

Quarterly Knowledge Report



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Quarterly Knowledge Report	3/3
UN Habitat in Rio	3/19-26
IBSA Summit Brazil	April
Brazil Knowledge Week	April
Workshop on Intl Economics	4/8-10

Rio vs. Chicago: Olympic Fundamentals



BET: According to you, what is the ideal legacy of an event like the Olympics for Rio and Brazil?

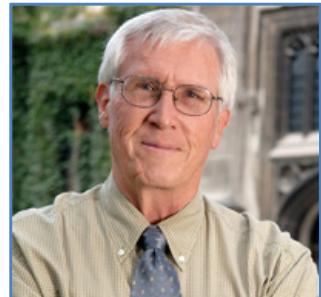
Eduardo Paes: In 2016, the world's eyes will be watching us. And more than that, as was the case in Barcelona, I want the Games to also come to serve Rio. The Cariocas will see the improvements in the infrastructure of the City, will see the growth in employment, the revitalized waterfront, the hotels that will arise because of the Games, all the activities that the Olympics bring to a city. Another legacy that cannot be forgotten is the cultural transformation. We'll work on the City's self-esteem, stir the

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Rio Mayor Eduardo Paes and University of Chicago professor Allen Sanderson have very different views on the upcoming 2016 Olympics. While the Mayor is understandably enthusiastic with the prospect of hosting the Olympics in 2016 and the World Cup in 2014, professor Sanderson, a renowned authority in sports economics takes a more sobering look. Both spoke to BET's Mauro Azeredo.

Eduardo Paes is a rising star in Brazilian politics. He took office in January 2009 as the mayor of the second largest city of Brazil with a "shock of order" platform.

Allen Sanderson is a Senior Economics Lecturer in the University of Chicago and an authority on sports economics issues, a contributor to op-ed pages and a frequent guest on national and Chicago-area television and radio programs.



BET: Are the Games a good deal for Brazil and Rio?

Allen Sanderson: If Rio follows the pattern of most recent cities that have hosted the Games, then no, they tend to be economic losers. Athens spent far more money than it was planning on, Sydney also; London is way over budget, as was Beijing. If Chicago had been chosen I suspect that we would have been over budget too. The reason cities get in trouble over these things is that the International Olympic Committee has monopoly power, and they are able to extract concessions from cities that make them spend more money than they ordinarily would. Another reason

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All Eyes on Brazil

Editorial by Makhtar Diop

So far 2009 has been unique for Brazilians. The country was one of the first economies to emerge from the global crisis, Rio de Janeiro was elected the host city of the 2016 Olympic Games and, as a natural resource superpower, Brazil will take the center stage at United Nations Climate Change Conference in Copenhagen. These are the core issues of this second edition of the "Brazil Quarterly Knowledge Report", prepared by the Brazilian Economic Team (BET).

The choice of Rio as the first South American city to host an Olympic Game triggered a Carnival out of time and sparked debates over the challenges and opportunities in organizing an international event of this magnitude. Rio's mayor Eduardo Paes believes that, more than a chance to host the Games, the Olympics will be a turnaround for the city. In an exclusive interview with Mauro Azeredo, Paes says that

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The opportunity to host the Games is the chance to turn Rio around. There are two types of Games: those that serve themselves of the cities and those that serve the cities”

If Rio follows the pattern of most recent cities that have hosted the Games, then they tend to be economic losers”

Eduardo Paes... (continued from page 1)

conscience of the citizens to make this a cleaner, more welcoming and better managed city.

BET: The City of Rio is negotiating with the World Bank a program to improve public sector and fiscal management. This is innovative, among other things, because of its vertical integration with the State Government and Federal Government. What are your expectations for this operation?

