMT – Passenger Maritime Terminal at the public port of Fortaleza is a brownfield terminal, in operation for passenger handling of cruise ships. The estimated investment is US\$ 0.4 million, with an IRR of 8.84% to be leased in a 25-year contract. The lease auction was scheduled for March 2020 but was delayed due to the Covid-19 pandemic.

ATU12 – terminal located in the public port of Aratu, city of Candeias (BA), dedicated to the handling of solid bulk: fertilizers, copper concentrate and other minerals. Its area is composed of brownfield facilities with approximately 190,000m² and an estimated capacity to handle 2 million tons per year. Investment estimated at US\$ 70.14 million, IRR of 9.38% and a 25-year contract period.

ATU18 – terminal located in the Port of Aratu, Municipality of Candeias (BA), with an area of approximately 51,561.61 m², dedicated to handling and storage of agricultural bulk. Greenfield terminal

without fixed structures, with an estimated investment of US\$ 29.85 million, IRR of 9.38% and a 15-year contract period.

MAC10 – Lease of a terminal for handling and storage of liquid bulk (sulfuric acid) at the Port of Maceió, in the state of Alagoas (AL). Greenfield project with an estimated investment of US\$3.2 million, IRR not declared and lease contract of 25 years.

MAC11 – Lease of a terminal for handling and storage of liquid bulk at the Port of Maceió, in the state of Alagoas (AL). Brownfield project with an expected investment of US\$12.5 million, IRR and lease period to be defined.

MAC13 – Lease of the terminal for handling and storage of general cargo (sugar) at the Port of Maceió, in the state of Alagoas (AL). Brownfield project with an estimated investment of US\$4.5 million, IRR and a lease period to be defined.

REC40 – Lease of a terminal for handling and storage of liquid bulk at the Port of Recife, in the state of Pernambuco (PE), with an area of 14,400 m², expected investment of US\$8.75 million, IRR and lease period to be defined.

SUA01 – Lease of Ro-Ro terminal at the port of Suape, in the state of Pernambuco (PE). Brownfield project with an expected investment of R\$7.5 million, IRR to be defined, and a lease period of 25 years.

SUA05 – Lease of a container terminal at the port of Suape, in the state of Pernambuco (PE). A greenfield project, quay of 900m long for two ships berthing, capacity to handle 840 thousand TEU/year, with an expected investment of R\$1.2 billion, IRR not informed and lease period of 35 years.

Investments in leased terminals

Tecon Salvador, a container terminal leased at Port of Salvador in the State of Bahia (BA), is expanding its capacity and is contracting new berths (432 m+) to be built, dredging works, yard equipment, storage areas, and portainers to operate 366m LOA Post-Panamax container ships. It is expected to invest around R\$ 715 million. Controlling group Wilson Sons announced last year their intention that they might sell their leasing contract.

Private use terminal and greenfield projects

The private use terminal Pecém, a state company of Ceará Government, with a shareholding of Port of Rotterdam, is planning to build new storage capacity and equipment to handle liquid bulk cargo – fuel and petroleum products.

The port of Fortaleza, settled in downtown Fortaleza (CE), has no more room to improve existing liquid bulk terminals capacity and this cargo shall be handled at Pecém.

Porto Sul Bahia, a private bulk terminal, is being installed in Ilhéus, in the southern region of the State of Bahia. The terminal will have the capacity to handle 18 MM tons/year of iron ore. The iron mine, located in Caetitê (BA), will be connected to the port with the completion of the construction of the West-East Railroad (FIOL). Bahia Mineração (BAMIN), controlled by Eurasian Resources Group (ERG), is beginning to contract the construction work for the first phase of the port terminal construction.

4.2.4. Northern Region

The northern region of Brazil joins public ports and private use terminals in the States of Maranhão (MA), Pará (PA), Amapá (AP) and Amazonas (AM). Port installations in this region handle commodities on a large scale, such as iron ore, bauxite, grains, fuels and some containers.

Planned biddings to lease public port terminals

IQI03 – Lease of Liquid Bulk Terminal – fuels – at the port of Itaqui (MA). Brownfield area of 25,726 m², with an expected investment of US\$14.68 million, IRR of 9.38% and a lease period of 25 years.

IQI11 – Lease of Liquid Bulk Terminal – fuels – at the port of Itaqui (MA). Brownfield area of 33,607 m², with an expected investment of US\$16.35 million, IRR of 9.38% and a lease period of 20 years.

