

DOING INFRASTRUCTURE IN BRAZIL



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Realization

FIESP **CIESP**

DOING INFRASTRUCTURE IN BRAZIL

2019



The recent downturn in the Brazilian economy slowed down the country's productive sector, significantly impacting the competitiveness of the industry in strategic areas such as infrastructure.

In a country with 13.2 million unemployed, investing in infrastructure is one of the most effective ways to warm up the economy and create jobs. The shortage and deficiency in terms of supply, quality and accessibility to infrastructure is largely due to poor investment in the sector, with an average of 1.5% of GDP invested in the last two years. On the public side, this amount reached only 0.4% of GDP in 2018 - the lowest level in the last 10 years.

Just to keep the current infrastructure assets, investments would be necessary in the order of 3% of GDP per year and, to modernize and expand the infrastructure it would be essential to invest over 4% of GDP per year. To reach this level, it is paramount to increase the participation of private sector, both national and foreign, in the investments and operation of infrastructure services.

The Federation of Industries of the State of São Paulo (FIESP) and the Center of Industries of the State of São Paulo (CIESP) emphasize the importance of partnerships between the public and private sectors as a foundation for the resumption of growth and development, giving the private sector the role of allocating the necessary resources, bringing technological innovations and a more efficient management model. Such initiative directs the private sector to perform what is proven it does better and preserves the Government's role as a development inducer - responsible for planning, regulation and supervision of infrastructure services.

FIESP and CIESP believe that the infrastructure will require billions of Reais in new investments in the coming years and reaffirm their commitment to the country's development by launching the "Doing Infrastructure in Brazil". The guide aims to help foreign investors enter the sector, identifying business opportunities and legal, regulatory and institutional peculiarities in the Energy, Logistics & Transportation, Telecommunications, Sanitation and Mining industries.

Paulo Skaf

President of the Federation of Industries of the State of São Paulo, Fiesp, and of the Center of Industries of the State of São Paulo, Ciesp

FEDERATION OF INDUSTRIES OF THE STATE OF SÃO PAULO

Located in the most industrialized Brazilian state, the Federation of the Industries of the State of São Paulo (Fiesp) is the largest entity representing the interests of the industrial sector in Brazil. Fiesp has 131 trade associations as members, comprising approximately 150,000 companies of all sizes from the most diverse industries.

The state of São Paulo has a population of more than 45 million people and a per capita income of R\$ 1,898/month. If considered as a country, São Paulo would be the third economy in Latin America, after Brazil and Mexico.

Due to its privileged size and representativeness, Fiesp is the main speaker of the industrial sector vis-à-vis the Brazilian government. The Federation works very closely with the public sector on many issues in order to advocate policies, strategies and actions aiming at promoting the competitiveness of the Brazilian industry, as well as inbound and outbound investments.

In order to achieve these objectives, Fiesp has been focusing on strategic industries through special committees and departments, in sectors such as agribusiness and agrofood industry, defense, technology, infrastructure, construction, and oil & gas.

CENTER OF INDUSTRIES OF THE STATE OF SÃO PAULO

The Center of Industries of the State of São Paulo (Ciesp) is the largest representative entity of the industrial sector in Latin America and acts as the voice in defense of the industry of São Paulo. It aims to strengthen industrial activity, defend industry interests and meet the needs of its members, as well as encourage relationships and generate business opportunities.

As a reference in the resolution of local demands, since it has capillarity throughout the state of São Paulo - through its regional, municipal and district directories -, it influences important decisions for the industry, stimulates discussion and demands better conditions for the productive sector and for the development of the country.

Its continuous struggle brings positive impacts to the whole Brazilian society, with actions developed at regional, state and national levels.

MADRONA ADVOGADOS

Promoting an ethical environment in business and investing in training people are two of the great challenges of our time. An increasingly integrated world, with ever more advanced technologies, requires that any organization stand for transparency, tolerance for diversity, and respect for differences, companies, and people. Madrona Advogados was launched with that spirit. With a focus on corporate law, mergers and acquisitions, capital markets, financial law, and infrastructure, in addition to a strong performance in tax, anticorruption, real estate, arbitration, civil litigation, labor law and antitrust, our motivation is to understand our time, invest in people, and work so that our clients reach their goals, always with ethics and responsibility. With a team of more than ninety legal professionals with great experience and recommended by several national and international publications, the members of Madrona Advogados are aligned with the principles and objectives that we set out to achieve. We want to be among the most admired firms and seek to be a reference to our peers, associates, and employees. Our greatest challenge is to grow sustainably, keeping our focus on our team's high technical quality and ethical standards – provide our clients with excellent service is the outcome.

SHORT NOTE

Madrona Advogados' work is completely in line with this new wave of Brazilian infrastructure, advising local and foreign clients to seize all these opportunities with responsibility, efficiency and transparency. By teaming up with Fiesp and Alvarez & Marçal, we expect to give an even greater contribution to this scenario, by contributing to "Doing Infrastructure In Brazil". We hope this information helps those interested in unlocking additional investments in Brazilian infrastructure sector.

The Brazilian infrastructure landscape is rapidly shifting to ensure legal certainty and to foster investments. Attracting foreign investors' interest is paramount in this process and the government has already begun to address some of the regulatory barriers, aiming at opening our market and expediting economic development in Brazil. It is expected that there will be multiple opportunities to keep the infrastructure market busy in the upcoming years.

ALVAREZ & MARSAL

Provides global leadership, problem solving and value creation for companies across industries and around the world. We work as advisers, interim leaders and partners who tell you what you need to know, not always what you want to hear. Over the past thirty-five years, A&M has grown from three employees to over 3,000 in 55 offices across 24 countries in North America, Europe, Asia, Latin America and the Middle East, making the firm one of the largest privately-held global professional services firms. A&M attributes its people to this tremendous growth. The firm continues to recruit top talent, enabling it to respond to shifting market demands and expand its service lines across geographies such as U.S., U.K., Brazil, Mexico, France, China and the Nordics.

SNAPSHOT

Brazil is the 6th most populous country and the 9th biggest economy in the world. Its economy represents almost 40% of Latin American and Caribbean.



Area: 8,5 MM sq km (5th)



Population: Approx. 210 MM (6th)



Median age: 32.4 years



Labor force: 104 MM (5th)



GPD 2019E: US\$ 2.095 trillion (9th)



GDP per capita (PPP): US\$ 15,600 (108th)



International reserves: US\$ 378 Bi (19/Feb)



Urbanization: 86.6 %



Major Cities: São Paulo (21.6 MM), Rio de Janeiro (13.3 MM)
Belo Horizonte (5.9 MM), Brasília (4.4 MM),
Porto Alegre (4.0 MM)



Main Export Partner: China, US, Argentina and Netherlands



Main Import Partner: China, US, Argentina and Germany



Agricultural Products:

coffee, soybeans, wheat, rice, corn, sugarcane, cocoa, citrus; beef



Main Industries:

Textiles, shoes, chemicals, cement, lumber, Iron ore; thin, steel, aircraft, motor vehicles and parts, other machinery and equipment

BRAZIL MACRO OVERVIEW

Government promises to refund Brazil's economy through radical austerity reforms and bring a positive outlook for the country's economy.

- Brazilian economy is on the verge of having a **robust growth** after a long period of recession.
- **GDP growth:** Investors foreseen growth **opportunities** due to:
 - Low levels of interest rate;
 - Stabilized inflation;
 - Tax cuts;
 - Privatizations.
- Government has defined a **broad agenda of privatizations** that should improve fiscal aspects in the short-term and increase the long-term competitiveness.
- The fiscal consolidation and the productivity agenda need to be addressed since these reforms will ensure that the country is on a sustainable development path.
- **Social Security reform:** The main problem of the Brazilian Public Finance has been addressed through a bill that adjusts the Social Security System. The approval process needs legislation changes and should take at least the first semester of 2019.
- **Unemployment rate:** still not reflecting the improvement in GDP and successive records in exports.
- **Stock Exchange:** Foreign investors are awaiting the reform to invest about R\$ 30 billion in the Brazilian Stock Exchange and R\$ 36 billion in Private Equity funds in the next 12 months. This will accelerate the M&A and IPO Markets. The stock market has begun to react with the real odds of Congress approving the law.
- **Capital Markets:** expected to generate opportunities for local and foreigners' companies in Brazil.

GOVERNMENT

With almost 150 million registered voters, Brazil is the 4th largest democracy in the world.

The **Federal Government** is the national government of the Federative Republic of Brazil, which was formed in 1889.

The Brazilian Federal Government is divided in three independent branches:

- **Executive**, headed by the President and the cabinet. (Mr. Jair Bolsonaro since 1st January 2019) .

- **Legislative**, powers are vested by the Constitution in the National Congress.
- **Judiciary**, powers are vested in the Supreme Federal Court (consists of 11 judges) and lower federal and state courts.

Voting Age:
16 years

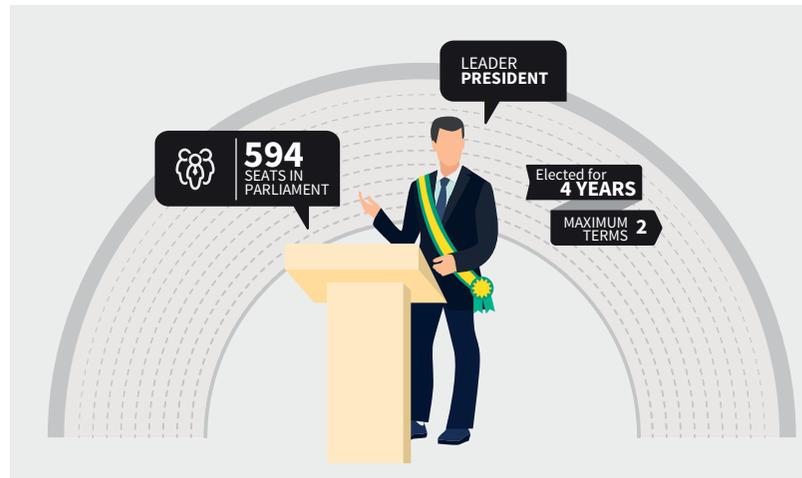
Election Type:
General

Voting Type:
Majority

Electronic
Voting

Universal
Suffrage: 1934

Previous Election-
Turnout: 79.50%



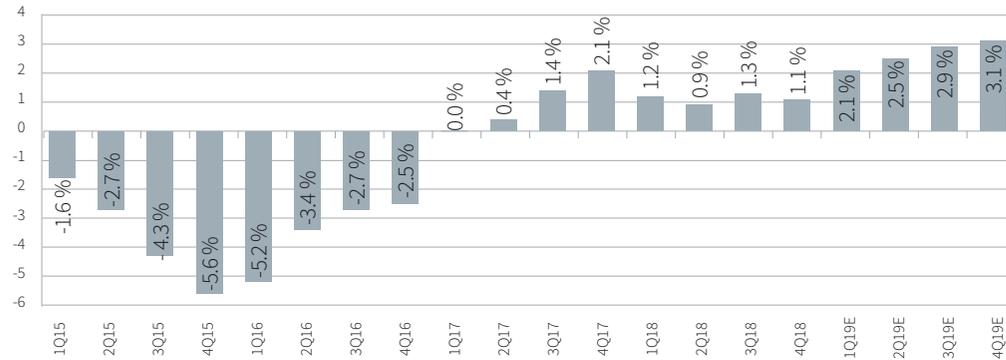
Bicameral National Congress consists of the Federal Senate with 81 seats and the House - Chamber of Deputies with 513 seats.

ECONOMY

After several quarters of recession, the economy is going up due to low levels of interest rate, stable inflation and expectancy for reforms...

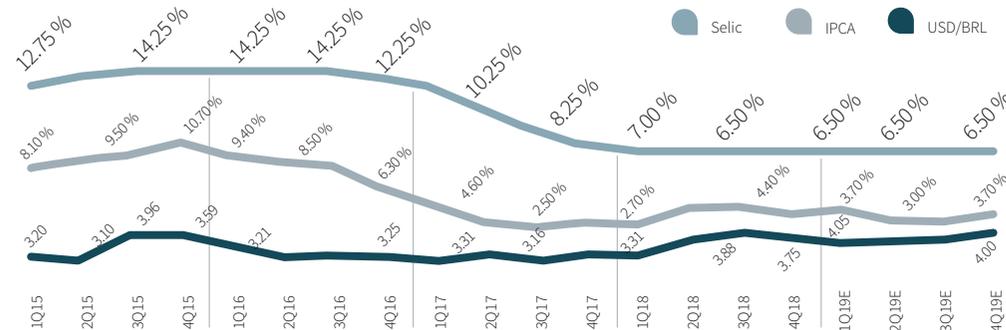
- GDP recovery should continue in 2019 led by household consumption and investments.
- Idle capacity allows inflation to remain in lower levels during the next quarters.
- Fiscal policy should create a less volatile currency exchange environment.
- Low and stable inflation allows Brazilian Central Bank to conduct a gradual normalization of monetary policy.

Gross Domestic Product | Quarter YoY



Source: Bloomberg.

USD*, IPCA* and Selic ** | Quarter

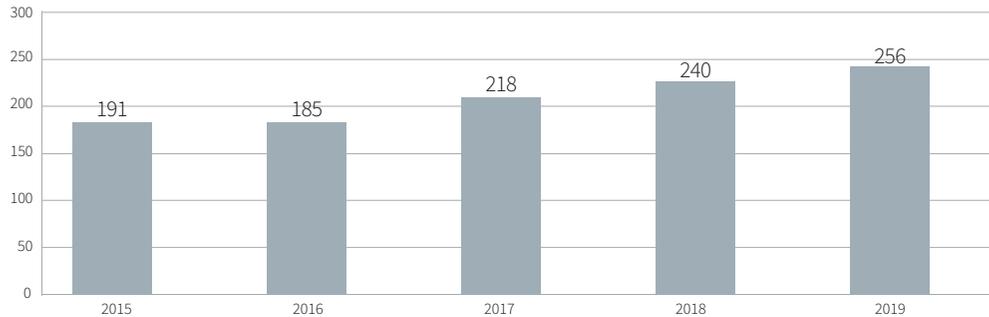


Source: Santander*, Itaú BBA** and A&M Analysis

ECONOMY

...even with the improvement in GDP and successive records in exports, this has not yet been reflected in the unemployment rate...

Total Exports | US\$ Billions



Unemployment Rate | % Population



Source: Bloomberg, OEC

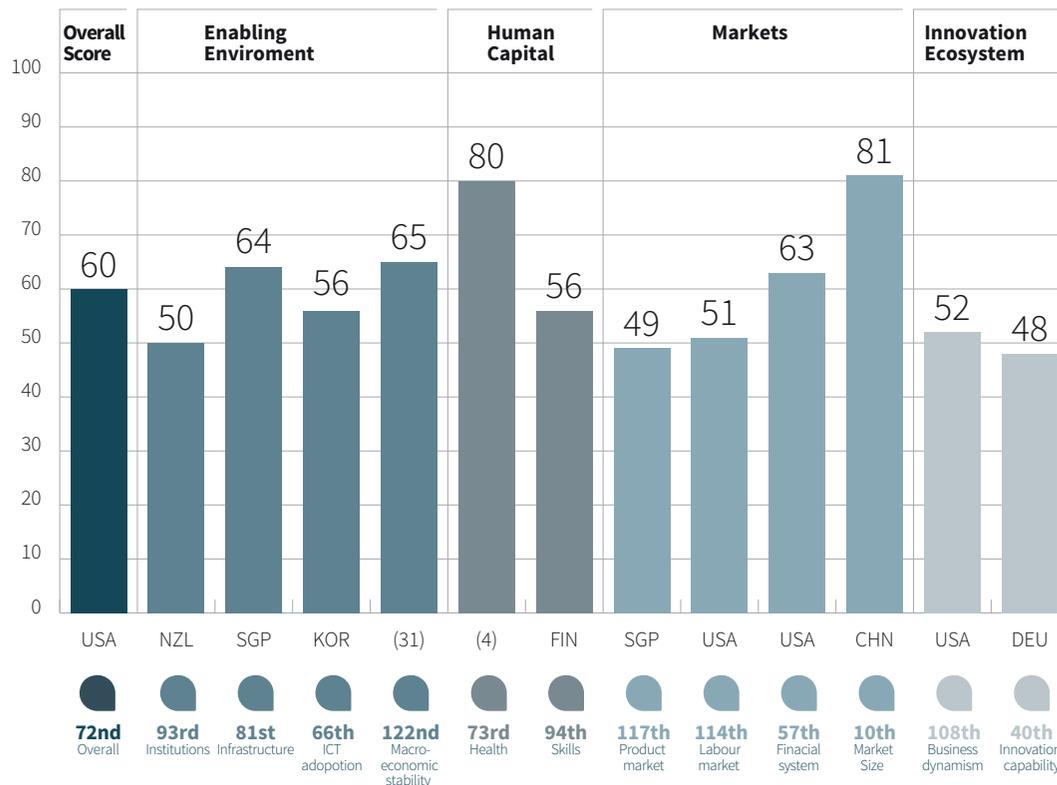
- Exports in 2018 were driven by basic and manufactured goods (soybean, iron ore, crude oil, raw sugar, etc) and reached the highest level in 5 years.
- In 2019, exports' growth should remain strong and could reach R\$ 256 billion, which is very close to 2011 figure, R\$ 261 billion (highest level in country's history).
- With favorable labor market conditions, unemployment rate should decrease with the resumption of economic activity, accelerating the consumer consumption.

MICROECONOMIC AND FISCAL REFORMS

The fiscal consolidation process and the productivity agenda are needed to be addressed first to put the country on a sustainable development path...

- In the 2018, Global Competitiveness Index, Brazil felt three places to 72nd place.
- The country's low productivity is explained by a combination of factors among.
 - tax reform,
 - opening of Brazilian economy to trade,
 - competitiveness of the banking system,
 - privatizations, and
 - education reform.

Global Competitiveness Index 4.0 (2018 edition)



Source: National Treasury, World Economic Forum, Credit Suisse

PRIVATIZATION AGENDA

...to do so, the government has defined a broad agenda of privatizations that should improve short-term financials as increase the long-term competitiveness.

Sector	Asset	Probability of Approval
Logistics & Transportation	Airports	
Logistics & Transportation	Postal Service	
Logistics & Transportation	North-South railroad	
Logistics & Transportation	Grains railroad	
Other	LOTEX	
Energy	BR Distribuidora	
Logistics & Transportation	Port Authorities	
Logistics & Transportation	Toll roads	
Logistics & Transportation	Infraero	
Telecommunications	Empresa Brasil Comunicação	
Energy	Hydropower Plants	
Energy	Eletrobras	
Logistics & Transportation	West-East Railroad	
Finance	BNDES PAR	
Finance	Brazilian Mint	
Energy	Petrobras refineries	
Energy	Furnas	
Finance	Caixa	
Finance	Banco do Brasil	
Finance	BNDES	
Finance	Regional banks	
Mining	Various Mineral deposits	
Telecommunications	Telebras	

Source: Credit Suisse

SOCIAL SECURITY SYSTEM

The government has dealt with the Social Security System deficit, which is the biggest offender in terms of public spending...

- The deficit was R\$ 321 billion in 2018 and will be R\$ 351 billion in 2019, mainly due to the rural and urban pensions that correspond to 62% of the total deficit.
- The biggest offender is the Rural Retirement System, since it presents the highest deficit and one of the lowest incomes of the system.
- The planned economy with the new System will be in the order of R\$ 1.1 trillion in the first 10 years.
- The proposal also modifies the minimum retirement age for RGPS schemes - from 60 years to 62 years for women and 60 years to 65 for men. The RPPS system changes from 55 years to 62 years for women and 60 years to 65 years for men.

LEGEND - **RPPS** - Public Employees Retirement System / **RGPS** - General System of Retirement / **BPC** - Benefit for Elderly and Disabled People

Reforms Benefits – R\$ BN

Savings in R\$ Billion	4 Years	10 Years
RGPS Reform	83	715
RPPS Reform	34	174
Change in RGPS tax rates	-10	-28
Change in RPPS tax rates	14	29
BPC Reform	41	182
Subtotal – New Social Security	161	1,072
Military Social Security System Reform	28	92.3
Total	189	1,165

Source: Ministry of Finance

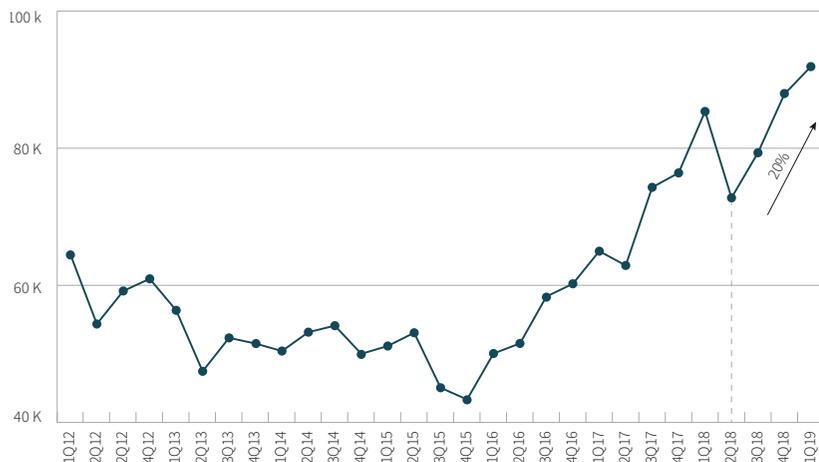
Major changes in the New Social Security System

Monthly Income Ranges	RGPS	RPPS	Monthly Income Ranges	RGPS	RPPS
Up to R\$ 1,751.81	8%	11%	Up to R\$ 998	8%	8%
From R\$ 1,751.82 to R\$ 2,919.72	9%	11%	R\$ 998.01 – R\$ 2,000	7.5% - 8.25%	7.5% - 8.25%
From R\$ 2,919.73 to R\$ 5,839.45	11%	11%	R\$ 2,000.01 – R\$ 3,000	8.25% - 9.5%	8.25% - 9.5%
			R\$ 3,000.01 – R\$ 5,839.45	9.5% - 11.68%	9.5% - 11.68%
			R\$ 5,839.46 – R\$ 10,000	11.68%	11.68% - 12.86%
			R\$ 10,000.01 – R\$ 20,000	11.68%	12.86% - 14.68%
			R\$ 20,000.01 – R\$ 39,000	11.68%	14.68% - 16.79%
			Above R\$ 39,000	11.68%	+ de 16.79%

STOCK EXCHANGE AND M&A SNAPSHOT

With real probabilities of changing the social security system, the stock market has already started to react...

IBOVESPA Index - Closing Price



- With the expectation of implementing economic measures favorable to long-term growth stocks rose sharply and culminated in a 20% increase in the end of the second quarter of 2018.
- The approval of structural reforms and the maintenance of pro-growth economic policies can maintain the prospects of high returns in the stock market in the coming years.
- M&A market closed the year with 519 transactions and a financial volume of R\$ 201 billion.
- The number of transactions remained stable between 2017 and 2018.
- The 10 sectors that stood out the most in 2018 accounted for 58% of total transactions in the period, with the technology segment being the most active.

Sectors with the Highest Number of Transactions in 2018		
Sector	Number of Transactions	Total R\$ BN
Technology	68	8.16
Retail	40	8.95
Investment Companies	33	2.30
Real Estate	31	9.34
Health Companies	30	0.87
Energy	29	22.51
Alternative Energy	27	10.85
Food	22	16.08
Health Products	13	0.11
Financial Services	12	1.70
Total	305	80.86

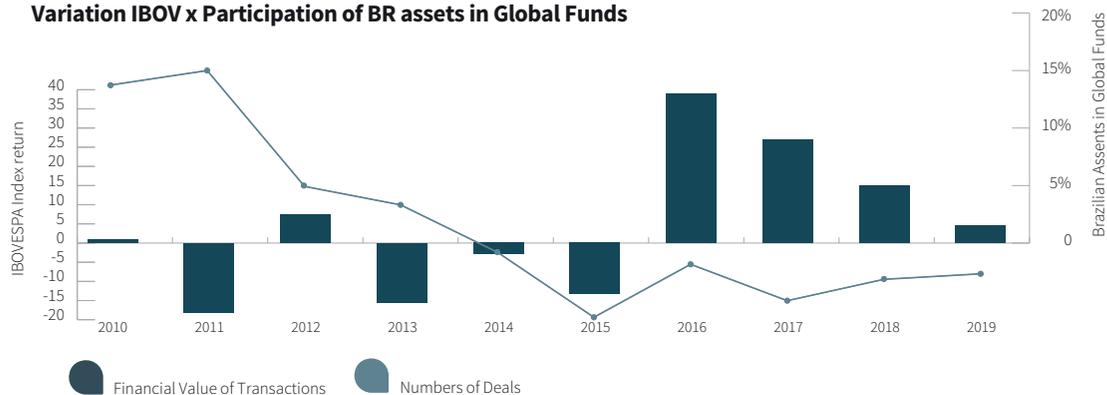
Source: Bloomberg and A&M Analysis

FOREIGN INVESTMENTS

...even more with the probabilities of foreign investment of about R\$ 30 billion in the Brazilian Stock Exchange and R\$ 36 billion in Private Equity funds in the next 12 months.