Paes: I have the best and most enthusiastic possible expectations. The US\$ 1 billion loan will be used to write-off 20 percent of the City's debt with the Federal Government, and reduce the interest charged from 9 percent to 6 percent per year. This action will free up almost 300 million reais (US\$ 180 million) per year for the municipal coffers. These resources will allow us to invest in projects for the development of the City and improved living conditions for the Cariocas, including initiatives such as better service provision in education and health. The goal is to direct funds

to the areas of the City that are most vulnerable.

BET: In your vision as mayor of Rio, what is the role of Brazil's large cities for the country's development?

Paes: It is at the municipal level that methods and tools for intervention and the promotion of transparency and fiscal responsibility are developed, which improve services and living conditions. It is at the city level where citizenship is strengthened, to the extent that we invest in basic education and in primary care.

The big cities are the generators of employment and income for the country, the engine of economic development. Large cities are pushing the rest of the country to become agile, flexible and enterprising, to promote a more balanced and sustainable development.

BET: The Pre-Salt oil discoveries should bring great amount of investment and resources to Rio. In your opinion, how should the City deal with it? What are the

priorities of development that could be met?

Paes: Any extra money is welcome. When it arrives, these resources will be invested where the City needs. The priority of my administration is education and health and, of course, I will reserve funds for these areas. In addition, we will improve the town's infrastructure and, thus, the quality of life of the population. Our goal is to make investments that are sustainable, consistent and lasting.

BET: In your view, how can organizations such as the World Bank be useful for large municipalities? And Rio in particular?

Paes: The World Bank has been a great partner for the country, helping the large Brazilian cities in the reduction of social inequalities and improving levels of development. I can say that, in many cases, loans and investments of the World Bank are the big difference between doing and not doing.

Allen Sanderson... (continued from page 1)

is that special interest groups within cities pressure for expenditures that are important to them. So cities get in trouble because they cannot find ways to stop spending.

BET: So the Olympic Games can only be a good investment for cities when they are profitable?

Sanderson: With the Games there are direct monetary

benefits and longer term indirect benefits. In the case of Athens, for example, they hoped that the Games would revitalize the city, bring businesses and tourists to Greece. I don't think that has happened. Likewise for Sydney. Cities like London, Paris, New York are unlikely to get much bounce from the Games, as people are familiar with them. But in the case of Chicago, Rio and even Barcelona, these are cities on the edge: people have heard of

them. So the potential for Rio is in this intermediate category, where there could be more tourism and business in the following years. So, if the Games can go well for Rio this would be the reason.

BET: Would you say that the Games and other big events are especially effective for developing cities in terms of speeding up needed infrastructure and

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Rio's Hour

By Yaye Seynabou Sakho

Rio de Janeiro, known by its nickname of “A Cidade Maravilhosa” (The Marvelous City), is Brazil’s second most important city, with a population of 6.2 million in 2008 and a GDP of R\$128 billion (US\$57 billion) in 2007. The City’s budget is the tenth largest in the country, behind only the Federal Government, seven states and the City of São Paulo.

Although Rio’s socioeconomic indicators rank it well above most municipalities – with below average unemployment and poverty and high average labor income and labor force education – Rio is plagued by deep social and economic inequalities.

The poor comprise about 13% of the city’s population, and the income of the wealthiest is 44 times the income of the poorest. Poor people live in neighborhoods often characterized as slums or *favelas*, with inadequate water, sewerage, and road access, as well as failing schools and health facilities.

Rio’s social conditions are in part the result of a long period of economic decline. The transfer of the Federal capital to Brasilia in 1960 removed a primary engine of the City’s economy. Like other Brazilian regions, Rio then suffered from the economic stagnation that began with the 1973 oil crisis and persisted through the international debt crisis, high inflation and various domestic economic setbacks.

Rio’s economy shrank at an

average annual rate of 1.1 percent between 1985 and 2003. As a result, formal sector employment levels have stagnated and poverty rates have declined at a much slower rate than in Brazil as a whole.

In 1999, the City was compelled to undergo a major debt restructuring process, in which the Federal Government assumed the majority of its outstanding obligations, in return an agreed program of fiscal reforms.

