Infrastructure
Dealing with the infrastructure deficit

Energy
Regulation of power distribution concessions may affect the future of small-scale generation

Interview
Elizabeth Farina
Director President of Unica



THE BRAZILIAN ECONOMY

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Getting **productivity back on track**

Growth will not resume without policies to make Brazilian business more productive.



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THE BRAZILIAN ECONOMY

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Photo: Marcelo Camargo / Agência Brasil

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Cover Story

8 Getting productivity back on track

Growth will not resume without policies to make Brazilian business more productive. Solange Monteiro introduces FGV Growth and Development, a new FGV center of studies, consults its experts on what factors contribute to low productivity, sagging competitiveness, and an underperforming economy, and reports on recommendations from the Inter-American Development Bank on what can be done to get the economy moving again.



Infrastructure

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Planning Minister Nelson Barbosa has been put in charge of the urgent revitalization of the federal program of infrastructure concessions. Chico Santos looks at the history of infrastructure policy, discusses the recent decision to separate planning from auctions for construction and maintenance, and identifies some options for resolving the current problems.

Energy

22 Energy smartens up

Expiration of power distribution concessions may offer opportunities to rethink Brazil's whole energy system. Pilot projects are creating a two-way street between energy consumers and distributors that may be advantageous for both. They may also transform the market. But there are a lot of calculations to be done to identify incentives that will work to encourage cooperation and keep everyone on board. Solange Monteiro reports.

Interview

25 Prospects for sugar not so sweet



Elizabeth Farina, Director President of the Brazilian Sugarcane Industry Association, explains to Solange Monteiro that the economic crisis has been brutal for the sugar industry, criticizes the government's recent interventions in fuel pricing, and talks about how the exchange rate could be both good and bad for some sugar producers and what the industry is doing to heighten productivity. But, she says, across the board the industry is waiting for the government to define ethanol and other energy policies so producers can work out a recovery strategy.

From the Editors

AGAINST THE BACKDROP OF A SEVERE FISCAL ADJUSTMENT—the only way to stem the erosion of Brazil's ability to pay its debts and avoid losing its investment grade—the government is redoubling its efforts to invigorate the program of granting concessions to attract private investment to high-priority infrastructure sectors. This will not be a trivial task since major efforts to energize concessions have not made much progress in recent years. In several countries, the business model for concessions has not advanced as expected. Also, some members of the governing Workers' Party are opposed to granting concessions. But with the Treasury closed and very limited public funds, there is no way to carry out large infrastructure projects without help from the private sector.

Expanding the concession program is another way to give breath to the economy's growth. However, there is consensus among economists that only by improving the economy's overall productivity, in particular labor productivity, will Brazil resume sustainable growth, as the cover story for this issue explains.

The strategic electric energy sector is another topic covered in this issue, where regulation as well as innovation and pricing are important factors. With regard to innovation, the use of smart grids and small-scale power generation, which has spread around the world, is being tested in Brazil. Regarding tariffs, a new study indicates that when there is a 10% increase in the electricity tariff—this year the price of energy went up 36.34% in the first three months of the year—consumers immediately reduce consumption by 1.53%. With regard to regulation of concessions in the energy sector, what can be seen is that the rates of return offered have fallen well short of what investors desire.

In connection with the energy sector, sugar and alcohol producers are asking what Brazil expects from ethanol, the great alternative source of energy hope, which is suffering from the erratic policies of controlling fuel prices. As a result of misguided policies, the sector has accumulated debts that hit close to US$80 billion. Elizabeth Farina, director president of the Brazilian Sugarcane Industry Association (Unica), is in search of alternatives to stop the bleeding of sugar mills.



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ECONOMY

Petrobras releases its financial statements

State-oil company Petrobras has released audited financial statements for 2014Q3 and 2014Q4 that include write-downs amounting to R$50.8 billion (US$16.9 billion): R$6.2 billion in losses directly from the corruption scandal and R$44.6 billion from delayed projects and lower global oil prices, among other factors. The result was a net loss of R$21.6 billion in 2014. Petrobras Chief Executive Aldemir Bendine said that the corruption-related provisions were "conservative," adding that revisions could be possible if prosecutors uncover more wrongdoing. The company is slashing its capital spending to US$29 billion this year and US$25 billion for 2016, down from the planned annual average of US$44.2 billion. (April 22)

Consumer confidence rises in April

Consumer confidence rose by 3% to 85.6 in April, the first increase of the year, the Getulio Vargas Foundation (FGV) said. However, it was far below the historic average of 113.4 points. (April 27)

Unemployment rises, incomes fall

Unemployment rose in March for a third consecutive month, to 6.2%, up from 5.9% in February, the government statistics agency IBGE said. The number of unemployed, 1.5 million people, is 280,000 more than a year ago. Last year closed with 4.8% unemployment, the lowest level since 2002. In March the average wage fell by 2.8% month-to-month, to R$2,135, and 3% year-on-year. (April 28)



Photo: Marcelo Camargo / Agência Brasil

Petrobras CEO Aldemir Bendine

IBRE 2015 GDP forecast goes negative

The Brazilian Institute of Economics (IBRE) of the Getulio Vargas Foundation revised its forecast of Brazil's growth to negative 1.2% in 2015 and 0.5% in 2016, down from its January forecast of positive 0.6% this year and 1.5% next. Substantial fiscal and monetary tightening is causing a contraction in economic activity as business conditions worsen because of high inflation, exchange rate depreciation, and plunging confidence. (April 29)

Industrial production fell in March

Industrial production declined 0.8% month-on-month in March and 5.9% quarter-on-quarter, the government statistics agency IBGE said. The decline was widespread in the first quarter: Capital goods were hit hardest at 18%; intermediary goods production slid 2.8%, and durable consumer goods fell 16%. (May 6)

Monthly inflation eases

The consumer price index rose 0.7% month-on-month in April, down from 1.32% in March, statistics agency IBGE said. However, in the 12 months through April, consumer prices rose 8.17%, far above the government's inflation target of 6.5%. Food prices slowed their increase to 0.97%, from 1.17% in March, but still contributed most to the month's inflation rate. (May 8)

INFRASTRUCTURE

Federal sanitation targets unattainable

At its current pace, Brazil will take 129 years to meet federal targets for universal sanitation, according to the TrataBrasil Institute, which assessed sanitation in the 100 largest cities. The institute found that 39% of the nation's sewage is currently treated, 0.3% more than last year; sewage collection increased by just 0.3%, and is available to 48.6% of the population; and the share of the population with access to treated water fell by 0.2%, to 82.5%. The National Basic Sanitation Plan aims for universal sanitation by 2033. (April 28)

POLITICS

President Rousseff approves more political funding

President Dilma Rousseff has approved the Federal Government Budget of 2015 without vetoing the proposal that tripled the amount of money for funding political parties. Parties saw donations from private companies dry up after investigations of corruption at the state-oil company Petrobras, and contractors have told the parties that they will not donate for next year's municipal elections. The government had originally earmarked R$289.5 million (US$95 million) for the fund, but Congress raised that to R$867.5 (US$286 million). (April 21)

