Brazil spearheads exp progra

Privatisation of Brazil's national rail network in the mid-1990s has been a great success, but the government recognises that rail could do a lot better so reforms of the concessioning system are planned and a major construction programme is underway. **David Briginshaw** reports from Brazil on the rapid progress being made.

RAIL privatisation in Brazil has turned a rundown over-staffed and loss-making system into a modern, profitable enterprise. The former Brazilian Federal Railways (RFFSA) was losing Reais 300m ($US 183m) a year, had accumulated losses of Reais 2.2bn by 1997, and there was virtually no capital investment.

To solve the problem, the government decided to split RFFSA together with Fepasa, the railway of the state of São Paulo, into regional units. Concessions were offered for 30 years renewable for another 30 years. A minimum price was set for each concession, and the winning bidder had to pay fees for the concession and agree to invest in it.

The transformation is remarkable. Between 1996 and 2010 the government has collected Reais 5.4bn in concession and leasing fees, and a further Reais 7.4bn in taxes. Capital investment has increased steadily since 1997 (Figure 1) with the concessionaires investing a total of Reais 24bn up to last year. Government earnings from the concessions have been growing at an average of 23% a year. Although investment dropped back from a peak of Reais 4.2bn in 2008 to Reais 2.5bn in 2009 due to the global economic crisis, it is now running at about Reais 3bn a year. About 95% of capital investment is by the concessionaires with the government contributing only 5%.

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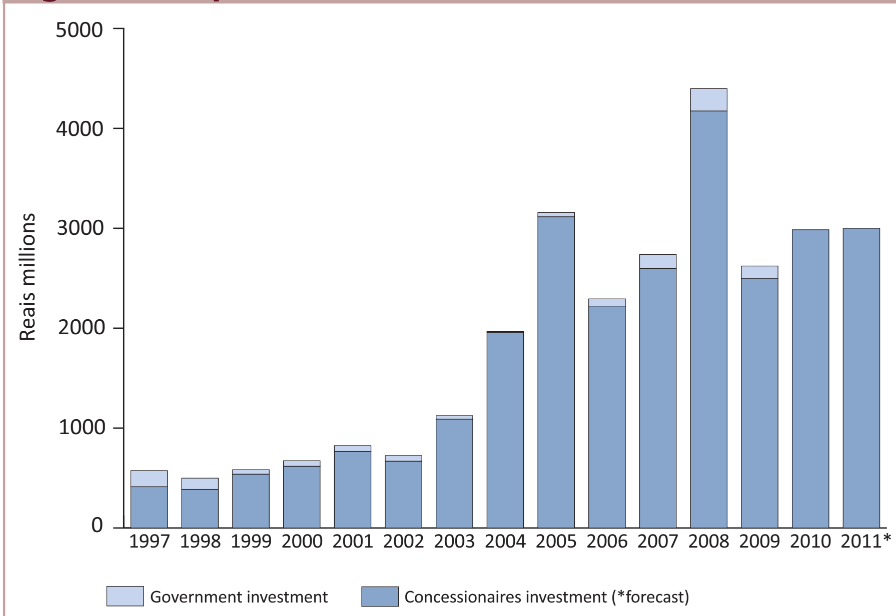
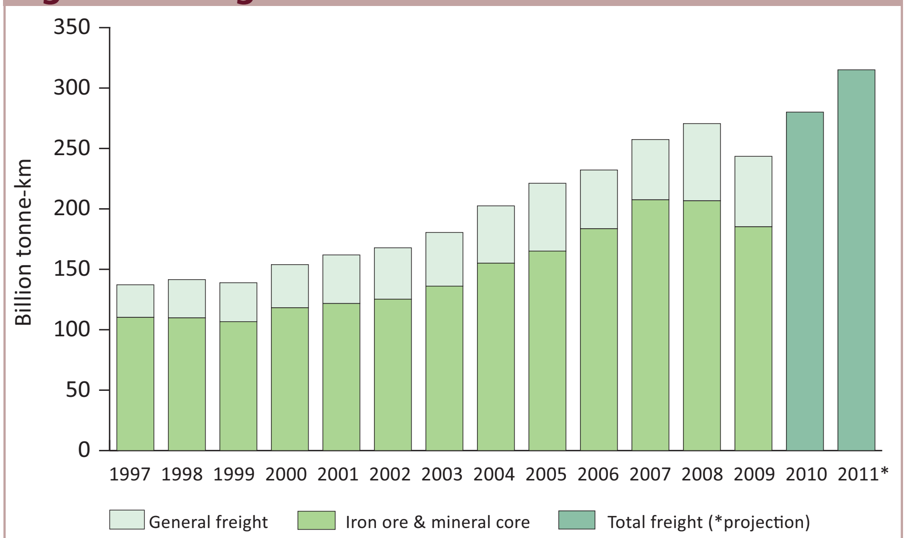
Figure 1: capital investment



Sources: Ministry of Transport, DNIT and ANTF

Figure 2: freight traffic



Source: ANTT and ANTF

The investment has transformed the motive power and rolling stock fleets. In 1997, the national fleets comprised 1154 locomotives and 43,816 freight wagons. By last year, the fleets had expanded to 3130 locomotives and 99,531 wagons. Between now and 2020 the concessionaires plan to acquire a further 2000 locomotives and 40,000 wagons. As a result, the average age of the wagon fleet has fallen from 42 years in 1990 to 25 years today and is expected to drop to 18 years by 2020. The concessionaires also plan to purchase 1.5 million tonnes of rails by 2020.