Rio is now poised for a turnaround. The fiscal adjustment, along with Brazil’s economic recovery since the Plano Real was introduced, has substantially changed the outlook for the City, resulting in a more sustainable level of debt.

Growth in the domestic economy—combined with the forthcoming Olympics—provides the City with new opportunities for improving public service delivery and setting the foundations for higher economic growth. (See box on next page about the Fiscal Implications of the Olympics for Rio.)

World Bank partnership

Since taking office in January 2009, the City’s administration has taken significant steps to seize these opportunities. It has also devised a well-defined strategy aimed at:

- generating additional internal resources for capital investment;
- improving the quality of social services,

- particularly in low-income areas; and
- Improving the city’s internal administrative processes in order to reduce costs and enhance performance.

The World Bank is supporting Rio in those efforts, through a proposed debt restructuring DPL, which would allow the Bank to support, for the first time, the integration and coordination of policies at different levels of sub-national governments, as it has been designed in conjunction with the State of Rio de Janeiro Fiscal Sustainability, Human Development, and Competitiveness DPL.

To the extent that this innovative approach proves successful, it could be replicated in other Brazilian states and large municipalities in other countries.

The relatively higher capacity and size of Rio makes it the place for the Bank to start an innovative new development model for metropolitan areas that directly engages with the City while vertically integrating the State and Federal levels.



“Rio is looking to the Bank as a preferred partner for the high profile challenges it faces in the next few years”

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"The expected cost of the Olympics for Rio de Janeiro is about US\$ 4 billion, a 4% increase of annual expenditures"

Rio's Hour... (continued from page 3)

Box 1. Fiscal Impact of the Olympic Games in Rio de Janeiro in 2016

According to the organizers, the financing of the 2016 Olympic Games will be covered by two budgets: one for the Organizing Committee for the Olympic Games (OCOG), which includes all expenditures directly related to the Games, such as financing for the opening and closing events; and the non-OCOG budget, which is the responsibility of the three levels of government (Federal, State and Municipal). The non-OCOG budget covers public and private investments to build new sports venues and infrastructure works, including airport expansions, transport improvements and other operations.

The total OCOG budget is US\$ 2.8 billion, of which 31% will be financed by the International Olympic Committee (IOC) contribution, 45% by private sources (e.g. marketing, ticket sales and licensing) and 24% by the three levels of government. Hence, the State, Federal Government and Municipality need to cover a total of US\$ 672 million – or US\$ 224 million each. The total non-OCOG budget is US\$ 11.6 billion, 34% allotted to projects already under way, 35% to planned work, and 31% to new projects.

Thus, the expected total cost of both budgets for the State of Rio de Janeiro is approximately US\$ 4 billion for the period of 2010-2016, which represents approximately 4% annual increase of total expenditures. Financing of this cost will be covered by loans from the Federal government. Given the comfortable fiscal situation of the State in the medium term, the fiscal impact of the Olympic Games will not affect the sustainability of Rio State finances. ●

Table 1: OCOG cash flow forecast in thousand USD, 2010-2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cash position (Beginning of the year)	-	12,270	10,856	13,186	18,706	14,080	15,345	19,839	4,459
Cash inflows	30,106	46,759	93,899	167,351	247,628	645,649	1,812,218	393	-
Of which IOC contribution	-	-	35,157	66,408	74,220	273,443	332,037	-	-
TOP sponsorship	-	-	-	22,973	22,973	22,973	22,973	-	-
Country, State and City	29,627	46,312	58,259	3,356	74,167	110,746	606,548	-	-
Other Income	480	447	483	74,615	76,269	238,488	850,661	393	-
Cash outflows	17,837	48,173	91,569	161,830	252,254	644,383	1,807,724	15,773	4,459
Of which operations	17,837	48,173	91,569	161,830	252,254	644,383	1,807,724	15,773	4,459
Cash available	12,270	10,856	13,186	18,706	14,080	15,345	19,839	4,459	-

Source: <http://www.rio2016.org.br/en/>

Sanderson... (Continued from page 2)

investments that might otherwise take long?