Lower house okays some fiscal adjustment

In a close vote, the House of Deputies approved a watered-down version of a bill to cut unemployment benefits in a tense victory for President Rousseff's efforts to cut the deficit and restore investor confidence. Leaders in the president's Workers' Party refused to pass a reduction in social welfare benefits that would have saved R$9 billion (US$2.9 billion) this year. Instead, the House passed a version of the bill that reduced estimated savings by at least R$2 billion. Lawmakers voted 252-227 for the bill, which toughens conditions for jobless Brazilians to gain access to welfare and unemployment insurance. The bill put Rousseff at odds with Brazil's largest labor union and members of the Workers' Party. May 7)

ECONOMIC POLICY

Central government primary balance surplus falls

Central government, which covers the Treasury, Social Security, and the Central Bank, had a primary balance surplus of R$4.5 billion in the first quarter, the lowest in 17 years. The result is 66% lower than in the first quarter of 2014. While revenues presented in the first three months of the year grew by only 2.9%, spending grew by 6.8%. The government's primary balance surplus target for 2015 is R$55.2 billion. (April 29)

Finance Minister pushes austerity measures

The government's austerity measures need to be fully implemented as soon as possible if Brazil is to resume growth, Finance Minister Joaquim Levy told a House of Deputies hearing. He said the economy is decelerating due to declining commodities prices, adding, "The economic adjustments won't disrupt growth. Actually, we are implementing those changes



Photo: Elza Fiuza, Agência Brasil

Minister of Finance Joaquim Levy

because the country's expansion was decelerating." He went on, "The first step is to recover investors' confidence. If there is no confidence, the entire economy suffers. With these [fiscal adjustments] we can return to the path of expansion." The minister has pledged to achieve a primary surplus—a measure of government savings before interest payments—equal to 1.2% of gross domestic product; 2014 saw a primary deficit of 0.6%. (April 29)

Interest rates up again

To convince investors that the government is serious about curbing inflation despite fears of a recession, the central bank monetary policy committee raised the interest rate by 50 basis points to 13.25%, the highest since December 2008. While most major economies have cut rates to shore up growth, Brazil has raised them by 225 basis points in the past six months. Inflation expectations remain high but some price pressures are easing. (April 29)

PUBLIC HEALTH

Dengue fever cases surge

Brazil has registered nearly 746,000 cases of mosquito-borne dengue fever this year with nine states experiencing an epidemic. Nationwide there were 235% more cases than in the same period (January 1 to April 18) last year. Relaxed prevention and an increase in home water storage have been blamed. The mosquito that carries the virus breeds in containers of clear stagnant water. (May 5)

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Getting **productivity back on track**



Brazil's growth will not resume without policies to make Brazilian business more productive.



Solange Monteiro

The END OF THE FIRST QUARTER was marked by the realization that tight monetary and fiscal policies may take time to correct the economy's imbalances and that high inflation and low growth may last longer than hoped. Out of this realistic assessment also emerged the view that, as the economy adjusts, policy makers should be moving to build up the economy so that future expansion is stronger and more sustainable.

The consensus on what to do is not exactly new: to grow more robustly, the country must tackle a wide range of problems that have undermined the economy's productivity. This problem is not unique to Brazil. Last year's Inter-American Development Bank (IDB) study showed that despite the growth wave in the last decade in Latin America, low productivity prevented the region from attaining higher income levels.

In fact, today on average Latin American and Caribbean countries have lower per capita income than in the 1960s and are far from converging to the income levels of developed economies like the United States.

The IDB study also indicated that, more than the lack of investment in machinery and equipment or more training for workers, the main problem in the region is inefficiency in the use of these inputs—in other words, low total factor productivity (TFP). Low growth is related not so much to the fact that a country has fewer or worse production factors as that these factors have been poorly organized. According to the IDB, in the last 50 years, despite Latin America having expanded its labor force and its capital stock faster than the United States, its TFP growth was lower.

Today on average Latin American and Caribbean countries have lower per capita income than in the 1960s.

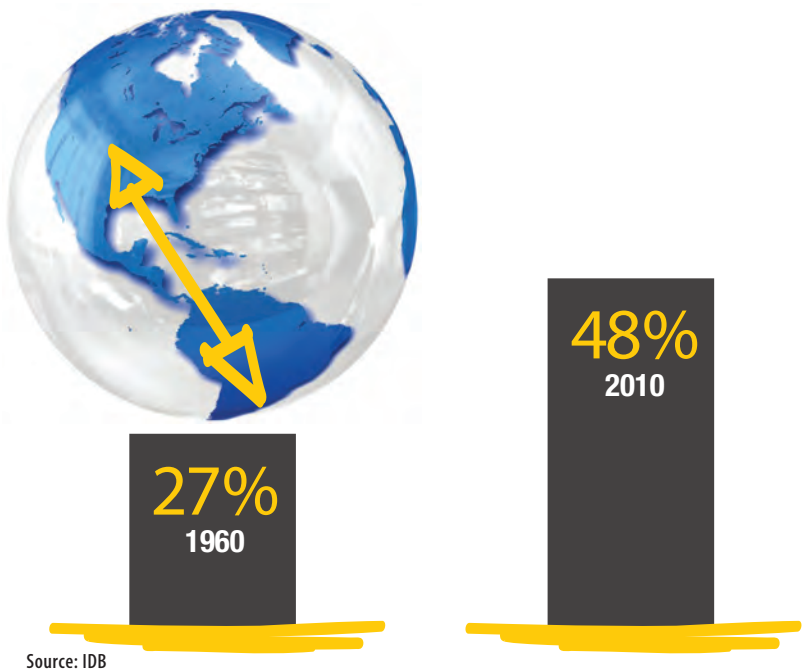
The efficiency gap between a typical Latin American country and the U.S. went up from 27% in 1960 to 48% in 2010—which explains much of the decline in per capita income. In contrast, a typical country in East Asia reduced the efficiency gap from 51% to 33%.

"This invalidates the idea that what Brazil lacks is investment," says Pedro Ferreira Cavalcanti, professor and researcher of the Graduate School of Economics of Getulio Vargas Foundation (EPGE/FGV). "Traditional theories see physical capital as the engine of growth, but international evidence shows the opposite. Today, increasing efficiency would bring about more GDP growth than injecting money into large projects," Cavalcanti says, while pointing out the importance of having adequate infrastructure.

Samuel Pessôa, IBRE associate, researcher, an unwavering supporter of investment and savings for sustained growth, says there is no opposition

An even greater distance

The efficiency gap between the average Latin American country and the U.S. has increased in the last 50 years.



Source: IDB

"Today, increasing efficiency would bring about more GDP growth than injecting money into large projects."

Pedro Cavalcanti

between the two ideas. He explains that upturns in the economic cycle begin with accelerating productivity, which leads to a higher return of capital, which launches a new investment cycle and reinforces expansion of the economy.

