

Brazil's Priority Transportation Projects



A RESOURCE GUIDE

FOR U.S. INDUSTRY

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5. RAILWAYS

5.1 Brazil's Railway Opportunities

Brazil's rail technology market will develop dynamically over the next five to ten years. As the volume of raw materials for export grows, so will the demand to expand rail lines and connect them with the ports. If the Government continues investing in rail infrastructure, the private sector will likely commit to its share of investments. In addition to the agriculture sector, mining companies are big stakeholders in the rail sector and will likely push for development.

The concession of new rail corridors will create a market for products such as:

- Rolling stock;
- Train control systems;
- Signaling and communication systems;
- Track material and equipment;
- Installation of track systems;
- Track inspection systems;
- New freight wagons; and
- Rail maintenance equipment and locomotive spare parts.

The after-sales market (refurbishment, maintenance and repair of rolling stock, renewal and maintenance of infrastructure) is also expected to surge as the freight rail sector grows with more lines, and subsequently requires maintenance. Global leaders in the railway business have already made significant investments in Brazil's manufacturing plans, as they expect a high rate of return.

U.S. companies providing rail equipment and services such as GE, EMD, Progress Rail, RailPro and Harsco, have established manufacturing plants and/or offices in Brazil. U.S. companies should be able to compete in this market, notwithstanding the fact that these U.S. manufactures have to adhere to Brazilian "local content" regulations that require a minimum percentage of domestic content (materials and parts) to be made in Brazil, rather than imported.

5.2 Freight Rail Operators

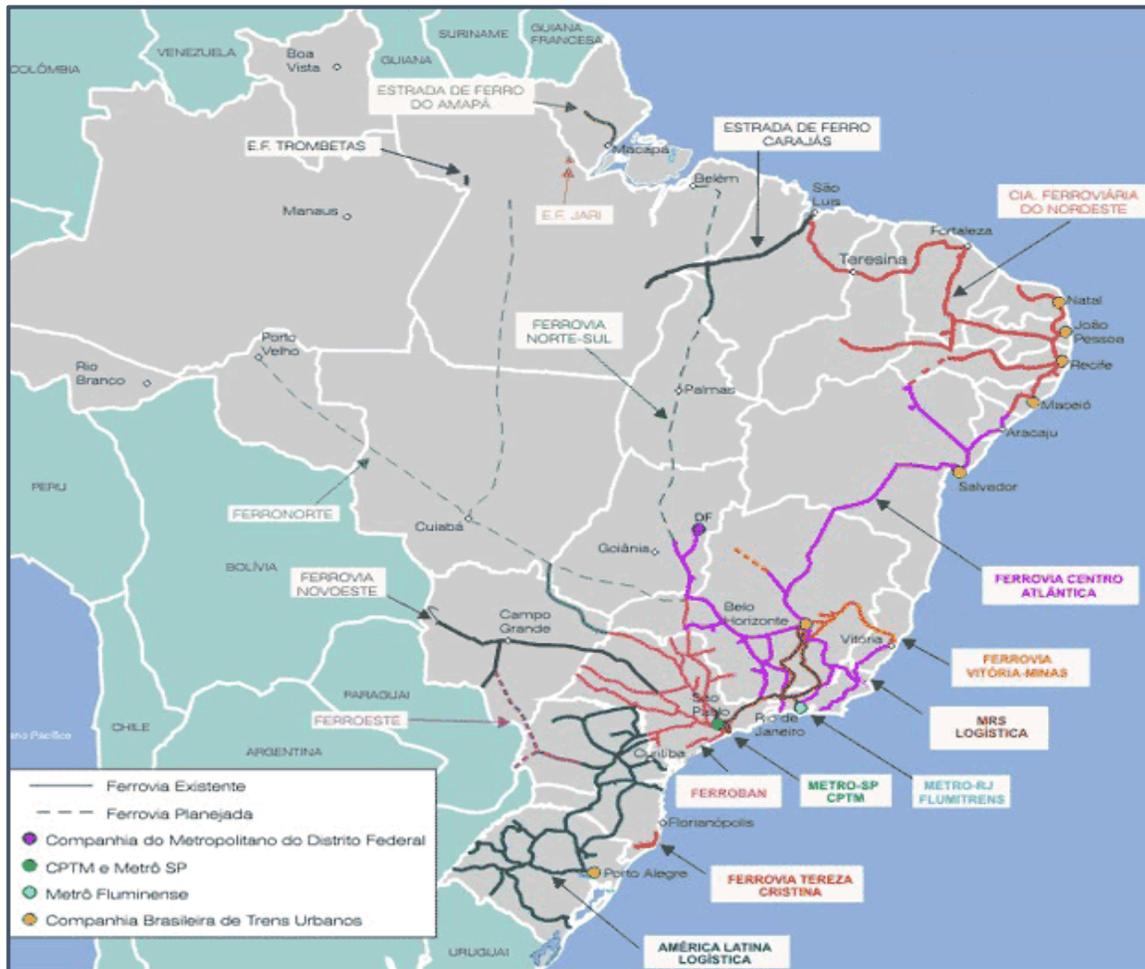
¹The private rail operators in Brazil are Estrada de Ferro Vitoria a Minas (EFVM), Estrada de Ferro Carajas S. A. (EFC), MRS Logistica SA, America Latina Logistica SA Brazil (ALL Brazil) and Ferrovia Centro- Atlantica SA (FCA). These operators specialize in raw material transportation, mainly iron ore, and together operate more than 28,000 Km of railway lines.

