In 1970, when Mauro Viegas began working at his father’s company — Concremat, which offers engineering, inspection, and geotechnical services in Rio de Janeiro — it had 100 employees. Today, as CEO Viegas has almost 6,000 employees and close to R$1 billion in contracts. “We have never had the growth we see now,” he says. In recent years, the company has increased sales by 20% annually.

Concremat is a good example of what the Brazilian heavy construction industry is experiencing today. Driven by the federal Growth Acceleration Plan (PAC), greater demands for energy, and construction for the World Cup and the Olympics, companies have restructured themselves in a race to secure the best contracts, scarce trained labor, and capital. “Undoubtedly, the industry will grow very significantly in coming years,” says Jose Carlos Martins, director of the Brazilian Chamber of the Construction Industry (CBIC). “And two concepts will guide this growth: technological innovation and environmental sustainability.”

While investments in deep sea oil projects are the most obvious, relieving deficiencies in Brazil’s infrastructure is gaining prominence. Transportation bottlenecks threaten to become a straitjacket for Brazilian economic growth. For example, Andrade Gutierrez Group’s portfolio of transportation works, including roads and urban subways, accounted for 19% of the total portfolio in Brazil and Latin America in December 2010. “We anticipate a growth of 72% for December 2011,” says Rogério Nora de Sá, CEO of the company.
It is estimated that by 2011 to 2014 Brazil will attract US$128 billion in investments in ports, railways, and highways alone.

“The infrastructure is considered a priority,” says Dalmo Marchetti, Manager of the Logistics Department of the National Bank for Economic and Social Development (BNDES). “Our estimate is that by 2014 Brazil will attract US$128 billion in investments in ports, railways, and highways, of which BNDES will contribute R$44 billion.”

**Bottlenecks**

Paulo Resende, professor at the Dom Cabral Foundation (FDC), is carrying out a study of the competitiveness of Brazil’s construction industry for the World Economic Forum. He explains that compared with the U.S., “In the case of transport over long distances, we lose by 50%. That is, for every dollar spent in the U.S. to ship cargo, we spend US$1.50.”

A 2009 survey by the National Confederation of Transport (CNT) found that despite recent improvements, the condition of the roads raised logistics costs by 20% to 40%. “This is a big problem, since 60% of freight in Brazil travels by roads compared to only 26% in the United States,” says Carlos Campos Neto, coordinator of Economic Infrastructure of the Institute for Applied Economic Research (IPEA). Yet as scarce resources for infrastructure are channeled to the roads, the media report long queues of ships waiting offshore to dock and airline passengers suffering long delays.

“Long waits for passengers at airports is the visible part of the problem, but nobody talks of problems with air cargo,” laments Manoel Matos, president of the Brazilian Chamber of Electronic Commerce (Câmara e-Net). Orders for his members generally have time constraints and are low volume and high tech, making air transport ideal. This type of business has grown in Brazil at rates of 40% a year; the main operator is the Post Office. “In 2010 alone, e-commerce won 6 million new customers; the total of 23 million customers made 40 million transactions of physical goods alone,” Matos says. “But we cannot expand mobile telephony and Internet access if we cannot deliver more widely at competitive prices. This mainly impacts small and micro businesses.”

**INVESTMENT IN TRANSPORTATION HAS FALLEN**

```
<table>
<thead>
<tr>
<th>Year</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971-80</td>
<td>2.0</td>
</tr>
<tr>
<td>1981-89</td>
<td>1.5</td>
</tr>
<tr>
<td>1990-2000</td>
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</tr>
<tr>
<td>2001-06</td>
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</tr>
<tr>
<td>2006-09</td>
<td>0.4</td>
</tr>
<tr>
<td>2011-14</td>
<td>0.8</td>
</tr>
</tbody>
</table>
```

Source: National Bank for Economic and Social Development (BNDES).
It is not easy even for big businesses, as Ricardo Cunha knows well. He is director of logistics for the Mexican appliance company Mabe, which has operations in 15 countries. Brazil is Mabe’s largest market, accounting for 30% of its sales, though at a high cost. Its five factories in Brazil are all in the interior of São Paulo state. “We have made such moves as relocating distribution centers to optimize the use of various freight transportation modes,” Cunha says. “Bottlenecks in ports, railways, and roads and tax differences between states make Brazil the highest cost and most complex of all the countries where Mabe has commercial relations,” Cunha says. “We are not very optimistic; what is being discussed now has been discussed for a long time with no concrete decisions made. Even if something is done, it will take time to bring benefits.”

