

Brazil's Priority Transportation Projects



A RESOURCE GUIDE

FOR U.S. INDUSTRY

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4. PORTS

4.1 Market Opportunities in the Port Sector

Through recent investments, Brazil is making great strides to expand and enhance its port sector. The rapid growth at Brazil's production centers drive the need to invest in additional infrastructure expansion. U.S. companies may benefit from these projects in terms of supplying advanced technologies, professional services and civil works in terms of dredging. It is evident that the local Brazilian market on its own cannot supply all of the necessary services and technologies that the port sector needs, representing market entry opportunity for U.S. companies.

Over the next five years, Brazil's port infrastructure will receive an unprecedented flow of new investment, creating a unique window of opportunity for international investors, including U.S. companies. What's driving the investment is the growth of exports such as agriculture and mining commodities, including soy beans and iron ore. As a result of the PIL program, private sector companies will likely invest \$12 billion in Brazil's ports and corresponding terminals.

Brazil has limited experience in deploying advanced port technologies, such as terminal operation and management systems, ICT systems for port operations, Vessel Traffic Management Systems (VTMS), communications and radar technologies, security systems, RFID and OCR systems. As U.S. companies have an excellent track record with feasibility studies, engineering designs and technology, this project may pose an opportunity for them to enter and thrive in the market of Brazil's port sector.

The national dredging program (PND2) expects investments of \$1.8 billion, which U.S. companies may capitalize on. The port security market will likely grow. Brazil has not faced as many threats of terrorism as other countries, which means that until now, it was not highly focused on port security. As globalization continues to make our world more inter-connected, there will be stricter screening and security processes that all international shipments must pass through. There will be enhanced integration of general port security which is likely to require significant investment on security systems including features such as X-ray machines, cargo screening equipment, CCTV systems, OCR and RFID.

Technologies and Services Required in Port Concession Projects:

- Terminal operation and management systems
- ICT systems for port operations
- Vessel Traffic Management Systems (VTMS)
- Communications and radar technologies
- Security systems
- RFID and OCR systems
- Dredging operations

4.2 Vessel Traffic Management System (VTMS)

SEP, which is now under the Ministry of Transportation, Ports and Civil Aviation, is working to develop policies to advance port infrastructure development. SEP is evaluating advanced technologies such as the Vessel Traffic Management Systems (VTMS) to improve operational efficiency and safety conditions. VTMS is a system that provides electronic information for the safe and efficient navigation of vessels with the capability to provide active monitoring of maritime traffic through a specific area.

SEP has begun to develop its Intelligent Port Logistics initiative, which consists of planning for and implementing ICT for modernizing port operational and safety systems. As part of this initiative, SEP has begun to implement the VTMS system across the ports.

Under the PAC2, the VTMS projects will likely receive \$53 million from the Government. The funding covers six ports in Phase I including Rio de Janeiro (RJ), Itaguai (RJ), Santos (SP), Salvador and Aratu (BA) and Vitoria (ES). The VTMS projects are handled through public bids. In the first round of VTMS deployment, SEP authorized Vitoria and the Santos Port to bid on procuring and implementing VTMS in their respective ports. These projects are currently under construction.

Companhia de Docas do Rio de Janeiro (CDRJ) will procure the second round of VTMS systems for the Rio de Janeiro Port and the Port of Itaguai. Because funds for these projects were already allocated, SEP and CDRJ officials expect bids for the project to be issued in 2016. The Ports of Itaguai, Salvador and Aratu remain in the development stage and awaiting the approval process for their VTMS systems. All ports must obtain approval from the Brazilian Navy prior to deploying VTMS systems, and until then the bidding process may not begin.

The third phase of the VTMS implementation features at least ten other ports including Fortaleza (Ceara), Rio Grande (Rio Grande do Sul), Belem (Para), Vila do Conde (Para), Itajai (Santa Catarina), Itaqui (Maranhao), Sao Francisco do Sul (Santa Catarina), Imbituba (Santa Catarina), Manaus (Amazonas), Suape (Pernambuco) and Santarem (Para). The definition of the VTMS projects is expected between 2016 and 2017, at which time financial resources will have to be allocated by SEP for project implementation.

The VTMS program offers market opportunities for U.S. firms in the following areas:

- Maritime vessel tracking systems;
- ICT technologies;

- Communication and radar technologies;
- CCTV systems, control center equipment;
- Computer equipment;
- ICT installation and integration services; and
- Professional services related to engineering, design and project management.