Economy's multiple chains

The study of productivity is the flagship of FGV Growth and Development, a new FGV center of studies, created by Cavalcanti, João Victor Issler, and Roberto Castello Branco. At the April seminar inaugurating the new center, Cavalcanti said that low productivity accounts for almost two-thirds of the total income gap between Brazil and the U.S. His bitter conclusion is that the causes of low productivity are not only Brazil's lack of ports, airports, and roads themselves, or the economic guidelines, but also a heavy burden of bureaucracy and pervasive corruption that distorts the allocation of capital and the quality of Brazil's business environment. "We're talking about institutional factors and excessive distortions, such as discretionary government intervention in markets and pricing," Cavalcanti says.

Among those factors are the weakening of the institutional framework for infrastructure concessions and the questionable resource allocation strategy of the National Development Bank (BNDES) that discourages investing in Brazil. "If we do not correct the practices that led to inadequate pricing, the supply of goods and services will also be inadequate, and so we run the risk of having low growth for much longer, "says Silvia Matos, coordinator of IBRE's Macro Bulletin.

Many factors contribute to low productivity and sagging competitiveness. In the *Global Competitiveness Report* 2014-2015 prepared by the World Economic Forum, the ranking of Brazil's public institutions dropped eight positions, to 104th (out of 144), compared with its ranking in 2010, and the ranking of the labor market sank 13 positions, to 109th. Factors that contributed to the decline in the labor market ranking were high payroll taxes, the difficulty of hiring and laying off workers, and a lack of flexibility to set wages.

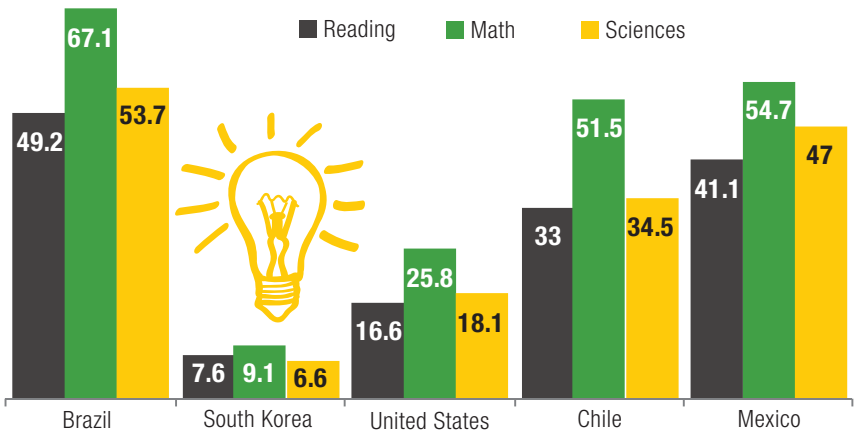
In terms of the institutional framework, Brazil ranks 143rd on government regulation, and 137th in wastefulness of public spending. With regard to market efficiency, it ranks almost at the bottom: 142nd in number of days to start a business, and 139th in the effect of taxation on incentives to invest. Brazil's cumbersome tax system exacerbates the inefficiency. An IDB survey in 2007 pointed out that the time it took to pay taxes in Brazil was 2,600 hours a year. In Latin America, the average is 360 hours and in high-income countries 177 hours.

The World Bank's *Doing Business* report ranks Brazil 120th among 189 economies.

Relatively low trade openness and the poor quality and the high cost of Brazilian logistics infrastructure also contribute to low productivity, Cavalcanti says. "Brazil's TFP made an important leap during the trade liberalization in the early 1990s. Since then, we have not advanced, and today we are uncompetitive because we are not part of international business chains as we cannot import the best machinery and equipment. As a result, many companies end up specializing, even if only temporarily, in sectors they are not good at," he laments. To illustrate the effects on resource allocation, in Latin America, reallocation of capital and labor would raise the TFP of industry by 60% and in Mexico by 100%. Cavalcanti estimates that in Brazil elimination of allocation distortions could raise TFP by 49%.

Poor school performance undermines future labor productivity

Young people below the basic level of proficiency in PISA 2012 (%)



Source: OECD.

"If we do not correct the practices that led to inadequate pricing, the supply of goods and services will also be inadequate."

Silvia Matos

IDB's study *Rethinking Productive Development* (2014) offers policy recommendations to correct this situation. It also makes the point that every economic problem does not necessarily require prompt government intervention or establishing a new policy for the productive sector. For example, if a country's financial market is undeveloped, that does not necessarily call for creation of a public bank; instead, the government should look into what is preventing development of the financial sector. The IDB study also suggests improving the capacity of institutions that carry out policy; lack of capacity in public institutions may be contributing to the failure of public policies. In Cavalcanti's opinions, "In Brazil, we need tax reform, better regulation, stable rules, and economic liberalization. There is no other way."



South Korea's example

If Brazilian workers had the same average schooling rates as South Korea's, they would be 40% more productive.

Seoul, South Korea.
Photo: Qingqing/Shutterstock.com

with high productivity and education, but they employ only 1% of the workforce, while commerce employs 17%."

Cavalcanti estimates that if Brazil's services sector was comparable to South Korea's, Brazil's income relative to the U.S. would go up from 20% to 40%. If Brazilian workers had the same average schooling rates as South Korea's, they would be 40% more productive. If in 1960–2009 Brazil had had the same educational policies as South Korea, the country would have grown 60% more, and the labor force would have been 70% more skilled than today.

Education issue

Another major factor in low productivity is poor education: Education alone is responsible for 30% of the income gap between Brazil and the U.S. South Korean workers' earn six times more than Brazilian workers thanks largely to education. "The fact is that South Koreans work in services with high-added value; most Brazilians are unskilled and work in unproductive activities," Cavalcanti says. IBRE researcher Fernando Veloso points out that in commerce only 9.5% of Brazilian workers are highly qualified compared with 52.8% in South Korea, noting that "Brazil does have sectors

To reach South Korea's standard will take decades of planning and effort. Even before the end of the Japanese occupation in 1945, the South Korean president instituted mandatory basic education. Education was also part of the industrial policies in government five-year plans, which helped to match industry's needs for skilled workers with the appropriate education and training of students. The private sector finances a large part of South Korea's educational spending, which was 7.6% of GDP in 2010. "In Brazil, education is still completely dissociated from

economic growth. We should reconsider this," Veloso says.

Veloso explains that, because it employs 62% of the workforce, the service sector virtually determines the productivity of the whole economy. The World Bank Enterprise Survey shows that in Brazil industry's main concern today is the tax burden, but the main concerns of the services sector are a shortage of skilled workers and a lack of labor market flexibility. Allowing companies to outsource more core business would make the labor

If a country's financial market is undeveloped, that does not necessarily call for creation of a public bank; instead, the government should look into what is preventing development of the financial sector.

Brazil's productivity has declined across most sectors in recent years.