IQI12 – Lease of Liquid Bulk Terminal – fuels – at the port of Itaqui (MA). Greenfield area with 34,183 m², with an expected investment of US\$44.33 million, IRR of 9.38% and a lease period of 20 years.

IQI13 – Lease of Liquid Bulk Terminal – fuels – at the port of Itaqui (MA). Greenfield area of 32,078 m², with an expected investment of US\$44.33 million, IRR of 9.38% and a lease period of 20 years.

MCP01 – Lease terminal for handling wood chips at the port of Santana, in the state of Amapá (AP). Brownfield area of 22,000 m², with expected investment and IRR not informed. Lease period of 25 years.

MCP02 – Lease terminal for handling and storage of grain bulk in the Port of Porto de Santana, in the state of Amapá (AP). Brownfield area of 3,186 m², with an expected investment of US\$10,34 million, IRR not informed and lease period of 25 years.

VDC10 – Lease terminal for handling liquid and mineral bulk cargo at the port of Vila do Conde (PA). Brownfield project with an area of 162,856 m², estimated investment of R\$400 million, IRR not informed and lease period of 25 years. This is an important terminal to provide raw material – bauxite, fuel and caustic soda to Alunorte alumina plant and Albras aluminum plant to handle the export of alumina bulk cargo and aluminum bars.

Investments in leased terminals

The Federal Government has authorized leased terminals to implement capacity increasing investments in brownfield areas with an extension period of their leasing contracts. Listed below are some of the leased terminals that are making improvements in yard equipment, ship loaders, new berths investments and dredging contracts:

- The Port of Itaqui, in the State of Maranhão (MA):
 - Tequimar chemical products was authorized to increase the capacity to handle liquid bulk cargo, with an investment of R\$169 million, and attend the fuel demand for grain production.
 - The Fertilizer terminal was authorized to implement a brownfield project to handle fertilizer bulk cargo, with an investment of R\$79 million and an increase of two million tons per year.
- The Port of Belém in the State of Pará had five lease contracts of liquid bulk terminals and one LPG terminal that were auctioned last year. They will demand investments in the expansion of storage capacity, new equipment to handle their products (fuels and LPG) and distribution facilities.
- The Port of Vila do Conde in the State of Pará has two terminals:
 - Convicon container terminal of Vila do Conde, which was authorized to double its capacity to handle 118 thousand TEU per year with investments of R\$129 million.
 - VDC12 - Greenfield liquid bulk – fuel and combustible byproducts – auctioned in 2019, with an investment of R\$126 million to provide a capacity of 45 thousand tons per year.
- The Port of Santarém in the State of Pará (PA) has two liquid bulk terminals leased last year:
 - STM 04 - Brownfield terminal, with expected investments of R\$18,2 million and a final capacity of 79 thousand tons per year.
 - STM 05 - Brownfield terminal, with expected investments of R\$50,5 million and final capacity of 130 thousand tons per year.

Private use terminal and greenfield projects

New private use terminals are supposed to be implemented to attend the growing demand for agribusiness cargoes and iron ore production expansion, such as:

- Private use terminal of São Luís (TPS), in the state of Maranhão, is a greenfield multipurpose project with a R\$1,700 billion investment to handle liquid bulk cargo, agribusiness bulk cargo, general cargo and containers. The Brazilian investment group W-Torre, in association with China Construction Communication Company (CCCC) and Lyon Capital, are the shareholders. Construction is expected to start in 2020 to implement water infrastructure, berths and yard preparation.
- Private use terminal of Alcantara (TPA), located at São Marcos Bay, in the city of Alcantara, in the State of Maranhão (MA), is a greenfield multipurpose project to handle iron ore, bauxite and agribusiness bulk cargoes, fuel, LNG and general cargo, with a total capacity of 140 million tons per year in the first phase. It will be initiated the construction of four berths with natural depth of 25m. The expected investment is R\$ 10 billion, sponsored by a Portuguese private group Grão Pará Multimodal (GPM).

This private use terminal is already authorized by the Federal Government and the shareholders are seeking investors to initiate the first phase.

- Cargill, one of the most important grain houses in Brazil, is planning to build a new grain terminal at Urubuá river island, close to the port of Vila do Conde at Barcarena City, State of Pará. Environmental and feasibility studies are indicating an investment of R\$700 million. This terminal will be integrated into the North Arc logistics to export agribusiness cargo from Miritituba terminals.
- Louis Dreyfuss Commodities (LDC) is also planning a similar private use terminal investment at Marajó Island, near the Vila do Conde public port.
- Ciagril and Caramuru, two Brazilian grain and bran products producers, are already investing in two new greenfield grain terminals at Macapá region, in the state of Amapá (AP).
- The Simões group intends to build the Novo Remanso private use terminal, near the Itacoatiara city in the State of Amazonas (AM). It shall handle agribusiness and fertilizers bulk cargo, fuel liquid bulk and general cargo, with an estimated investment of R\$500 million. Infrastructure implementation services are being contracted.