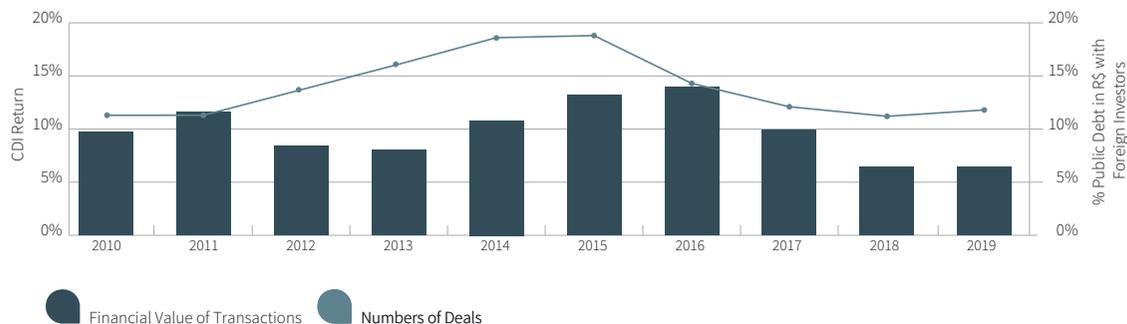
- The position in Brazilian assets of global funds operating in emerging markets decreased starting in 2011 with the reduction of the return of the Brazilian stock market and the hike in the yield curve. In 2015, when Brazil lost its Investment Grade status, this indicator reached its minimum value of 6%.
- According to a report in the newspaper “O Globo” that heard 15 bank executives and consultants, foreign investors are awaiting the reforms to invest about R\$ 30 billion in the Brazilian Stock Exchange and R\$ 36 billion in Private Equity funds in the next 12 months. As a result, percentage of Brazilian Assets in Global Funds will rise, M&A and IPO markets will accelerate.

Variation IBOV x Participation of BR assets in Global Funds



Source: O Globo, B3, EPFR, BTG Pactual, Abvcap, National Treasury

CDI Return x Participation Foreigners in Public Debt



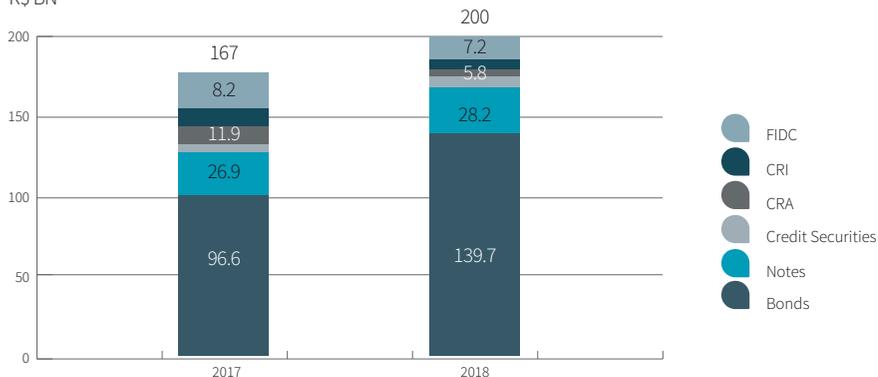
Source: O Globo, B3, EPFR, BTG Pactual, Abvcap, National Treasury.

CAPITAL MARKETS SNAPSHOT

The same might occur to the Capital Markets, generating opportunities for local and foreigners' companies.

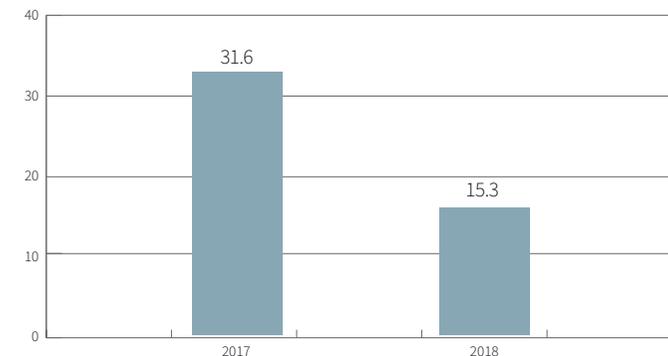
Domestic debt issuances

R\$ BN



External Debt Issuances

US\$ BN



Source: AMBIMA.

- Domestic emissions reached R\$ 243.1 billion in 2018.
- Fixed income assets increased their participation in the total issued in 2018 in relation to the previous year, from 77% to 90%.
- Debentures totaled R\$ 152.2 billion in 2018, an increase of 58% over the same period of the previous year.
- In variable income, there was a decrease in emissions in relation to 2017, due to the high leverage of the companies and typical uncertainties of the electoral year.
- External funding totaled US\$ 15.3 billion in 2018, down 50% from 2017.

POSITIVE PERSPECTIVE FOR THE FOLLOWING YEARS

Minister of Economy priorities are to sell off dozens of state companies, rein in the pension-system deficit, deregulate industries, and cut taxes to attract investment and create jobs.

KEY DRIVERS FOR ECONOMIC RECOVERY:

- Greater impact of monetary easing cycle on economy
- Improvement in balance sheet of households and businesses, due to strong deleveraging cycle
- Lower uncertainty regarding government's fiscal agenda
- More favorable labor market conditions
- Lowest interest rates
- Privatization agenda

MANDATORY ADJUSTMENTS NEEDED:

- Increase in economy's trade openness
- Measurements to improve "easiness of doing business" in the country
- Social security reforms
- Tax reforms

Source: Credit Suisse, A&M Analysis

INFRASTRUCTURE IN BRAZIL

- The **Brazilian Constitution** sets forth the main guidelines for the sector, and indicates which authorities are responsible for each asset.
- As general rule, all state's procurements must be preceded by a **public bidding process**.
- The interaction between the public and private sectors may occur through **different types of partnership**, some more intensely regulated than others.
- The Union, States and Municipalities must create **agencies to regulate** activities under their authority.
- All the information and requirements exchanged between **public and private parties** must be done formally, through written documents.
- **Capital Market** has been playing a key role in financing infrastructure projects, replacing the Government as principal lender.
- **Federal Government** enacts general rules on environmental matters and **States and Municipalities** may complement them when related to local issues.
- Although Brazilian legislation already punished **corruption** as a crime, a specific Anticorruption Framework has been in force since 2014.
- Brazil has a strong and independent **judicial system**, complying with international principles, allowing arbitration in many public-private disputes.

AUTHORITIES IN CHARGE FOR EACH INFRASTRUCTURE ASSET

Sector	Authority
Electricity	Union
Oil & Gas	Union
Gas Distribution	State
Roads	Union, State or Municipality, depending on the area
Ports	Union
Airports	Union
Railways	Union
Urban Mobility	Municipality
Telecommunications	Union
Sanitation	State or Municipality, depending on the area
Mining	Union

INFRASTRUCTURE SECTOR

Contracts between the public and private sector must be preceded by a public bidding process.

Legal framework – bidding process

- **Formal and rigid** procedure.
- All procurements can be reviewed by **Accounting Courts**.
- Only the **Brazilian Real** (R\$) can be used.
- Prerogatives of authorities within the public procurements: **(i)** to terminate the agreement and modify its scope, **(ii)** to increase or reduce the contract value, limited to 25% (except in concession agreements).

Main legislation on public procurement

- Law No. **8,666/1993**: lays down general rules for public and administrative agreements regarding public works and services.
- Law No. **8,987/1995**: regulates the provision of public services through concession agreements and permits.
- Law No. **10,520/2002**: Regulates the acquisition of common goods and services, awarded by the lowest price.
- Law No. **11,079/2011**: regulates public-private partnership agreements.
- Law No. **12,462/2011**: creates the Differentiated Public Procurement Regime which aims to provide faster procurement processes.
- Law No. **13,303/2016**: establishes rules for state-owned companies regarding the organization, public biddings and procurements.

TYPES OF BIDDING PROCEDURES

Type of Bidding Process	Object of the Bidding Process	Time between bid notice and bidding public session
Competition	Type of bidding among any interested parties that meet the minimum qualification requirements set forth in the invitation to bid to perform the object of the bidding. Often used for large and complex procurements, concession agreements.	<ul style="list-style-type: none"> i. 45 days whenever the contract to be entered into provides for integral contract work or whenever the contract is awarded based on "better technique" or "technique and price" criteria; and ii. 30 days for all other cases.
Bid quotation	Type of bidding among interested parties that have been registered in a previous public register or meet all the conditions to register by the third day before the date when the bids are received, with due regard to the necessary qualification	<ul style="list-style-type: none"> i. 30 days for bidding processes judged by "better technique" or "technique and price"; and ii. 15 days for other cases.
Invitation	Type of bidding among interested parties of the sector related to the purpose of the bidding, either registered or not, with at least three (03) chosen and invited, by the administrative unit, that shall display, at an appropriate location, a copy of the invitation to bid that shall extend to other persons registered in the corresponding sector and that show their interest up to twenty-four hours (24) before proposals are delivered	5 days
Competitive selection	Type of bidding process among any interested parties for choosing a technical, scientific or artistic work, by establishing awards or remuneration to those awarded, pursuant to criteria set forth in the invitation published in the official press	45 days
Auction	Type of bidding process among any interested parties for the purposes of selling assets that are of no use to the government, or products that authorities have seized or apprehended, or to dispose of real estate property, to the highest bid, in an amount equal or higher than the appraisal amount	15 days
Competitive Bid	Type of bidding process with a simple procedure to procure ordinary goods and services, whose main characteristics could be provided in the bid notice according to usual market specifications. This type of bidding procedure may also be executed online.	> 8 business days

BIDDING PROCEDURES

- **For engineering works and services:**
 - **Invitation:** up to R\$ 330,000.00
 - **Bid quotation:** up to R\$ 3,300,000.00
 - **Competitive bidding:** > R\$ 3,300,000.00
- **For purchases and services not referred to in the previous item:**
 - **Invitation:** up to R\$ 176,000.00
 - **Bid quotation:** up to R\$ 1,430,000.00
 - **Competitive Bidding:** > R\$ 1,430,000.00
- **Lowest Price offered:** selection criteria in which the most advantageous proposal to the Government is the one that offers the lowest price usually for utility tariffs.
- **Best Technique offered:** based on technical factors, it is usually used for services that require intellectual/technical ability, such as projects, calculations, engineering, preliminary technical studies and executive projects.
- **Price and Technique:** the proposal that is most advantageous to the government is the one that scored the highest weighted average in both technical and price criteria.

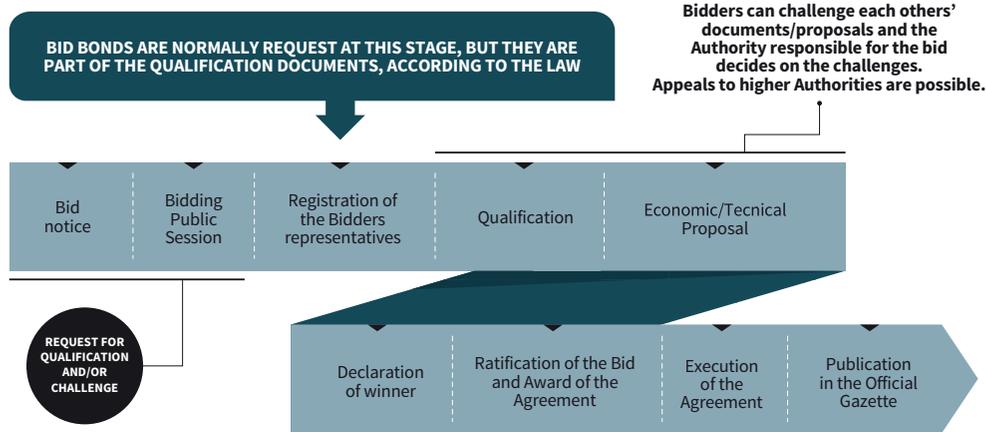
- **Highest Bid offered:** selection criteria used in cases of disposal of goods or concessions of real right of use. It is used in concessions procedures to identify the bidder that is able to pay the highest value to the government for the grant of the concession agreement.

REQUIREMENTS FOR FOREIGN COMPANIES:

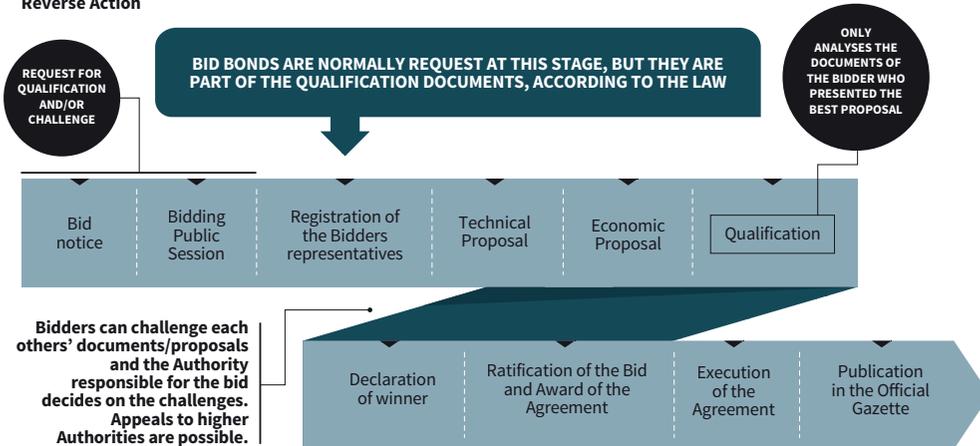
- Appoint a **legal representative** in Brazil, with powers to receive summons, legal notices and to file defense in administrative or judicial cases.
- **If in partnership with other companies:**
 - The companies have to execute a consortium agreement.
 - Normally, it is mandatory that a Brazilian company be the leader and representative of the consortium.
- It is a good practice for foreign companies **to team up** with one or more Brazilian companies in order to save time.
- Authentication by country's respective **Consulate in Brazil.**

PUBLIC BIDDING PROCESS

Regular Process



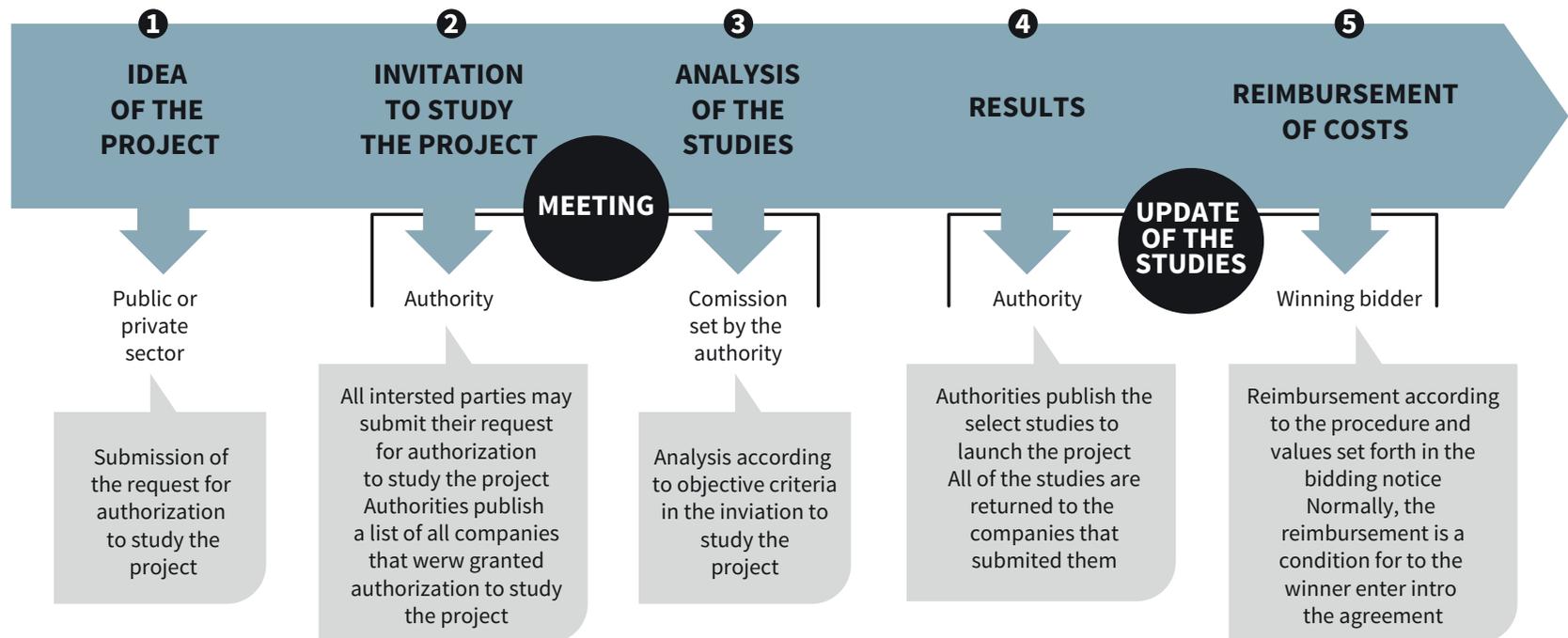
Reverse Action



PATHS OF CONTRIBUTIONS FROM THE PRIVATE SECTOR

- **Expression of Interest** – the authorities request private companies to contribute to a certain modeling.
- **Unsolicited Proposals** – private companies present proposals to model a project without being previously requested to do so

In both cases, private companies will be reimbursed for study costs if they are selected by the authorities. In case of a successful bidding process, the winner of the procurement is responsible for paying such studies.



MAIN LEGAL STRUCTURES

a. Construction Engineering Agreements and Service Agreements

- **Construction Engineering Agreements:** Federal Law 8,666/1993 sets forth rules concerning construction engineering agreements. It provides the construction work may be carried out by different systems.
- **Service Agreements:** Law No. 8,666/1993 mostly regulates services agreements. It focuses on continuous activities, such as demolition, repair, installation, assembling, conservation, repair, adaptation, maintenance, transportation, lease of assets, publicity, insurance or technical-professional works.

b. Ordinary Concessions Agreements

Federal Laws 8,987/1995 and 9,074/1995 provide the main rules for this type of agreement. States and Municipalities can complement these rules, as long as they do not violate or contradict federal regulation.

c. Public-Private Partnership

Regulated by Federal Law 11,079/2004, which provides guidelines for the agreements and their bidding process. States and municipalities may also provide their own rules if it does not contradict or violate federal directives.

d. Built-to-Suit Agreements

The legal grounds are set forth in the Brazilian Private Leasing Law (Federal Law 8,245/1991), in other private legislations (such as the Brazilian Civil Code), in the Brazilian Public Procurement regulation and in the administrative case laws, importing most of its rules from foreign regimes.

e. Efficiency Agreements

Are those in which the government only pays private partners according to the efficiency gained in the operation/maintenance of a public asset. These agreements are provided under Law 8,666/1993 and RDC legislation.

f. Corporate Partnerships

It is quite common in Brazil the partnership between State-owned companies and private parties. The Brazilian Act for State-Owned Companies (Federal Law 13,303/2016) regulates such partnerships, which can also include association agreements.

MANAGING PUBLIC-PRIVATE AGREEMENTS

Executing an agreement with the Public Administration

- Executing an agreement with the government depends on bureaucratic and rigorous procedures, unlike agreements between private parties;
- Proposed amendments must be approved by authorities;
- The main provisions of the agreements have to be publicly disclosed, and the execution of the project is reviewed by accounting and judicial courts, and Brazilian citizens.

Main issues and concerns in dealing with the government

- Authorities are only able to act upon legal authorization, which makes any private public relationship very complex. It is important for a private company to verify the presence of certain conditions before effectively initiating a partnership with any public authority:
 - Is the public technical body ready to execute the agreement?
 - Did the authorities comply with the preliminary procedures regarding the procurement?
 - Is the agreement part of a regulated sector?
 - Are there standard practices regarding similar agreements?
 - Is there case law analyzing similar agreements?

Risk allocation

- It is important to assess (i) the risks to which the agreement is subject, (ii) how these risks will affect the agreement, (iii) which party will be responsible for the risk, and (iv) the mechanisms to mitigate potential materialized risks.

Amendments to public-private agreements

- Limitations and strict legislation apply to amending public-private agreements, to avoid fraud in bidding processes.
- All amendments to public agreements must be in writing, made by formal amendment instruments.
- The Brazilian Constitution provides that the economic and financial balance between the parties must occur throughout the entire duration of the contracts.
- According to Brazilian Public Procurement legislation, agreements may have balance restored by:
 - Direct payment;
 - Extension of the original term;
 - Review of the obligations originally provided; and
 - Review of risk allocation (not applicable to engineering construction agreements and service agreements).

CORPORATE MATTERS

Incorporating a Brazilian legal entity

- It must have a Brazilian address for its head office, an officer residing in Brazil and foreign equity holders must have Brazilian resident attorneys in fact with powers to receive summons of process.
- The legal entity's incorporation documents must be registered with the Registry of Commerce (Junta Comercial) of the State in which its head office will be located, and in some instances with other governmental bodies.
- Any remittance of funds to and from the legal entity to its foreign equity holders must be registered before the Brazilian Central Bank, according to its rules and procedures.

Limited liability companies

- Limited liability companies are required to have at least two equity holders and one officer, who shall have a limited or unlimited term of office.
- All equity holders of limited liability companies have voting rights, and, in general, the corporate control is fully exercised by equity holders holding more than 75% of the limited liability company's corporate capital.
- Limited liability companies allow the distribution of dividends to be disproportional to the equity interest of each equity holder.

Joint stock companies

- Corporations must have two or more shareholders, however they may have one single shareholder, as long as the shareholder is a Brazilian company and certain procedures to have a wholly-owned subsidiary are observed.
- Corporations may issue common shares and preferred shares (voting or non-voting), and the shareholders may agree on alternative means to distribute dividends to the holders of preferred shares, not necessarily linked to equity participation.
- These legal entities are subject to specific formalities not applicable to other legal entities.

Consortium for participating in public tendering

- Consortiums are structures in which different companies combine their capacity to invest and develop a proposed project and are structured through agreements registered before the Registry of Commerce, setting each participant's rights and obligations.
- A leader is defined, and even though a consortium is not a legal entity, liability may be contractually allocated among the parties.
- For the bidding process, all that is required is a pledge to have a consortium organized. If the winning bidder is a consortium, it shall then register before the authorities, or incorporate a SPV in which equity participation shall correspond to the participation within the consortium.

CORPORATE MATTERS

Foreign companies acting in Brazil

- It must first obtain an authorization from the Ministry of Economy, specifically by the Small and Medium Company Special Secretariat.
- It must appoint an attorney-in-fact residing in Brazil with powers to represent and bind the foreign company and to be served with summons.
- The foreign company's incorporation documents must be registered with the Registry of Commerce of the State where its offices are going to be located.
- Foreign companies must have their yearly financial statements of their branches, agencies or establishments in Brazil, and any other publications required by the laws of the country of origin of such foreign company, published in the official journal and a local newspaper.
- It must verify whether the activity it intends to explore in Brazil may be performed by foreigners by Law, considering there are restrictions to certain activities being performed by foreign companies.

Key aspects in M&A transactions in Brazil

- The investor must carry out a full legal and compliance due diligence to verify any potential risks and liabilities.
- The investor must also verify which guarantees will be offered to the investor, especially any necessary formalities to guarantee their enforceability and for how long such guarantee may last.
- How to handle dispute resolutions.

Dissolution, liquidation, extinguishment of Brazilian companies

- Legal entities may be terminated by agreement of their equity holder or due to a lawsuit filed against the company requesting its dissolution.
- A liquidator must be appointed.
- After the liquidation procedure is concluded, the termination instrument of the legal entity must be registered before the Registry of Commerce and its registration before other public bodies must be updated to state that the company no longer exists.
- Also, a Brazilian resident must be appointed as book-keeper, and this individual must keep the legal entity's books filed for at least 5 years.

CORPORATE MATTERS WITHIN INFRASTRUCTURE INVESTMENT

Bankruptcy and recovery

- The central provisions governing liquidation and recovery in insolvency proceedings of corporate debtors are in Brazilian Law No. 11,101/2005 (Reorganization and Bankruptcy Law).
- It makes three types of insolvency proceedings available to companies in a situation of debt: (i) court-supervised reorganization; (ii) out-of-court reorganization and (iii) liquidation (in insolvency).
- As a rule, throughout the whole court-supervised or out-of-court reorganization process, debtor's management remains in control of the debtor's business. Debtors will be able to negotiate with creditors on the repayment of debts, including corporate restructuring, under the protection of the law.
- The Law stipulates a 180-day stay period for all claims and enforcement proceedings against the company in court-supervised reorganization after it is granted and, within this period, the company has to present a reorganization plan that must be approved by creditors and further approved by the court in charge of the proceedings.
- The Reorganization and Bankruptcy Law does not apply to (i) state-owned companies and/or government-controlled companies; (ii) financial institutions; (iii) consortia; (iv) insurance companies; and (v) health care companies.