		Industry				
Period	Agriculture	Mining	Manufacturing	Construction	Utilities	Total
1995-2002	5.7%	7.9%	-2.6%	-2.5%	3.6%	-2.1%
2002-2008	4.1%	1.8%	0.0%	-1.5%	1.9%	-0.2%
2003-2009	3.2%	1.4%	-1.2%	-0.3%	1.7%	-0.7%
2011-2013	7.1%	-5.6%	1.0%	-0.9%	0.3%	-0.5%
2012-2013	5.8%	-4.5%	-0.5%	-2.0%	-2.6%	-2.0%

	Services							
Period	Commerce	Transport, storage and postal services	IT services	Financial intermediation and insurance	Other services	Real estate	Public education and health	Total
1995-2002	-2.4%	-1.3%	-3.1%	-0.4%	-1.1%	-5.5%	0.6%	-0.5%
2002-2008	2.1%	0.2%	-3.9%	4.1%	0.2%	0.1%	-0.5%	0.9%
2003-2009	1.1%	0.1%	-2.7%	5.0%	0.1%	-0.4%	-0.3%	0.7%
2011-2013	1.4%	-0.9%	7.7%	-1.0%	2.0%	-0.4%	-2.2%	1.1%
2012-2013	1.6%	0.7%	7.9%	-2.0%	1.3%	1.9%	-2.6%	1.1%

Source: IBRE.

"In Brazil, education is still completely dissociated from economic growth. We should reconsider this."

Fernando Veloso

market more flexible for the services sector immediately; however, training workers and improving their productivity is likely to take much longer. Veloso says, "At least half of our young people are below the basic level of proficiency in reading, math and sciences, according to the OECD Program for International Student Assessment (PISA) 2012."

The productivity gains of the last decade have had little to do with education. From 2007 to 2010, the main productivity gains were in commerce, intermediation, other services, and construction. From 2011 on, there was only stagnation and decline. Veloso explains that "The timing of productivity gains was due partly to the catchup effect after the recession in 2009–10, but also due to the boom in external terms of trade, which paved the way to credit market growth." He explains that during 2007-2010 productivity gains in services was large, and welfare increased a lot, reducing income inequality.

Since 2011, however, labor costs in sectors like construction have soared, because wages increased significantly more than productivity. Veloso points out that the Brazilian service sector employs less skilled workers, and as the demand for such workers had increased, raising wages. It is only recently, however, that this imbalance began to affect business costs. As a result, sectors like construction and commerce have seen the most layoffs.

Matos is concerned about how to address productivity losses during periods of economic downturn. She believes Brazil must go through a very steep slowdown to make the necessary correction, and in that context measures to make hiring more flexible become more relevant. Protecting workers too much may increase unemployment still more.

Veloso believes there is no short-term solution for education, but there are some measures that could help to mitigate the current negative situation. He suggests that Brazil should encourage professional training and qualification and stimulate sectors more connected with industry. "As industry benefits most from absorption of technology, it could have positive spillover effects on the services sector, generating productivity gains," he says. "Canada and Australia are service economies but connected to the mining industry and dependent on natural resources." He warns, however, that Brazil should not postpone a serious effort to improve education because ultimately that would compromise its potential growth.

Dealing with the infrastructure deficit

Chico Santos

THE NECESSARY FISCAL TIGHTENING imposed by Finance Minister Joaquim Levy has made it clear that the public sector lacks the resources to carry out essential public works. Planning Minister Nelson Barbosa has been put in charge of the urgent revitalization of the federal program of infrastructure concessions, whose continuation is vital to restoring public confidence. He is calling on the private sector to invest and accelerate public works that the government has been unable to carry out expeditiously.

The government is moving to improve the environment for success of the program, which requires large investments. On April 2nd, the president issued Decree No. 8428, which regulates the use of Expression of Interest Procedures (PMIs) for companies or individuals interested in helping the public sector to structure concessions or public-private partnerships (PPPs). Article 18 of the decree allows the government to bar participation of those responsible for structuring a project from bidding to carry out that project. By separating project structuring from the interest of the concessionary, the decree seeks to plan infrastructure projects without a bias in favor of possible concessionaires.

The government wants to unlock investments in sanitation, railways,

Of 491 contracts for sanitation projects signed since 2007 by the Ministry of Cities, totaling investments of R$8 billion, by the end of 2012 work on 57.6% had been suspended, delayed, or never begun.

ports, airports, highways, and other sectors that are essential to the economy, but have not materialized for lack of funds or government capacity. Examples abound. On March 25 the Court of Audits (TCU) reported that of 491 contracts for sanitation projects signed since 2007 by the Ministry of Cities, totaling investments of R$8 billion, by the end of 2012 work on 57.6% had been suspended, delayed, or never begun—only 11.8% of the projects had been completed.

Initiated in 2007 and seen as vital to mitigate the perennial problem of water insecurity in the Northeast, the project to divert part of São Francisco River water to supply the states of Ceará, Pernambuco, Paraíba and Rio Grande do Norte, where 12 million people live, was expected to be completed in 2010 at a cost of R$4.5 billion. Early in 2015 the Ministry of National Integration admitted that only 70% of the work was done and promised completion in the first half of 2016, at an additional cost of nearly R$4.5 billion.

The beginning of 2015 was also marked by suspension of road works contracted by the National Department of Transportation Infrastructure (DNIT), which in mid-March admitted to having accumulated R$1.3 billion in debt. Among the major public works suspended or slowed down was work on the section of Highway BR-381 between Belo Horizonte and

Of the 76 public-private partnerships, only one is federal

PPPs contracted by sector.

Sanitation	16
Solid waste	14
Health services	9
Urban passenger trains	7
Stadiums	6
Citizen assistance	6
Prison system	3
Roads	3
Housing	2
Urban transport	2
Multi business	2
Information technology	1
Urbanization	1
Culture	1
Airports	1
Education	1
Public buildings	1
Total	**76**

Source: Radar PPP.