5. COMPETITIVE ENVIRONMENT FOR DUTCH COMPANIES AND RESEARCH INSTITUTIONS

Research was performed to list the most competitive companies active in Brazil, that could provide advisory services, training and infrastructure constructions in Brazil.

5.1. Main Service Providers in the Port Sector

The main companies serving the port sector can be divided into the following subsectors:

- Port engineering and design companies: LPC Latina, Planave, EBEL, Portplan, Concremat/CCCC, DTA Engenharia, Bureau de Projetos e Mind.
- Consultancy, Audit & Assurance companies: Deloitte, Price Waterhouse, Ernest Young, Strategy, Deutsch Bahn (DB), Accenture and Conext Partners.
- Consulting companies for evaluation and feasibility studies in ports: Terrafirma, Agência Porto, Portplan, DTA Engenharia, Mercoshipping, Modal and Mind.
- Environmental studies companies: Tetrattech, DTA Engenharia and CEPEA.
- Maneuvering studies and simulation companies: Oceânica Engenharia, Insight Engenharia, Instituto Nacional de Pesquisa Hidroviária (INPH), Tanque de Provas Numérico – Universidade de São Paulo (TPN-USP), I4SEA, ACQUADINÂMICA, Mc Dermot, Technomar, Atlântico Sul and Argonautica.
- Construction and EPC companies: Andrade Gutierrez, Galvão Engenharia, Queiroz Galvão, Odebrecht, Carioca Engenharia and CCCC/Concremat.
- Water foundation construction companies: Constremac/Copabo, Construbase and Brasfond.
- Dredging companies: Jan de Nul, DTA Engenharia and Dragabras.
- Research, teaching and training institutions: University de São Paulo - Department of Marine Engineering (USP/Naval), Federal University of Santa Catarina – Transport Laboratory (UFSC/Labtrans), Federal University of Rio Grande do Sul (UFRS), University of Brasília (UnB), Fundação Getúlio Vargas – Núcleo de Transportes (FGV Transportes), Port of Antwerp and Valencia Port Foundation.
- Suppliers of steel structures and warehouses: Tecnomoageira, Zorthea and Weber.

5.2. Other Countries with Investments and Services in the Port Sector

Companies and institutions linked to other countries highlighted:

- Port of Antwerp has a partnership with the Port of Açú and is responsible for the commercial area. The port provides courses and scholarships to the Brazilian Government for technical training.
- Deutsch Bahn (DB) has a constant presence in regulatory and advisory issues related to railway transport and intends to expand its activities to the port sector.
- Valencia Port Foundation has an agreement with the Brazilian Government and representative port entities for the realization of MBA courses in port management, in partnership with the University of

Valencia.

- Chinese companies have made significant investments in Brazil, such as the purchase of stock control at the Paranaguá Container Terminal (TCP) by China Merchants Port Holdings, investments in infrastructure and equipment in agricultural bulk terminals by Cofco, as well as in the São Luis port terminal by the CCCC, in association with the Brazilian partner of the WTorre group. CCCC purchased ownership of Concremat Engineering Service Company.
- American and Canadian engineering consultancy companies, such as Halcrow and Aecon, have participated in biddings for port terminal projects and engineering services.

5.3. Main Services Required in Port Complexes

The Brazilian port sector is expanding with the construction of new greenfield terminals, mainly private terminals, and investments in brownfield terminals in leased areas in public ports. Public ports need investments to improve their operational standards, such as:

- Dredging of navigation channels and quays.
- Traffic control of ships, trucks and rail traffic.
- Increasing capacity in road, rail and sea port infrastructure.
- Technology and training to improve port management activities.

Almost all container terminals are investing to attend new Post-Panamax vessels with quay length extension, new yard equipment, automation processes and best managing practices.

The grain market is increasing its production year by year, which demands an increase of port capacity and new port installations, mainly in the north and southeast regions.

Crude oil production of pre-salt exploration fields is increasing very fast and demands ship-to-ship transshipment port facilities. Also port installations for logistic services and facilities are required to provide supply vessel support. New markets for LNG for electricity generation and industrial, residential and vehicular consumption are emerging. Regasification ships have been installed along the country's coast and are expected to have their use expanded.