The owner structures of the companies vary significantly. EFC, EFVM and FCA belong to the mining group, VALE. The primary owner of MRS is the steel producer, CSN Company. ALL is the holding company of its subsidiaries, ALLMS and ALLMN.



Figure 1 - MRS Freight Train

¹ Appendix A of this guide provides a complete list of the rail operators in Brazil.

Figure 2 - ²Brazil Railways Map

5.3 Freight Railway Concession Program

In June 2015, the Government announced investment opportunities in the rail sector with the goals of expanding rail cargo transportation, creating a modern and integrated railway network, increasing the rail transportation capacity and reducing logistical bottlenecks. Investments could reach \$28.8 billion in construction, modernization and maintenance of 7,500 Km of railway lines. The five new railway concessions set to take place before the end of 2016 represent 7,500 Km in extension with an investment of \$23.5 billion. On top of that, an additional \$5.3 billion will be invested into existing concessions.

The concession model will maintain broad gauge railways with high load carrying capacity, optimized geometric design and high speed. The model's premise is to ensure the right of way for integrating the network of existing and new concessions, improving competition in the vertical operator model,

² Source: Brazil Ministry of Transportation

adopting a bidding model by grants or shared investment and using the PMI procedure to develop the feasibility studies required for private concessions.

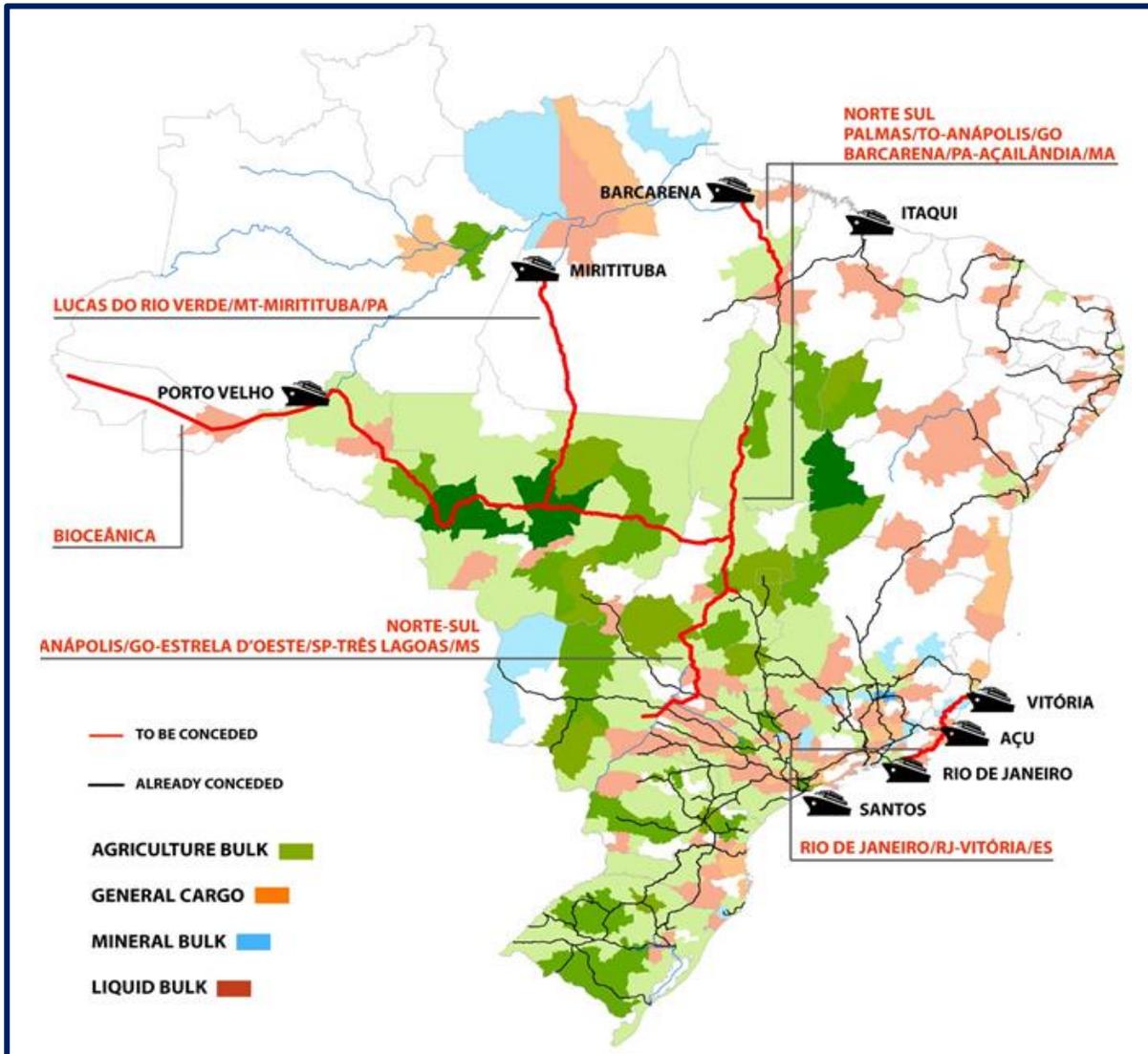
5.4 Railway Concession Opportunities in 2016

The following are the railway projects outlined by the Brazilian Government which are expected to be formally announced for bids in 2016:

Railway Segment	Description
North-South Railway	Two stretches (totaling 1,430 Km) over the North-South Line (FNS). The first from Barcarena (State of Para) to Acailandia (State of Maranhao) and the second one from Palmas (State of Tocantins) to Anapolis (State of Goias).
North-South Railway	Two stretches (totaling 895 Km) over the North-South Line (FNS). The first stretch is from Anapolis (State of Goias) to Estrela D'Oeste (State of Sao Paulo) and the second one is from Estrela D'Oeste to Tres Lagoas (State of Mato Grosso do Sul).
Lucas Do Rio Verde/MT-Miritituba/PA	A 1,140 Km of stretch from Lucas do Rio Verde (State of Mato Grosso) to Miritituba (State of Para).
Rio de Janeiro/RJ-Villa Velha/ES	A 572 Km of stretch from Rio de Janeiro (State of Rio de Janeiro) to Vitoria (State of Espirito Santo).

The figure below represents the railway corridors that the Government will offer for private concession.