Judicial recovery	<p>The claim is filed by the debtor and it does not require creditors' approval or acknowledgement.</p> <p>The negotiation is supervised by a judge. A court-appointed trustee and a creditors' committee, if there is one, oversee the self-management of the debtor.</p> <p>All existing creditors prior to the filling of recovery request are subject to the proceeding, even if they are not due at the date.</p> <p>The company must be operating for at least two (2) years.</p>
Extrajudicial Recovery	<p>The debtor negotiates its debts out of court with its creditors that might be included in the reorganization plan. The out-of-court reorganization still involves proceedings before an insolvency judge, as the debtor's recovery plan requires judicial approval to become legally binding to dissenting creditors.</p> <p>The court approves the plan if it is executed by affected creditors holding at least three-fifths of the overall value of the claims of all affected creditors.</p>
Liquidation (in insolvency)	<p>The liquidation proceedings provide for a comprehensive realization of the debtors' assets. In contrast to self-management as part of recovery proceedings, in liquidation proceedings, the debtor no longer retains its self-management power, such that the insolvency trustee is in charge of the management of the debtor's insolvent estate/business. The aim is to liquidate the company's assets and pay creditors proportionally.</p>

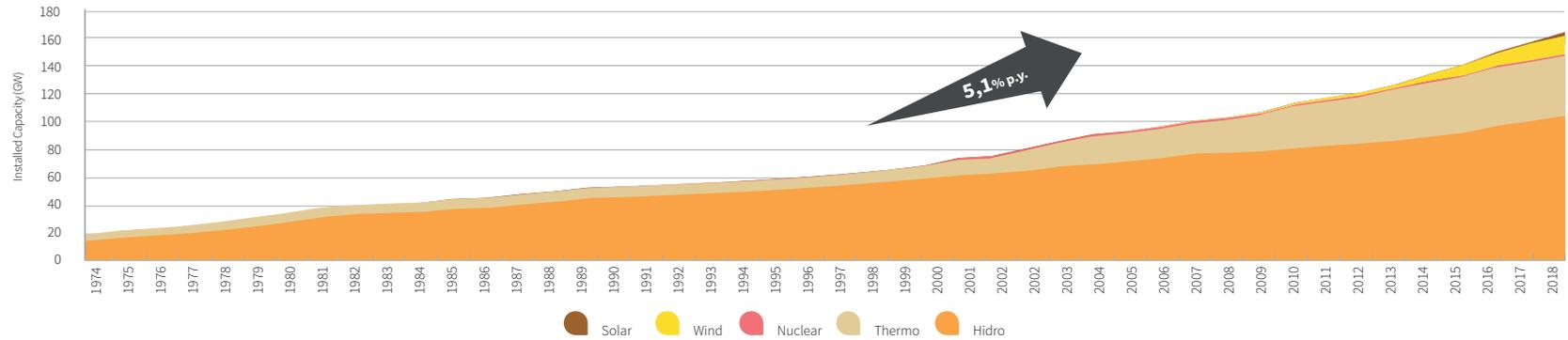
ENERGY

- A growing consumer market with **vast resources available**, and a stable legal and regulatory framework, so can be described the energy sector in Brazil.
- Not surprisingly, this industry has attracted **billions of Reais** in investments in recent years, including M&A, new power generation and transmission capacity, as well as new oil and gas exploration and production fields.
- For the future, estimates point to investments of almost **R\$ 1.8 trillion over the next 10 years**, 78% of which in oil & gas and 22% in electric energy.
- **Power Generation:** The scenario for the coming years reflects a reduction in the share of hydro plants and an increase in wind and solar sources.
- **Power Transmission:** Brazil has a robust electricity transmission system, connecting all the states except for Roraima, with more than 145 thousand km of lines in 2018, growing at an average rate of 4.6% in the last 10 years.
- **Power Distribution:** The distribution utilities serve over 80 million consumer units throughout the country.
- **Electricity Wholesale Market:** It should grow in the coming years, bringing new investment opportunities in generation, commercialization and even in the financial area.
- **Electricity Consumption:** For the coming years, it is expected that the consumption will continue to increase at a rate of 3% to 4%, which will require continuous investments in expansion of generation capacity.
- **Electric Power:** It is expected to attract a total investment of almost R\$ 400 billion over the next 8 years, with several opportunities for private investors.
- **Oil and Derivatives:** Opportunities should attract investments of up to R\$ 2 trillion in the next 10 to 15 years, thus generating jobs and boosting the economy.
- **Natural Gas:** Petrobras divestment plan is expected to open up new opportunities at every link of the gas value chain.

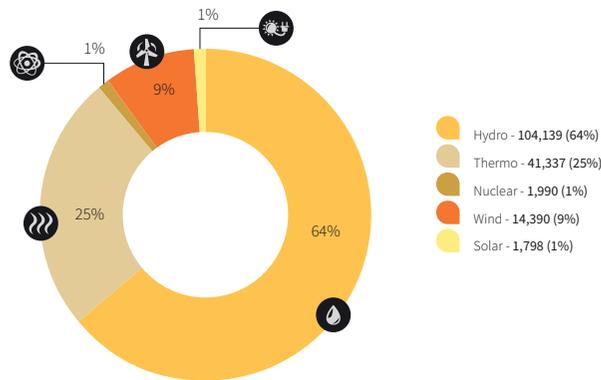
ELECTRIC ENERGY

As a result of its incredible hydro potential, the quality of the winds and the sun, and the large availability of biomass, Brazil has an electric mix of 82.5% renewable.

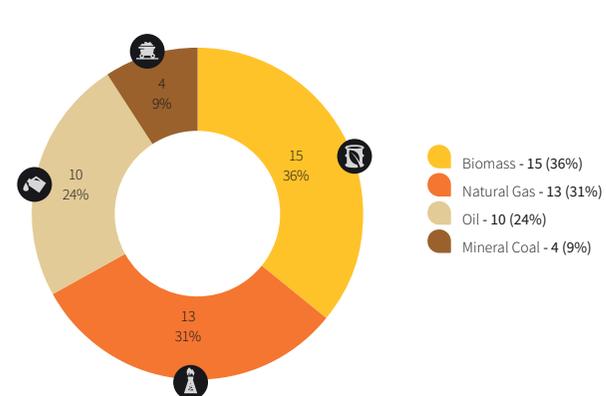
Evolution of the Brazilian Electricity Mix | GW



Electric Mix | 2018 GW



Thermoelectric by Source | 2018 GW

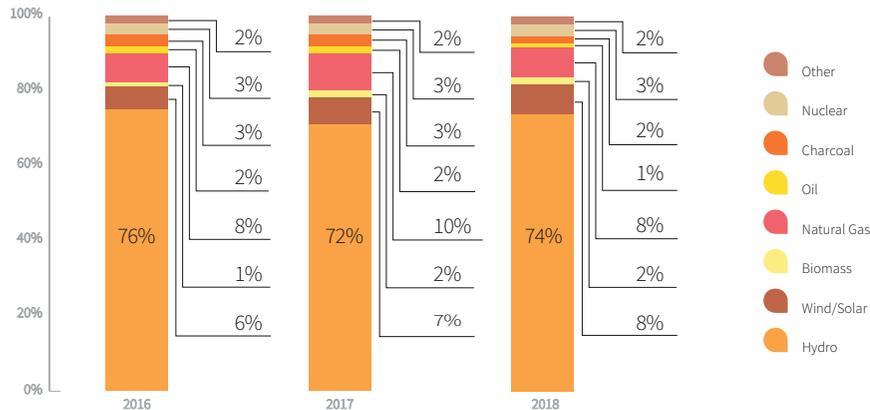


Source: O Globo, B3, EPFR, BTG Pactual, Abvcap, National Treasury

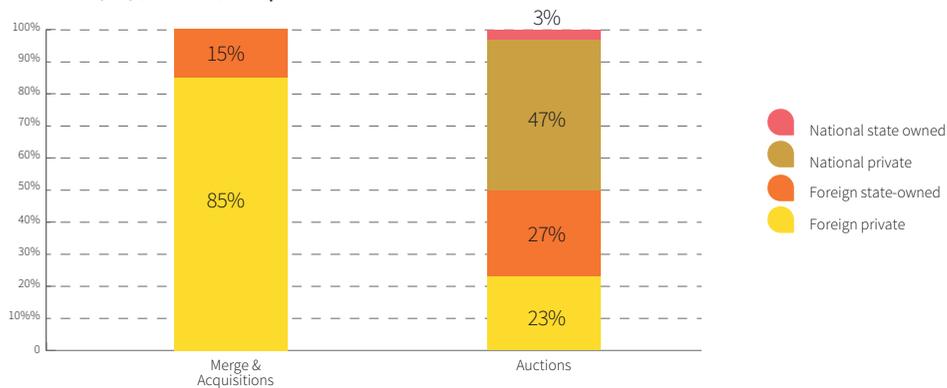
POWER GENERATION OVERVIEW

The scenario for the coming years reflects a reduction in the share of hydro plants and an increase in wind and solar sources.

Electric Power Generation by Source



Share by Type of Capital | 2016 - 2018



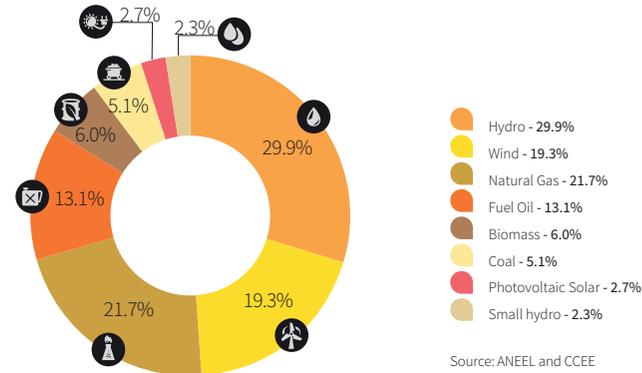
Source: ONS and FGV

- In recent years, the country has suffered with **low rainfall volumes**. This scenario influences the generation of the plants and, consequently, presses the energy price, since the thermoelectric plants, used as backup, presents higher operation prices
- Hydroelectric plants**, which accounted for over 90% of the generated energy in the early 2000s, currently account for about 75% of the total, giving more room to new forms of renewable energy such as wind and solar powers
- By reviewing the most recent **M&A operations** and generation auctions held in the last 3 years, there was a significant share of foreign capital

ELECTRICITY AUCTIONS

- The power distributors are required to contract 100% of their load through **regulated auctions**.
- During the auctions, the investors **compete** for the concession of the plants and the commercialization of the energy. All contracting is made at the lowest price.
- **New energy auctions** occur at least 3 years (A-3), but no more than 6 years (A-6) in advance in relation to the beginning of the supply term. The contract duration varies from 15 to 30 years.

Expansion Contracted in Auctions by Source | Average % MW

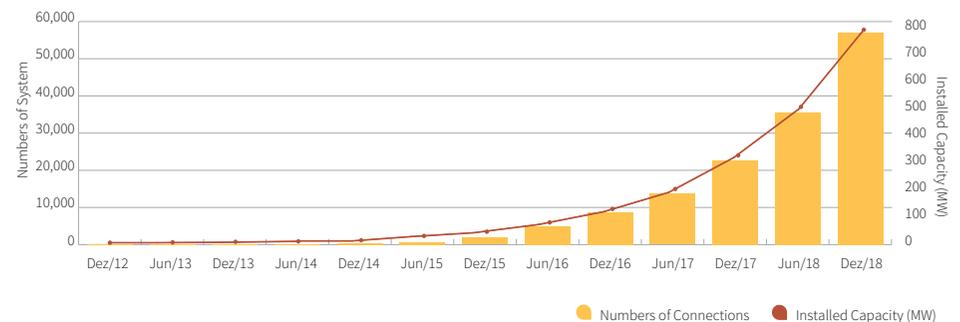


DISTRIBUTED GENERATION

It has grown significantly in recent years.

- The generation must come from a **renewable source** and be connected to the distribution grid through the consumer units.
- The **power injected turns into credit**, which must be spent within 60 months. The consumer unit is billed through the Net Metering model.

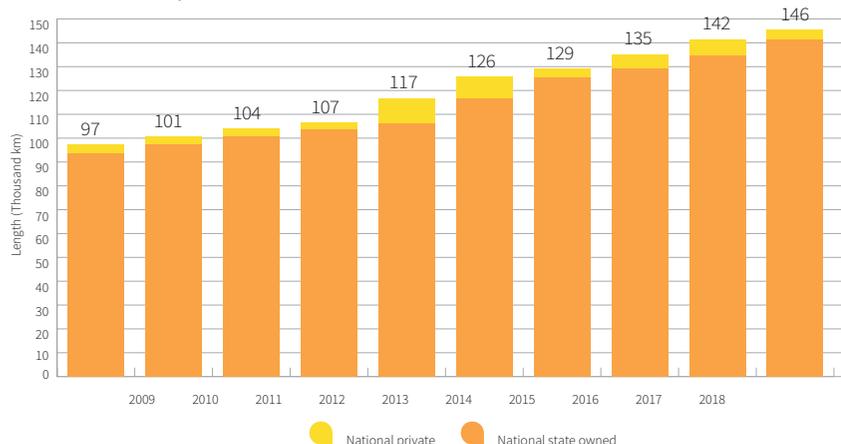
Distributed Generation in Brazil



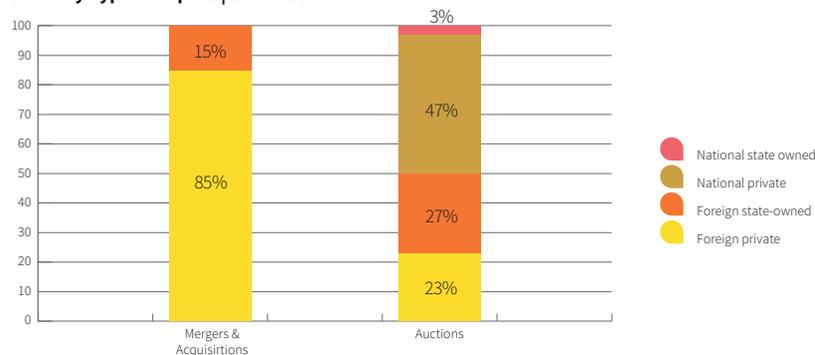
POWER TRANSMISSION

Brazil has a robust electricity transmission system, connecting all the states (except for Roraima), with more than 145 thousand km of lines.

Transmission Lines | Thousand km



Share by Type of Capital | 2016 - 2018



Source: ONS and MME.

- A significant change has been noted also in recent transmission auctions and acquisitions, with strong inflows of **private and foreign capital**.
- **Transmission auctions** have been designed to enable the concession of new lines and substations for the market.
- The concession consists of line construction and operation for a period of **30 years**, in exchange for a fixed annual income, annually updated for inflation.
- Since 1999, the year of the first transmission auction, almost **100,000 km** of lines have been tendered.

POWER DISTRIBUTION

The distribution utilities serve over 80 million consumer units throughout the country.

- The **utilities** are divided into concession areas and may occupy entire states or different geographic regions.
- There are **54 distribution** concessionaires in the 26 states and the Federal District.
- The **15 largest** distribution utilities are responsible for serving 72% of consumers. The **8 largest** concentrate 50% of the market.
- Considering the share of consumer units by class, most of the consumption comes from **household**, accounting for 86% of the total.
- It can be noted that **foreign capital** has been playing a significant role in distribution. One hundred percent of the M&A capital made between 2016 and 2018 came from foreign companies, 96% of which are from foreign state-owned companies.

Ranking of the 15 Largest Distributors in the Country | 2018

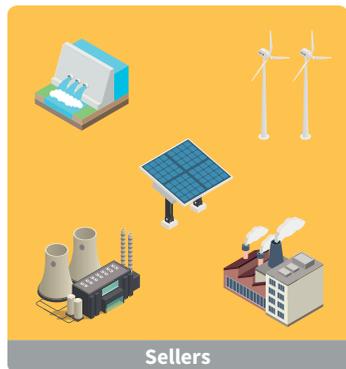
Distributor	Consumer Units	% total CU's	Annual consumption (MWh)	Consumption per CU (kWh/month)
Cemig (MG)	8,427,063	10%	25,320,957	250
Enel São Paulo (SP)	7,214,736	9%	32,299,416	373
Coelba (BA)	5,988,190	7%	16,515,308	230
Copel (PR)	4,637,804	6%	19,561,630	351
CPFL Paulista (SP)	4,423,385	5%	20,470,867	386
Light (RJ)	3,864,698	5%	18,517,166	399
Celpe (PE)	3,695,868	4%	10,905,213	246
Enel Ceará (CE)	3,543,253	4%	9,810,563	231
Enel Goiás (GO)	3,026,902	4%	11,050,838	304
Celesc (SC)	2,976,472	4%	14,214,329	398
Enel Rio (RJ)	2,666,088	3%	8,569,592	268
Elektro (SP)	2,658,301	3%	10,806,541	339
Celpa (PA)	2,643,582	3%	7,360,570	232
Cemar (MA)	2,491,750	3%	5,843,769	195
EDP SP (SP)	1,886,173	2%	7,940,242	351
Total Brazil	83,633,657			

Source: ANEEL

WHOLESALE MARKET-ELECTRICITY

It should grow in the coming years, bringing new investment opportunities in generation, commercialization and even in the financial area.

Regulated Market and Wholesale Market



Distributor utility



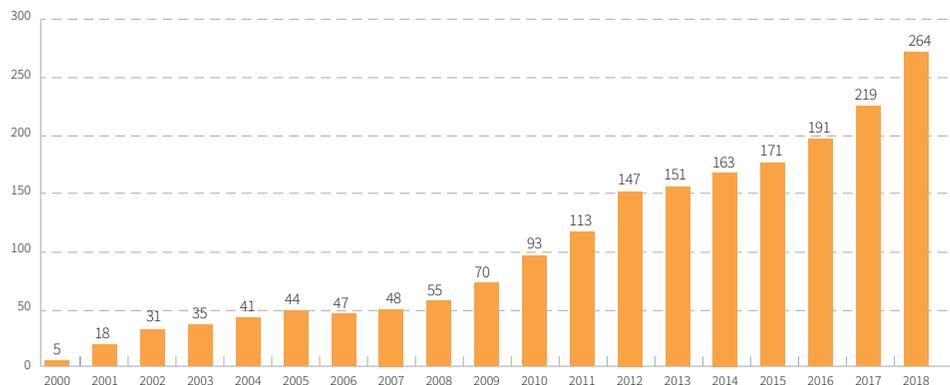
Captive consumer

Traders



Free or special consumer

Traders Evolution (2000-2018)



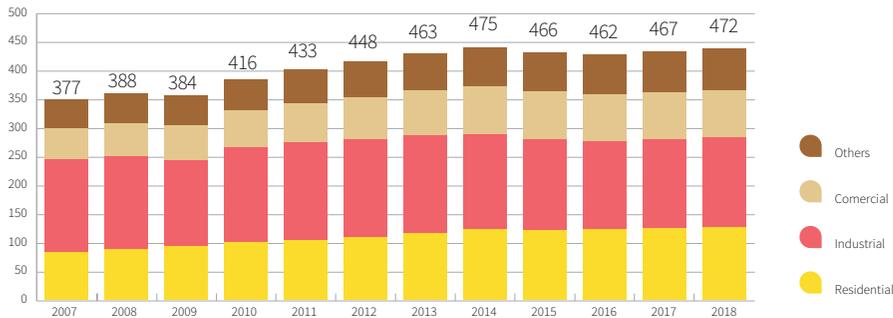
Source: ANEEL

- All contracting is made between generators and distributors through **centralized auctions**.
- In the **wholesale market**, bilateral agreements are signed between generation or traders and free consumers. Prices and risks are agreed between the parties without a regulatory action.
- Recent projects point in the direction of **total opening** of the energy market in Brazil, in order to allow all consumers to freely buy and sell their energy, being the distributor responsible only for the physical delivery of the energy - distribution utility.
- **Traders** operate in the wholesale market by making transactions with generators and free consumers. They are responsible for adjusting the purchase and sale portfolios, balancing the market and reducing transaction costs.

ELECTRICITY CONSUMPTION AND ELECTRIC POWER TARIFFS

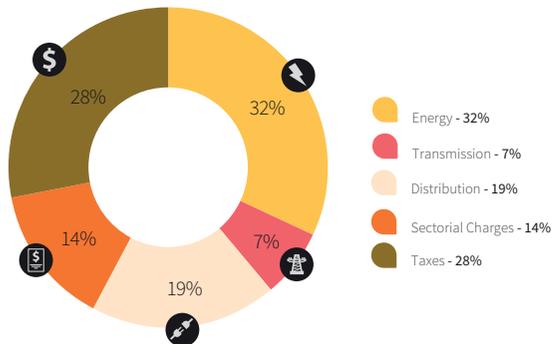
For the coming years, it is expected that the consumption will continue to increase at a rate of 3% to 4%, which will require continuous investments in expansion of generation capacity.

Electric Power Consumption by Class | TWh



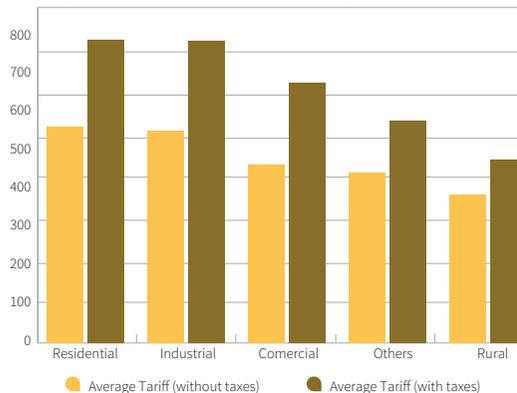
Source: CCEE.

Share of Electric Power Tariffs



Source: EPE and ANEEL

Average Tariff by Consumption Class | R\$/MWh

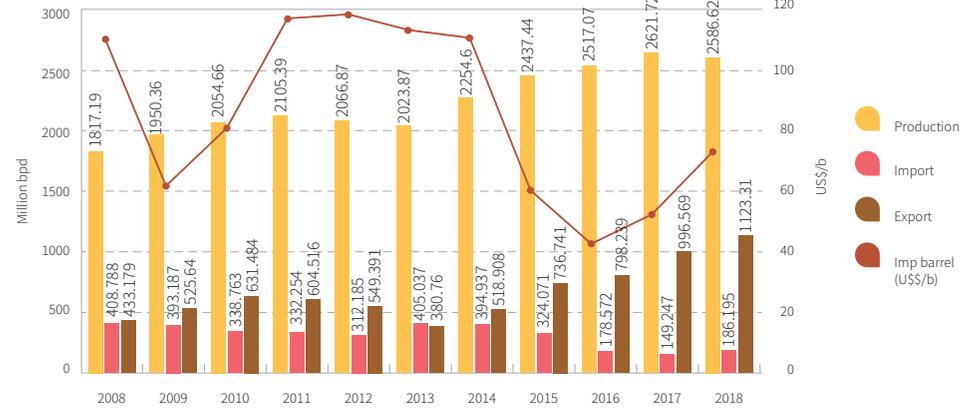


OIL AND DERIVATIVES

Oil and Natural Gas industries are expected to attract investments of around R\$ 2 trillion over the next 10-15 years.

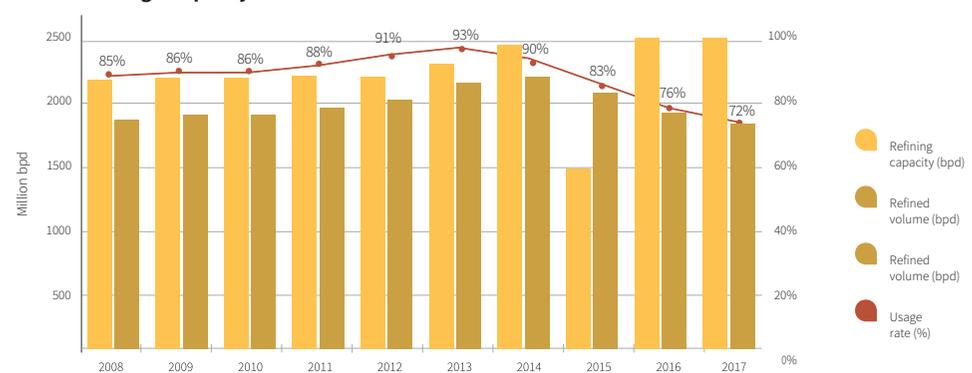
- The oil and gas industry accounts for **13% of Brazil's GDP**. It is a key industry in the country that generates thousands of jobs and brings billions of dollars in investments.
- Brazil is the **9th largest** oil producer in the world and the largest in Latin America. In December 2018, the country's oil production reached 2.7 million barrels per day, and 1.5 million barrels (55.5% of the produced) came from the pre-salt fields.
- However, the country's oil industry is still a fraction of what it could be. Around 7% of the sedimentary areas are granted and only **30,000 wells** were drilled in Brazil.
- Oil and Derivatives generated a positive trade balance in 2018, accounting for **US\$ 20 billion**.
- In 2017, the Brazilian refining relied upon **17 refineries** with a capacity to process 2.4 million bpd.
- Brazil ranks in **8th position** in the world in refining capacity and in first place in Latin America. The utilization rate of the refining capacity was 72.4%.