Freight traffic has more than doubled since 1997, from 137.2 billion tonne-km to 280.1 billion last year (Figure 2), and has performed much better than the general economy - GDP grew by 47.8% over the same period. Traffic is expected to reach 315.1 billion tonne-km this year. Iron-ore and minerals account for about three-quarters of all railfreight, and have grown by 68% since privatisation. However, general freight has grown much faster recording a growth rate of 116%.

"The concessionaires have improved the condition of the infrastructure, invested in rolling stock, recovered scrapped fleets, gradually introduced new technology, adopted partnerships with customers and other operators, and improved training and professional development," says Mr Rodrigo Vilaça, executive director of Brazil's National Railway Transport Association (ANTF).

There has also been a huge improvement in safety with the number of accidents falling by nearly 80% since privatisation, from 82.1 accidents per million train-km in 1996 to 16 today, although there has been a slight increase in railway accidents in the last two years.

Rail had a 20.7% share of Brazilian freight traffic in 2009, compared with 61.1% for road, 13.6% for water, 4.2% for pipeline and 0.4% for air. "Brazil is a very lucky country as we have a lot of minerals, but it is more like a European country in terms of rail's market share of freight traffic, whereas it needs to be more like the United States, Canada and the other three Bric countries [Russia, India, China]," says Vilaça.

One of the reasons is that rail finds it difficult to compete with other modes for some commodities, as Mr Noboru Ofugi, superintendent of freight transport services with the National Land Transport Agency (ANTT), explains: "While rail traffic has grown a lot it has not kept up with demand in some areas. For example, soya rail traffic has fallen since 2003 even though total traffic has increased by more than 50%."

Vilaça believes that there is still a shortage of suitable rolling stock despite the investment in new equipment, rail access to the ports is often inadequate, and taxes on the concessionaires are too high.

These barriers to growth are recognised by the government, and change is afoot. "We're reviewing all the tariff caps imposed on the concessionaires, and new initiatives are being considered to use spare capacity either by another concessionaire or a specialist freight operator," says Ofugi.

At around 30,000km (Table 1), the rail network is far too small considering the vast size of Brazil, which covers 8.5 million square km and has a population of 192 million, even allowing for the fact that a large part of the country is covered by rain forest. In comparison, the CSX and Norfolk Southern rail networks in the United States are each larger than the entire Brazilian network and only cover around 25% of the US landmass (excluding Alaska). "We need to reach 48,000km by 2023 and we could have 52,000km by 2030 if we speed up development," says Vilaça.

Table 1: Brazilian rail network

Railway	Broad gauge	Metre gauge (kilometers)	Mixed gauge	Total
Vale - Carajas	892			892
Vale - North South Railway	719			719
Vale - Vitória a Minas	905			905
Vale - Central Atlantic Railway (FCA)	7910		156	8066
MRS Logistics	1632		42	1674
Latin American Logistics (ALL)	1975	9481	294	11750
Transnordestina Logistics (TLSA)		4189	18	4207
Ferroeste		248		248
Tereza Cristian Railway (FTC)		164		164
Total	**5218**	**22897**	**510**	**28625**
Commuter railways	976	527		
Grand total	**6194**	**23424**	**510**	**30128**

Table 2: New lines under construction

Project	Concessionaire	Estimated cost	Length	Completion
North South Railway	Valec	Reais 6.05bn	1525km	December 2012
Transnordestina Railway	TLSA	Reais 5.40bn	1728km	2012
West East Integration Railway	Valec	Reais 7.43bn	1527km	2014
Ferronorte (Alto Araguaia - Rondonópolis)	ALL	Reais 0.78bn	280km	July 2012
Total		**Reais 19.66bn**	**5060km**	

Table 3: Planned new lines

Project	Concessionaire	Estimated cost	Length
Centre West Integration Railway	Valec	Reais 6.40bn	1638km
Chapeco - Itajai	FTC	Reais 1.68bn	843km
Total		**Reais 2.08bn**	**2481km**

"It is up to the rail industry to push things forward."

The Programme to Accelerate Growth (PAC), launched by former President Lula da Silva in January 2007, is designed to address this as it includes a number of major rail projects. Phase two (PAC 2) covering the period from 2011 to 2014 and beyond was launched in March 2010, and the new government is continuing to back the programme.