Private sector dynamism
Both infrastructure users and companies that build infrastructure are asking that regulations be simplified and that government be more open to private participation in the sector. “The government has no resources, is an abysmal manager, and makes things more difficult — take environmental permits, for instance” says Martins. “Brazil is now a darling for investors, so it is necessary to eliminate political interference and infighting among jurisdictions and allow regulators more autonomy to eliminate legal uncertainties and attract the private sector.” Nora de Sá from Andrade Gutierrez also defends the legal protection of contracts, “in addition to financial security and balance of contracts with the government,” he says.

For the construction industry, such changes mean not only speedier bid decisions and execution of lucrative contracts but also allowing for more private participation in operating infrastructure systems.

A 2009 survey by the National Confederation of Transport found that despite recent improvements, the condition of the roads raised logistics costs by 20% to 40%.

INVESTMENT SHARES BY TYPE OF TRANSPORTATION

Besides participating in road concessions in Brazil, for instance, construction giant Camargo Correa is also involved in concessions for railway cargo transport in Argentina and administration of airports elsewhere in Latin America and the Caribbean. “These companies are developing internationally, even though it will take at least another 10 years to address pent-up demand for great infrastructure works,” says Paulo Vincente, professor of strategy at the FDC. For Andrade Gutierrez Group, concessions accounted for about 15% of gross revenues in 2010. “The importance of the revenue generated by concession contracts is due to their long-term stability and synergy with the group’s business interests,” says Nora de Sá.

Another example is the Odebrecht Company, which in March 2010 created a new company, Odebrecht TransPort (OTP), which deals only with logistics. By year-end OTP had equity of R$1.4 billion. It expects to invest R$6 billion by 2015. Private investment in infrastructure is necessary to remove major bottlenecks and improve public services. Among OTP’s ambitious projects are Embraport at Santos Port — the largest private multipurpose port terminal in the country, on which construction began in 2010 — and (in association with Camargo Correa, Coopersucar, and Cosan) a vast logistics system, Logum, covering four states, for storage and transportation of ethanol. Logum also demonstrates the power ethanol producers have gained in finding logistics solutions to ensure their competitiveness.

Both users and companies responsible for infrastructure construction are asking that regulations be reviewed and simplified and that government be more open to private sector participation.
Earlier this year President Rousseff made news by announcing that private participation in the expansion of airports is necessary and that the government would clear the way for that by the end of June. FDC’s Resende comments that “If that intention is realized, it can be very positive: it creates a competition that in general the more efficient private sector ends up winning.”

The greatest fear among experts is that, given the slow pace so far, Brazil will not be prepared to host the World Cup in 2014. Of the estimated R$5.6 billion in investments needed for airports in the 12 cities hosting the World Cup, between 2007 and 2010 only R$163 million in projects were fully carried out, according to a PAC assessment. In the first two months of 2011, only R$53.8 million were spent, which is just 2% of the total amount of R$2.2 planned for this year.

According to the Brazilian Airport Infrastructure Company (Infraero), “Between 2011 and 2014, the company expects investments of R$9 billion in 67 airports, of which R$5.2 billion is earmarked for cities hosting the World Cup.” Peter Wanke of the Graduate Business School of the Federal University of Rio de Janeiro (Coppead-UFRJ) is skeptical about these estimates: “It is difficult to judge without knowing details of the plans. In any event, we risk just doing more of the same, instead of thinking of logistics in an integrated way, including access to airports.”

Of the estimated R$5.6 billion in investments needed for airports in the 12 cities hosting the World Cup, between 2007 and 2010 only R$163 million were fully carried out.
The fact is that regardless of the World Cup, the economy’s growth, and the increase in per capita income, it has become clear that advances in civil aviation — better services and lower costs through technological modernization of airplanes and business models — have not carried over to airports, as the numbers prove. According to Infraero, between 2005 and 2010 the number of passengers — domestic and international — grew 61%. A study of the Research Center ofCoppe-UFRJ, coordinated by Professor Elton Fernandes, found that even after government’s planned improvements there will still be a shortage of 366,000 square meters at airports to accommodate the expected volume of passengers in 2014 — and this does not take into account the additional demand caused by the world sporting events, which could reach 3 million. “The average in major international airports is 29 square meters per passenger in peak hours. Here we have less than 23 square meters, except for Tom Jobim Airport in Rio de Janeiro and Manaus,” Fernandes says.