Oil Production, Import and Export | Million bpd



Source: ANP

Oil Refining – Capacity x Processed Volume



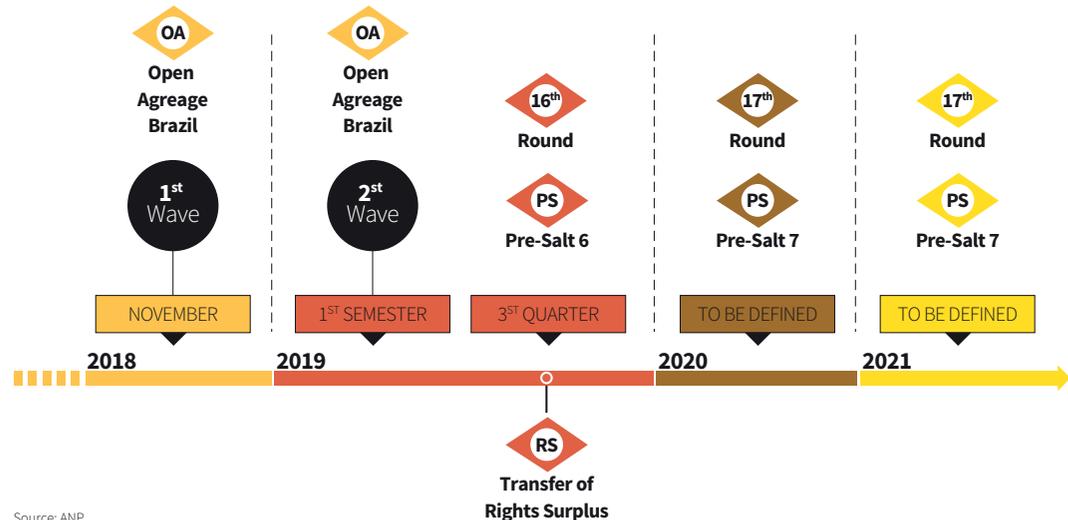
Source: ANP.

OIL AND DERIVATIVES INVESTMENT OPPORTUNITIES

It should attract investments of up to R\$ 2 trillion in the next 10 to 15 years, thus generating jobs and boosting the economy.

- The launch of a **new bidding rounds** shows predictability to the investors. There must be at least six new rounds by 2021, in addition to the surplus auction of the onerous transfer planned to take place in October 2019. The schedule will be updated as annual rounds are made.
- In parallel with **Petrobras divestment plan**, the company has reduced its share in several segments of the production chain by selling assets and concentrating new investments primarily in exploration and production.

Schedule of the next Oil and Natural Gas Bidding Rounds

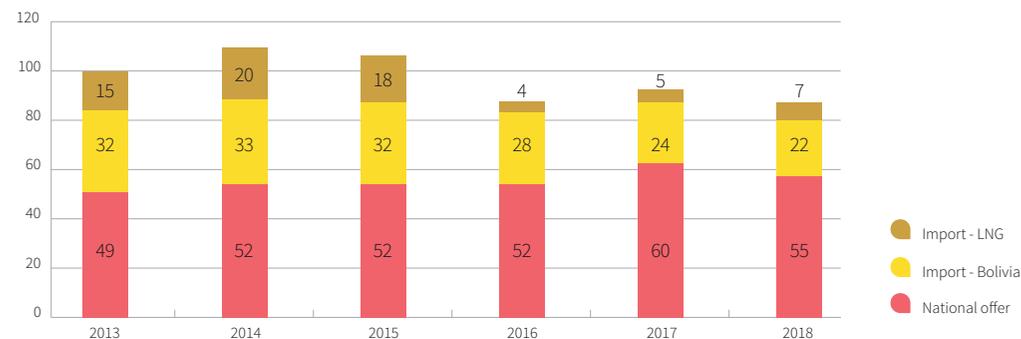


NATURAL GAS

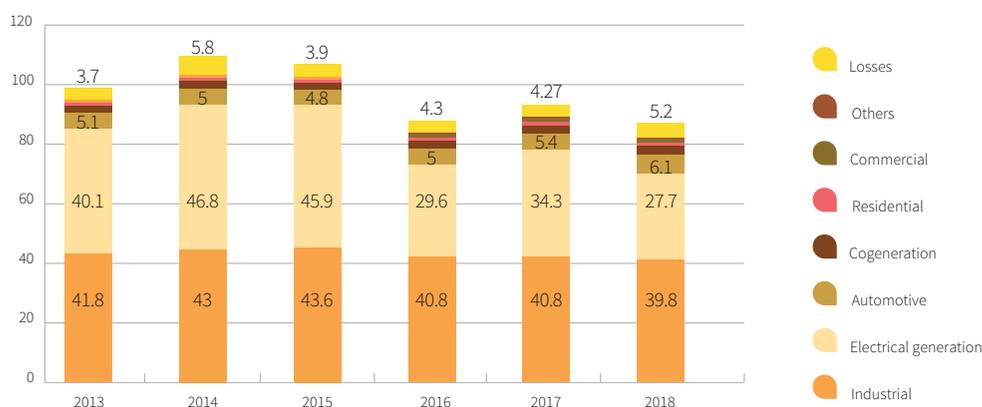
Expectation for the coming years is positive and everything points to the consolidation of a more dynamic market, with the entry of new agents and pricing and tariff transparency.

- With the expected entry of new natural gas thermoelectric plants, demand is expected to **keep growing** in the coming years, varying as the industrial activity is resumed.
- The reduction of Liquefied Natural Gas (LNG) imported in the last 3 years has resulted in **lower demand** - given that this offer is more flexible and intends to supply the consumption of thermoelectric plants.
- The expectation for the coming years is a **growing supply** of domestic natural gas, with an estimated increase of 70% in net production by 2027.
- The **thermoelectric** generation in the period from 2016 to 2018 was lower than the previous three years, due to the relative improvement in the hydro generation scenario.
- Currently, **Petrobras holds shares** in 20 of the 27 distribution utilities, in partnership with Mitsui and state governments. Several States do not yet have specific regulations, and it is still an area to be developed in the coming years.

Annual Average Supply of Natural Gas | Million m³/day



Annual Average Consumption of Natural Gas | Million of m³/day

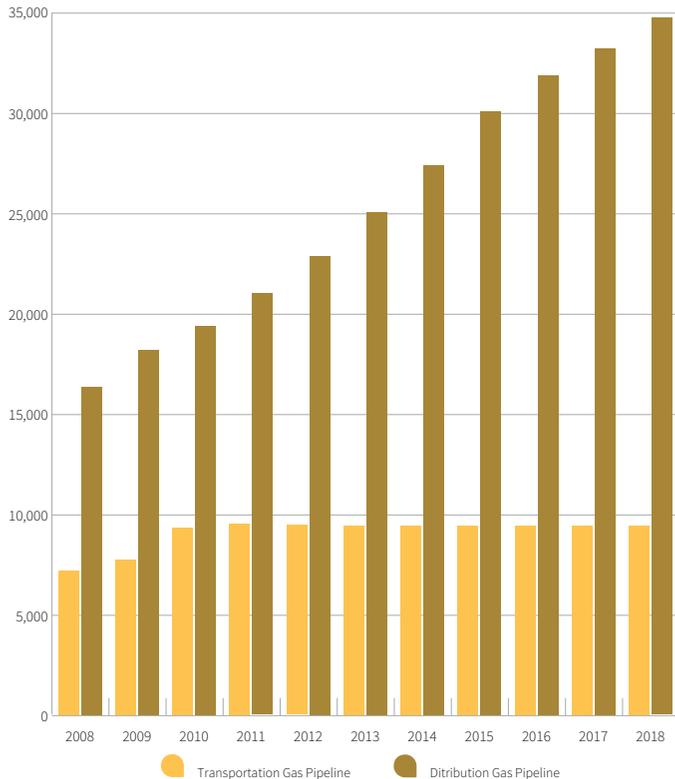


Source: MME

NATURAL GAS – PIPELINES

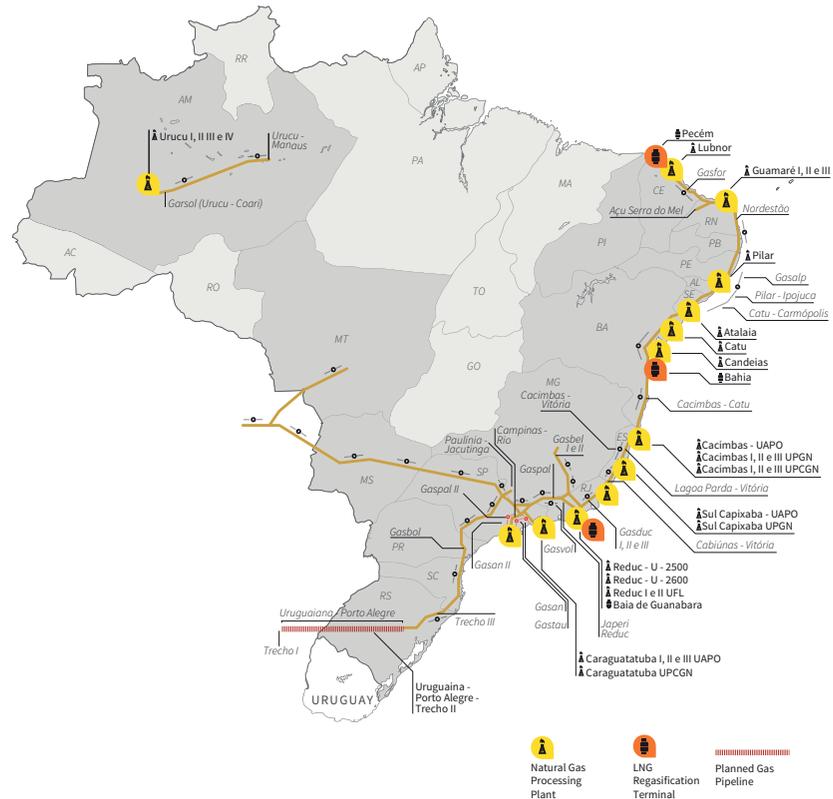
The network remains virtually stagnant, while the distribution network grows year by year, more than doubling its length since 2008.

Evolution of Natural Gas Pipelines Networks | km



Source: MME

Natural Gas Pipelines Networks



Source: ONS.

NATURAL GAS – INVESTMENT OPPORTUNITIES

According to Petrobras divestment plan, important assets of the natural gas industry have already been sold.

- In 2015, 49% of Gaspetro, a state-owned subsidiary that operates in 21 of the country's natural gas distribution companies, **was sold**. In 2016, 90% of the company's stake in the Southeast pipeline network (NTS) was sold for US\$ 5.2 billion.
- **Petrobras divestment plan** is expected to open up new opportunities at every stage of the gas value chain.
- In the **upstream**, the sale of exploration fields has the potential to increase the number of gas suppliers.
- In the **midstream**, the sale of TAG and the potential sale of the stake in TBG (Brazil-Bolivia pipeline) will change the transportation scenario.
- In the **downstream**, the company's remaining stake in Gaspetro is expected to be sold. This will enable new players to operate in gas distribution in the country.
- The **sale** of natural gas thermoelectric plants and LNG terminals is also expected, which should further limit Petrobras' share in the segment, opening up countless possibilities for investments.
- ANP's **new bidding rounds** will open opportunities for investment in new exploration and production fields. With the new regulation of the transportation segment, fresh opportunities for investments in pipelines should also arise, given the country's shortcomings in this area.

LOGISTICS AND TRANSPORTATION

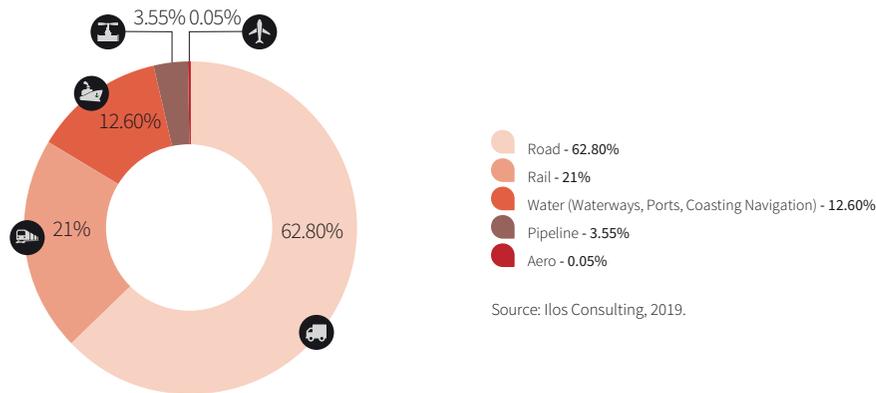
To improve the logistics performance, the government foresees investments of R\$ 132.6 billion between 2015 and 2025, moving the country to a broader and more complete transportation system.

- Brazil is a continental size country, with a **wide transportation infrastructure** that comprises highways, railways, waterways, airports and ports, as well as other modals associated with logistics, such as dry ports (inland customs stations) and waterway terminals.
- Despite the variety, the **supply** is still considered limited in relation to the country's size, GDP and population.
- The economic crisis has directly impacted the transportation sector, which received investments of only **0.5% of the GDP over the last years** - which corresponds to about one tenth of China's investments and half of Latin America's.
- To achieve a **more balanced mix** and more efficiency and competitiveness, it is imperative to invest in other kinds of modal, such as railways and waterways.
- **Planning:** To improve the logistics performance, PNL foresees investments of R\$ 132.6 billion between 2015 and 2025, moving the country to a broader and more complete transportation system.
- **Roads:** For the next few years, the Government launched an agenda of federal and state highway concessions.
- **Railways:** Brazil's continental proportions and the necessity of more expansive and well-structure railway system brings investments opportunities to the sector.
- **Airports:** There are still 44 airports under Infraero's control and all of them are expected to be granted. Investments around R\$ 8.8 billion are expected in 30 years of concession.
- **Ports:** The port sector presents numerous investment opportunities for the next 20 years with R\$ 51 billion foreseen in investments shared into public and private sectors.
- **Cabotage:** With resumption of economic growth, new centers of consumptions and production will make the scenario even more promising.
- **Waterways:** Investment opportunities in are mainly focused on the maintenance and structuring, such as construction of terminals and improvements in navigation channels.
- **Pipelines:** it represents only 3.55% of the Brazilian matrix, with a great potential for growth.

LOGISTICS AND TRANSPORTATION OVERVIEW

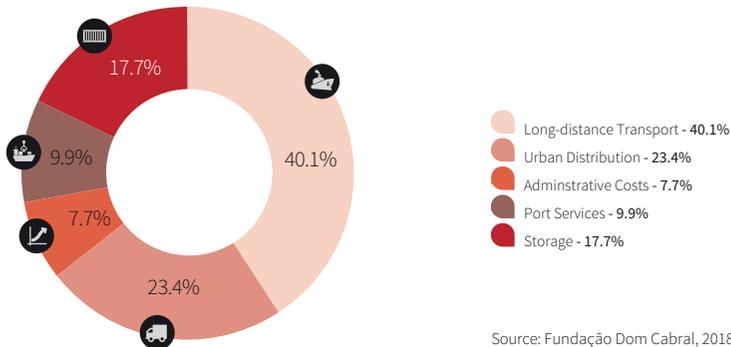
To achieve a more balanced mix and more efficiency and competitiveness, it is imperative to invest in other kinds of modal, such as railways and waterways.

Cargo Transportation Mix | 2016



Source: Ilos Consulting, 2019.

Logistics Costs of Companies | 2017



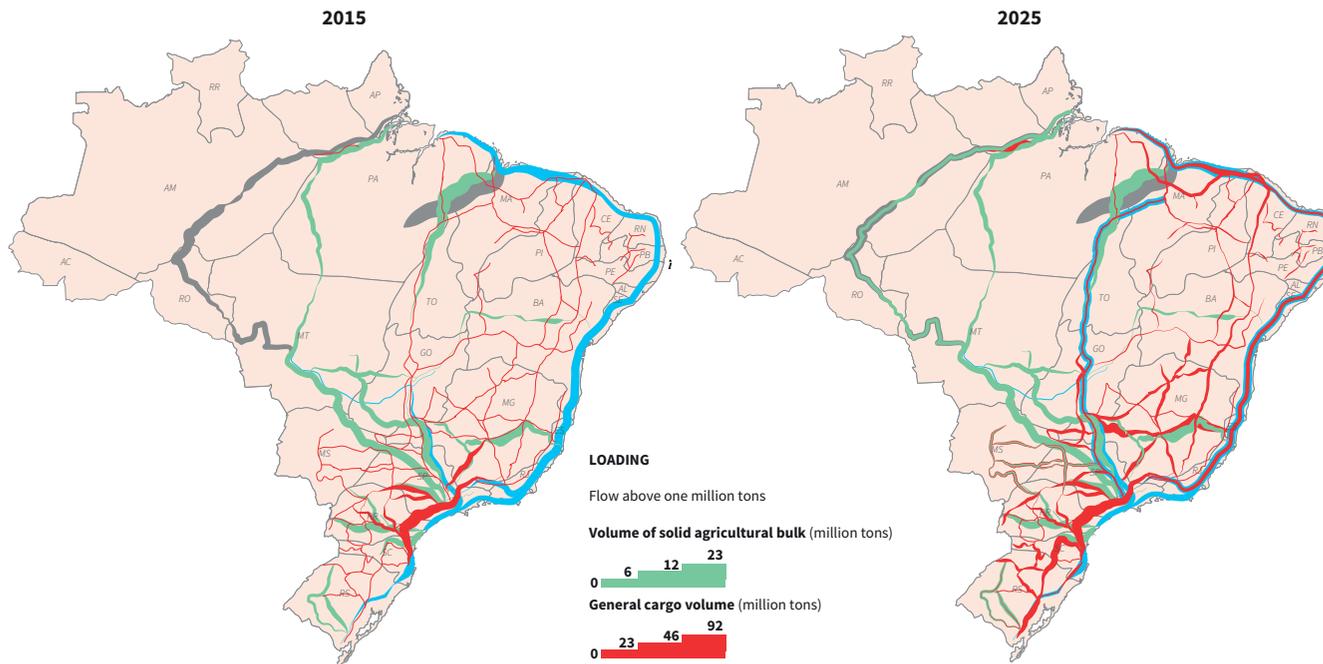
Source: Fundação Dom Cabral, 2018.

- The Brazilian transportation mix presents an **imbalance**, due to the fact that the government provided fiscal incentives for the automotive industry during the industrialization years.
- Since then, the share of **highways** in transportation has increased, making the country dependent on the road modal.
- **Planning** should also consider the integration between the systems, improving the multimodality and the inter-modality.
- With the main objective of reducing the negative impact generated by the **lack of investments** in the sector, Federal Government launched in 2016, the Investment Partnership Program (PPI), aimed at stimulating greater participation of the private sector through concessions and Public-Private Partnerships (PPP).

LOGISTICS AND TRANSPORTATION PLANNING

It covers the paving and duplication of more than 17,000 km of highways and more than 600 km of railroads. The country will move from the current transportation scenario to a broader and more complete system.

Institutional Structure



LOADING

Flow above one million tons

Volume of solid agricultural bulk (million tons)



General cargo volume (million tons)



Volume of non-agricultural solid bulk (million tons)



Volume of liquid bulk (million tons)



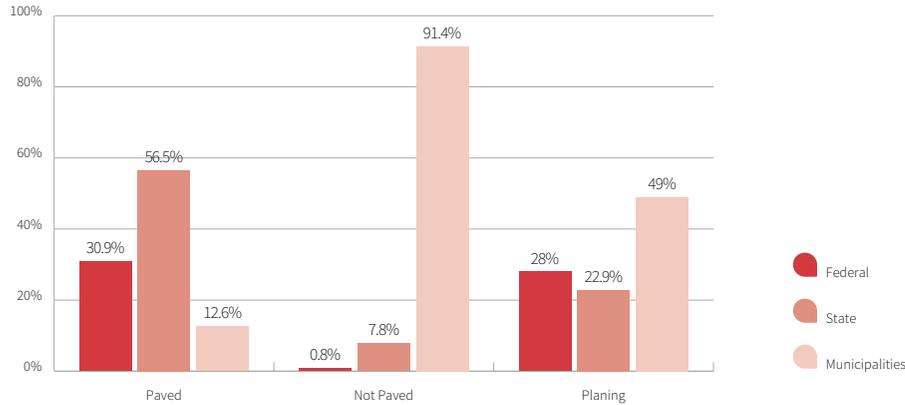
Source: ONS.

Source: Ministério da Infraestrutura

ROADS

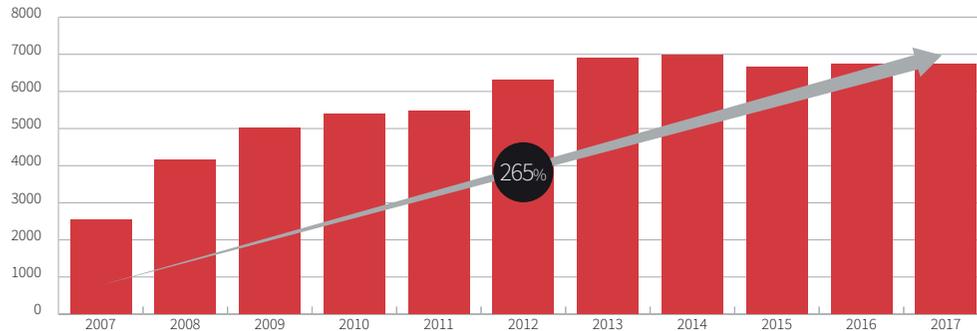
Although roads are the main means of moving cargos and people, only a small part of them, 14% is paved (213,000 km).

Paved and In Planning Roads | 2018



Source: CNT Yearbook of Transport, 2018.

Investments in Concession Highways | R\$ Million



Source: ABCR, Annual Report 2017.

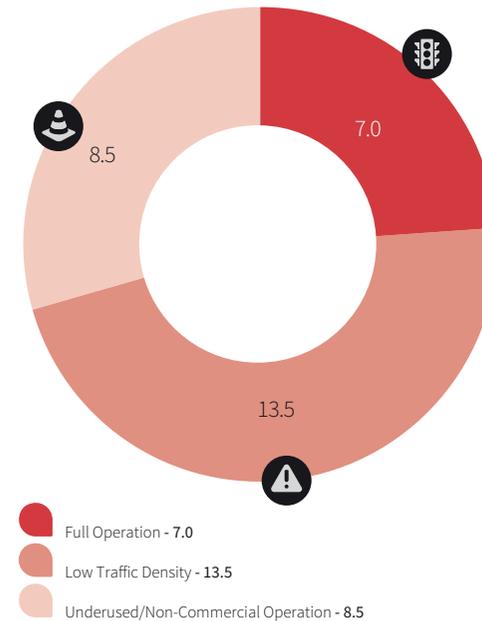
- Brazil's road network is **1,563,000 Km** long - 95% are state and municipal, and 5% federal (76,500 Km).
- The importance of this modal is due to its **capillarity** to access cities.
- There are currently 19,678 km under **private control**, which account for 9.24% of paved roads.
- The Government launched an agenda of federal and state highway **concessions**, with toll tariff as a counterpart for duplication, paving, signaling renewal, construction, among other services.

RAILWAYS

Brazil's continental proportions and the need for a of more expansive and well-structure rail system brings investment opportunities for the sector.

- The railroad cargo transport, represents only **21% of the Brazilian transportation matrix** - very far behind highways with 63%. In other continental size countries, this modal responds, on average, for 48% of the matrix.
- Brazil has the **ninth largest railway network in the world** - 29.817 km.
- Performance indicators such as **productivity** (ton/km) and network **density** (km/km²) are also much lower than in developed countries.
- The **Brazilian density** is 3.35 km/km², while the United States 22.87 km/km², and Germany 's 117.59 km/km².

Railroad Density | Thousand km

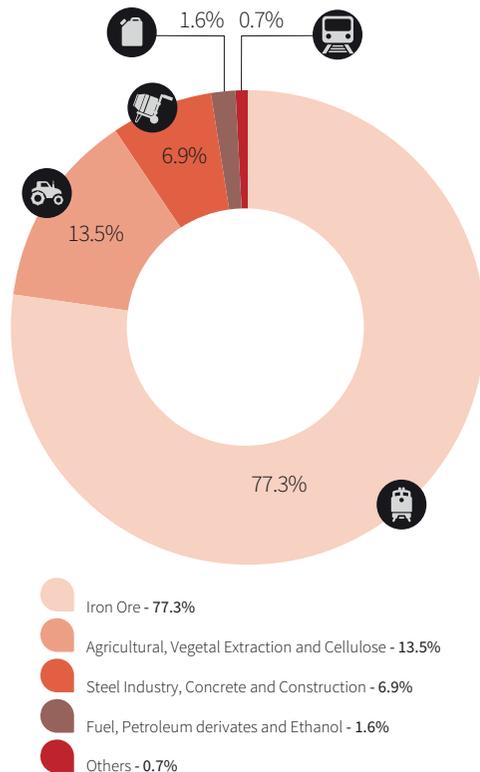


Source: : Executive Report of the NLP, 2018.

RAILWAYS

Private investments reached R\$ 5.4 billion in 2017. The amount was allocated to increase rail capacity.

Share of Cargo | 2017



Source: Logistic Bulletin 2017 / ANTT, 2018.