Currently 5060km of new 1600mm-gauge lines are under construction, which will double the size of the country's broad-gauge network. Only the 719km northern section of the North South Railway from Açailândia (where it connects with Vale's Carajas Railway) to Palmas has been completed so far, but the 855km section from Palmas to Anápolis is due to open in October. This will provide the first connection to the country's metre-gauge network.

Construction started at the end of last year on the next 670km section to Estrela D'Oeste and is due to be completed at the end of next year. The

MRS Logistics operates a 1632km broad-gauge network linking Belo Horizonte, Rio de Janeiro and São Paulo.

Brazil

Amazon
Barcarena
São Luis
Pacém
Fortaleza
Macau
Natal
Açailândia
Carajás
João Pessoa
Missão Velha
Recife/Suape
Estreito
Eliseu Martins
Araripina
Salguiero
Transnordestina Railway
Maceió
Guaraí
Juazeiro
N
0
km
400
Porto Real
Aracajúa
Palmas
Ibotirama
West East Integration Railway
Figueirópolis
Barreiras
Iacu
Salvador
North South Railway
Caetité
Brumado
Ilhéus
Vilhena
Centre West Integration Railway
Lucas do Rio Verde
Janauba
Uruaçu
Brasília
Anápolis
Goiânia
Pirapora
Rondonopolis
Alto Araguaia
Cuaibá
Corinto
Belo Horizonte
Ibia
Estrela D'Oeste
Uberlândia
Colómbia
Vitória
BOLIVIA
Corumbá
Três Lagoas
Campo Grande
Ribeirão Prêto
Panorama
Três Rios
B Mansa
Bauru
P Epitácio
Campinas
Rio de Janeiro
Porto Murtiho
Maracaju
Dourados
São Paulo
Ponta Porã
Cianorte
Sorocaba
Santos
Atlantic Ocean
Guaíra
PARAGUAY
Ponta Grossa
Curitiba
Cascavel
Paranaguá
San Francisco do Sul
Dionísio Cergueira
Chapecó
Itajaí
Posadas
Passo Fundo
ARGENTINA
Porto Alegre
Uruguaiana
Santana
URUGUAY
Rio Grande
IRJ
Broad gauge
Existing lines
Under construction
Planned
Metre gauge
Existing lines
Under construction/planned
Standard gauge
Existing lines
Proposed high-speed lines

Tracklaying underway on a section of the North South Railway.

speed of construction in Brazil reflects the fact that many of the new lines cross relatively-easy terrain with few inhabitants, although the Anápolis - Estrela D'Oeste section will require two long bridges to span two of Brazil's mighty rivers.

Further extensions are planned to the North South Railway. These comprise a 493km line from Açailândia north to Barcarena, a 160km line from Estrela D'Oeste south to Panorama and a 750km line from there via Dourados to Porto Murtinho on the Paraguay border. In the longer term an extension of about 1000km is planned from Panorama south via Chapecó to the port of Rio Grande.

Transnordestina Railway is managing a Reais 5.4bn project to create a 1728km broad-gauge railway in the midst of the metre-gauge network in northeastern Brazil. The first phase of this project, which is due to be completed a year from now, will link the ports of Pacém and Suape to Salgueiro and Eliseu Martins. The line will be designed for a maximum speed of 80km/h and 32.5-tonne axleloads and will carry mainly agricultural products and minerals. The project includes upgrading the 550km Recife - Porto Real do Colégio metre-gauge line. An extension is planned from Eliseu Martins to Estreito on the North South Railway.

Construction of the first 537km section of the West East Integration Railway from the port of Ilhéus via Brumado to Caetité is underway and should be completed by the end of next year. Work on the next 485km section to Barreiras should start later this year for completion in December 2013. Valec, Brazil's state-owned construction and engineering company, has invited tenders by the end of this month for the 505km section from Barreiras to Figueirópolis. The entire project is expected to be completed in 2014.

Valec has also invited bids by the end of July for the eastern 1040km section of the Centre West Integration Railway from Campinorte north of Uruaçu to Lucas do Rio Verde. This Reais 4.1bn project is expected to be completed by the end of 2014. The remaining 589km to Vilhena will cost a further Reais 2.3bn.

Valec is planning to change the way the new railways are operated. Instead of awarding a single concession to operate and maintain a railway, it is planned to have one concession to maintain the line and control train movements, while qualified operators will be invited to run trains over different sections. "We will establish a price for using a section of track," explains Mr Antonio Felipe Sanchez Costa, Valec's finance and administration director. "A special agency will authorise access to the line. The new model represents a substantial change. All those that are capable of operating trains will be able to use the new lines in an absolutely democratic way, which is something that doesn't happen today."

Clearly Brazil is stepping up its investment in railways, both through the public and private sectors, but it is also making changes to the concessioning system to make better use of both existing lines and the large number of new lines under construction and planned. If these changes are successful, then rail is set to take a greater slice of the country's freight market. **IRJ**

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- ☐ P Approve expenditure
- ☐ Q Specify or select product
- ☐ R Place purchase order

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