Figure 3 – 2016 Freight Railway Corridors for Private Concession



5.4.1 Project Norte–Sul Railway (Acailandia/MA-Barcarena/PA and Palmas/TO)

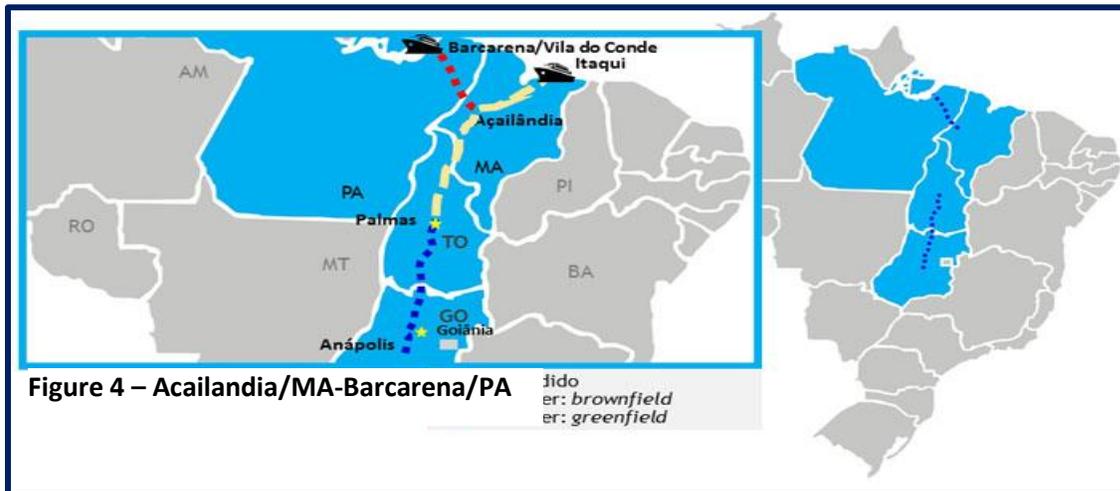


Figure 4 – Acailandia/MA-Barcarena/PA Red: brownfield
Blue: greenfield

Project Description

The Acailandia (MA) - Barcarena (PA) rail section is a Greenfield railway designed to grant access to the Port of Vila do Conde in the State of Para. Because of its relative proximity to European and North American markets, MA-PA is a competitive alternative to foreign trade. The Palmas (TO) – Acailandia (MA) rail section is already built and will serve as the core structure for railway transportation, connecting the logistics hub of Anapolis. The Palmas (TO) to Anapolis will complete the railway line from Anapolis all the way to the north at Barcarena and the Port of Vila do Conde as a brownfield corridor.

Anticipated Investment

\$2.3 billion

Project Status

ANTT has accepted initial technical studies and now must assess these studies under the PMI Process. Subsequently, companies authorized under the PMI will complete their studies, ANTT will develop a draft contract and a notice of invitation to bid. From there, ANTT will develop and review financial and economic modelling and hold public hearings.

Once that process has been completed, ANTT will resend all documents to the Brazilian Federal Court of Audit (TCU) for approval prior to launching the official invitation to bid. Those companies choosing not to participate in the PMI process by submitting studies can still participate in the official public bid once ANTT announces it.