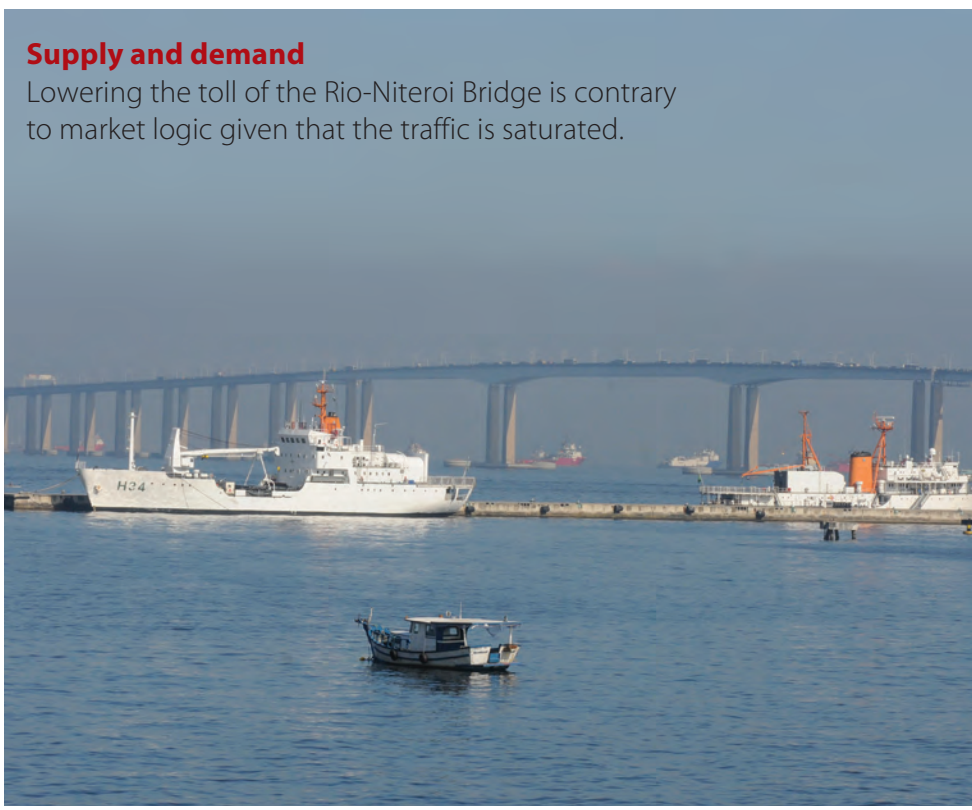
Governador Valadares cities in Minas Gerais state, part of the Growth Acceleration Program (PAC).

Economist Armando Castelar Pinheiro, researcher at the Brazilian Institute of Economics (IBRE), thinks the government's decision to try to accelerate infrastructure concessions makes sense: "There is in Brazil a huge demand for infrastructure services, which constitutes a huge investment opportunity," and "huge market interest in investing in such projects." Pinheiro also welcomed the assignment of managing the concessions program to Planning Minister Barbosa: "It shows that the issue is being treated with appropriate seriousness." Pinheiro also thinks that concession contracts for such long-term projects (25–30 years) may to some extent help revitalize the economy.

Pinheiro believes, however, that in Brazil infrastructure concessions still depend on the political convictions of the executive branch, causing uncertainty about both the success of bids and the ultimate operation of concessions. Concessions started during the Itamar Franco administration (1992–94), beginning with the concession for operating the Rio-Niteroi Bridge (1994). They were intensified during the Fernando Henrique Cardoso administration (1995–2002) with concessions for roads, railways, electricity, and oil exploration, but then diminished during the Luiz Inácio Lula da Silva administration (2003–10). "Lula was conservative in macroeconomic policy, retaining the policy of his predecessor, Cardoso, but in the area of concessions for construction and operation of infrastructure he very quickly changed the legal framework, introducing uncertainty," he says.

In Brazil infrastructure concessions still depend on the political convictions of the executive branch, causing uncertainty about both the success of bids and the ultimate operation of concessions.

Photo: A.Ricardo/Shutterstock.com



Supply and demand
Lowering the toll of the Rio-Niteroi Bridge is contrary to market logic given that the traffic is saturated.

The independence of regulatory agencies from the government is precisely what allows them to protect the rights of consumers and investors.

The most problematic of these changes, in Pinheiro's opinion, was interference in the regulatory agencies created by Cardoso. "In practice, regulatory agencies lost their independence and became controlled by the ministries," he says, explaining that the independence of regulatory agencies from the government is precisely what allows them to protect the rights of consumers and investors, creating for both safeguards against short-term political cycles.

With the regulatory agencies weakened, the concessions that followed were less successful. Several highway concessions set road tolls too low, discouraging concessionaires from investing the amounts the contracts required. Pinheiro also criticized the policy of the National Treasury injecting money into the National Development Bank (BNDES) to lend cheaply to concessionaires at the cost of raising the public debt.

"The BNDES alternative is closed. It has no more room [to lend cheaply]," Pinheiro says, stressing that despite all the Treasury and BNDES efforts to encourage infrastructure investments, the results were far from encouraging. Nor did the money BNDES lend increase investment in infrastructure, which held steady at 2–2.5% of GDP. Pinheiro notes that some recent successful concessions, such as the main Brazilian airports, were granted under pressure from the 2014 football World Cup.

According to a McKinsey Global Institute study, among the world's largest economies Brazil has the lowest stock of infrastructure capital as a proportion of GDP: only 53%, compared with a global average of 70%, which does not even include Japan, where the ratio is 179%. The study estimates that to raise its infrastructure capital to 70% of GDP, Brazil would need to invest an annual

Guarulhos airport, São Paulo state
Photo: Filipe Frazao/Shutterstock.com



Plan ahead
Guarulhos airport is one of the projects for which bidding was structured by Brazilian Project Structuring (EBP).

average of 5.5% of GDP over the next 20 years. For the last two decades actual investments in infrastructure have been only 2.3% a year.

Claudio Frischtak, president of the Inter B International Consulting, is not optimistic about the future: "There is no silver bullet to make concessions take off. There is an overlap of macro and micro factors."

At the macro level, in addition to adjustment of prices and the exchange rate, he considers a minimum level of stability and visibility to be fundamental. "The exchange rate is depreciating, but its volatility is driving investors away," he says. At the micro level, he sees the situation as varying from sector to sector. For example, he believes that "planning for the transport and logistics sectors is not reliable." For him, the state-run Planning and Logistics (EPL) company, originally created to administer the high-speed train, was not sufficiently empowered to do so.

Frischtak rates the work of the Energy Planning Company (EPE) to be adequate. "Despite some mistakes, it is the only serious planning," he says. He believes that in the energy sector problems have resulted mainly from the government's forced reduction in electricity tariffs, which ended up disrupting the whole sector.

As for railways, Frischtak does not see how concessions for their construction will work, since according to the "open access" framework, state-run Valec will buy and sell all railway cargo capacity, ensuring the railway builder remuneration whether or not there is traffic. This "has a huge potential fiscal cost." So far open access has generated more suspicion than interest. The government is now seeking another way to get railways built.

Among the world's largest economies Brazil has the lowest stock of infrastructure capital as a proportion of GDP: only 53%, compared with a global average of 70%.

In the case of airports, Frischtak criticizes the model that made state-run Infraero, the former monopolist in the sector, a mandatory partner of concessionaires. Infraero will have to contribute 49% of the capital of the concessionaire. As Infraero is basically undercapitalized, he believes the government will have to contribute money that the private sector should have brought to the concession.

Santiago Chile



Unsolicited proposals
Of 400 projects submitted by the private sector in Chile, only 18 were auctioned.

To raise its infrastructure capital to 70% of GDP, Brazil would need to invest an annual average of 5.5% of GDP over the next 20 years.

The government must make many corrections in order to improve the concession program, Frischtak says. It should also make sure that investments are properly governed, with appropriate regulation and planning and attractive conditions for financing through the capital market and insurance, without burdening the public sector: "As long as the BNDES continues to lend liberally at low interest rates, the domestic capital market will not develop. BNDES loans should be as scarce as possible."