4.3 Portolog Program

The Secretariat of the Ports (SEP) is leading the Intelligent Cargo Supply Chain and Logistics Project, an initiative to track and monitor cargo vehicles passing through the ports. This solution allows for the management and sequencing of roadway access into the ports. It reduces traffic congestion, complies with international security regulations and provides information for more efficient cargo management.

The Intelligent Cargo Supply Chain and Logistics Project is supported by Portolog, a database of information regarding cargo origin to its final destination. Portolog aims to synchronize vessel and truck arrival dates, as well as truck schedules and credentials.

SEP launched Portolog to automate and integrate port operations related to cargo tracking. The system receives all relevant information on the movement of goods as trucks transport containers from one point to another. The Portolog Central System is already being developed by SERPRO, a federal public enterprise agency in Brazil, but the procurement and construction of the equipment at the various ports has yet to begin.

Portolog requires that at each port entrance, infrastructure and equipment be installed for Radio Frequency Identification (RFID) and Optical Character Recognition (OCR) to allow for information collection on a truck's cargo. Portolog also requires that biometric recognition systems be installed to detect and identify drivers; data that will then be logged and transmitted to the Portolog Central System. Each port connected to the Portolog system will be responsible for implementing the previously referenced technologies. The Port of Santos is expected to issue a tender in 2016.

Currently, port terminals use two pre-existing private regulator waiting areas to schedule truck traffic. Vehicles are authorized to drive to the port terminal only when there are available unloading spots. The Portolog system will direct trucks to the screening area before they arrive at the port. At the screening area, trucks are registered and scheduled to return to the port. Once there is an open spot near the waiting area, the scheduled trucks are directed to this area where they will be informed of their departure time.

PAC will likely invest \$40 million into Portolog, which covers implementation at twelve ports: Santarem (Para), Itaqui (Maranhao), Pecem (Ceara), Fortaleza (Ceara), Suape (Pernambuco), Salvador (Bahia), Vitoria (Espirito Santo), Itaguai (Rio de Janeiro), Rio de Janeiro, Santos (Sao Paulo), Paranagua (Parana), and Rio Grande (Rio Grande do Sul).

The first ports to receive Portolog will be Santos and Vitoria. Two additional ports will also receive approval to implement the system. SEP will announce those ports in 2016. The other eight ports continue to await funding which may become available in 2016 or 2017.

SEP has decided to select the technical specifications for the RFID and OCR technologies to be open and non-proprietary, which allows the international community to participate in the bidding process.

Portolog presents opportunities for U.S. companies in the following areas:

- Design;
- Engineering;
- RFID systems;
- OCR systems,
- Biometric detection technologies, and
- ICT infrastructure development.