Sanderson: I think that that is correct. The other advantage that Rio has – some could think it is a disadvantage but I think not – is that it will be a host city for the World Cup in 2014 and also the 2016 Olympics, because one can spend for one purpose and get two benefits. But Rio must be careful that the tail does not wag the dog – sometimes cities spend for infrastructure that they ordinarily would not have done had they not been hosting the

Games. I think that a city should spend money in its priorities and somehow make the Games fit into that model. In other words, if Rio's priorities are in transport and urban development, it should make these long term investment decisions almost independent of the Games. Then I think Rio will be in good shape. But if it tries to modify too much those expenditures just because of the 2016 and 2014 events, it will not be nearly as productive.

BET: So, there are gains of

scale in holding two big events on the round of 2 years?

Sanderson: Yes I think it can be an advantage, but only if the investments are done well.

BET: What would you say is the biggest factor which will determine the success or failure of the Games for Rio and Brazil?

Sanderson: I'd say that the biggest issue is not spending money you do not need to spend. Whether it is Rio or

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Brazil: Population, Transfers and Poverty

By Romero Rocha

With 19.5 million people over 60, Brazil is no longer the country of the young. Demographic trends will change the size of each age group in the next years and problems with systems such as the elderly support could become more prevalent. The World Bank is preparing a study to analyze the trends of poverty rates by age groups, especially comparing the elderly (above 59 years) and the young (below 15 years). It will also assess the impact of the non-contributory social protection system on poverty rates.

One interesting question that arises is whether and how these government transfers affect the young and the old. In essence, conditional cash transfer programs (CCT's), like Bolsa Família, should affect more the young, and the *Benefício de Prestação Continuada*, BPC (a non-contributory social security system targeted on the very poor population) should have a bigger impact on the elderly. But the joint results of these actions are not known.

Many studies have shown that the social protection system in

Brazil has had an important role in the reduction of inequality this decade. After a decade without any change, the Brazilian Gini index decreased from 0.59 in 2001 to 0.55 in 2007. Authors attribute this to: the expansion of social protection networks; an increase in average years of education after the universalization of fundamental education in the 90's; and economic growth in the last decade. According to Barros et al (2006), 48% of the reduction inequality between 2001 and 2005 can be attributed to the public transfers. Most of the reduction (26%) is due to pensions and the social security system, 11.1% due to BPC, and 11.8% due to CCT's, like Bolsa Família.

Figure 1 shows Brazilian poverty rates by age group between 2001 and 2008 with and without the government social protection programs. Poverty rates fell for all groups in the period. The national poverty rate fell from 23.6% in 2001 to 9.3% in 2008. In the urban areas the reduction was from 19.6% in 2001 to 6.8% in

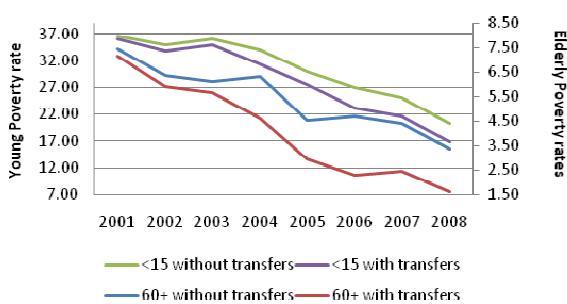
2008 and in the rural areas the reduction was from 47.7% to 22.8%.