5.4. Customs Processes on Import of Products

According to the Brazilian Federal Customs (Receita Federal), it takes an average of ten days to deliver a product from the Brazilian ports to its owner.

For the yellow and red channels – documentary verification and cargo verification respectively – less than 5% of the cargo requires documentary (yellow channel) or physical (red channel) verification.

Customs is improving its processes to reduce the dwell time in import and export flows. The Port Community System project also will contribute to reduce the retention time.

Unlike in the Netherlands and other countries, where the storage costs of import containers are based on a fixed price per day (TEU/day), the storage costs for import cargo in Brazil is paid based on the value of the cargo in the container. As a result, the storage costs of imported cargo in Brazilian ports are higher than the costs observed in other countries.

6. TRENDS AND CHALLENGES FOR THE BRAZILIAN PORT SECTOR

6.1. Swot Analysis Competitive Field

This SWOT-analysis is based on information from public documents, public surveys and interviews with representatives of granted port terminals (private and public), as well as information from Brazilian government authorities. The strengths, weaknesses, opportunities and threats were analyzed from the perspective of doing business in Brazil.

6.1.1. Strengths

Strategic aspects

- Dutch companies are well-known and appreciated, and have been operating in Brazil for many years.

- Brazil is a growing exporter of agricultural and mineral commodities, which should favor the growth of the port sector.
- Port terminal infrastructure investments and yard equipment automation are being implemented to attend the development of the increasing production volumes of grain, iron ore and crude oil.
- The most important public ports are listed by PPI for privatization or management concession.
- The port lease program, rail and road concessions have been carried out according to the PPI schedule.
- The privatization of railways and roads will increase the demand for cargo in the exporting ports.
- Brazil has been showing an increased production and cargo handling in ports, that demands an increase in infrastructure capacity and modernization of equipments.
- The LNG consumption market, ship-to-ship transshipment and supply boat service installations are expected to be implemented to attend pre-salt petroleum exploration.

Regulatory Aspects

- The guidelines of the Federal Government are aimed at further liberalization of the economy with an extensive process of de-bureaucratization and simplification of processes.
- Despite the bureaucracy, the search for regulatory stability, with less state intervention in the economy, is improving the environment for foreign investors, whom are seeking greater legal security. Port legislation has been simplified for the development of new TUPs.
- Private port terminals operate with greater regulatory flexibility and handle 2/3 of all cargo.

Economic, Political, Social and Environmental Aspects

- The Federal Government's urgency to recover the country's economy prioritize privatization and concession of public enterprises and services in Brazil. There is an opportunity for Dutch companies and institutions to participate in these processes and increase their presence in Brazil.
- Brazilian environmental legislation is one of the most modern and well structured, which provides security to environmental licensing.

6.1.2. Weaknesses

Strategic Aspects

- Dutch companies have difficulties to understand the regulatory procedures and bureaucracy in Brazil.
- The privatization model for the structuring of public ports has not yet been tested in Brazil. For each Port Authority, the privatization or concession model will be determined.
- Terminal expansion and transport infrastructure works require large investments and may suffer delays due to the global economic crisis.

Regulatory Aspects

- Although improvements are being made, the port sector still involves many regulating entities, such as Antaq, TCU and CADE.
- TUP and leased terminals in public ports (landlord) compete in different ways; in public ports the contracting of dock labor is required.
- The complexity of Brazilian legislation should be considered in the decision making of long-term contracts.

Economic, Political, Social and Environmental Aspects

- Changes in legislation or political uncertainty may reduce the pace of the country's social and economic development.
- Environmental legislation is complex and makes the process of environmental licensing time consuming and may cause the delay of infrastructure works.

6.1.3. Opportunities

Strategic Aspects

- More than 22 port terminals are being listed by the PPI for leasing bids in 2020 and the years to come.
- Dutch companies can provide services, equipment, management and training to private and leased port terminals.
- Brazilian companies are interested in partnerships in new port developments and JVs with foreign players.
- Dutch companies and knowledge institutes could join forces in strategic partnerships with a local partners.
- The BNDES is contracting studies for the privatization of the main public ports: Santos, São Sebastião, Vitória/Barra do Riacho and Itajaí.
- New ports and terminals in the Arco Norte region are expected to show an increase in demand with the completion of the paving of highway BR-163 and the new Ferrogrão railroad concession.
- The Port of Santos will have an increased demand for agribusiness cargo with new investments in the Paulista Railroad Network and North-South Railroad (FNS), which were recently contracted by the Government.
- Partnerships with the EPC and service companies.
- The public ports need investments to improve their operational standards, such as:
 - Dredging of navigation channels and quays,
 - Traffic control of ships, trucks and rail transportation.
 - Increasing capacity in road, rail and sea port infrastructure.
 - Technology and training to improve port development and management.
- Implementation of VTMS in almost all ports.