5.4.2 Project Norte-Sul Railway (Anapolis/GO-Estrela D'Oeste/SP -Tres Lagoas/MS)

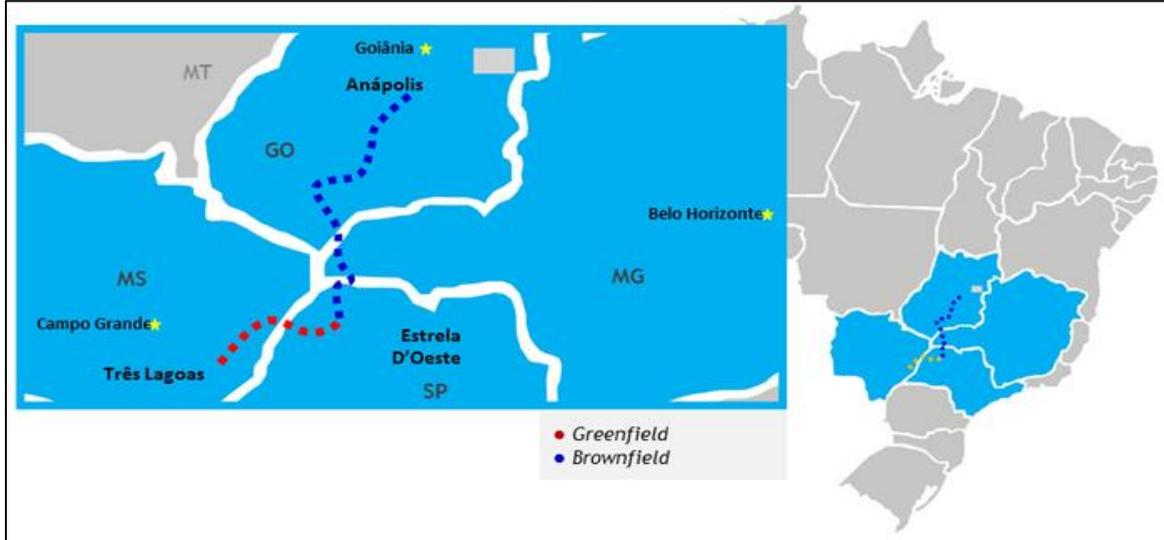


Figure 5 - Anapolis/GO-Estrela D'Oeste/SP

Project Description

The Anapolis/GO – Estrela D'Oeste/SP extends the Norte-Sul Railway in the states of Goiás and São Paulo and this portion of the project is in the final phase of construction. The section between Estrela D'Oeste/SP and Três Lagoas/MS will need to be constructed under a new concession and will pass through a region with agricultural and industrial potential. The rail connection at the Municipality of Estrela D'Oeste/SP will link the Norte-Sul Railway to the existing rail network granted to ALL Malha Paulista S.A., creating access to the Port of Santos.

Estimated Investment

\$1.5 billion

Project Status

ANTT has accepted initial technical studies and now must assess these studies through the PMI process for the section between Estrela D'Oeste/SP and Três Lagoas/MS. Subsequently, companies authorized under the PMI will complete their studies, at which point ANTT will develop a draft contract, and a notice of invitation to bid. From there, ANTT will develop and review financial and economic modelling and hold public hearings.

5.4.3 Project - Lucas do Rio Verde/MT-Itaituba/PA Railway Project (Miritituba District)

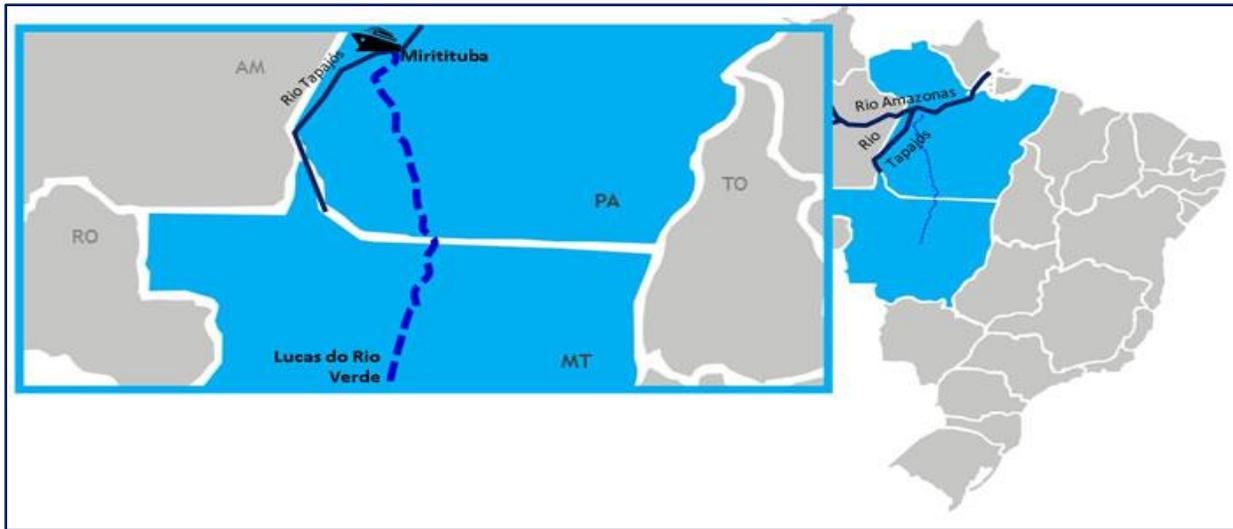


Figure 6 - Lucas do Rio Verde-Itaituba

Project Description

The Lucas do Rio Verde/MT-Itaituba/PA (District Miritituba) Railway will improve the movement of agricultural production in the Midwest, connecting in Para to the Port of Miritituba in the Tapajos waterway. Making logistics upgrades will allow Brazil to become more competitive with its agricultural commodities.

Estimated Investment

\$3.3 billion

Project Status

ANTT has accepted initial technical studies and now must assess these studies through the PMI process. Subsequently, companies authorized under the PMI will complete their studies, then ANTT will develop a draft contract, and a notice of invitation to bid. From there, ANTT will develop and review financial and economic modelling and hold public hearings.