The drastic drop in the decade was felt differently across age groups. For the people above 59, the poverty rates decreased from 7.1% to 1.6%, a 78% reduction. However, poverty rates among the young (below 15 years) decreased from 36% to 16.8%, a reduction of only 54%. That is, not only the young are in a worse situation overall, but they also are failing to improve their standard of life as quickly as the elderly. The trend is similar in both urban and rural areas: in the cities the reduction in the poverty rate was of 78% for the elderly and of 59% for the young. In the rural areas the reduction was of 78% and 45% respectively. But these numbers do not tell the entire story. To analyze to what extent the non-contributory federal government transfers have been important to the reduction of poverty rates and how these transfers impacted the old and the young, we have to assess the poverty rates by age groups without the transfers. As we can see in Figure 1, the strongest impact of the transfers was on the elderly group. Without the transfers, poverty among the old would be 7.4% in 2001 and 3.3% in 2008, a 55% reduction (as opposed to a 78% of reduction with the transfers).



“Not only the young are in a worse situation overall, but they also are failing to improve their standard of life as quickly as the elderly”

Figure 1: Poverty Trends (US\$ 2 poverty line)



On the other hand, poverty among the young would fall from 36.6% in 2001 to 20.2% in
(continued on page 6)

“The poverty scenario among the young has changed after Bolsa Família”

Population... (Continued from page 5)

2008 without transfers, a 45% reduction (against 54% reduction with transfers). Thus, the non-contributory government transfers have been responsible for 30% of the total reduction in old age poverty rates of the period, but for only for 17% of the reduction for the young cohort.

However, it is also interesting to note that in the beginning of the decade poverty rates for the young were almost the same with and without the transfers (in 2001 this was 36.1% against 36.6%, a rate only 1.4% smaller with transfers). This scenario changed since the

introduction of Bolsa Família. With the program, the difference between poverty rates for those below 15 years old with and without the transfers has grown (in 2008 this was 16.8% against 20.2%, a rate 17% smaller with after the transfers).

In fact, the poverty trend for the young seems to have a peak in 2003, the year when the Bolsa Família was created. But the effects of the transfers are still much smaller than for the elderly. The non-contributory social protection system seems to be much more efficient in reducing poverty among the elderly. In 2008 the elderly poverty rate

would have been be 3.3% without the transfers. The actual rate was 1.6%, a 52% reduction.

These results suggest that not only the poverty rates among elderly are already much smaller than for the young, but also that the non-contributory social protection system has been less effective to reduce poverty rates for latter; Bolsa Família has decreased poverty rates among children but less so than the BPC for the elderly; more effort seems to be necessary to improve children well being in Brazil, although the social protection system seems to be efficient to protect the elderly ●

“Infrastructure needs long term investments; the Olympics are short term parties”

Sanderson... (Continued from page 4)

London or Chicago it does not matter. There are a lot of special interest groups; there are a lot of constituencies that want access to the spending. And when you are dealing with billions, it becomes very tempting for these groups, be them developers or contractors, union members or government officials, to try to get their hands on as much of that money as they can. That is what has hurt a lot of other Games.

BET: So ring fencing the Olympics and setting them apart from other Government activities?

Sanderson: If you ask people for word associations when you think of Chicago they may say Al Capone. For Rio they may say crime. But these are not really the issues at stake when we speak about special interests. What I am saying is that Government bureaucracy

and just the general difficulty for firms and doing investments. Potentially this might be a problem further on for Brazil, because the country would like to use the World Cup and the Olympics much like Beijing, as a coming out party, introducing the China to the world. In some ways the Olympics in Brazil will be a way to introduce Brazil and South America to the world. And when one does this it has to be as favorable as possible.

BET: Brazil is very state-centric, and does not currently have efficient instruments to engage the private sector in infrastructure. What should be the role of the Brazilian government in financing the Games?

Sanderson: I am a Chicago economist, and economist in general would probably say that if the private sector had a

bigger role that would be a good thing. Whether Brazil and Rio are ready for that I don't know. Government influence can be good or bad, but I think it is fair to say that the government will have a more profound influence on the Games in Rio than it would be true in Chicago, for instance.

BET: Do you feel that the Games may divert Brazil from other important investment priorities?