Regulatory Aspects

- The Brazilian Federal Government has been implementing measures to reduce bureaucracy and give more autonomy to public lessees and ports.
- The port authority concession and privatization program will bring new infrastructure and operational investment capacity with less interference and bureaucratic processes.

Economic, Political, Social and Environmental Aspects

- Increase (foreign) private initiatives to manage and finance the development of the country's infrastructure.
- Policy reforms are being implemented. The reform of the Brazilian social security system brings greater reliability and improves the business environment in the country. Administrative and tax reforms are expected to be implemented until 2021.
- The assessment of environmental impacts and their mitigation has been sufficient to allow the implementation of several new port terminals and the expansion of existing ones.

6.1.4. Threats

Strategic Aspects

- Doing business in Brazil is complex: knowledge of the local legislation is required, especially for participation in public bids. Partnerships with local companies or setting up representative offices are recommended for adequate knowledge of the necessary procedures.
- The Brazilian port sector is a competitive market. Companies and institutions from other countries are partners of the Brazilian Government in training (Port of Antwerp, DB and Valencia Port Foundation), investments (CCCC and CMHS) and engineering and service companies (CCCC, Halcrow and Eacon).

Regulatory Aspects

- Port regulation is still being developed and can experience changes over a long-term period.

Economic, Political, Social and Environmental Aspects

- The country's economic situation and the Covid-19 pandemic bring uncertainties about the demand for services in the ports and the recovery of the general cargo and container markets.
- The Federal Government's social and environmental policies have been causing dissatisfaction with international organizations and governments, which may impact foreign investments.
- Infrastructure projects could lead to unforeseen social and environmental impacts. A comprehensive due diligence might be required.

6.2. SWOT Matrix

<p>S Strengths</p> <ul style="list-style-type: none"> • Dutch companies are well-known and appreciated, and have been operating in Brazil for many years. • Brazil is a growing exporter of agricultural and mineral commodities, which should favor the growth of the port sector. • The most important public ports are listed by PPI for privatization or management concession. • Brazil has been showing an increased production and cargo handling in ports, that demands an increase in infrastructure capacity and modernization of equipment. • The guidelines of the Federal Government are aimed at further liberalization of the economy with an extensive process of de-bureaucratization and simplification of processes. • The Federal Government's urgency to recover the country's economy prioritize privatization and concession of public enterprises and services in Brazil. 	<p>W Weaknesses</p> <ul style="list-style-type: none"> • Dutch companies have difficulties to understand the regulatory procedures and bureaucracy in Brazil. • Doing business in Brazil is complex: knowledge of the local legislation is required, especially for participation in public bids. • Terminal expansion and transport infrastructure works require large investments and may suffer delays due to the global economic crisis. • The complexity of Brazilian legislation should be considered in the decision making of long-term contracts. • Environmental legislation is complex and makes the process of environmental licensing time consuming and may cause the delay of infrastructure works.
<p>O Opportunities</p> <ul style="list-style-type: none"> • More than 22 port terminals are being listed by the PPI for leasing bids in 2020 and the years to come. • Dutch companies can provide services, equipment, management and training to private and leased port terminals. • BNDES is contracting studies for the privatization of the main public ports: Santos, São Sebastião, Vitória/Barra do Riacho and Itajaí. • Public ports need investments to improve their operational standards. • Port authority concession and privatization program will bring new infrastructure and operational investment capacity with less interference and bureaucratic processes. • Policy reforms are being implemented. The reform of the Brazilian social security system brings greater reliability and improves the business environment in the country. Administrative and tax reforms are expected to be implemented until 2021. 	<p>T Threats</p> <ul style="list-style-type: none"> • The country's economic situation and the Covid-19 pandemic bring uncertainties about the demand for services in the ports. • Port regulation could be changed in a long-term period. • The Brazilian port sector is a competitive market. Companies and institutions from other countries are offering training to the Brazilian Government (Port of Antwerp, DB and Valencia Port Foundation), investments (CCCC and CMHS) and engineering and service companies (CCCC, Halcrow and EACON). • Environmental risks associated with controlling organisms can delay infrastructure investment schedules. • The Federal Government's social and environmental policies have been causing dissatisfaction with international organizations and governments, which may impact foreign investments. • Infrastructure projects could lead to unforeseen social and environmental impacts. A comprehensive due diligence might be required.