The first airport concession in the country, to be built in São Gonçalo do Amarante, Rio Grande do Norte, is expected to be the largest cargo terminal in Latin America and the seventh largest in the world, with an area of 15 million square meters. The project edict, which could be a model for other Brazilian airports, took five months to be analyzed by the Court of Audits, being finally approved on April 13. Meanwhile, building companies like Queiroz Galvão, Andrade Gutierrez, and Odebrecht have been dreaming of getting it. The project is expected to be finished by 2014, and the winner would win a management contract for 28 years.

“If we look at Southeast Asia, we see that those countries have improved their airport infrastructure thanks to increased air cargo exports,” Campos explains. “Over the next 30 years, it is estimated that air traffic in Brazil will triple, while the world will double. We must prepare properly for that.”

### ABOVE AVERAGE

**Air transportation growth**  
(Billions of passengers transported per Km)

<table>
<thead>
<tr>
<th></th>
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<tr>
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<td>11</td>
<td>1</td>
<td>24</td>
<td>1</td>
<td>38,3</td>
<td>1,6</td>
<td>68,9</td>
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<tr>
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<td>5</td>
<td>79</td>
<td>5</td>
<td>89</td>
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<td>190</td>
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<td>North America</td>
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<td>42</td>
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<td>42</td>
<td>1,386</td>
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<tr>
<td>World</td>
<td>818</td>
<td>100</td>
<td>1,699</td>
<td>100</td>
<td>2,417</td>
<td>100</td>
<td>4,283</td>
<td>100</td>
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</tr>
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</table>

Source: International Civil Aviation Organization (ICAO, 2009).
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Campos says that part of Brazil’s logistics deficiency reflects over-reliance on road transport, particularly for agricultural products. This originated in the 1960s and 1970s, when road-building was financed by a tax on fuels and vehicles. By 1980 federal roads had spread from 8,675 km to 47,487 km. The ban imposed by the 1988 Constitution on earmarking tax revenues put the brakes on road investments. “In the 2000s, despite receiving more than half the funds allocated for transport, investment was insufficient to maintain and expand roads,” Campos says. An IPEA survey indicates that today it would take R$184 billion to solve all the problems of roads.

Through concessions since 1995 the government has opened up the possibility of private participation in the operation of state and federal roads. By 2010 concessions had been granted for 14,800 km of roads; the 51 contracts are mainly held by two companies. Studies indicate that, in general, these roads are in better condition than the public ones. “However, we must remember that there is a need to expand the road system where the traffic flow makes private investment unfeasible,” Campos says. According to a study by FDC and the World Economic Forum, Brazil has the third longest road system in the world, but only 12% of it is paved.
By 2025 the government plans to reduce the weight of roads in the Brazilian transportation system, increasing use of waterways, developing coastal navigation, and increasing transport of cargo by rail. The first 1,574 miles of the North-South rail route, from Maranhão state to Goiás state, could be ready later this year. The expected completion of the railroad has already spurred a number of ethanol projects along the tracks that could bring R$14 billion to the region. However, Wanke warns that the government will have to be realistic about the projects it undertakes. “We have limited money, so we should rethink some projects”; for example, he asks, “Why are we spending R$3 billion for 500 km of high-speed rail when with the same amount we could increase the rail network from 15,000 km to 43,000 km?”

Cristiano Prado, manager of infrastructure and new
Over the next 10 years the government would need to invest about R$43 billion in ports. Projects for the Federation of Industries of Rio de Janeiro State (Firjan), agrees that though it is a worldwide trend to connect large cities by high-speed train, “we need a well-calibrated model so that we do not open a hole in the public coffers.” He says that Rio de Janeiro alone is expected by 2013 to attract R$12 billion of investments in transportation and logistics, especially ports: “We need a balanced economic-financial contract, a rate increase, an extension of the concession period, or a decision that the government will build the infrastructure itself.” According to Viegas, if the government would make its intentions clear, concession operators would go ahead with their investments, and “in 2011 we could have an additional R$10 billion generated by the private sector, with its own resources.”

PRIVATE SECTOR DOMINATES
Investments in railways
Millions of Brazilian reals

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
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<tr>
<td>Railways</td>
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<td>153</td>
<td>285</td>
<td>390</td>
<td>548</td>
<td>907</td>
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<td>% in total investment in transport</td>
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<td>5</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>7</td>
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<td><strong>Private sector</strong></td>
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<td></td>
</tr>
<tr>
<td>Railways</td>
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<td>2,546</td>
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<td>2,972</td>
<td>3,350</td>
<td>4,933</td>
<td>3,481</td>
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<tr>
<td>% in total investment in transport</td>
<td>41</td>
<td>39</td>
<td>50</td>
<td>65</td>
<td>57</td>
<td>59</td>
<td>63</td>
<td>52</td>
</tr>
</tbody>
</table>

Sources: ABCR, ANTF, Ipea and BNDES.
Deficient rail and road systems reflect directly on the health of ports, another key infrastructure element. “Owners of port terminals have invested to increase profit, but it is still a challenge to access terminals,” says Fernando Camargo, associate director of LCA Consultoria. The dearth of good roads explains in part the high concentration of shipments in a few ports like Santos, which in 2010 represented 25% of Brazilian foreign trade in value and 12% in volume. “Soybeans produced in the Midwest, for example, could be sent to Itaquí Port (Maranhão state), but today there is no infrastructure to do this,” says José Roberto Correa, president of the Dock Company of São Paulo (Codesp).