The role of PMIs

The Expression of Interest Procedures (PMI) instrument was created by the government to help identify and structure projects that will benefit society, especially infrastructure projects. The federal level created PMI in 2006 and states and municipalities then copied it in their own laws.

According to the Radar PPP (https://www.radarppp.com/), since the first quarter of 2013, 125 PMIs have been published. "The PMI is a way of advising the public sector, which in turn has access to more projects," says Pinheiro. "The government needs services. The PMI makes the need more specific," he explains, noting that the PMI should not be confused with the engineering project that should be done by the concessionaire. "The PMI studies and structures the concession that will be granted by the government."

In developed countries, the concession is structured by the government, which has capacity and qualified staff to do these studies, Pinheiro explains: "In these countries, the public sector performs all the steps until the bidding process is completed."

In emerging economies, where governments often lack the staff, financial resources, and the institutional capacity to select appropriate projects of public interest, the unsolicited proposal is common. In that case, a private company generally takes the initiative to identify projects of benefit to society and submit them to the government. If encouraged, it makes the technical studies necessary to structure the bidding of the concession project and will be one of the bidders. Although controversial, unsolicited proposals are advocated for emerging countries because they allow the private sector to bring new infrastructure ideas to the government when the public sector lacks the capacity and financial resources to do its own studies.

Another option is to call on other interested parties to submit proposals after the original author has done so. In such cases, the original author has the right to match the winning bid and get the concession. This, Pinheiro says, is the system practiced in the Philippines, South Africa, Taiwan, and parts of India and Italy and in the U.S. territory of Guam.

Based on data collected by BNDES staff Fernando Tavares Camacho and Bruno da Costa Rodrigues, Pinheiro says that the results of unsolicited proposals with regard to competition are "disappointing." In Chile, a country that has created a solid framework to benefit from these proposals, of 400 projects proposed by the private sector, only 18 were auctioned, and

structuring of the auctions took two years longer than the four years expected. Also, competition has been very low: In South Korea the original project applicant won 90% of the time, and in the Philippines 92%. In Taiwan, only one in 29 bids had more than one bidder.

In Brazil, the PMI, the alternative adopted at the federal government, differs fundamentally from the unsolicited proposal because the government takes the initiative to bring the idea to the private sector and formally requests projects, surveys, investigations, or studies that may lead to an auction or a PPP. But a different legal mechanism, the Expression of Interest of Private Enterprise (MIP), used by some states resembles an unsolicited proposal.

Pinheiro thinks the federal framework adopted by Brazil suffers from shortcomings similar to those of countries that adopt unsolicited proposals: few projects go to auction and when they do, there is virtually no competition. Among the factors contributing to this unsatisfactory performance are the need for the public sector to establish a large structure to evaluate PMIs, making processing costly and time-consuming, and the fact that the original project applicant can participate in the bidding, which creates a bias in that applicant's favor.

Pinheiro sees the possibility that the government will bar bidding by those responsible for structuring the project, directly or indirectly, as the main improvement of the PMI brought by Decree No. 8,428. He believes this measure will encourage some development companies to specialize exclusively in project structuring.

So far the most successful experience is Brazilian Project Structuring (EBP), a PPP founded in 2008 by BNDES, Banco do Brasil, and seven private banks. The company has concluded structuring of 17 bidding projects, including the PPP of Mineirão stadium, Minas Gerais state, and concessions for the airports of Guarulhos, Brasília, Viracopos, Galeão and Confins.

"As long as the BNDES continues to lend liberally at low interest rates, the domestic capital market will not develop. BNDES loans should be as scarce as possible."

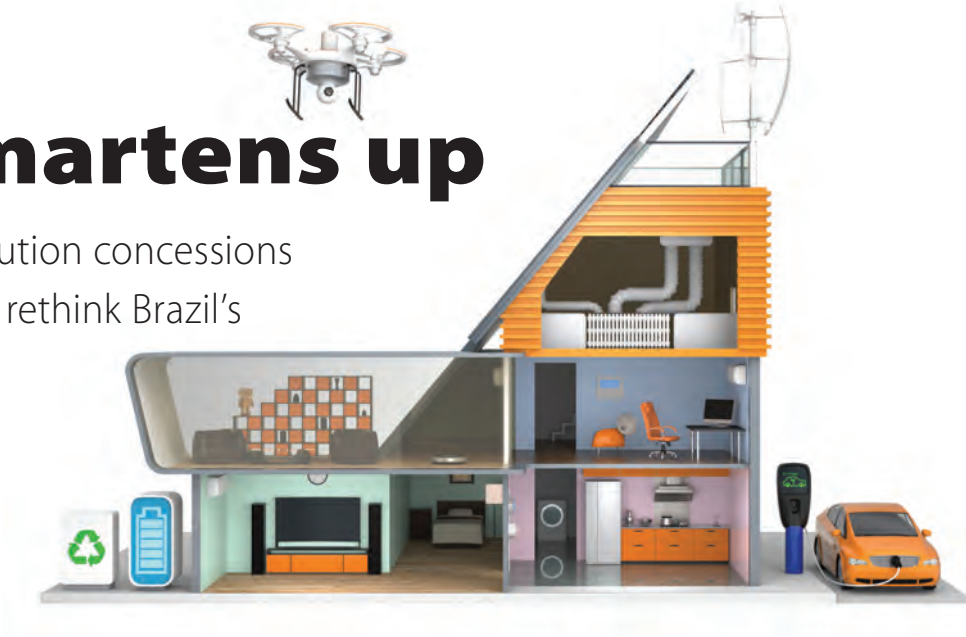
Claudio Frischtak

EBP general director Maria Eduarda Gouvêa Berto says that the company was born from the understanding that the structuring phase of a project is one of the most sensitive for development and expansion of infrastructure services in Brazil; it is a complex process, usually involving expensive projects of long maturation. She points out that the partnership between the nine public and private banks is itself an interesting PPP. The EBP supports governments in structuring projects of public interest and is barred from running infrastructure services.

In analyzing Decree 8428, Frischtak estimates that it will expedite the structuring of infrastructure concessions, although he believes there are many more complex problems to be solved to move infrastructure projects forward. Rodrigo Reis, founding partner of Radar PPP, thinks the decree encourages a maturing of the legal and institutional framework in municipalities, establishing best practices in terms of transparency in the preparation of PPP projects through the PMIs.

Energy smartens up

Expiration of power distribution concessions may offer opportunities to rethink Brazil's whole energy system.



Solange Monteiro

ELECTRONIC METERS that help manage daily energy spending and small power generation from renewable sources connected to the electric distribution grid are turning consumers into producers. Smart grids and distributed power have multiplied around the world. In Brazil in recent years, such power distributors as AES Eletropaulo, Light S.A, Ampla Energia e Serviços S.A. in Rio de Janeiro state, and CPFL Energia have announced smart grid projects worth over R$1 billion that will be completed by 2018. Among the innovations are bidirectional meters in homes, which will make it possible not only to monitor consumption but also to transfer energy to the grid: customers who decide to generate their own power through photovoltaic solar panels would be able to sell any excess energy to distributors.