7. BUSINESS OPPORTUNITIES FOR DUTCH COMPANIES AND RESEARCH INSTITUTIONS

7.1. Business Opportunities in Brazilian Ports and Terminals

The Brazilian port sector offers opportunities for Dutch companies and knowledge institutes that are interested in investing, providing equipment and providing services in ports and port terminals, as well as in multimodal logistics (road and rail) that serve the country's main ports. The Netherlands are well known and appreciated in Brazil for its knowledge of the port sector, experiences in other markets and its innovative and sustainable port services and technologies. For instance, the PoR collaborated with the Brazilian Government in the elaboration of the National Plan of Port Logistics (PNLP), and currently participates in the Port of Pecém. Other Dutch companies operate in the oil, fuel, dredging, consulting and training sectors.

Brazilian port specialists also acknowledge the Dutch skilful applied technologies, new methods and competitive products, which are key elements in conquering the Brazilian market.

There are many opportunities in different sectors of the Brazilian port system, like providing products, goods and specialized services, with a focus on the improvement of cost benefit investments in port terminals (private and leased) and public ports.

Dutch companies have the possibility to participate and collaborate in several aspects, including, but not limited to:

- (i) Investments in partnership of public ports, port terminals and port operations.
- (ii) Secondary acquisitions of existing terminals (leased and private).
- (iii) Implementing a private use terminals (TUP) – greenfield.
- (iv) Participating in port and port terminal auctions.

Based on the market potential, the following business opportunities have been identified in the fifteen studied ports:

A - Limited market:

To accommodate the new Post-Panamax vessels in the container terminals of the ports of Santos, Paranaguá, Itajaí/Navegantes Rio Grande, Salvador and Suape, the berths are undergoing expansion with the acquisition of cargo handling equipment (portainers) and yard equipment. This gives further opportunities for equipment suppliers, yard management systems, as well as for training and capacity building in port operations.

An increase in demand for port services is expected with the concession and construction of Ferrogrão to attend the ports in the Arco Norte region and in the operation of Ferrovia Norte Sul (FNS), which attends the port of Itaquí (MA) and Santos (SP).

Another opportunity is the participation in the concession of the Ferrovia de Integração Oeste-Leste (FIOL), connecting the west of the State of Bahia to the port of Ilhéus, as well as the provision of engineering services and equipment.

Furthermore, there is an opportunity for investors and operators is at the Porto Central terminal, in the municipality of Presidente Kennedy (ES), where there will be demand for supporting services for offshore platforms, power generation, ship-to-ship oil transshipment and the mineral export market.

B - Good potential:

Several Dutch companies are already providing dredging services, port engineering, training and consulting services to public ports and to the Federal Government. For example, the ports of Santos (SP), Paranaguá (PR), Rio Grande (RS) and Itajaí (SC) are often hiring Dutch dredging companies.

The Port of Santos has contracted several road infrastructures works (highways and railroads) and is expected to contract services for the restructuring of the port's railroad network to increase cargo capacity.

The growing grain production in the Central North region, in the so-called "Arco Norte", demands the construction of new port terminals in the Amazon River, including the ports of Itacoatiara (AM), Santarém (PA), Vila do Conde/Barcarena (PA) and Santana (AP). These are also the most important places for agribusiness and where the country's main grainhouses are making large investments.

In the Southern region, the ports of Rio Grande, Itajaí, São Francisco and Paranaguá are distinguished with investments in dredging services, new equipment in terminals that serve agribusiness and export of derivatives and poultry and pork.

In the mentioned ports, there is a potential in the following areas of expertise:

- i. Innovative solutions (software tools) for port and port terminal management.
- ii. Smart software IT solutions for integration and security.
- iii. Vessel Traffic Management and Information System (VTMIS).
- iv. Road and rail traffic management.
- v. Manufacturers (SME's and large Industries) active in the port equipment supply chain for port terminals infrastructure and heavy constructions (ports, highways and railways).
- vi. R&D in projects promoting innovative and sustainable solutions for port services.
- vii. Port and terminal development & management.
- viii. Cyber-security technologies for drug traffic control.
- ix. Drug detection systems, principally in the ports of Santos, Paranaguá and Rio de Janeiro.
- x. IP based communication (software & hardware).
- xi. Blockchain technology in cargo information management.
- xii. Educational port programs with the Brazilian Ministry of Infrastructure, focused on the sustainable port development & management.
- xiii. Partnerships between Dutch and Brazilian Universities (USP, UB, FGV, UFPA, UFRS, UFSC).