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4.4 Dredging Projects

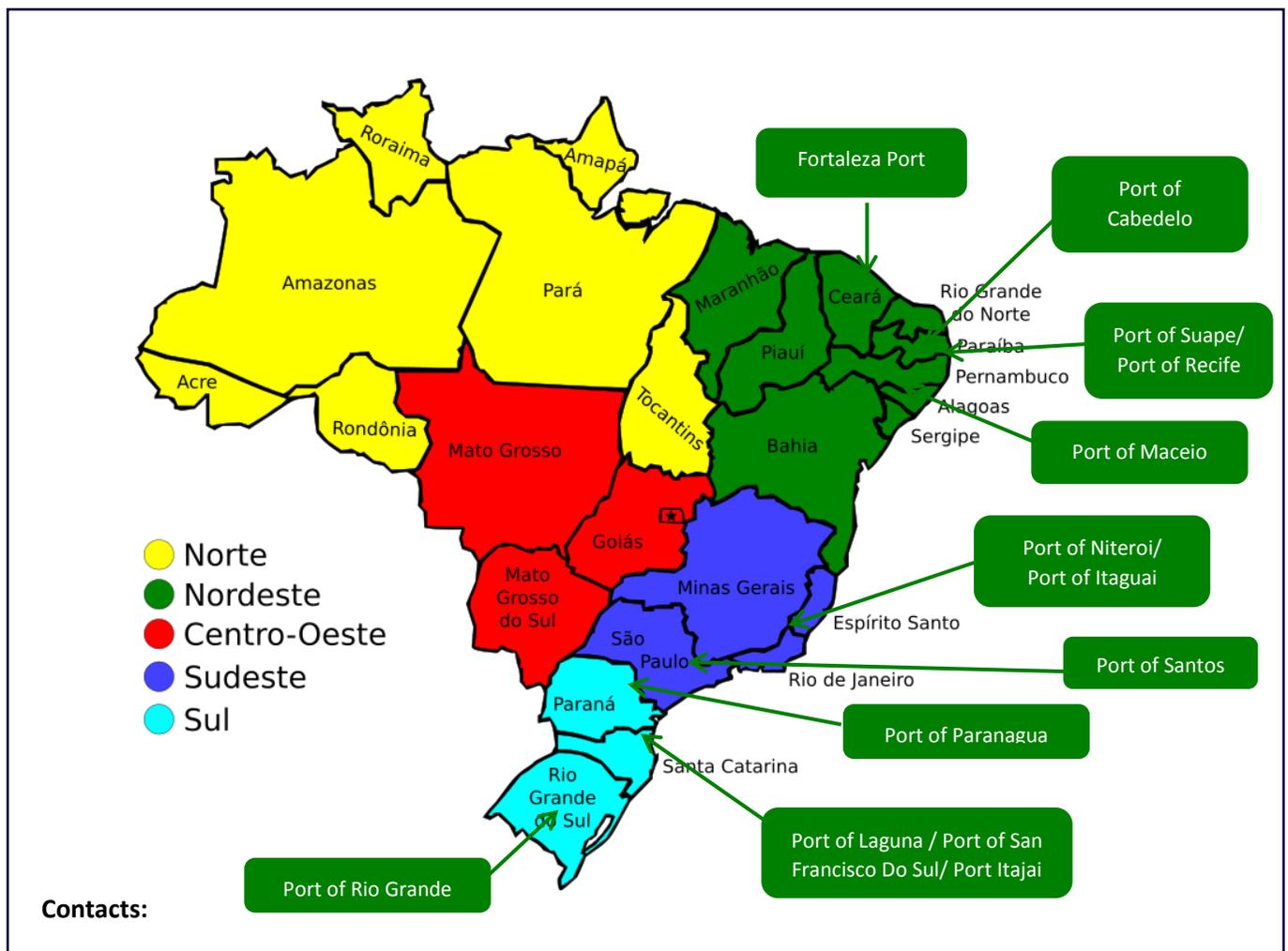
The national dredging program (PND2) seeks to deepen and maintain the access channels, turning basins and mooring berths in and around port areas. Dredging will allow ports to receive larger vessels, expanding capacity and increasing competitiveness. There is a high need for dredging projects across a number of ports and several projects remain only in the development stages.

Between 2012 and 2022, the Government anticipates significant investment in dredging projects. Over the next five years alone, the PND2 is expected to attract about \$1.5 billion in investments for dredging at 20 Brazilian ports. These projects offer opportunities for U.S. companies in the dredging business.

The Port Secretariat manages the PND and oversees the procurement process. Information on the bidding documents, pertinent legislation and technical specifications about the port dredging project is available at www.portosdobrasil.gov.br/sobre-1.

The following graphic displays the Brazilian ports that the Government has identified for priority dredging projects.

Figure 1 - Dredging Projects at Brazilian Ports



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4.5 Port Concession Projects

On June 9, 2015, the Brazilian Government announced that it plans to invest nearly \$12 billion in port development:

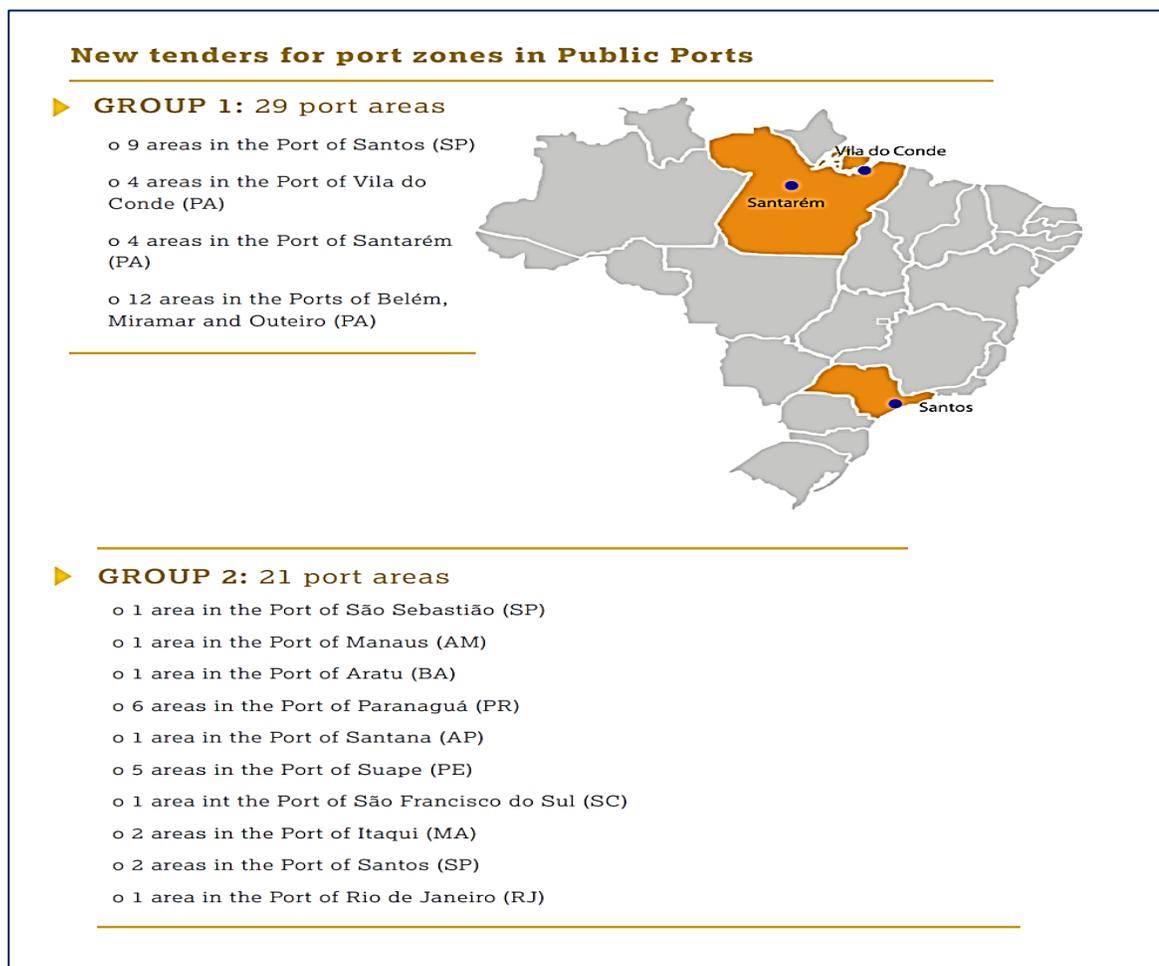
- \$3.8 billion will support 50 new leases of port areas
- \$4.8 billion will fund 63 new privately used terminals (TUPs)
- \$3.4 billion will support lease renewals

The Government has announced the lease of port areas in two groups:

- Group 1 includes 29 terminals
- Group 2 includes 21 terminals

The figure below summarizes the upcoming port concessions.

Figure 2 - Brazilian Government Port Facility Leasing



4.6 Opportunities for Port Area Leasing: Step 1 for Group 1

The table below outlines the port area leasing opportunities offered by the Brazilian Government.

State/City	Step 1 of Block 1 Terminals
Para	
	<ul style="list-style-type: none"> ▪ 4 grain terminals ▪ 3 in Outeiros – Belem (Investments of \$ 210 million) ▪ 1 in Santarem (Investments of \$102 million)
	The step 2 of Block 1 (21 terminals)
Para	
	<ul style="list-style-type: none"> ▪ 1 container and general cargo terminal (\$47 million) ▪ 12 liquid bulk terminals (\$340 million) ▪ 2 mineral bulk terminals (\$160 million)
Santos	
	<ul style="list-style-type: none"> ▪ 2 container and general cargo terminals (\$76 million) ▪ 2 liquid bulk terminals (\$111 million) ▪ 2 mineral bulk terminals (\$92 million)

Group 2 includes 21 terminals distributed across the ports of Suape, Aratu, Rio de Janeiro, Sao Sebastiao, Santos, Paranagua, San Francisco do Sul, Manaus, Santana, and Itaquí.