As yet these are pilot projects and they are concentrated in the Southeast. But creation of this two-way street between energy consumers and distributors may be advantageous for both, including better utilization of power generation potential, less energy lost, and more reliable energy supplies. Getting this done, however, will depend heavily on proper regulation.

For residential customers, in addition to the high cost of equipment, the value-added tax on micro generation reduces the return on investment. For distributors, the list of barriers is even more substantial. "We have studied a variety of alternatives, but the regulator has not indicated who will pay the bill," says Nelson Fonseca Leite, president of the Brazilian Association of Electricity Distributors (Abradee). One issue that needs to be clarified, he says, is how to charge network usage by consumers who also sell energy, since the current electricity tariff includes the costs of both the energy and the transmission. "Today, a residence that balances generation and consumption and has its account zeroed would entail a loss of revenue for the distributor and a subsidy for other consumers using the grid," Leite says. Another challenge is how to calculate depreciation of the assets of these new systems, which are closely linked to telecommunications and information technology, when regulations were designed to cover the depreciation of equipment such as electrical transformers. "Electrical transformers are assets that have a short life span, and that has to be reflected in the electricity prices," Leite says.

In a conservative scenario, Abradee calculates that deployment of smart grids for 50% of Brazilian consumers would require investment of R$46 billion. To improve the return to distributors who invested in modernization of their grids, Abradee presented to the Brazilian Electricity Regulatory Agency (Aneel) a proposal to reduce the pass-through to consumers of productivity gains resulting from market growth and increased consumption, known as "X factor." Aneel plans to hold public hearings on the issue of how distributors will be remunerated.

Joisa Dutra, coordinator of the FGV Center for Studies in Regulation and Infrastructure (Ceri), thinks that distributed generation will transform

the market but will require broader changes, which should be discussed when distributor concession contracts are renewed. By 2017, the contracts of 42 electricity distributors will expire. "Today regulation sets a price cap, which became popular in the 1990s to replace the rate of return," Dutra says. A price cap gives companies an incentive to adopt measures that would generate efficiency gains until the price cap is reviewed (every four or five years), when the distributor shares the efficiency gains with consumers. "This means that distributors profit more the more they sell. But we are now in a world where smart grids and distributed generation (with small solar, wind generator, and a small biomass plant) require another concept: incentives to reduce power consumption, which means lower sales for distributors," she says.

The question of what incentives will work in this new context has not yet been answered. "We are living in a time of transition throughout the entire world," Dutra says. In Brazil, tariff policy is defined in the concession agreement, the Concessions Law, and procedures for tariff review. Here, as in most Latin American economies, Dutra reminds us, infrastructure is heavily regulated, and so the moment when concessions are renewed is an exceptional opportunity to rethink the electric system.

Abradee has discussed changing distributor remuneration to a revenue ceiling so that the distributor can profit by promoting energy efficiency because the revenue will be determined. "We do not yet have a position on the revenue ceiling. In fact, what we have discussed is that with the price cap there is no way to deploy distributed generation," says Leite. "In the case of smart grids, that would be a possibility, if assets were included in the base for calculating the distributor's remuneration. Today what concerns us most is that so far we do not know what are the rules and requirements in terms of service quality and investments for renewing concessions," he says.

"Are we going miss this opportunity to reexamine the incentives of distributors, or simply hand over 30-year contracts to them?"

Joisa Dutra

"In a country like ours, people may perceive the ceiling revenue system as misappropriation by the distributor," adds Dutra. "But the key issue is to understand that we could seek arrangements and solutions in which distributors have a better deal but [consumers] benefit from gains in efficiency later," she adds, noting that the experience in the recent past has not led to a win-win solution for distributors and consumers. "Today distributors have to deal with a significant amount of loans, tens of billions of dollars at high interest rates, whose cost is being paid by consumers. The perception of increased risk creates difficulties for the power distribution sector, as companies' cash flow is uncertain and they are dependent on transfers from government," she says. "Are we going to miss this opportunity to reexamine incentives for distributors, or simply hand over 30-year contracts to them?"

Smart grids

Proper incentives and regulations.




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Photo; Release



Prospects for sugar not so sweet

Elizabeth Farina

Director President,
Brazilian Sugarcane Industry Association (Unica)

Solange Monteiro

IF THE CURRENT BRAZILIAN ECONOMIC situation makes most productive investment projects very costly, sugar industry projects are even more expensive. Already dozens of sugar mills have closed, and the economic crisis has pushed others to file for bankruptcy, with debts estimated to total some US$80 billion. The industry is waiting for the government to define its policies so it can work out a recovery strategy. "The important issue is what is expected of ethanol—this is a decision that the sector cannot make," says Elizabeth Farina, who has been Director President of the Brazilian Sugarcane Industry Association (Unica) since late 2012. Farina reiterates the productive potential of ethanol in Brazil and criticizes government intervention in fuel pricing, pointing out, "Sugar mills are still bleeding."

***The Brazilian Economy*—Last year, Unica hardened its position on ethanol, stating that the government had ruined the ethanol sector. How do you see the return of the Contribution for Intervention in the Economic Domain (Cide) for gasoline and diesel and the increase in the proportion of ethanol added to gasoline C?**

Elizabeth Farina—They are positive steps. The Cide tax established in December 2001 was applied throughout the period when the

Ethanol brings a range of benefits to society that are not reflected in its pump price.

ethanol industry expanded in the 2000s, until it was eliminated in 2012. By raising the price of other fuels, the Cide tax was able to make ethanol competitive. We have called for the return of the Cide tax, recognizing that ethanol brings a range of benefits to society that are not reflected in its pump price, which constitutes remuneration for positive externalities generated primarily in terms of environmental benefits. The increase in the proportion of ethanol added to gasoline from 25% to 27% … creates a demand for ethanol associated with gasoline of about 1 billion liters a year. We are hopeful that these decisions are part of a longer-term vision for ethanol in the Brazilian energy matrix, not just emergency measures to raise tax revenues.

In other words, these actions are not seen as policy?

That's the big question today. It is still not clear whether the government has adopted a long-term goal for Brazil's energy matrix with a set of actions to enable this matrix. The recent measures are positive signs, but they will only succeed in improving the sugar industry if there is a longer-term view that ethanol has high value … from the point of view of both market supply and environment. The sugar industry has suffered as much from fuel pricing policies as [state-run oil company] Petrobras and has spent several years burdened by huge debt. It lacks confidence that things will change. The question is always: What if inflation rises too much and the government decides to eliminate the Cide tax again to control it?

Minister of Mines and Energy Eduardo Braga estimated that demand for gasoline would reach 26 billion liters by 2023. What is the minister's vision for ethanol? He estimates ethanol production by 2023 of 30 billion liters—about the same as today ... But the country will need an additional 26 billion liters of gasoline in the energy matrix that could be occupied by ethanol if investors and sugar mills had confidence in a long-term policy.