Sanderson: Yes. I think that Chicago was in the same category. You have to be careful not to let your long term priorities be affected. Infrastructure are long term investments, the Olympics are short term parties, and you want to make sure that it is the investment that is driving this, not the Olympics or the World Cup ●

Brazil Low Carbon Case Study

Opportunities to reduce greenhouse gas emissions while continuing to develop

By Barbara Farinelli and Christophe de Gouvello

On the eve of the United Nations Framework Convention on Climate Change in Copenhagen, the Bank has prepared an important analytical study tackling climate change issues in Brazil. The Low Carbon Country Case Study (LCCCS) quantifies and provides a price tag for Brazil's options in carbon mitigation and sequestration related to land use, land use change and forestry activities, as well as mitigation options in the energy, transportation, and waste management sectors.

The objective is to provide the Brazilian government with the technical inputs needed to identify opportunities in reducing greenhouse gas (GHG) emissions in key sectors, while fostering economic development. To this end, the LCCCS study adopted a programmatic approach in line with the Brazilian government's long-term development objectives, as follows:

- project the future evolution of Brazil's GHG emissions to establish a reference scenario;
- identify and quantify lower carbon-intensive options to mitigate emissions, as well as potential options for carbon sequestration;
- assess the costs of these low-carbon options, identify barriers to their adoption, and explore measures to overcome them; and

- build a low-carbon emissions scenario that meets the same development expectations.

The study also estimates the required incentive/financial investments to achieve such potential GHG reductions, while combining government development priorities and emissions abatement cost effectiveness.

Brazil has a great potential to mitigating emissions, totaling 11,800 MtCO₂e of emissions reductions between 2010 and 2030 – equivalent to getting rid of all of the world's cars during three years – by shifting from the reference scenario to the proposed low carbon scenario (Figure 1). The key driver in the low-carbon scenario is a dramatic reduction in deforestation, which has a far larger potential for reductions than all other sectors combined. Avoided deforestation and carbon sequestration via forest plantations and restoration are the two areas where the low-carbon scenario would be most successful.

To generate these results, in particular to test the proposed changes in land-use to reducing deforestation, the study worked with several Brazilian centers of excellence to build the very first national land-use modeling, with a 1 square-kilometer resolution.

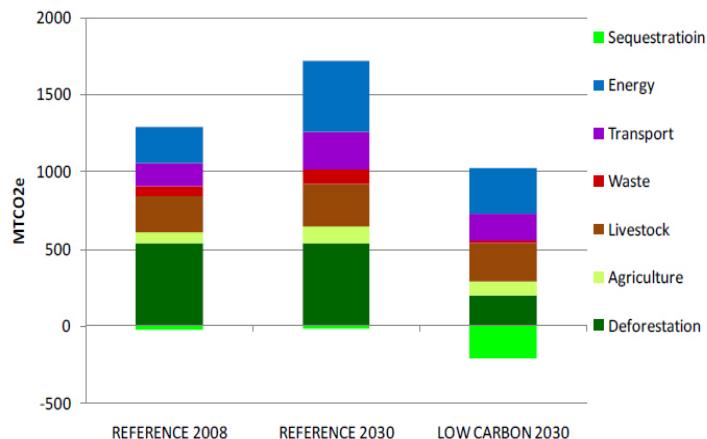
Transport and energy sector emissions are less easily reduced as they are already low compared to international standards, mainly because of the large share of hydroelectricity and bio-ethanol in the current primary energy matrix. However, in absolute terms GHG reduction in these sectors are still significant when compared with other countries in the region.

In sum, Brazil harbors large opportunities for GHG emissions mitigation and sequestration at relatively low cost. This positions the country as one of the key players to lead the UNFCCC negotiations in Copenhagen. However, the implementation of all mitigation options will be a major challenge, requiring large additional financing and proactive national policies.