This year, Correa estimates that 101 million tons of soybeans will be shipped, an increase of 10% over 2010. But adapting to increased demand will take a long time. “We have to dredge the harbor and widen the canal, and we will be implementing a new system of traffic information,” he says.

Despite the projects planned, many experts consider the port problems to be the most serious. The PAC allocated about R$7.5 billion for ports, but the 2010 IPEA survey estimated that over the next 10 years the government would need to invest about R$43 billion. It also found that 60% of national logistics costs come from freight. Because ships are the cheapest way to transport goods, ports are gaining importance in the intermodal transportation system.¹

Fernando Graziano is vice president of Constremac Constructions, which specializes in maritime construction. He says that between 1980 and mid-2000s there were few
investments in ports — a big problem for an exporting country like Brazil. Robson Goncalves, consultant for FGV Projetos, adds that Brazil has about 40,000 km of navigable rivers and almost 7,000 km of coastline, yet coastline transport of both goods and people is virtually nonexistent.

If more investment is to be attracted to ports, analysts see a need to revise the industry dynamics. There have been some praiseworthy public efforts, such as the National Harbor Dredging Program, an investment of R$1.5 billion in 17 ports. Another competitiveness-promoting measure would be to introduce a paperless port program to centralize information input for loading and unloading of cargo; this currently involves 28 entities. Correa points out that “in Singapore a container is released in one day; we take five.”

Currently, ports may be operated by public or private concession, but private ports need authorization from the government and can provide services only for their own corporations, such as mining, leaving other aspects of the economy in the waiting line to rent

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### CONCENTRATED SHIPMENT

Share of main ports in Brazil’s trade balance

**2010**

<table>
<thead>
<tr>
<th>IMPORTS</th>
<th>US$ billion</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santos</td>
<td>46</td>
<td>25</td>
</tr>
<tr>
<td>Paranaguá</td>
<td>10</td>
<td>6</td>
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<tr>
<td>Vitória</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Itagual</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Itajaí</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Manaus</td>
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<td>4</td>
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<td>Rio Grande</td>
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</tr>
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<td>2</td>
</tr>
<tr>
<td>São Sebastião</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>outros portos</td>
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<td>13</td>
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</table>

<table>
<thead>
<tr>
<th>EXPORTS</th>
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<th>%</th>
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<tr>
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<td>4</td>
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<tr>
<td>São Luís</td>
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<td>6</td>
</tr>
<tr>
<td>Rio Grande</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Barcarena</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Salvador</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>outros portos</td>
<td>19</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Dock Company of São Paulo State (Codesp).
space in public ports, which can take up to two years.

“Brazil is competitive in logistics only in oil and mining,” Prado says. He cites the example of Angra dos Reis Port Terminal, now administered by France’s Technip: “It was practically closed down but now may support the offshore oil rigs.” He also cites the new Açu Port of LLX, a logistics company, scheduled for completion in 2012 at an investment of R$4.5 billion. It can accommodate 10 ships with up to an 18-meter draft.

Just as in the 1990s, when the private sector seized the opportunities opened up by the breakup of public monopolies in several sectors of the economy, now the private construction industry awaits its chance to help build a more efficient logistics infrastructure to support the country’s growth.

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1 Intermodal freight transport involves the transportation of freight in a single container or vehicle that uses several modes of transportation (rail, ship, and truck).

### GREAT VOLUMES, GREAT CHALLENGES

Shipments in Santos Port

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (Millions of tons)</th>
<th>Gross tariff revenues (Millions of Brazilian reais)</th>
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</thead>
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<tr>
<td>2007</td>
<td>81</td>
<td>321</td>
</tr>
<tr>
<td>2008</td>
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<td>2010</td>
<td>96</td>
<td>379</td>
</tr>
<tr>
<td>2011*</td>
<td>12</td>
<td>54</td>
</tr>
</tbody>
</table>

* January and February.

Source: Codesp