5.4.4 Project - Rio de Janeiro-Espirito Santo Railway

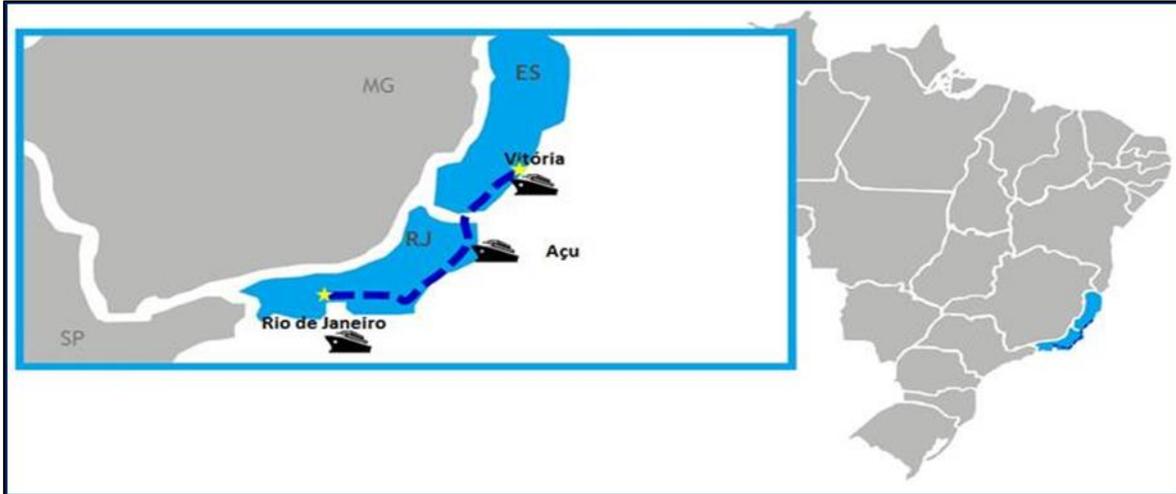


Figure 7 - Rio de Janeiro-Espirito Santo Railway

Project Description

The railway connecting Rio de Janeiro to Espirito Santo will likely be connected to the network granted to MRS Logística S.A. in the Municipality of Nova Iguaçu (RJ). This rail connection will create access to the ports in the States of Rio de Janeiro and Espirito Santo, and will improve logistics of cargo import and export in the Southeast Region of Brazil.

Estimated Investment

\$2.5 billion

Project Status

The preliminary studies have been completed for the project.

5.5 Freight Railway Operational Systems Standard

While ANTT received feasibility studies for four of the five rail concessions planned, there is an ongoing discussion on defining the standard for railway operational systems that concessionaires must comply with. Currently, ANTT has not decided on which railway operational model to use, European or U.S. standard. ANTT indicated that before final bid announcements, it will select a model. Once a selection is made, the process will move forward with public bid announcements, which are expected in late 2016.

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5.6 Overview of Freight Railway and Regulatory Framework

Railroads comprise 24% of freight transportation, moving products such as iron ore (over 70% of total rail freight), soybeans, corn, steel and other minerals. There is 28,190 Km of railway stretching across the country, which is under private concession. Rail transport can be up to 30% less expensive than highway transport, and it is also more efficient. Historically, Brazil has not made substantial investments in its rail system, and that only began to change over the past 20 years.

In 2015, the Government announced plans to invest billions of dollars in the rail sector, with additional concessions. These investments could result in expansion as great as 7,500 Km. The Government aims to improve the connection between the North and South regions by linking pre-existing railways and building new ones as well.

The Division of Railways under the National Land Transportation Agency (ANTT) oversees the concession process. In addition to monitoring service quality, ANTT is responsible for establishing rules and standards for railway operations.

The major public stakeholders in the rail sector are the Ministry of Transportation (MOT), ANTT, Ministry of Planning, Logistics and Planning Company (EPL) and the Company of Engineering, Railways, and Construction (VALEC). The Ministry of Planning manages logistics planning and determines potential areas for rail connections to support the national economy. The Ministry of Transportation and ANTT oversee the operation and development of rail activities, facilitating the safe and efficient transport of freight.

EPL administers studies, surveys, infrastructure construction, technology development and activities aimed at technology transfer. EPL works in coordination with the Ministry of Transportation and Ministry of Planning in policy development and strategic planning.

VALEC is a publicly owned company that does economic and administration planning, as well as engineering including construction, operation, exploitation and integration of railways with other modes of transportation.

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