"Brazil harbors large opportunities for emissions mitigation and sequestration at relatively low cost. This positions the country as one of the key players in Copenhagen"

Figure 1: Comparisons of Gross Emissions Distribution among Sectors in the Reference and Low-carbon Scenarios, 2008–2030





“Reducing the global rate of deforestation is potentially one of the simplest and least costly ways to reduce global emissions”

The Road to Copenhagen

By Adriana Moreira

“It is some hardship to be born into the world and to find all nature’s gifts previously engrossed.” John Stuart Mill (1806-1873), Principles of Political Economy.

Climate change is the largest externality challenge of our times. Not surprisingly, the United Nations Climate Change Conference to be held in Copenhagen is being billed as the summit that may determinate the future of humanity. A major breakthrough is needed, but expectations are ebbing as the deadline approaches. Under the current trend, energy-related greenhouse gases (GHGs) emissions would more than double by 2050, putting the world on a catastrophic path that could lead to temperatures 5°C or more above the pre-industrial era. According to the UN’s Intergovernmental Panel on Climate Change, global warming needs to be limited to around 2°C in order to prevent major disturbances to Earth’s living systems. An energy revolution is required to reduce global carbon emissions by half in 2050 relative to 1990 levels, and to significantly “decarbonize” the world economy by the end of the century.

It is clear that thwarting global warming in excess of 2°C will require sizeable investments to transform the world’s energy systems and allow for the needed adaptation. Pricing incentives and regulation will be required to encourage energy efficient investments. A mechanism to price carbon emissions, either through a global carbon tax or a global allocation of tradable greenhouse gas permits, is needed to ensure that new kinds of capital are less carbon intensive. High income countries need to commit to ambitious and credible carbon emission targets that can stimulate public and private investment in

green infrastructure and energy efficiency.

In this context, there are two basic practical questions to be answered in Denmark:

- By how much does the world need to cut emissions?
- How much will developed countries pay developing ones to reduce emissions and adapt to climate change?

The answers are anything but clear. Japan and the EU set impressive targets for reduction of CO₂ emissions of 20% and 25% below 1990 levels by 2020, respectively. The US is working on a cap-and-trade legislation, and recently signaled it would also set targets. China, currently the largest emitter of GHGs, has pledged to cut emissions but did not mention by how much. India says it will accept only a limit on emissions per person that matches rich countries, which currently means no reductions at all. Deforestation accounts for 18% of global GHGs emissions. Brazil has offered to cut deforestation in the Amazon by 80% by 2020 and the government presented voluntary reduction goals between 36% and 39% for 2030, based on an estimate scenario.

For Brazil and other tropical forested countries such as Indonesia and the Democratic Republic of Congo, another important outcome of Copenhagen would be the discussions on proposed reduction of emissions from deforestation and degradation (REDD) schemes. The idea is to provide incentives for keeping forests standing and prevent deforestation-related emissions.

Estimates for the cost of halving the current global rates of deforestation, and consequently reducing global emissions by 9%, range from US\$ 7 billion to US\$ 28 billion a year. This is potentially one of the simplest and least costly ways to reduce global emissions. However, there are a series of challenges to be addressed (benchmarking future deforestation, land tenure rights, distribution of benefits, reporting, auditing and monitoring mechanisms) before a market for forest-carbon credits could emerge.

Other opportunities available, for Brazil in particular, include:

- Expanding mass transit in urban areas and intermodal regional transport networks (especially railways and waterways);
- Improving waste management and landfill methane capture; and
- Increasing energy efficiency (particularly in industrial processes) and sustaining a green energy matrix.

Mitigation and sequestration measures will demand large investments, but to harvest the full range of opportunities it will be important to combine market mechanisms with public policies and government planning.

The bottom line is that an appropriate emergency climate stabilization program will require, in addition to a huge effort to reprogram investments into low-carbon development pathways, a substantial reorientation of economic flows between sectors, countries and especially between the global North and South. Early action is necessary and urgent.