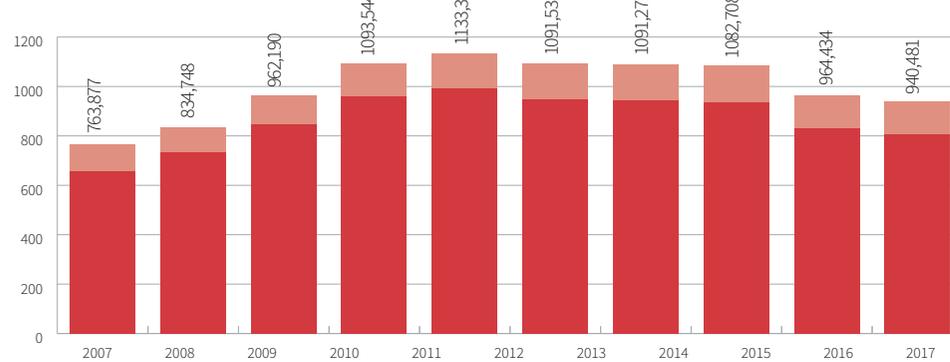
- Other **investments** were in operational items such as urban passages, facilities, control and signaling equipment, among others.
- There is a need for investments especially in the Northeast, North and Center-West, which could contribute to moving large volumes of cargo over **long distances**.
- A significant number of lines are operating at **low density** and about a quarter at **full capacity**. Part of the concession lines that are underused (8.5%) could be operated as short lines.
- The railway exploitation in Brazil is based on a regional vertical monopoly, with low **intermodal competition**.
- The main railroad **cargos** are agricultural and mining commodities.

AIRPORTS

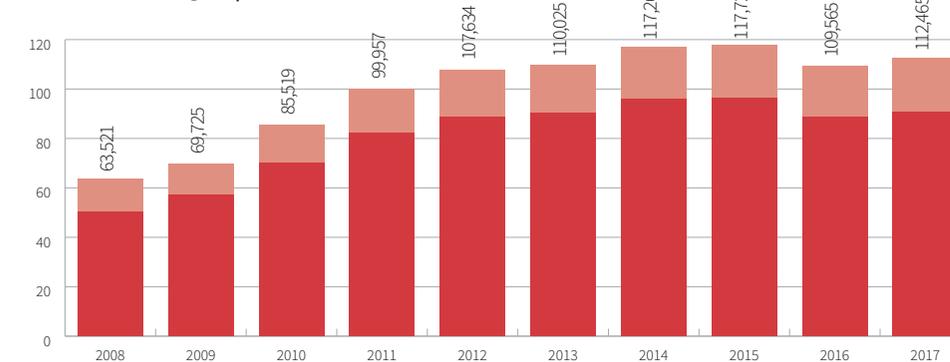
There are still 44 airports under Infraero's control and all of them are expected to be granted. Investments around R\$ 8,8 billion are expected in 30 years of concession.

- The Brazilian aviation sector operates **competitively**, with free prices.
- Over the last years, the demand for domestic and international flights has **increased by 85%**, about 49 million more passengers, and an average growth of 7% per year. Considering only domestic flights, the increase was 60%.
- The Brazilian **domestic market** shows a great growth potential. Over the last decade, the share of air transportation went from 44% to 67.5%, while the roadway share decreased from 56% to 32.5%.
- Since 2011, the air sector has undergone a structural transformation, with the grant of airport operations to the **private sector**.

Number of Flights | Thousand



Number of Passengers | Million



Source: ANAC

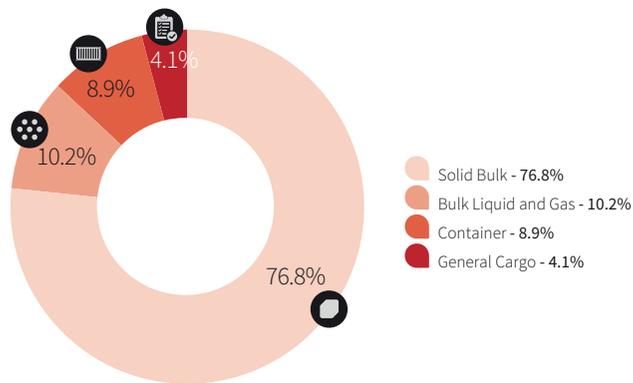
International Domestic

PORTS

It's fundamental to improve port infrastructures to achieve efficiency and competitiveness.

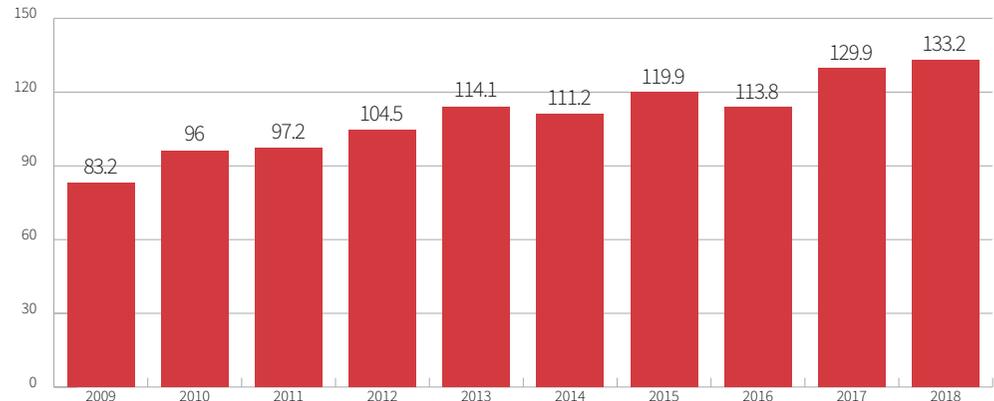
- The Brazilian port sector handled more than **1 billion** tons of goods, with a 33% growth in the last seven years. Annually, the movement of the ports corresponds to more than 80% of the country's exports.
- The Brazilian port system comprises **34 public ports**.
- The main Brazilian public port is the **Port of Santos**, the largest in Latin America, responsible for 30% of the country's exports and imports.
- The **private sector** represents a large part of the investments, being responsible for the maintenance and operation of more than 30 port terminals.
- The **resources** foreseen are for new constructions, installations, expansions, modernizations, repairs and acquisition and maintenance of equipment.
- The **PPI** presents an amount of information on the next terminals and port areas to be granted to the private sector.

Handling in Long-Distance Navigation



Source: ANTAQ, Statistical Yearbook 2018.

Port of Santos | Million Tons



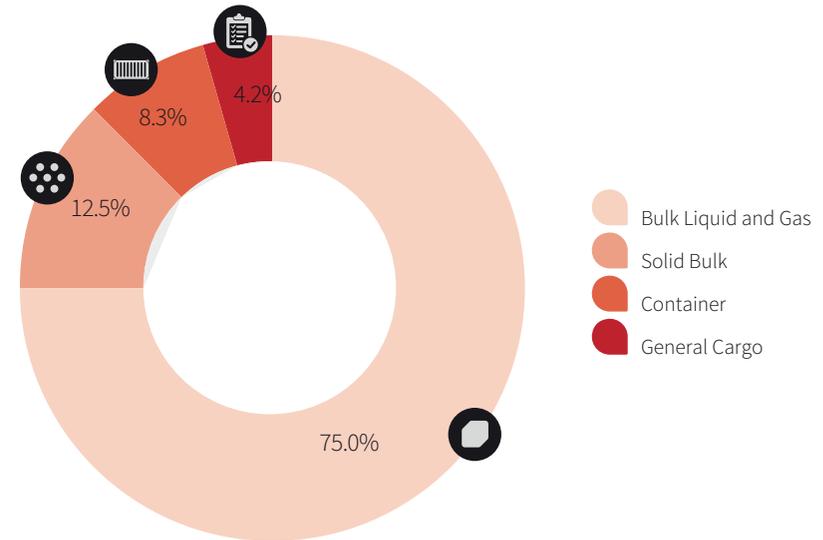
Source: CNT Yearbook of Transport, 2018.

CABOTAGE

Cabotage navigation is considered strategic and receives subsidies and market reserves all over the world.

- In Brazil it is carried out **exclusively by Brazilian companies** and between Brazilian ports, bordering the coast.
- The **trend** is towards greater use of this modal in the coming years.
- It represents approximately **22% of the interregional cargo movement**, with a **growth rate of 4%** in relation to the previous year.
- The **main cargoes transported** are fuels between refineries and production zones, ores from production zones to export terminals, grains on the South-Northeast route and containers on the Amazonas-São Paulo route.
- The lower unit cost, reduction of breakdowns, decline of accidents and road thefts, lower fuel consumption and, consequently, the diminution of CO₂ emissions are **attractive points** for the investor in the coming years.

Kind of Cargo in Cabotage Navigation

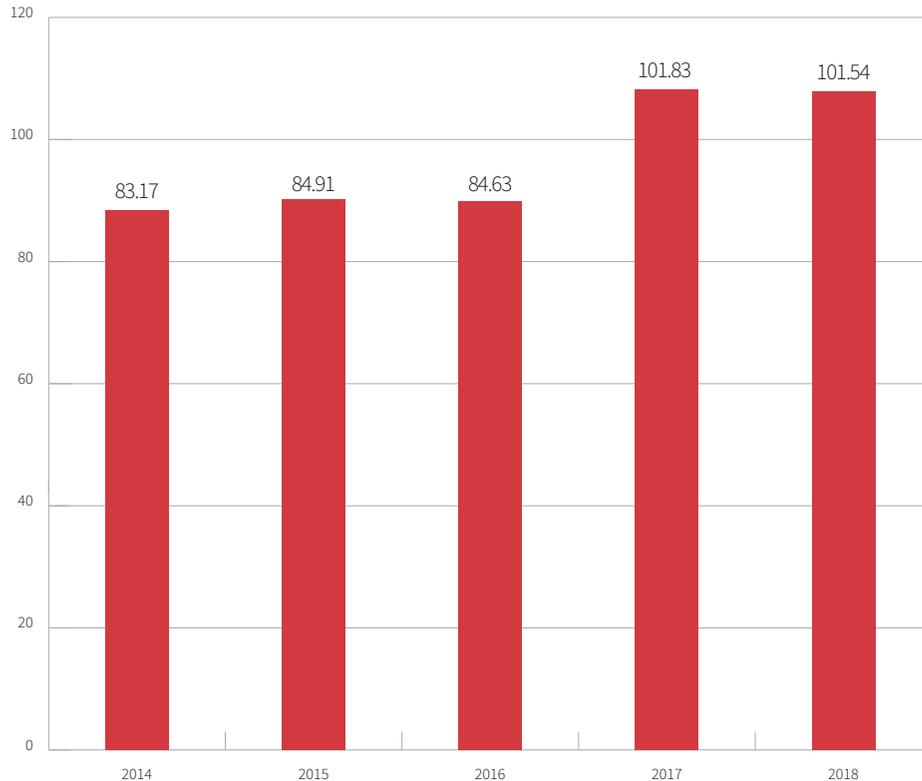


Source: ANTAQ, Statistical Yearbook 2018.

WATERWAYS

In addition to its extensive maritime coast, Brazil has 27.5 thousand km of waterways and navigable rivers.

Volume of Cargo | Million Tons



Source: ANTAQ, Statistical Yearbook 2018.

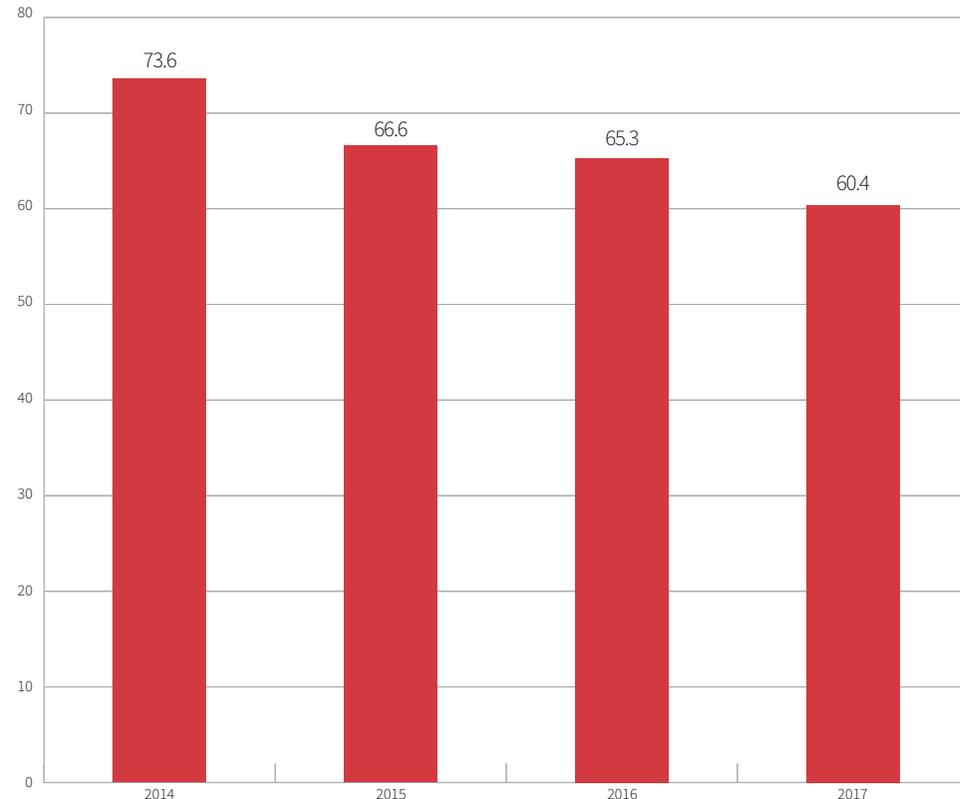
- The **potential** of this modal is not yet explored, representing only 13% of the transportation mix.
- In the last year, more than **101 million** tons were handled, with 20% growth compared to the previous year.
- The **investment opportunities** in waterways are mainly focused on the maintenance and structuring, such as construction of terminals and improvements in navigation channels. In addition, resources for the implementation and upgrading of signage, fleet, dredging and new projects. In addition, resources for the implementation and upgrading of signage, fleet, dredging and new projects.

PIPELINES

An important, albeit little exploited element, pipelines represent only 3.55% of the Brazilian matrix, with a great potential for growth.

- The **loads** are mainly fuels and ores.
- The main participation is from the state of **São Paulo**, with about 82% of the total.
- **Pipelines** are considered an advantageous and safer way to move large volumes of cargo, especially when compared to highways or railways.
- In 2017, the country moved 60.4 million m³ of fuel. Compared to 2014, there was a **drop of** almost 18% in the volume, with the most significant in 2017. That can be explained by the demand for fuel and the high prices charged to the final consumers.

Fuel Handling | Million m³ at 20°C



Source: Transpetro, EPL – Logistics Bulletin (2017)

MULTIMODALITY AND URBAN MOBILITY

MULTIMODALITY

- Multimodality, as well as inter-modality, offers cost reduction and competitiveness through the efficient combination of two or more kinds of modal.
- Brazil has huge potential for developing multimodality, due to the need of a real integration of all modals. It is necessary to connect the whole country not only through its on infrastructure but also through software development in order to achieve bureaucratic reductions and increased efficiency in the exchange of information.
- The country is already sure to move forward with the discussions that should unlock all of its potential to receive foreign investment.

URBAN MOBILITY

- Urban mobility in Brazilian cities is mainly through roads or highways. Investments are fundamental to reduce the lack of qualified infrastructure supply for the population's daily transportation.
- Only 12 Brazilian cities use rail systems for passenger movement. Just 8 cities have subway infrastructure.
- In 2019, the government launched a portfolio of projects that includes 21 municipalities and investments around R\$ 119 million by 2022. The opportunities are to expand the medium and high capacity transportation supply, paving of urban roads, shelters for public transportation users, accessibility, bicycle paths and new studies and projects.

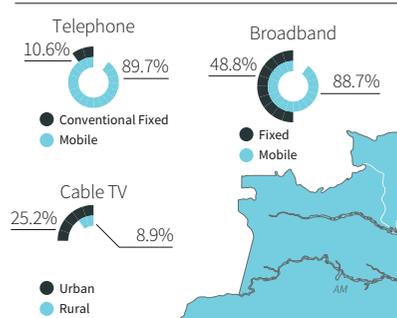
TELECOMMUNICATIONS

- The average **fixed internet speed** is around 25 Mbps for download and 12 Mbps for upload.
- Regarding **mobile internet**, the average access speed is 20 Mbps for download and 8 Mbps for upload.
- Brazil needs investments of around **R\$ 200 billion** in infrastructure (fixed/mobile) - over the next 10 years - to reach 90% of the population, providing high access speed (over 100 Mbps), and optical fiber (FTTH - Fiber To The Home).
- **Fixed Telephony:** The service is present in all Brazilian municipalities and available to the entire population. There has been significant progress after privatization. One of the causes of its stability over the years is the migration to mobile cellphones.
- **Mobile:** Cellphones are highly accepted by the population and had an accelerated growth, with significant investments in the country.
- **Mobile Internet:** Mobile data traffic is expected to grow in the country at an annual average rate of 41%.
- **Fixed Internet:** The fixed internet has a relevant growth rate, but its penetration is still relatively low, despite the consistent evolution of accesses.
- **Cable TV:** The number of clients has dramatically declined in recent years, with a trend to continue decreasing. The market is concentrated in four operators, which together account for 97% of the share.
- **Defense and Strategic Communications Satellite** – The first Brazilian geostationary satellite for civil and military use was launched in 2017. Its commercial exploitation to offer low-cost broadband services has not begun yet, and it will serve more than 50 thousand locations, distributed among more than 4 thousand Brazilian municipalities.
- **Investment opportunities** are unlimited due to many Brazilians, companies and industries still do not have top quality services and, in some cases, have no connectivity.
- Telecommunications networks, especially in unattended areas, **lack investments** in both fixed and mobile broadband and satellite networks.

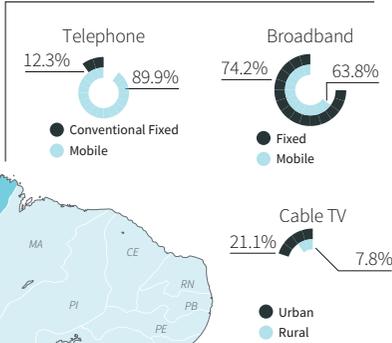
TELECOMMUNICATIONS OVERVIEW

Index of use of telecommunications services in Brazilian households by region.

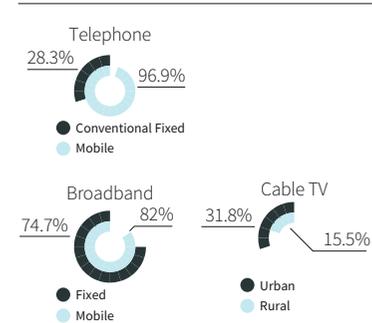
North



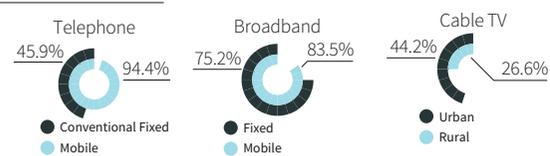
Northeast



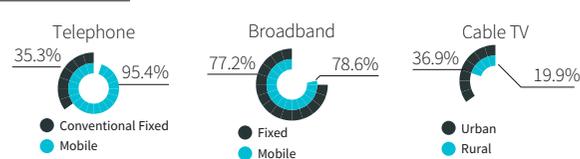
Midwest



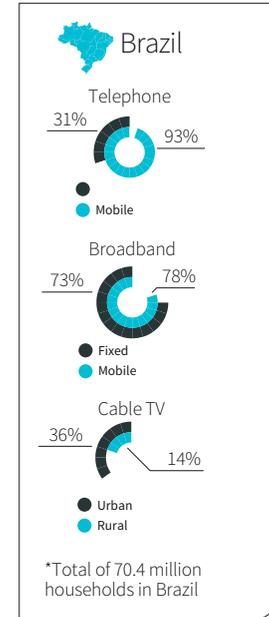
Southeast



South



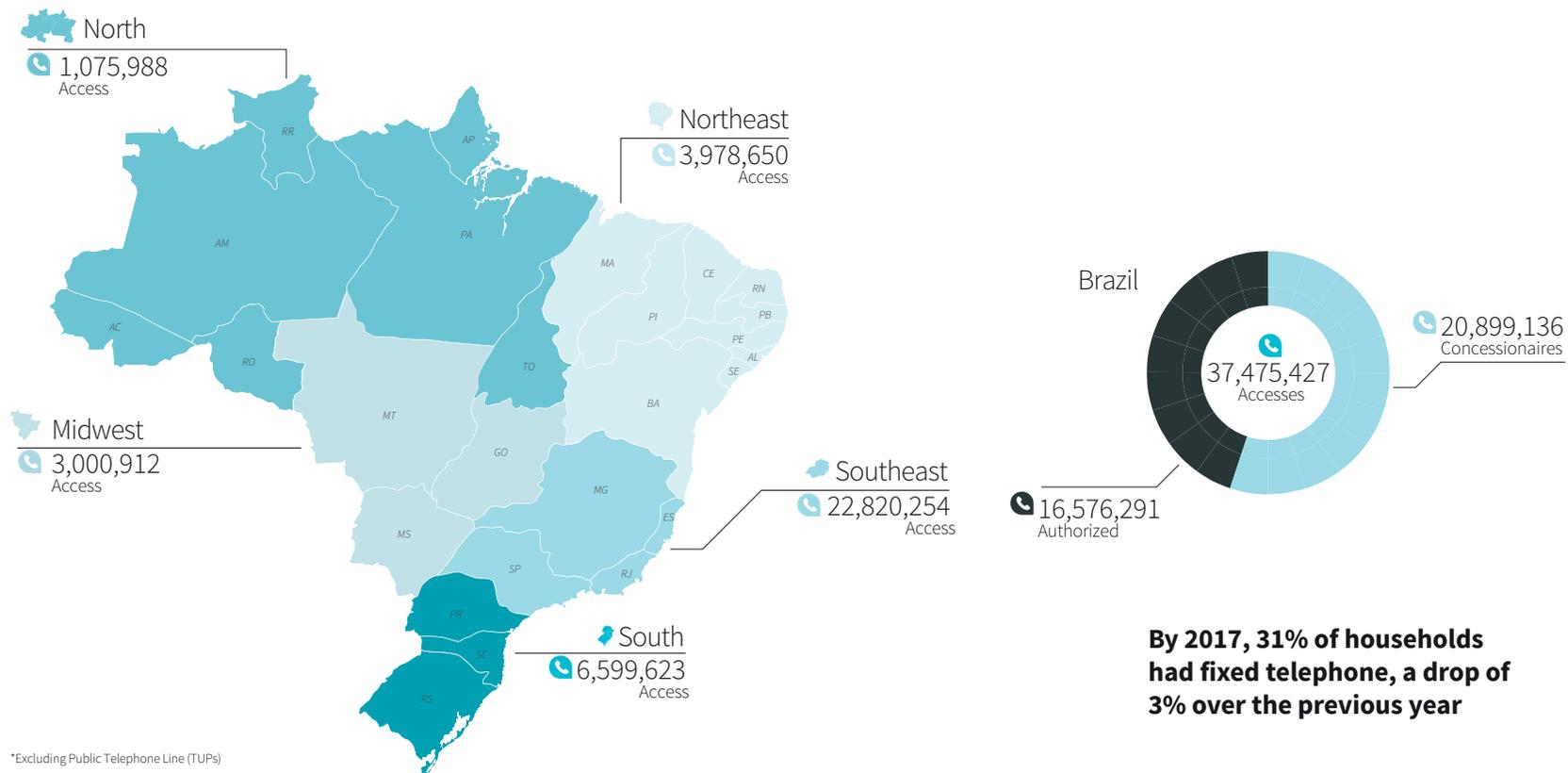
Source: PNAD TIC 2017.



FIXED TELEPHONY

Industry is experiencing a technological transition, where the demand for data has exceeded voice communications.

Accesses by Region* (Dec./2018)



By 2017, 31% of households had fixed telephone, a drop of 3% over the previous year

*Excluding Public Telephone Line (TUPs)

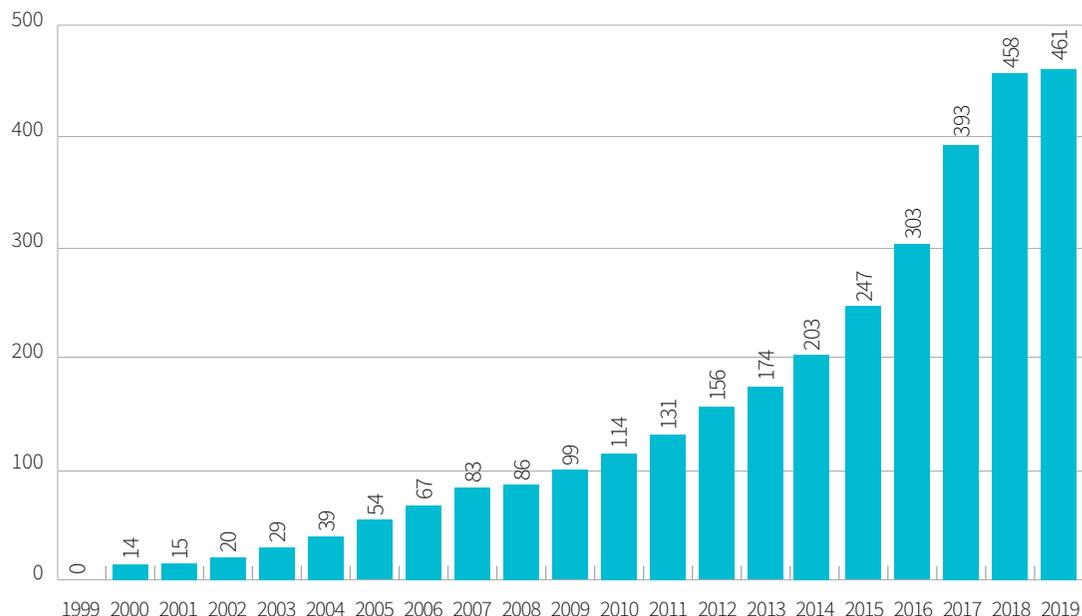
Source: Anatel, Teleco, Sinditelebrasil

FIXED TELEPHONY - CONCESSIONS AND AUTHORIZATIONS

Currently, 70 concession contracts are in force, of which 34 are local, 35 national long distance and 1 international long distance, signed in 1998, ending in 2025.