State	City	Terminal Name	Terminal Type	Investment (In Millions)
AP	Santana	Santana - MCP01	General Cargo	15.2
AM	Manaus	MAO01	Containers	287
PE	Ipojuca	SUA05	Containers	327
PE	Ipojuca	SUA07	Minerals	218
PE	Ipojuca	SUA10	Minerals	117
PE	Ipojuca	SUAXX	Vehicles	14
PE	Ipojuca	SUAYY	Grains	13
MA	Itaquí	IQI18	General Cargo	67
MA	Itaquí	IQI31	Minerals	107
BA	Aratu	ATU12	Minerals	105
SP	Sao Sebastiao	SSB01	Ro-Ro, container	347
SP	Santos	STSXX	Grains	306
SP	Santos	STSYY	Liquid	14
RJ	Rio De Janeiro	RDJXX	Grains	20
PR	Paranagua	PAR01	Cellulose	39
PR	Paranagua	PAR03	Minerals	60
PR	Paranagua	PAR07	Grains	90
PR	Paranagua	PAR08	Grains	65
PR	Paranagua	PAR09	Grains	37
PR	Paranagua	PAR12	Vehicles	17

SC	S. Francisco Sul	SFSXX	General Cargo	65
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Port security is a critical matter and regulatory agencies are working to meet international safety and security standards. Projects related to port security may offer opportunities to U.S. companies specializing in design, engineering, supply of terminal operational and management systems, ICT systems, security systems and engineering design for port and terminal related infrastructure improvements.

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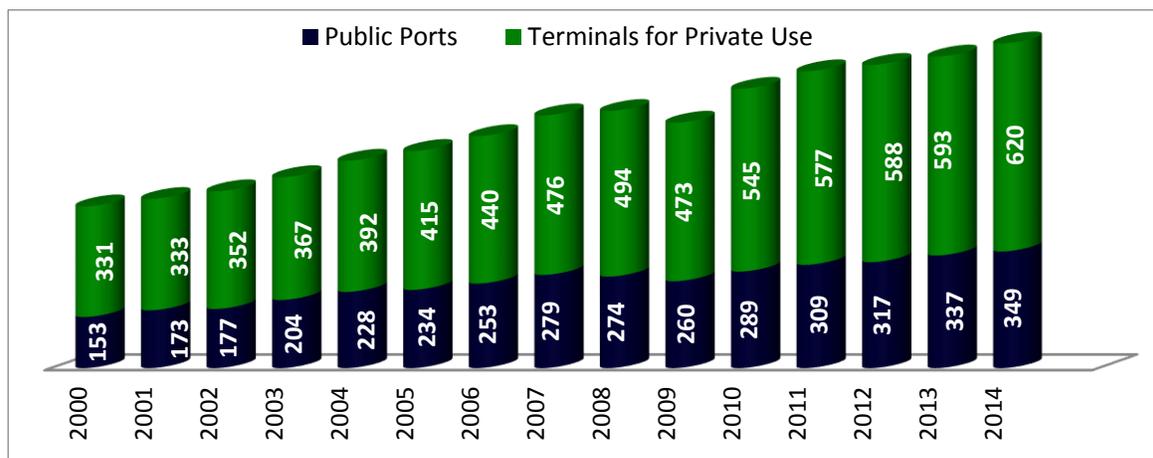
4.7 Brazil's Port Sector Overview and Regulatory Framework

Brazil's coastline stretches 8,500 Km from north of the equator to below the 30th parallel in the south. In 2009, there were 37 public ports (both seaports and river ports) and 128 privately used terminals (TUPs). The Secretariat of Ports (SEP) oversees 34 of the public ports, with 18 administered by state or municipal Governments, and 16 operated by the publicly-owned port authorities (Companhia Docas). The National Agency for Waterway Transportation (ANTAQ) oversees port regulation and financing under SEP.

The concession process has allowed Brazil to develop its ports with the help of the private sector. The Government oversees most multi-use ports and concessions of terminals to the private sector, typically with 25 year agreements. Through the Growth Acceleration Program (PAC1 and PAC2) investment plans, international companies have partnered with local Brazilian companies to gain access to port concessions and private use terminals (TUPs).

Of the 34 statutory ports the Secretariat of Ports administers 18, which are delegated, awarded or authorized to be operated by the state and city Governments. The other 16 ports are administered by port authorities, Companhia de Docas, which are shared private and public companies with the Brazilian Government as the major stockholder, and are therefore directly linked to SEP.

¹ Figure 3 - Public Ports/Terminals for Private Use (Million Tons)



The concessions and leases are dictated by a contract, preceded by the procurement process (PMI). The criteria for this process include the highest cargo handling capacity, smallest tariff and shortest cargo handling time. The criteria may be considered collectively or isolated on their own. ANTAQ authorizes port areas or facilities outside of the statutory ports. The duration of the concession period for areas outside the statutory ports will be up to 25 years, with the option to renew.

¹ **Note:** Considers embarkation or disembarkation in public ports and terminals for private use.

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