C - Best opportunities:

Between 2020 and 2022, the Federal Government is planning to auction more than 22 brownfield terminals, the following being noteworthy:

- Cellulose and fuels in the port of Santos (SP).
- Containers in the Port of Suape (PE).
- Agricultural bulk and general cargo - vehicles, at the port of Paranaguá (PR).
- Fuels in the Northeast region Itaquí (MA) and Maceió (AL).
- Mineral and agricultural bulk in the Port of Aratú (BA).
- Sea salt floating terminal at Areia Branca (RN) terminal.

In addition, the main public ports have been in the process of privatization or auction of the management and services concession of Port Authorities, such as the Port of Santos (CODESP), the Port of São Sebastião (CDSS), the Ports of Espírito Santo (CODESA) and the Port of Itajaí (SC).

There are also possibilities of participating in the elaboration of studies and concession modeling of public ports, to be contracted by the National Bank for Economic and Social Development (BNDES) and the Planning and Logistics Company (EPL). The Federal Government estimates that these ports should be tendered by 2022. Others should be included in the privatization program.

The Port of Paranaguá will implement new ship loading and unloading systems (shiploaders and conveyor belts) and build new cradles to meet the growing demand for agricultural and fertilizer cargo.

There are services planned for the improvement of the capacity and expansion of the railroad network operated by RUMO Logística, being a contractual obligation of the concessions of the Paulista Railroad network and the southern stretch of the North-South Railroad (FNS).

The Port of Açú (RJ) is expanding its oil transshipment operations, implementing a thermoelectric plant using LNG, as well as building an oil refinery, among other activities related to the oil exploration industry.

In the Southern region, new private grain, container and general cargo terminals are planned. In São Francisco do Sul (SC), there are two potential interesting terminals for investors: the Babitonga Bulk Terminal (TGB) and the Porto Brasil Sul (PBS) - general cargo, container, agribusiness bulk, liquid bulk and LNG. At the Port of Paranaguá (PR), the private container terminal Porto Pontal do Paraná - TPPP offers another opportunity.

In the Southeast region, the 'Brites' private terminal offers an important alternative to complement the cargo capacity of the Port of Santos.

7.2. Role of the Dutch Government

There is a longstanding and solid business relationship between Brazil and The Netherlands. The Netherlands has a good reputation in Brazil, partly based on the Dutch presence in Brazil in the 17th century.

Formal diplomatic relations were established in 1828. The Dutch government agencies help entrepreneurs, NGOs, knowledge institutions and organizations to access RVO instruments, networking, local know-how and compliance with the Brazilian laws and regulations.

The Dutch diplomatic network in Brazil consists of the Embassy in Brasilia, the Consulates-General in São Paulo & Rio de Janeiro, the Netherlands Business Support Offices in Belo Horizonte & Porto Alegre, plus 11 Honorary Consulates spread across the country. The Dutch diplomatic network is, amongst other practices, supporting Dutch companies and organizations to improve cooperation between the Dutch and Brazilian port sector, and has been doing so for a long while.

The Brazilian government is aware of the Dutch knowledge and technology, and the Dutch diplomatic network in Brazil has a solid relationship with the Brazilian Ministry of Infrastructure, SNPTA and Antaq, which helps in obtaining the most accurate and updated information in current and future programs. In addition, the diplomatic network has a detailed sector insight and excellent contacts with Brazilian ports and port terminals, companies and knowledge institutions.

The Dutch diplomatic network in Brazil provides support with actions in different levels, including but not limited to:

- Trade missions and technical visits to both countries,
- Technical seminars, sector specific workshops and matchmaking sessions,
- Trade fairs with the participation of Dutch companies and research institutions at a Holland Pavilion,
- Market entrance through RVO instruments,
- Market reports and updated information on the developments in the port sector.

8. CONCLUSIONS AND RECOMMENDATIONS

This report, developed for the Dutch Embassy in Brazil, is an important source of information for Dutch companies and research institutions, and can support the comprehension of the Brazilian port sector. It also provides up-to-date information on business opportunities for service and port equipment provision, participation in investments and partnerships.