Region of the concessionaires	
Concessionaires	State/Regions
Oi	Except for the State of São Paulo (Regions I and II)
Telefonica	Only the State of São Paulo (Region III)
Algar Telecom	Triângulo Mineiro (area in the state of Minas Gerais), some municipalities of GO, SP and MS (Regions I, II and III)
Copel / Sercomtel	Paraná inland (Region II)
Embratel	Long distance across Brazil

Authorization

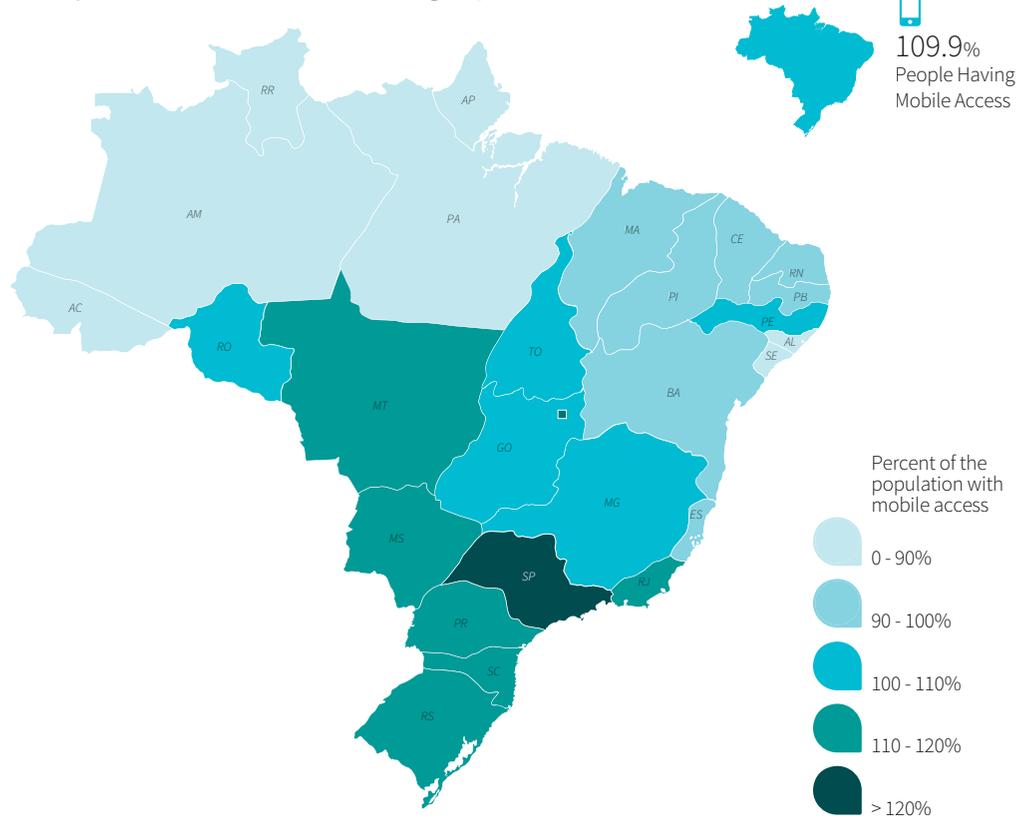


Source: Oi, Telefonica, AlgarTelecom, Copel Telecom, Sercomtel, Embratel, Teleco and Anatel.

MOBILE

Currently, the country has a density of 109 cellphones per 100 inhabitants.

Density of Mobile Access (100-inhabitant group)



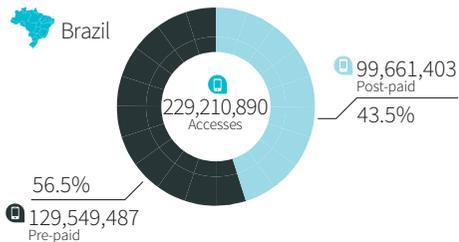
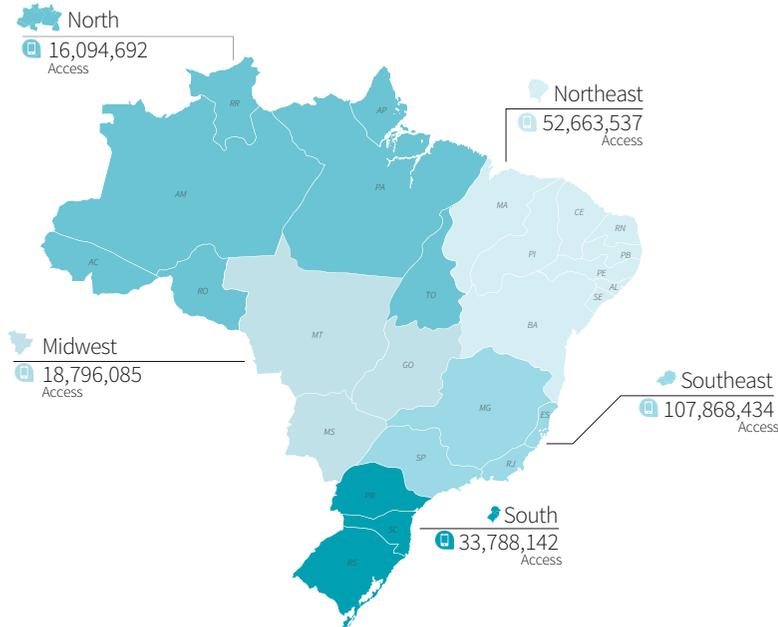
Mobile Access by Technology | 2018

Technology Generation	Technologies	Mobile accesses by technology (in thousands)
1G	AMPS (Analogal)	0
2G	GSM, Data, Data up to 256 kbps, CDMA, TDMA, CDMA2000	24,850
3G	WCDMA, Data > 256kbps, Broadband data	54,729
4G	LTE	129,842
M2M5	Standard M2M, Special M2M	19,790

Source: Anatel, Teleco and Sinditebrasil

MOBILE INTERNET

Mobile data traffic is expected to grow in the country at an annual average rate of 41%.



Users by technology 2018	
Technology/Service Generation	Users (in thousands)
4G (LTE)	129,842
3G (WCDMA)	52,371
Broadband Data Terminal	2,358

- As for mobile telephony, the mobile internet service is provided through a Personal Mobile Service (SMP) authorization, through a bidding process.

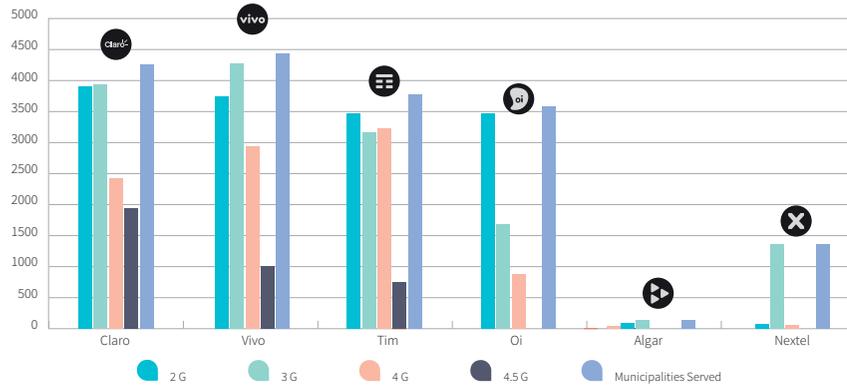
Technologies and the need for Antennas		
Technology	Number of antennas	Applications
2G	X	Voice and SMS
3G	1.5X	Voice and data
4G	3.0X	Video and Streaming
5G	10 to 15X	IoT, standalone cars, health monitoring, industrial applications

- Brazil has about 93 thousand antennas. In the city of São Paulo, for example, there are about 5,600 towers and an average of 6,800 antennas (an average of 3,400 users/antenna).

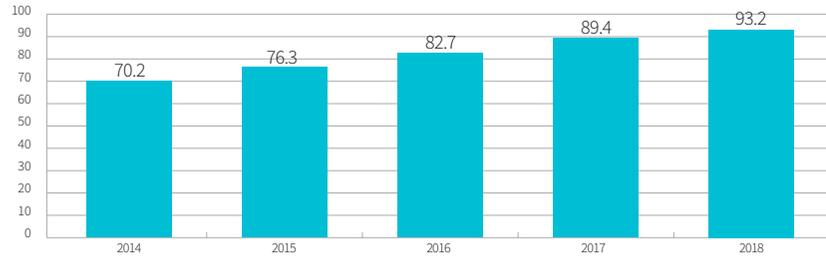
FIXED INTERNET

The fixed internet has a relevant growth rate, but its penetration is still relatively low, despite the consistent evolution of accesses.

Municipalities by Operator and Technology

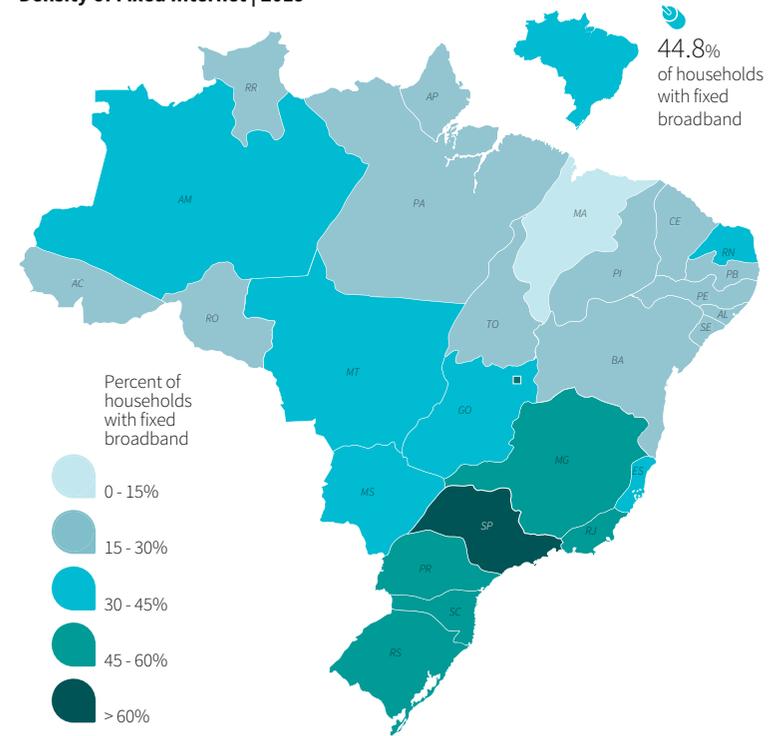


Number of Antennas in Brazil | Thousand



Source: Anatel and Teleco

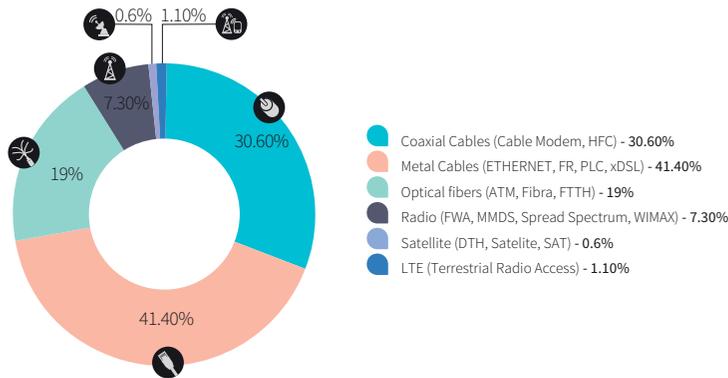
Density of Fixed Internet | 2019



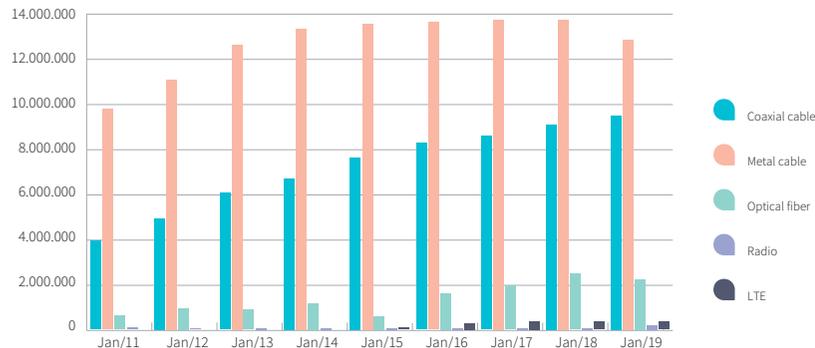
FIXED INTERNET

The country ended 2018 with 31.1 million active fixed broadband contracts, a growth of 6.1% (1.8 million subscribers) over the previous year.

Accesses by Technology | 2019



Access Evolution | 2019



Source: Anatel.

REGIONAL ACCESS PROVIDERS

- Ranked as small providers, regional access providers collaborate with the government's promise to universalize the internet.
- Together, they are the 3rd. largest fixed broadband provider in the country.
- They are in small cities and inland locations, moving from residential to corporate market, offering value-added services.
- They are responsible for about 70% of the new accesses and rely on a base of 7.4 million active contracts, which means a growth of 28.5% (1.6 million subscribers) over the previous year.

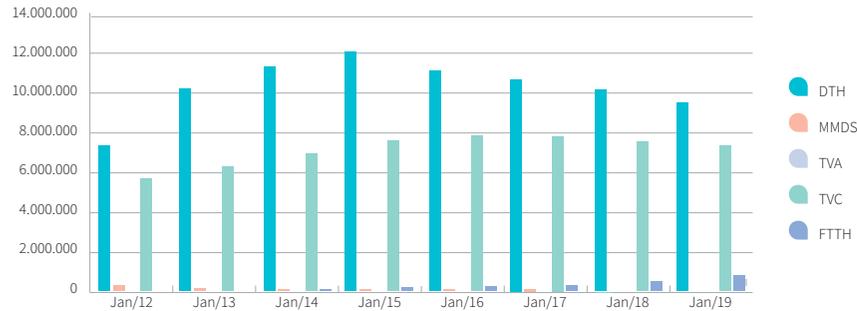
UNIVERSALIZATION PLAN

- Currently, the government works on the National Plan for Connectivity (PNC), which priority is to deploy 3G or higher in remote regions and 4G in all municipalities.
- The government's major challenge is funding to meet these goals.

CABLE TV

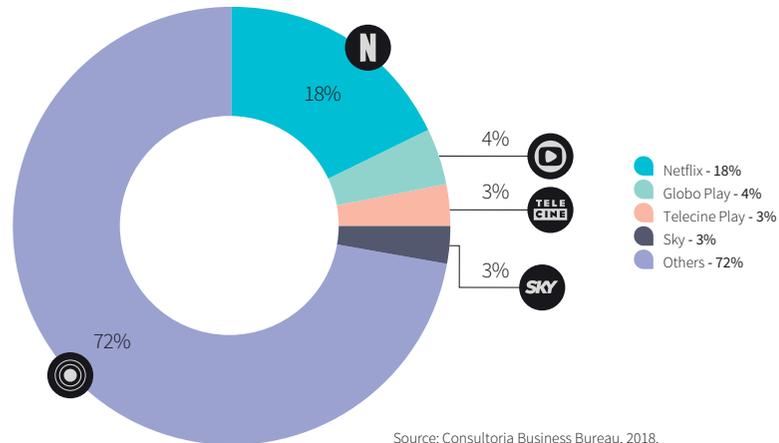
The number of clients has dramatically declined in recent years, with a trend to continue decreasing.

Accesses per Technology | Millions



Source: Anatel.

Market Share | 2019

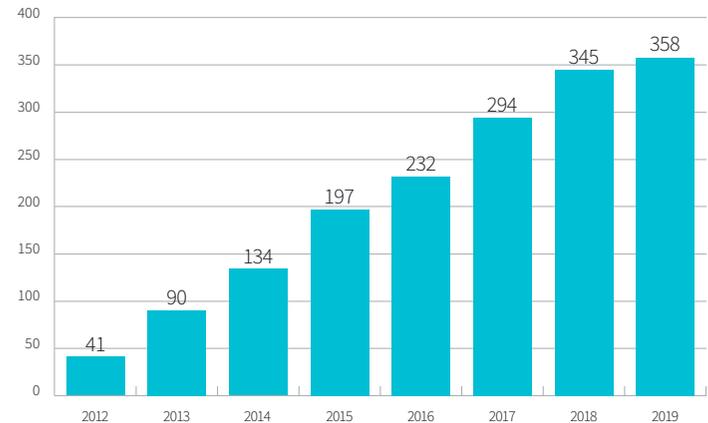


Source: Consultoria Business Bureau, 2018.

Cable TV Access by Region | 2019

Region	Accesses
North	792,997
Northeast	2,124,809
Southeast	10,588,900
South	2,714,338
Midwest	1,239,928
Brazil	17,460,972

Number of SeAC* Providers



*SeAC: Conditioned Access Service
Source: Teleco.

BUSINESS OPPORTUNITIES

Telecommunications networks, especially in areas not yet covered, lack investments in both fixed and mobile broadband and satellite networks.

- The increased speed, increased demand for streaming, Big Data and corporate software are areas that already request **more infrastructure** and, although there are many data centers in Brazil, the network is smaller than in developed countries.
- **Data infrastructure model** is evolving from the content in another country to a **modal closer to the final** user, i.e. with fiber-in-residence and Content Delivery Network (CDN's), reducing costs and helping the international band traffic.
- The **Internet of Things - IoT** is already a reality in the country and has been contributing not only to urban planning but also to industries, commerce and residences, **optimizing costs and operations**.
- The arrival of **5G technology** is already a reality in some countries and is expected to be in use in Brazil by middle of 2022. The **need for towers, poles, antennas, radios and optical fiber will attract investments** from not only operators, but also from equipment and services companies.
- The vision of the future is essential to emphasize the importance that public lighting poles will have. The **modernization of the city's public lighting network** should attract investments not only from operators but also to Smart Grids in the energy industry, traffic control and public safety, among others, allowing a **more efficient and intelligent information and actions management**.
- The potential for adoption of **digital technologies** may reach about **US\$ 200 billion by 2025**. If the use of the IoT in the industry, is taken into account, the amount may reach US\$ 11 to 45 billion, divided into health: US\$ 5 to 39 billion, towns: US\$ 13 to 27 billion, and inland cities: US\$ 5 to 21 billion. In addition, IoT diffusion might create from **830 thousand to 1.16 million new jobs**, leading to a growth of 2% in GDP, representing an addition of about **R\$ 122 billion by 2025**.

SANITATION

Improving the sanitation in Brazil is an urgent task.

- Sanitation is the **most lagged** infrastructure sector with vast investment opportunities. Almost 100% of Brazilian households have electricity; there are more cell lines than citizens, but sanitation services have not yet reached all Brazilian households.
- According to the World Health Organization (WHO), every dollar invested in sanitation results in **savings** of US\$ 4.3 in health.
- **PLANSAB**, launched in 2013, establishes the plan for universalization of sanitation services covering a period of 20 years (2014 to 2033).
- In recent years, the sector has observed a consistent growth in concession contracts - promoted directly by the municipalities or by **Public-Private Partnerships**.
- The **universalization** of sanitation services is a primary issue and there are uncountable opportunities in the sector.
- Given the scarcity of funds of some municipalities, and the need for investments of around **R\$ 20 billion per year**, the participation of private capital is crucial.

WATER SUPPLY

- It is the most developed indicator. Even so, almost **35 million Brazilians (16.5% of the population) don't have water supply**.
- The North region has the worst service, while the Southeast has the best.
- **Brazilian operators lose**, on average, **38.8% of the produced water**. In some States, this number exceeds 70%.

URBAN CLEANING AND URBAN SOLID WASTE MANAGEMENT

- **91% of the urban waste** generated (**78.4 million tons**) is collected, which means that **7 million tons are not collected** and, consequently, have an improper destination.

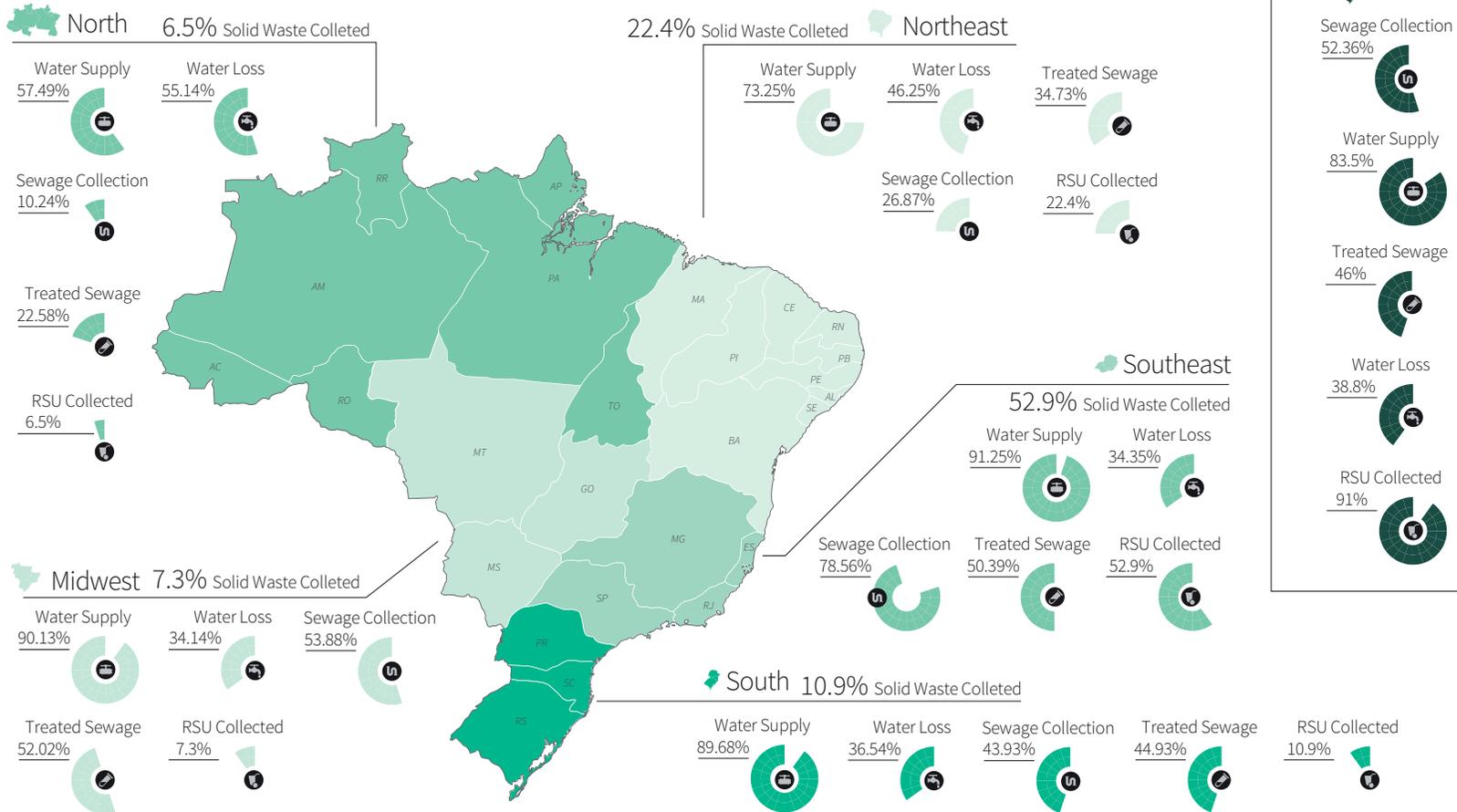
SEWAGE COLLECTION AND TREATMENT

- The **North and Southeast** regions have **the worst and the best** indicators, respectively.
- **52.36% of the population has the sewage collected**, which means that almost **100 million Brazilians have no access** to this service.
- Barely **46% of the total sewage** produced is treated. The **Northern region** is the one with the **lowest** index (only **23%**), while the **Midwest region** is the one with the **highest** treatment rate (**52%**).

URBAN DRAINAGE AND HANDLING OF RAINWATER

- Due to the disorderly growth of cities, **flooding and overflow** are common. Part of the problem is the soil waterproofing, which does not support the water load in rainy periods.
- Between 2012 and 2017, **51% of the municipalities had floods or overflows**.