How many sugar mills are now in operation?

Since 2008, 80 sugar mills have closed, and another 67 have filed for bankruptcy protection. Of the 369 sugar mills now operating, we estimate that this year another 15 will be closing, though some only temporarily.

This year began with a risk downgrade for some companies. How do you expect to reverse this situation?

On the demand side, there is great potential. But the sugar sector crisis means that there are many difficulties in increasing supply. From the perspective of investment, if fuel prices are administered as they were in the recent past, great demand is of no use because the price is set by the policy of the government, whose goals may be different from support

for meeting potential demand. Sugar mills are still bleeding. It would have been worse if the government had not resurrected the Cide tax in 2015 and increased the amount of ethanol in gasoline, but sugar mills are still in very bad shape, burdened by high debt, low productivity, and sugarcane aging.

And the sugar market is not helping...

Exactly, the price of sugar is still very low, as there are still large inventories, which is not solving the problem of ethanol.

How does the exchange rate affect the competitiveness of ethanol and sugar prices?

At first glance, depreciation of the Brazilian real has a positive effect on those who export, but it's a mixed picture, because it benefits most those who export more sugar. It also depends on the debt profile of each sugar mill because, on the one hand, a weak real is positive to the extent that it helps make exports more competitive, but on the other it can be problematic for sugar mills whose debt is in unhedged U.S. dollars. Because each case is different, it is difficult to estimate the net benefit for the entire industry.

What is your expectation about export markets? Do you expect reduced demand from the United States, the main buyer of Brazilian ethanol?

Our sugar exports are more important than our ethanol exports. We export 60% of sugar production, which represents 43% of the international market. We used to export more ethanol, but in 2014, foreign sales of ethanol fell by 52%, totaling US$1.86 billion. There were several reasons. Lower international prices for corn makes corn ethanol cheaper … But there is also uncertainty relative to the U.S. renewable fuel standard (RFS), which defines the portion of the market that must be supplied with advanced (sugarcane) ethanol, conventional (corn) ethanol, and cellulosic biodiesel. … The figures are being reviewed, and there is a lot of pressure from the oil industry to reduce the importance of the RFS. This is a bad thing, because it generates uncertainty both here and there.

The sugar industry has suffered as much from fuel pricing policies as Petrobras.

To what extent could diplomatic efforts for closer ties between Brazil and the U.S. influence this agenda?

We worked positively for the RFS to recognize Brazilian ethanol as advanced ethanol, and I think it is important to participate in negotiations to preserve this recognition. The methodology for analyzing emission reduction continues to be improved and discussed, and we have followed it both in California and in the context of the U.S. Environmental Protection Agency (EPA). The United States has allowed countries to participate in hearings, public consultations on the proposals for public policy, and we must act accordingly.

For the sugar sector financing costs are growing. Today this is happening in all sectors, but the sugar sector is coming out of a major crisis with no fat to burn.

Currently, two U.S. corporations, CHS and Cargill, have investment projects in Brazil related to corn ethanol, in partnership with local companies. How might this affect the sugar market?

For now, they are still small initiatives; we will see how they will evolve. But … sugarcane ethanol has much higher energy conversion efficiency than corn. Ethanol is more effective in reducing emissions and in energy efficiency. On the other hand, corn is much more advanced in incorporating the productivity gains associated with genetically modified organisms (GMO). Sugarcane does not have any commercial GMO crops; and much research has been done, including in Brazil. There is a much larger space for sugarcane to gain in efficiency and productivity, both in conventional agricultural research and in biotechnology. I hope that translates into improved competitiveness.

The crisis in the ethanol industry has forced Unica to restructure itself. How was that done, and how has it affected Unica's working agenda?

It was a great adjustment. We reduced staff and changed working procedures. Unica's council decided to prioritize institutional actions, along with the federal and state governments, because we know that policies are fundamental to recover ethanol competitiveness and gain ground in the energy matrix. It is very important to define the future Brazilian energy matrix. If the government says it will prioritize ethanol as a substitute for gasoline and important for growth, we'll see what options here are to ensure more ethanol production. If government priority is to mix ethanol with gasoline, that is a different situation.

The important issue is what actually is expected of ethanol, and this is a decision the sector cannot make. Only when the rules of the game are clearly defined will the private investor seek profitability. In the energy sector, profitability depends heavily on government actions, especially in Brazil, because the recent past shows the importance of government intervention in fuel pricing, both in electric power and liquid fuels. So our agenda is first, to get a definition of Brazil's future energy matrix; second, to point out that the initiatives taken so far are positive but insufficient; and third, having clarified the role of ethanol in the matrix, to seek at what level the government actions might be relevant to change the situation of the sugar industry. All items related to this agenda—such as tax differentiation, changes in the Innovate Auto program, and changes in biomass auctioning—may have evolved, but none has been completed.

One of the main debates today is how to improve Brazilian productivity. What is Unica's agenda here?

Regarding manpower, we underwent a major technical change, mechanizing the entire sugarcane harvest. São Paulo state completed this transition to meet environmental requirements, ending burning of sugarcane during the harvest. Initially this mechanization has had a negative impact, and we are still paying for the learning curve, including design of appropriate equipment and introduction of new agricultural practices. Productivity is expected first to fall and then to rise again. Our projections are to recover by 2025 the historical productivity levels of tons of crushed sugarcane, 85 million tons, and then raise it further. This season, average productivity in the Mid-South was 74 million tons. The drop this year had some special causes, such as drought and crop failure in São Paulo state. Nevertheless, productivity has been below the historical average since 2011. Unica has also developed programs to train workers being released from harvesting to become machine operators and work in maintenance and to train others for activities outside the sugar sector. Today there are better jobs, but fewer. And that continues to weigh significantly on budgets.

Have research and development been affected?

The private sector has made an effort to prioritize R&D as a productivity factor. People in the sugar industry have a strong commitment to R&D. We have discussed this a great deal with Agriculture Minister Katia Abreu, who has shown interest in supporting the sugar sector. Of course the necessary measures go beyond the Ministry's purview. But despite the crisis the agricultural sector has been making significant investments. The Sugarcane Technology Center (CTC), a private institution whose shareholders are sugarcane businesses, continues to invest in technology, studying GMO varieties, improvements in agronomic practices, developing second-generation ethanol in some plants, and seeking ways to recover levels of productivity and gain efficiency.

A weak real is positive to the extent that it helps make exports more competitive, but it can be problematic for sugar mills whose debt is in unhedged U.S. dollars.

Now conditions are deteriorating. We understand that fiscal adjustment is necessary. However, an interest rate of 9% for the harvest plan (a fairly high increase for renewal of sugar cane fields) and the limited availability of BNDES resources has both raised production costs and made investment in technology more expensive. We are at a very difficult juncture because sugar sector financing costs are growing. Today this is happening in all sectors, but the sugar sector is coming out of a major crisis with no fat to burn. ■