It contains recent information on the economic focus of the Brazilian regions and logistic corridors, as well as information about the 15 most important port complexes, with the highest cargo handling volume in 2019, allowing to understand the main characteristics and opportunities of the Brazilian port sector.

The Brazilian port sector is in a continuous evolution, influenced by the variations in local and global product demands, as well as governmental policies and programs to improve and modernize the infrastructure sector. The Brazilian port system has been growing in terms of capacity and efficiency, with a growing participation from the private initiative. Port modernization commenced in 1993 with the port sector law (Law n° 8.630/93), and was improved under Law n°12.815/2013 with the removal of regulatory barriers for private use terminals, thus focusing on the capacity increase in Brazilian ports. As a result, the changes in the Brazilian port framework promoted the privatization of port services through the leasing of terminal areas in public ports. This process brought great progress to the segment, as private companies got the responsibility for modernizing port facilities, bringing a higher level of efficiency and increased private investments.

Privatization, sale of assets and the concession of Port Authority management and services are the priorities of the current Brazilian Federal Government, which intends to auction its public ports in order to make its administration more efficient by transferring management to private initiatives.

The market for port services in Brazil has been growing at an impressive rate, approximately 35% in volume over the last nine years, according to Antaq. This increases the opportunities for investments in new

infrastructure and port facilities, as well as for services and innovative technologies to modernize the port operation.

The assessment of the business environment in the country took place through the SWOT analysis, focused on the strengths, weaknesses, opportunities and threats to the strategic, regulatory and economic, social and environmental aspects of the country and its particularities in the port sector.

The low investment capacity of the Brazilian Government, combined with a liberal bias, has encouraged privatizations and concessions of companies and public assets to the private sector, thus creating opportunities for Dutch companies and knowledge institutions.

Despite the bureaucracy, the search for regulatory stability, with less state intervention in the economy, is improving the environment for foreign investors, who are seeking greater legal security.

The country's economic scenario, which has recently experienced a period of recession and unemployment, will be affected by the global impact following the Covid-19 pandemic. Expansion projects will have to be reviewed and reassessed for this new situation. Exporting mineral commodities, agricultural and food products are expected to be affected less and are showing a steady growth pattern.

Dutch companies are well known in Brazil and have been long lasting partners in the development of the Brazilian port sector. For instance, the PoR collaborated with the Brazilian Government in the elaboration of the National Plan of Port Logistics (PNLP) and has currently a participation in the in the Port of Pecém. Other Dutch companies operate in the oil, fuel, dredging, consulting and training sectors.

The Federal Government Investment Partnership Program (PPI) is an important guideline for companies interested in participating in the development of the Brazilian infrastructure, port leases and public port privatizations and concessions.

In various segments of the port sector there are opportunities for services, infrastructure works, equipment and consultancy in port development and management, as well as for capacity building. Of the 15 studied port complexes, major opportunities are identified in the ports of Santos, São Francisco, Paranaguá, Aratú, as well as in the ports of the Northern Arc region. Possible opportunities are equity participation and technology supply in private and leased terminals in the port complexes of Santos, São Francisco do Sul and Espírito Santo, as well as in leased port terminals in the North and Northeast of the country.

The agricultural bulk sector presents an increase in volumes and new export routes through the North Arc enhance the demand for the modernization of ports installation facilities. Also in the South and Southeast regions, the port complexes of Santos, São Francisco and Paranaguá are investing to increase their capacity in order to meet the growing cargo volumes brought by railroads.

The general cargo and container sector have been constructing new berths and new equipment to serve the Post-Panamax vessels. Oil export operations and cargo transshipment between vessels (ship-to-ship) have increased by 37% in the last year due to the pre-salt exploration. New markets for LNG for electricity generation and industrial, residential and vehicular consumption are emerging. Regasification ships have been installed along the country's coast and are expected to have their use expanded. It is estimated that LNG consumption will reach 120 million cubic meters in the coming years.

Port authorities and the private sector welcome Dutch knowledge and expertise to promote more efficient, sustainable and safer solutions for the Brazilian port infrastructure. The Dutch diplomatic network in Brazil can make the link between Brazilian and Dutch governments and private sectors.

In most cases, the difficulties of Dutch companies in understanding the bureaucratic processes and business culture in Brazil can be mitigated by partnering with local companies or even establishing regional offices in the country.

The expansion of the Brazilian port sector is a fact and presents a great opportunity for Dutch companies and knowledge institutes that intend to invest in assets and provide services and equipment in the country, within an environment of legal security that has been strengthened by the sector regulation and the enforcement by the controlling and compliance agents.

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