SANITATION OVERVIEW



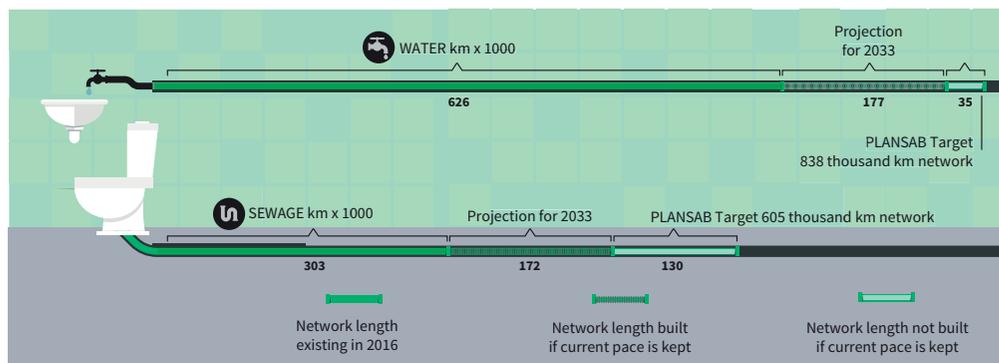
Source: Overview of Solid Waste in Brazil 2017 ABRELPE

SANITATION PLAN

The Brazilian Sanitation Plan - PLANSAB, launched in 2013, establishes the plan for universalization of sanitation services covering a period of 20 years (2014 to 2033).

- In order to **universalize** sanitation services, investments in the order of R\$ 508 billion would be required in the period between 2014 and 2033 - Federal Agents (59%); other agents (41%).
- Contemplating the **investments** since the inception of the Plan - an average of R\$ 10 billion/year - the amount already reaches R\$ 420 billion, updated by inflation.
- In other words, **R\$ 20 billion** per year must be invested to secure the universalization of services by 2033 - not taking into account the investments to increase water security and upgrade the network.
- If nothing changes, with the current level of investment, the universalization will only be achieved by **2059**.
- **Municipal Plans** are mandatory and must provide diagnoses to reach universalization. According to IBGE 41.5% have a defined plan, 31.3% don't have a defined plan and 27.1% have a plan in progress.

Water distribution and sewage collection NETWORK LENGTH vs. PLANSAB Target (km x 1000)



Source: Abcon, 2018

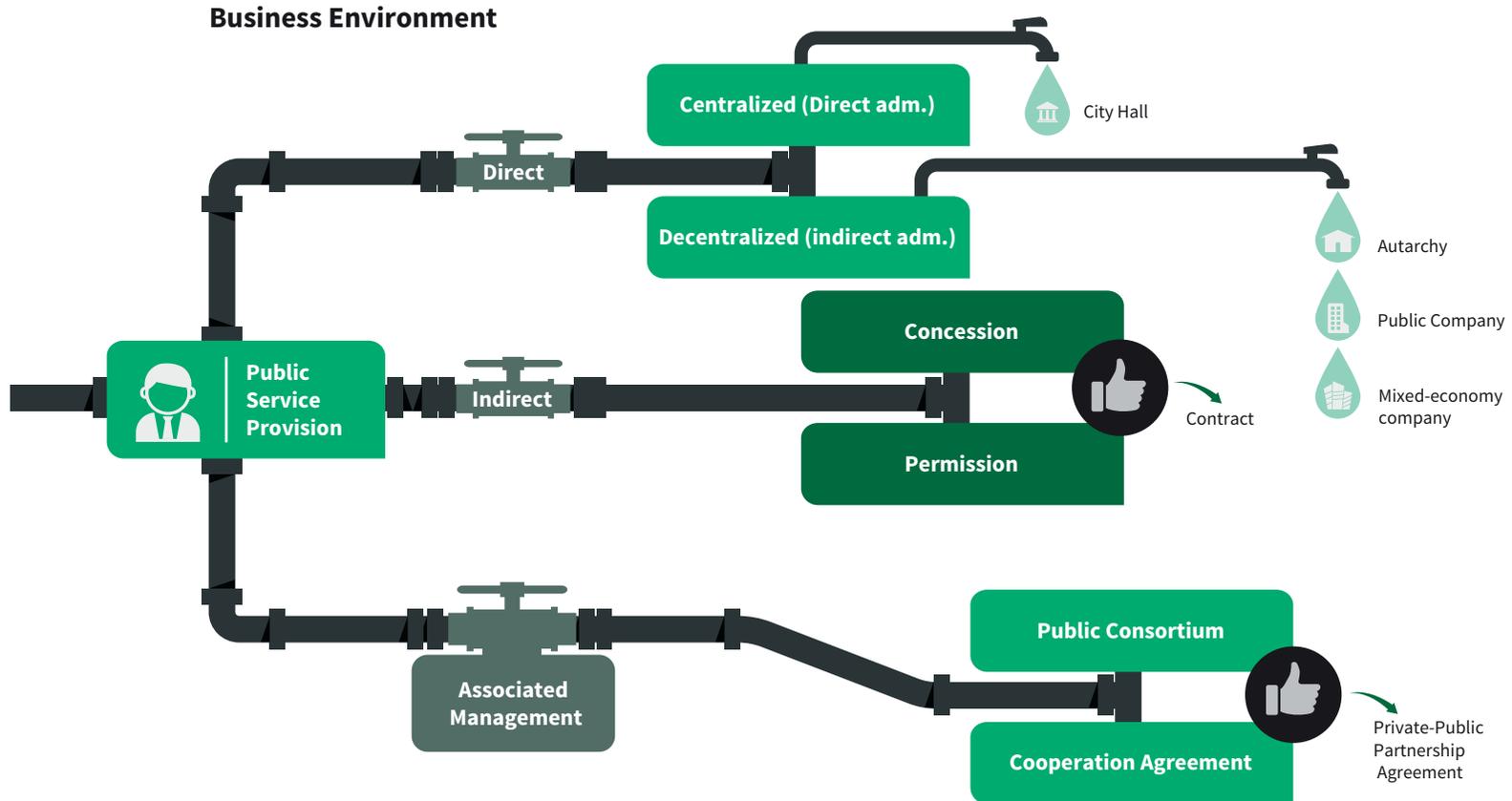
Investments in the Basic Sanitation



Source: SNIS

SANITATION BUSINESS ENVIRONMENT

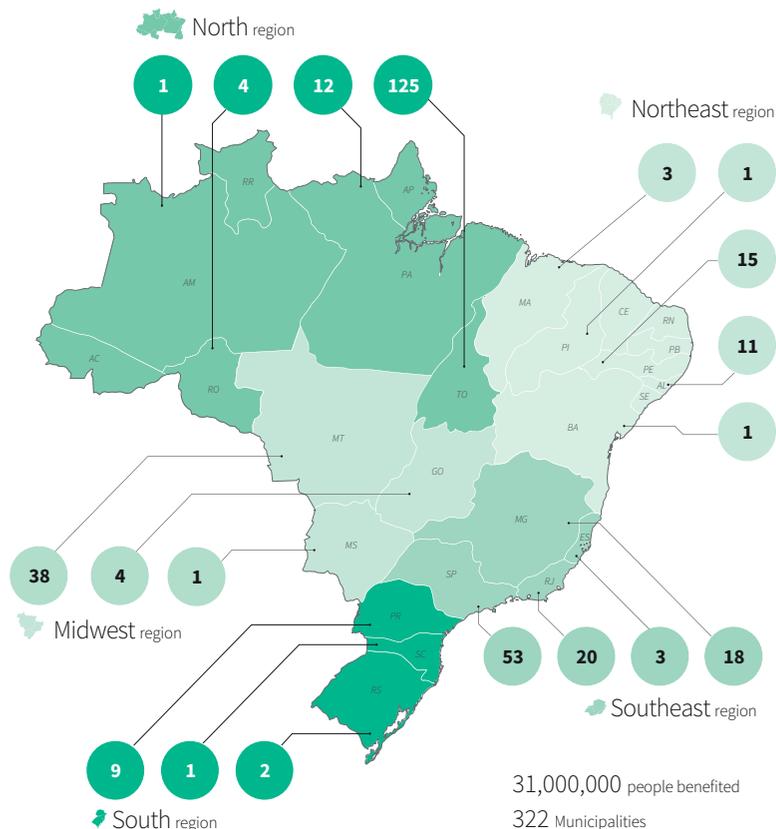
Public service provision can be direct, indirect or associated management.



SANITATION BUSINESS ENVIRONMENT

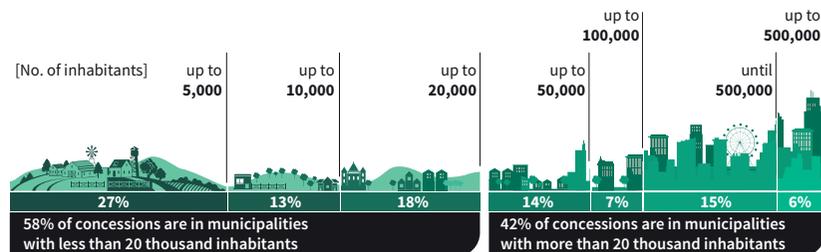
In recent years, the sector has observed a consistent growth in concession contracts - promoted directly by the municipalities or by Public-Private Partnerships.

Presence of Private Initiative in Municipalities



- Currently, only **322 municipalities** or 6% of the total are served by private companies.
- Despite the small market share, the **private sector** already accounts for 20% of the investments.
- There are **266 contracts** of different modalities - R\$ 37.6 billion in committed investments and R\$ 13.3 billion have already been performed.

Municipalities with a Share of the Private Segment*



*The aggregated population was considered for agreements involving two or more municipalities.

Source: SPRS 2018

BUSINESS OPPORTUNITIES

The universalization of sanitation services is a primary issue and there are uncountable opportunities in the sector.

- Given the **scarcity of funds** of some municipalities, and the need for investments of around R\$ 20 billion per year, the participation of private capital is crucial.
- With management capacity and access to modern technologies, the private initiative must be responsible for reducing operational costs and **gaining efficiency**.
- **Private investment** has the potential to serve 30% of municipalities over the next ten years.
- Recently, public entities have engaged in several studies on the growth and the improvement of the sanitation, so **new PPPs** are certain to materialize.
- Investing in **technical training** will help Brazil take a qualitative and innovative leap in its service levels.
- Most sanitation operators Suffer from high **operational inefficiency**, the sector would have much to gain by investing in efficiency.
- Investing in **desalination plants** is another option for coastal municipalities, as well as reuse water, which can be used for irrigation or served without risks to the population.
- Others investments such as investing in **capturing methane from landfills** or **waste-to-energy plants**.
- Investing in technology, such as **artificial intelligence, Big Data** and **smart hydrometers** would help Brazil to ensure availability and sustainable management of water and sanitation for all.

MINING

- The metals market is expected to remain **stable** in 2019, given that the market expectation is maintenance in the supply and demand balance of each of the commodities.
- World iron ore **production** has been growing yearly, driven by rising exports. Following the global trend, the Brazilian production of iron ore, the main mining product extracted in the country, has also been growing annually.
- Data released by U.S. and Chinese economies, the **world's largest** importer of iron ore, accounting for more than half of all iron ore imports from the planet, signal a slowdown in the global economy.
- Increase in iron ore inventory in China, indicates a **refueling** movement with a threat of a decrease in supply due to the adequacy of Vale's production.
- Some factors such as the Brumadinho disaster, Vale's decision to reduce iron ore production by **10%** and the threat of a slowdown in the global economy has been pushing iron ore prices.
- Recent years results from the world's leading mining companies have shown consistent results in terms of **market performance** and operational improvements.
- The main mining **companies** have an integrated logistics infrastructure that allows an improvement of the competitiveness and optimization of the margins, as is the case of the Brazilian company Vale.
- Mining companies to resume investment strategy in 2019, focusing on portfolio **diversification**.
- Expectation of **industry growth** and appetite for financing new projects should be the main drivers for new emissions in 2019.

METALS PRICE INDEX

The metals market is expected to remain stable in 2019, given that the market expectation is maintenance in the supply and demand balance of each of the commodities.

Bloomberg Base and Precious Metals Price Commodity Index



Source: Bloomberg.

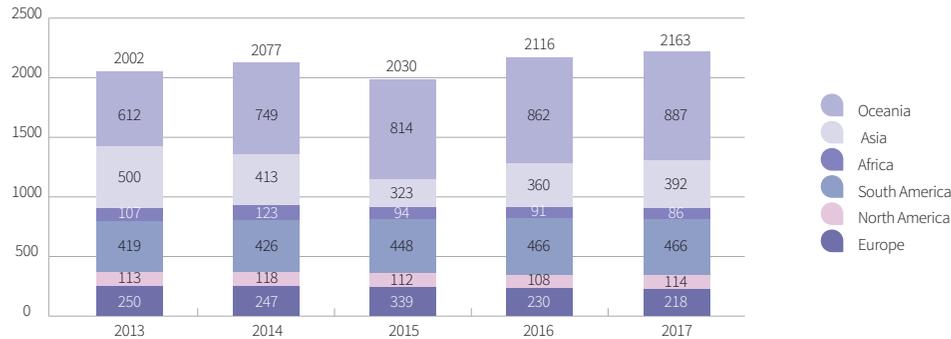
● Base ● Precious

- Some key factors can impact the market for base metals such as:
 - Deceleration of the global economy, decreasing demand for base metals
 - Trade tensions between countries
- Positive Outlook for the Precious Metals Market in 2019, with:
 - Expectation of dollar weakening
 - Continues demand from Central Banks

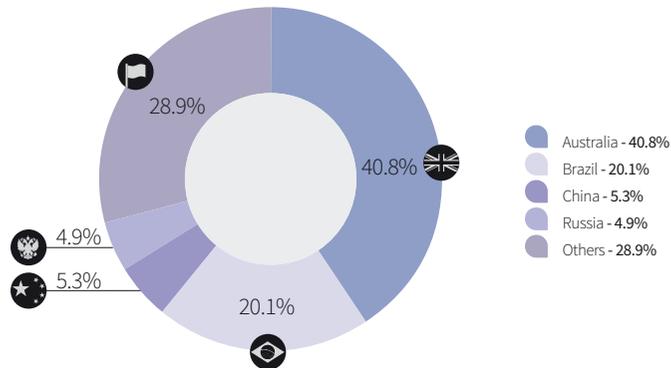
IRON ORE - GLOBAL

Global iron ore production, mainly concentrated in Brazil and Australia, has grown over the last 5 years at a average rate of 2% per year...

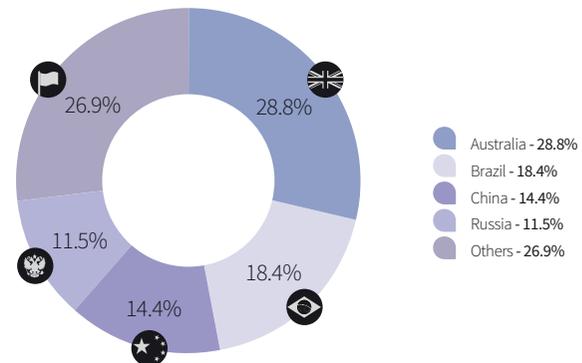
World Production | Million Ton



Participation of Major Producer Countries



Main Iron Ore Reserves in the World

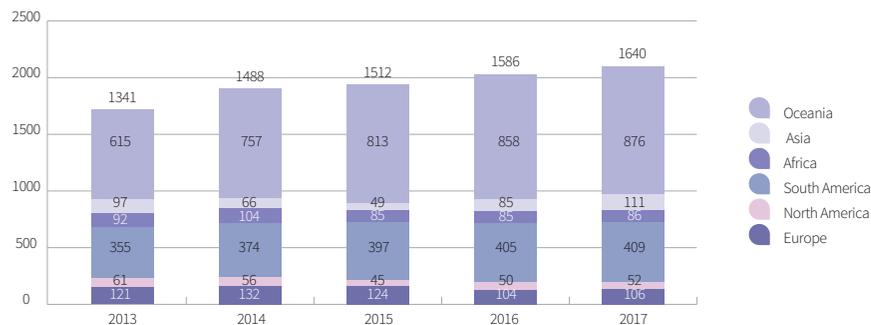


Source: World Steel.

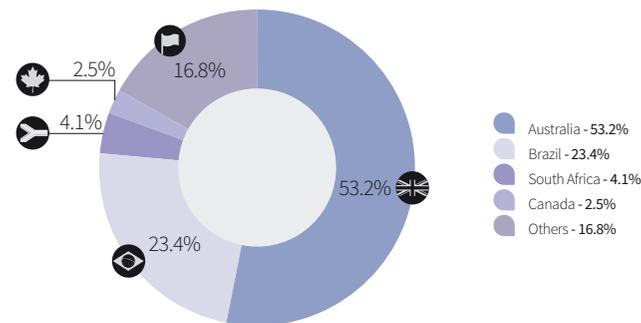
EXPORTS AND IMPORTS OF IRON ORE - GLOBAL

...driven mainly by Chinese demand, today the largest importer of iron ore on the planet, Brazil being the second largest exporter.

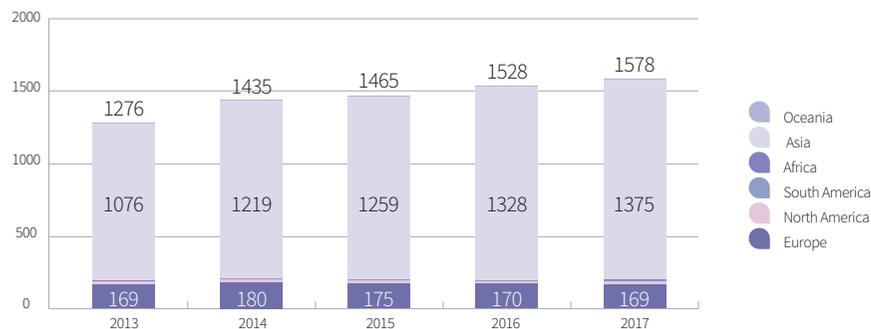
World Export | Million Ton



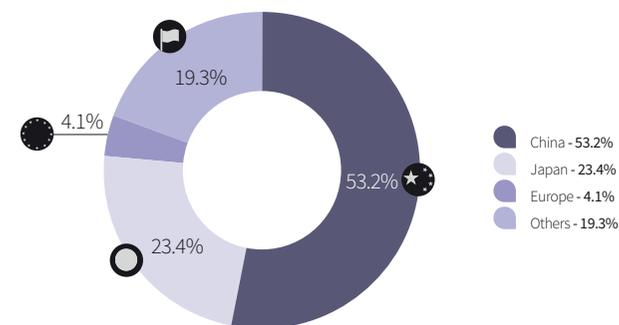
Participation of Major Exporting Countries



World Import | Million Ton



Participation of Major Importing Countries

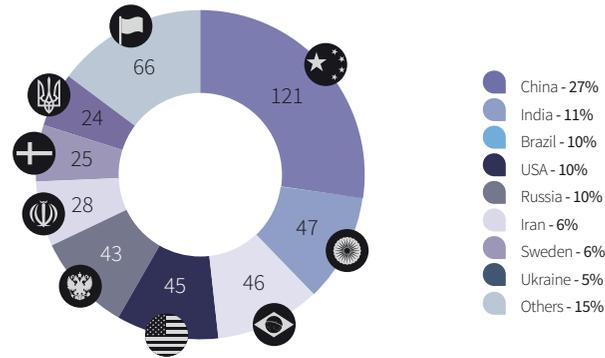


Source: World Steel.

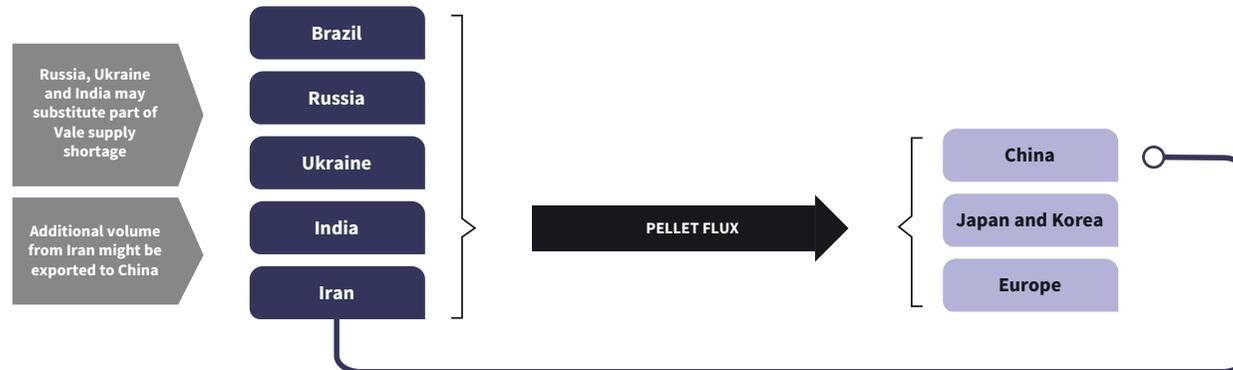
PELLET

Brumadinho's accident may bring changes to the global pellet supply chain.

Pellet Output by Country | Million MT



Pellet Exporters and Importers

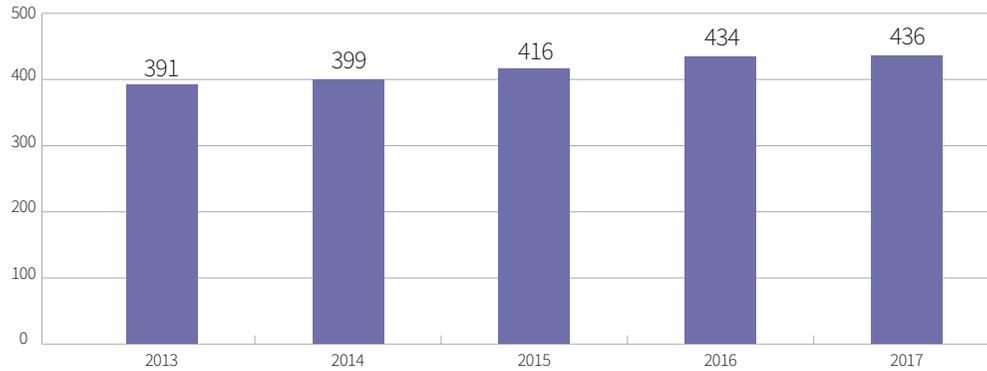


Source: S&P Global

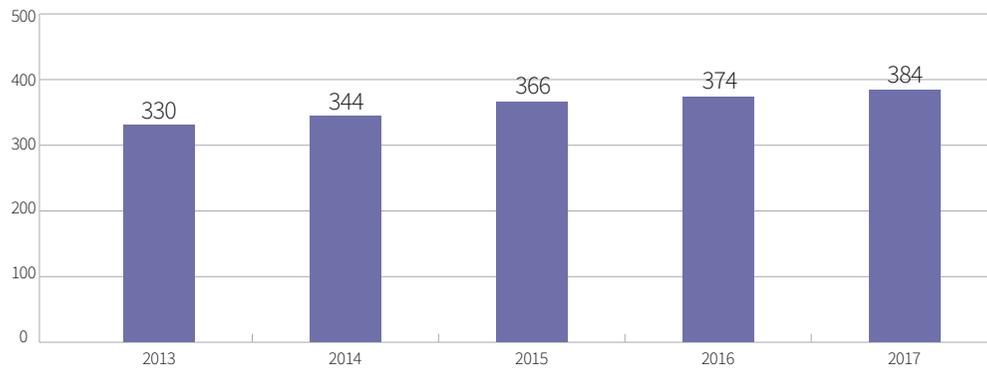
OVERVIEW MINING BRAZIL

...whose production is almost entirely exported (88%) mainly to China (58%) and Europe (14%).

National Production | Million Ton



National Export | Million Ton

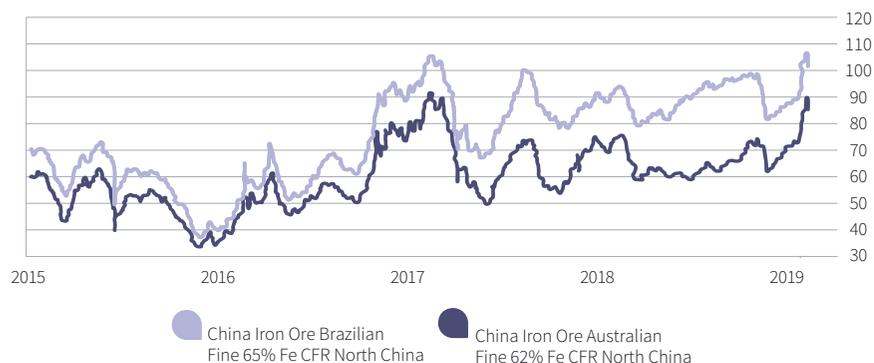


Source: World Steel.

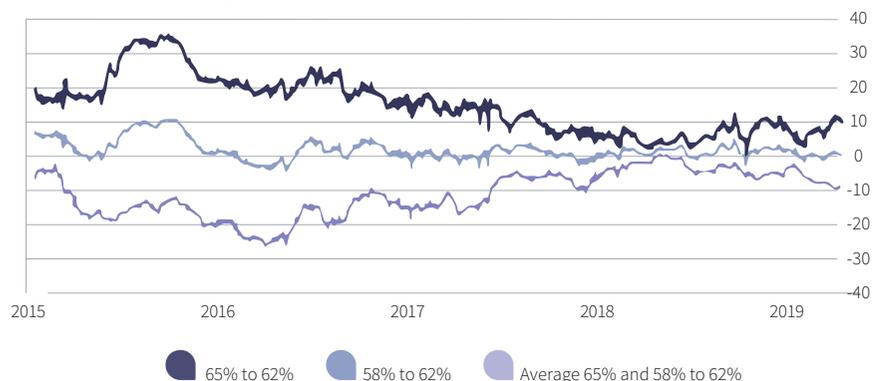
IRON ORE PRICE INDEX

Iron ore prices reach a higher level since 2015, with a 22% increase, reflecting the stabilization of supply and demand, after adjusting for expectations of Chinese demand.

China Iron Ore Price Index | US\$/dmt



Low Grade Vs. High Grade Fines Spread | US\$/dmt



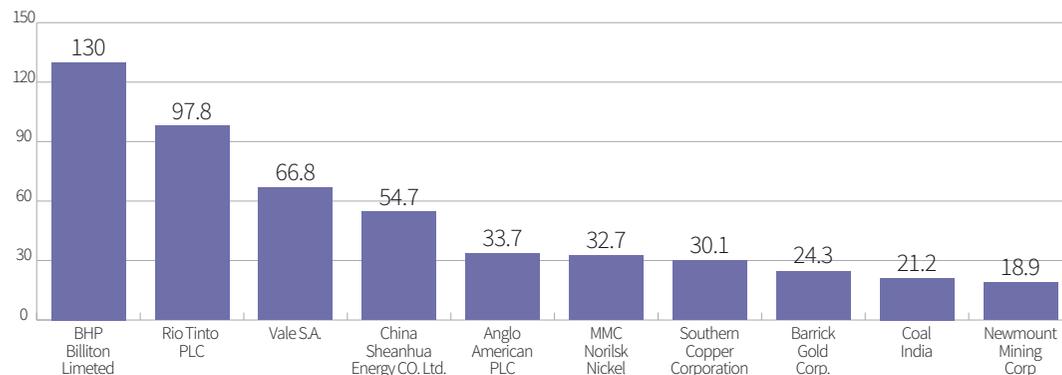
Source: Bloomberg

- Economic effects of the Brumadinho dam disruption on January 25 already appear in the global iron ore prices since the accident with:
- China Iron Ore Australian Fines 62% Fe CFR North China 15.4% price increase.
- China Iron Ore Brazilian Fines 65% Fe CFR North China 12.8% price increase.
- Vale's decision to reduce annual iron ore production by 10%, is expected to put pressure on the global commodity market in 2019.
- Chinese economic slowdown in 2019, largest importer of iron ore, may reduce demand for the commodity.
- Fines with a lower grade became more popular when mill margins narrowed down focusing in cost control.

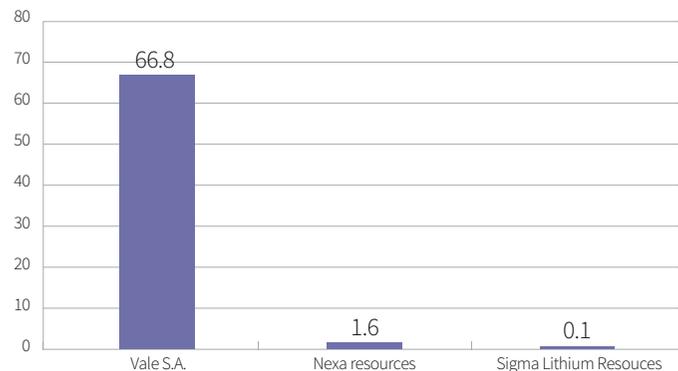
MAJOR PLAYERS IN THE MINING SECTOR

Considering Brazil one of the largest producers of ore, we highlight that Vale is today, despite all recent events, the third largest mining company in the world.

Top Global Mining Companies by Market Cap | US\$ Billions



Top Brazilian Mining Companies by Market Cap | US\$ Billions



Source: Bloomberg.

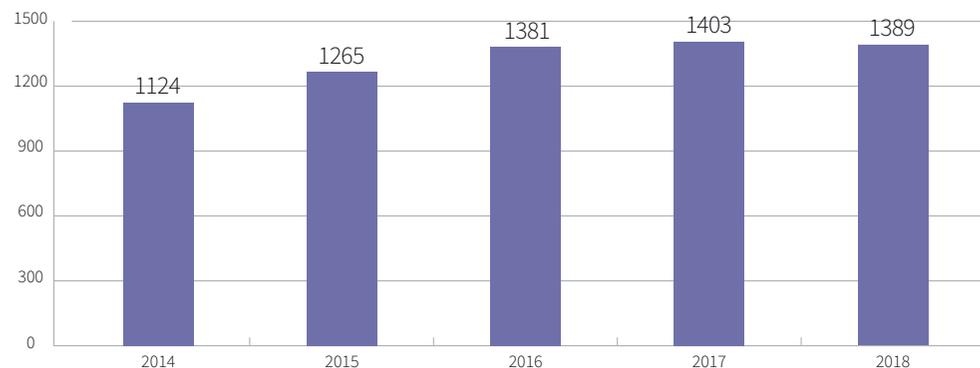
MERGES AND ACQUISITIONS – MINING SECTOR

Mining companies to resume investment strategy in 2019, focusing on portfolio diversification.

Financial Volume | US\$ Billions



Number of Transactions



Source: Bloomberg and Vale

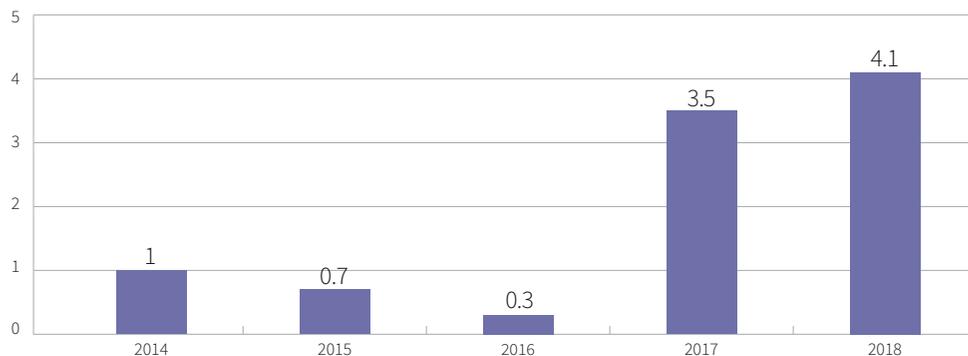
Major Transactions of the Mining Sector

Buyer	Target	Transaction Volume	Type
Shenhua Group	China Guodian Corp.	US\$ 273.0 Billion	Merge
Glencore	Xstrata	US\$ 90.0 Billion	Acquisition
Rio Tinto	Alcan	US\$ 38.1 Billion	Acquisition
Barrick Gold	Randgold Resources	US\$ 18.0 Billion	Merge
CVRD	Inco	US\$ 13.3 Billion	Acquisition
BHP	Billiton	US\$ 8.7 Billion	Merge

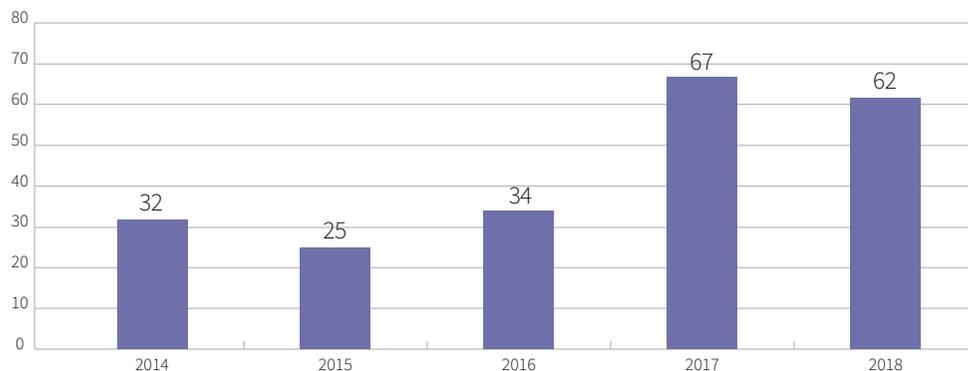
IPO AND FOLLOW ON – MINING SECTOR

Expectation of industry growth and appetite for financing new projects should be the main drivers for new emissions in 2019.

Financial Volume | US\$ Billions



Number of Transactions



Source: Bloomberg.

Latest Mining Emissions

Company	Offer Size	Offer Price	Type
Tocvan Ventures Corp.	US\$ 0.4 Million	US\$ 0.1	Primary Offer
Cobre Resources PLC	US\$ 0.7 Million	US\$ 1.5	Primary Offer
NAC Kazatomprom JSC	US\$ 387.0 Million	US\$ 11.6	Secondary Offer
Yandal Resources Ltd	US\$ 3.6 Million	US\$ 0.2	Primary Offer
Dragon Mining Ltd	US\$ 12.9 Million	US\$ 2.0	Primary Offer
FireFox Gold Corp	US\$ 1.6 Million	US\$ 0.4	Primary Offer

TAXATION FOR INFRASTRUCTURE

Broadly, taxes in Brazil may be classified in five major groups.

I. Inheritance and Estate Taxes

Taxes	Concept
Urban Real Property Ownership Tax (IPTU)	IPTU is a Municipal tax levied due annually on urban property.
Vehicles Ownership Tax (IPVA)	IPVA is a state tax levied annually on the ownership of any nature of automotive vehicles.
Real Estate Transfer Tax (ITBI)	Onerous transfers of real estate property and rights are subject to ITBI, a Municipal tax.
Estate and Gift Tax (ITCMD)	ITCMD is a state tax levied on transfers of assets or rights by reason of death (inheritance) or gifts (in case of living individuals).
Rural Property Ownership Tax (ITR)	ITR is levied annually on the ownership or possession of real estate in rural areas.

II. Taxes on Income and Revenues

Taxes	Concept
Corporate Income Tax (IRPJ) + Social Contribution on Profits (CSLL)	Brazilian resident Companies are subject to IRPJ and CSLL on their worldwide income.
Social Contributions on Gross Revenues and Import (PIS/COFINS)	PIS and COFINS are taxes charged monthly over gross revenues

TAXATION FOR INFRASTRUCTURE

III. Employment and Social Security Taxes

Taxes	Concept
Social Security Contribution (INSS) and other Payroll Taxes	INSS contribution is charged from employers, companies and other entities treated as such by law at the general rate of 20% on the total amount of remuneration paid or credited for work performed, for any reason, during the month, to individuals providing services. It includes tips, routine payments, utilities, advance payments and other benefits.
Severance Fund (FGTS)	Employers must collect, on a monthly basis, an amount equal to 8% of the employee's salary to a specific government held account, on behalf of each employee.

IV. Excise VAT Taxes

Taxes	Concept
Tax on Manufactured Products (IPI)	IPI is levied upon (i) imports; and (ii) sales of manufactured products. IPI rate is determined based on the Tariff Classification Code of the Product (HTS) issued by the Federal Government.
State Value-Added Tax (ICMS)	ICMS is a state Value-Added Tax (VAT) levied on import and sales of goods, as well as on provision of communication services and interstate and intermunicipal transport services.
Municipal Tax on Services (ISS)	ISS is a Municipal tax charged on revenue derived from provision of certain services expressly listed both in Federal and Municipal Laws. ISS is also levied on imports of services. No ISS is due on exports of services provided that the "results" of such services happen abroad.

V. Miscellaneous Excise Taxes

Taxes	Concept
Import Duty (II)	II is levied on the customs value of imported goods, comprised of the cost of the product, international insurance and freight (CIF value).
Tax on Financial Transactions (IOF)	IOF is a federal tax levied on foreign currency exchange, credit transactions, insurance transactions, and transactions with bond and securities.
Contributions on Economic Domain (CIDE)	Brazilian companies that hold licenses to explore rights, purchasers of know-how or parties to contracts that imply transfer of technology executed with non-residents and those domiciled abroad are subject to CIDE.

TAXATION FOR INFRASTRUCTURE

Withholding Taxes

Withholding Income Tax (IRRF)	Certain payments made by Brazilian sources are subject to the Withholding Income Tax (“IRRF”).
Withholding CSLL, PIS/COFINS and ISS	Considerations paid in transactions between Brazilian companies for the rendering of a specific set of services (such as: cleaning services, security services and others) may be subject to withholding of CSLL, PIS/COFINS and ISS.

Brazilian Tax Incentives

Tax Incentives	Concept
FIP-IE and FIP-PD&I	In order to stimulate private investments in infrastructure projects of public interest and research, development and innovation projects, the Brazilian Government has enacted Law No. 11.478/2007, which creates two investment funds: FIP-IE and FIP-PD&I
Infraestructure Debentures	Planning to boost long-term credit and the financing market in connection with infrastructure projects, the Brazilian Government created (Law No. 12,431/2011) Infrastructure Bonds, to be issued by special purpose companies organized as corporations (sociedades por ações – “S/A”), set up to develop infrastructure projects.
FI-Infra	To foster further investments in Infrastructure Bonds, CVM has enacted a Resolution that allows such investments via a collective investment vehicle — FI-Infra

Brazilian Special Tax Regimes

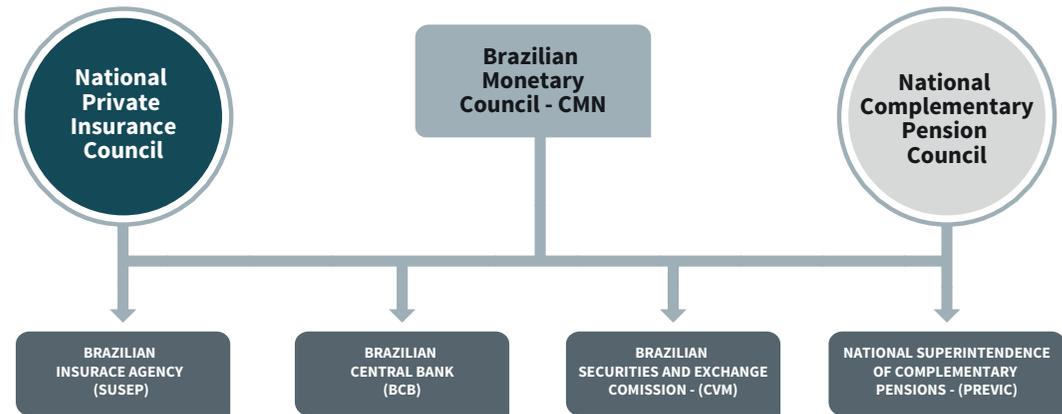
Tax Incentives	Concept
REIDI (Special Incentive Regime for Development of Infrastructure)	REIDI is a special regime whose goal is to foster private investments in the infrastructure sector, especially by companies interested in investing in the transport, port facilities, energy, sanitary and irrigation sectors.
REPORTO (Tax Regime to Stimulate the Modernization and Extension of the Port Structure)	The Tax Regime to Stimulate the Modernization and Extension of the Port Structure (REPORTO) aims to reduce the tax burden on acquisition of capital assets for modernization and expansion of Brazilian ports.

FINANCING INFRASTRUCTURE AND THE CAPITAL MARKET

Capital Market has been playing a key role in financing infrastructure projects, replacing the Government as principal lender.

- Brazilian Monetary Council (CMN) is the policy board that oversees financial institutions and other entities regulated by the Brazilian Central Bank and the Brazilian Securities and Exchange Commission (CVM).
- CMN guidelines are accomplished by the market through internal rules released by Brazilian Central Bank and CVM.

Brazilian Financial System – Legal and regulatory rules and its main participants



FINANCING INFRASTRUCTURE AND THE CAPITAL MARKET

Main Financing Structures in Brazil

Project Finance: is a financing arrangement in which long-term projects, executed by Special Purpose Companies (SPC), pay the loans according to the cash flows generated by the project itself. Infrastructure projects generally require corporate guarantees, diverging from the common non-recourse project finance arrangement.

Syndicated loans: are debts issued to a group of creditors, usually commercial and investment banks, by a single debtor and managed by a common agent. Project finance lending extended to finance infrastructure projects in Brazil through a syndication of lenders are a common practice in the sector.

Investment Funds: modality that brings together the financial resources of several investors for joint investment. In Brazil, such Funds are governed by the regulations of the CVM.

- **Receivables Investment Fund:** its purpose is to invest in the acquisition of receivables of all kinds. To qualify for tax benefits, its needed to be structured as a closed investment fund, the credit seller should not be a financial institution and the fund's regulations must follow certain requirements.
 - **Private Equity Funds:** its purpose is to invest its proceeds in shares, subscription bonus, debentures/bonds or other securities issued by corporations that develop new infrastructure projects or intensive economic production in research, development and innovation in the national territory.
 - **Infrastructure Investment Fund:** its object is to invest in the acquisition of assets described in Law 12,431/2011 (Investment Funds in infrastructure projects and/or debentures) .
- Infrastructure Debentures:** Federal Law 12,431/2011 guarantees a privileged tax regime for debenture holders who invest in infrastructure projects, provided that certain conditions are met.
- Real Estate Receivables Certificate (CRI):** Federal Law 12,431/2011 created a privileged tax regime for holders of CRIs that invest in infrastructure projects, since some conditions are met.
- BNDES:** has been the main agent of public financing for development in Brazil. Nowadays, BNDES' role in infrastructure financing has no longer an isolated participation of the lender and has come to complement the financial and capital market.
- **Finame:** is a special financial support mechanism maintained by BNDES and used to finance the production, acquisition, commercialization and modernization of machinery, equipment, industrial systems, heavy vehicles and aircraft.
 - **Finem:** contemplates transactions totaling more than R\$ 20 million. The project to be financed must be individually approved by BNDES, considering different evaluation criteria, such as the effective benefits that the project will generate in society and others that qualify.
- Multilateral Development Institution:** also know as international organizations, they are important members of infrastructure financing in Brazil.

RELEVANT LICENSES AND PERMITS

Per the Brazilian Constitution, the Federal Government enacts general rules on environmental matters and States and Municipalities may complement them when related to local issues.

ENVIRONMENTAL LEGAL FRAMEWORK

- All public entities (federal, state and municipal governments) have to protect the environment. Federal Law No. 6,938/1981 establishes the Brazilian Environmental Policy and defines the mechanisms and guidelines for environmental protection.

ENVIRONMENTAL LICENSING IN BRAZIL

- According to the Brazilian Environmental Policy, constructing, installing, expanding and operating activities that use environmental resources, that pollute or may pollute, or that may cause environmental damages, depend on licensing.
- The Federal Government, states and municipalities may issue environmental licenses according to their authority.
- There are 4 types of licenses, according to the nature, aspects and stage of the project: Preliminary License, Installation License, Operating License and Simplified License.
- Licenses for activities that may cause or indeed cause significant degradation of the environment will depend on previous study of Environmental Impact Assessment and its respective report.

OTHER ENVIRONMENTAL MATTERS

- (i) IBAMA's Federal Technical Registry, (ii) Vegetation Suppression, (iii) Conservation Units and National Parks, (iv) Waste Management and Disposal and (v) Liability.

OTHER LICENSES AND PERMITS

- In addition to the environmental licenses, public authorities require other licenses for an establishment to operate.

License/Certificate	Authority
Business License	Local Public Authorities
Fire Department Inspection Certificate	Local Fire Department
Sanitary License	Local Public Health Authorities (if there are no local authority, state agencies issue the license)
License to Use Dangerous Products	Army, Civil Police Department and/or Federal Police
Authorization to Collect Water	Local Water Department
Authorization for the Modification and Conservation of Historical Buildings and/or Assets	Federal and/or local Authorities for Historical Buildings

ANTI-CORRUPTION FRAMEWORK

Although Brazilian legislation already punished corruption as a crime, a specific Anti-corruption Framework has been in force since 2014.

- Legislation provides strict liability for all legal entities that practice corruption acts in the administrative and civil fields. The liability of the legal entity does not exclude the individual liability of the company's directors or of anyone who has been involved in any unlawful act.
- In accordance with the Brazilian Anti-corruption Framework, companies doing business in Brazil might be liable for corruption acts against Public Authorities.
- Regulation also provides that the Company may be liable for corruption even if its agents are the ones performing unlawful activities, especially if they result in any benefit to the Company.
- An effective compliance program means fines for corruption may see a decrease of up to 20%.
- Companies that do business with the public sector are more exposed to corruption. Therefore, preventive measures must be in place, to comply with Brazilian anticorruption legislation. There should be a strong compliance program.

DISPUTE RESOLUTION IN BRAZIL

Brazil has a strong and independent judicial system, complying with international principles.

- Brazil has a strong and independent judicial system, complying with international principles such as equality, access to justice, due process of law and adversary proceeding and right to a fair hearing.

Supreme Federal Court		It is responsible for ensuring compliance with the constitutional rules and principles
Superior Court of Justice		It is responsible for the uniform interpretation of non-constitutional legislation
Federal Courts		Appreciates, among others, cases involving the federal government, agencies or companies controlled by the federal government, foreign countries, international bodies, matters based on treaty or agreement between the Union and a foreign country or international body
Courts of Special Jurisdiction	Labor Courts	Responsible for appreciating matters between individuals or between workers and employers as groups
	Electoral Courts	Decides upon electoral procedures
	Military Courts	Under which military crimes are analyzed and judged
State Courts		Residual jurisdiction, responsible for matters that are not under the jurisdiction of the other courts

I. International jurisdiction

- In general, Brazilian courts are presumed to have jurisdiction over cases in which the defendant is domiciled in Brazil, when obligation under an agreement must be performed here or when the basis for the case is a fact or act practiced in Brazil.

II. Applicable Law

- In principle, Brazilian courts must apply Brazilian law to govern and construe the parties' rights and obligations to contracts executed in Brazil or in which part of the obligations are to be performed in Brazil.

Arbitration

- The Arbitration Law allows the parties to choose the rules applicable to the procedure, as well as to the merits of the dispute. The parties also may choose the seat of arbitration (in Brazil or abroad), as well as the language in which the arbitral procedure will be conducted.

Mediation and Other ADR Methods

- The use of mediation and other alternative dispute resolution methods is being encouraged by the judicial branch and, more recently, by the Legislative branch in Brazil.

Litigation with the government

- Litigation with the Public Administration is subject to the same rules of jurisdiction as any other dispute.

REAL ESTATE ASPECTS

In Brazil, real estate matters are mostly regulated by Brazilian Civil Code, Public Registry, Real Estate Development Law, Law No. 8,245/91 and Rural Land Act.

a) Acquisition or Lease of Rural Properties by Foreigners

- The acquisition or lease of rural properties in Brazil by foreign legal entities (even if authorized to operate in Brazil) is subject to restrictions.
- In view of such restriction, foreign entities or Brazilian entities controlled by foreigners shall only be allowed to purchase, receive as payment in kind, acquire by means of execution of real estate guarantees and/or hold title of rural properties by any means if such acquisition is approved by several Governmental bodies, including Ministries and the Congress.

b) Acquisition and Transfer of a Real Estate

- Pursuant to Brazilian laws, the acquisition of the ownership of a real estate property only occurs upon the registration of the title with the relevant local Real Estate Registry.
- The updated property title is essential to verify the good standing of the property in relation to the ownership status and the existence of security interests, encumbrances and/or liens, mortgages, leases, rights of enjoyment and possession rights that might affect the rights over the relevant property.

c) Guarantees

- The most common forms of guarantees over real estate properties in Brazil are:

- Mortgage - It is generally formalized by a public deed and have to be recorded in the real estate title to exist, be valid and ensure enforceability against third parties.
- Fiduciary transfer of title as a security - it is usually formalized by a private instrument and have to be registered in the real estate title to exist, be valid and ensure enforceability against third parties.

d) Lease of Urban Real Estate Properties for Commercial Purposes

- It is usually formalized through private instruments signed by the parties (Tenant and Landlord) and such instrument can be recorded in the property title.

e) Lease of Rural Real Estate Properties

- It is usually formalized through private instruments signed by the relevant parties (Lessee and Landlord), in which the Landlord assigns to Lessee the use and enjoyment of rural property, for the purpose of agriculture, livestock, agribusiness, extractive or mixed exploitation, by means of the payment of a rent.

f) Exploration Right and Public Easement

- According to Decree No. 3,365/1941, the Government has the right to promote expropriations of real estate properties for executing a public service, as provided by law or agreement, upon authorization, permission or concession.

ANTITRUST REGULATION

Under current Brazilian Antitrust Law, transactions that meet objective criteria need prior approvals.

RULING AND SUBMISSION CASES

- The Brazilian Antitrust Authority (CADE) reviews deals and monitors activities in competition matters.
- According to Brazilian Antitrust laws, partnerships formed to participate in public bidding processes are not subject to the Antitrust Authority's control.
- A transaction is subject to filing if there is at least one of the groups involved had a total gross income or a total volume of business in Brazil in its last fiscal year above R\$ 750,000,000.00, and that at least another involved group presented a total gross income or a total volume of business in Brazil in its last fiscal year equivalent to or above R\$ 75,000,000.00.
- Penalty of all acts performed in breach of this rule being declared void and subject to a fine ranging from R\$ 60,000.00 to R\$ 60,000,000.00.
- The Brazilian Antitrust Authority may require the submission of concentration acts that do not meet the abovementioned criteria within one (1) year from the date when the transaction is concluded if, at its discretion, they understand the acts are relevant and may negatively affect competition.

FAST TRACK PROCEDURE	ORDINARY PROCEDURE
<ul style="list-style-type: none">• We estimate approximately 45 days for the prior approval of the deal.	<ul style="list-style-type: none">• Even though in simple cases CADE analysis goes up to approximately 90 days, it is important to note that Brazilian legislation foreseen that CADE's analysis of a concentration acts can go up to 240 days as from the filing, and CADE's most extent analysis term is of 330 days, as per eventual postponement requests by the parties, or even CADE's tribunal.

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