Amazon Dieback

By Walter Vergara

The Amazon basin is a key component of the global carbon cycle. The old-growth rainforests in the basin store about 120 billion metric tons of carbon in their biomass. Were it released, it would be the equivalent of burning almost 570 million railcars of coal. Despite the large CO₂ efflux from deforestation, the Amazon rainforest is still considered to be a net carbon sink of 0.8–1.1 billion tons per year, because growth on average exceeds mortality.

Current climate trends may be unbalancing this well-regulated system and, in association with land use changes, may shift the region from a carbon sink to a carbon source. Changing forest structure, composition and behavior would have significant implications for the local, regional and global carbon and water cycles.

Changes in the structure of Amazon land cover and its associated water cycle would adversely impact many species as well as critical economic and environmental services. With changes at a global scale at stake, there is a need to better understand the risk, process and dynamics of Amazon dieback. This was the main purpose of a World Bank study to be launched in the next few weeks. Forest dieback is characterized as a reduction in biomass carbon resulting from climate impacts, which would exceed 25% of the carbon in the standing forest.

Using modeling analysis, the study shows that the combined effects of climate change, deforestation and fire events will have very serious impacts on the rainforest biome throughout the Amazon Basin. Although the impacts from climate change mostly result from global

contributions, deforestation and induced fires are aspects that can be dealt with within Brazil. Among the main findings of the study:

- For Amazonia, the remaining tropical forest area relative to its original extension is progressively reduced as climate change impacts, deforestation and fire effects are combined. This supports the need for continued aggressive efforts to reduce deforestation and to promote reforestation efforts.
- Eastern Amazonia is particularly vulnerable, as the combined impacts of Amazon dieback and deforestation result in significant decreases in the forest biome area in the near future (2025). Likewise, these impacts would suggest the need for urgent efforts to control deforestation, complemented by an ambitious reforestation program.
- Northwestern Amazonia fares relatively better but long-term impacts (by 2100) are anticipated even there. The priority for this region lies in strengthening conservation efforts by maintaining current forest cover.
- Southern Amazonia is the region with the highest risk of Amazon dieback and also where a significant replacement of forest with savanna is projected. The region requires urgent measures to deter the deterioration of remaining forest stands.
- In Northeastern Brazil, the anticipated relative increase of the Caatinga (very dry savanna) area foreshadows a drier and hotter climate and conversion of savanna to Caatinga. Efforts would be needed to reforest, restore and maintain remaining ground cover.
- The only biome shift that favors rainforest, observed in the projections, takes place in Southern Brazil, enabling conditions for successful reforestation efforts.

The study concludes that the probability of Amazon dieback is highest in the Eastern Amazon and lowest in the Northwest, but that its severity increases over time and is also a function of the emission path considered. The results indicate the need to avoid reaching a point of global greenhouse gases emissions that would result in an induced loss of Amazon forests. Amazon dieback should be considered a threshold for dangerous climate change. Likewise, the estimated combined effects of climate impacts and deforestation on the integrity of the Amazon strongly suggests that further efforts to reduce deforestation are needed.

The potential economic consequences of Amazon dieback require additional efforts to put a price tag on all the consequences of major changes in the global and regional environmental and economic services provided by the Amazon Basin. A more comprehensive evaluation would help base counteractive actions ●



"The induced loss of Amazon forests due to an increase in greenhouse gases should be considered a threshold for dangerous climate change"

Brazil: Global Crisis Impacts and Medium Term Prospects

By Fernando Blanco

The Brazil Country Management Unit participated in a DEC-PREM project to understand how the ongoing crisis, the policy responses and the post-crisis global economy will shape and impact the medium term growth prospects of developing countries. The approach was to prepare case studies for representative countries from all income groups but the high income one. The countries included Burkina-Faso, Ethiopia, Vietnam, China, Egypt, India, Lesotho, Philippines, Brazil, Mexico, Malaysia, Turkey, and Poland. Each country study provided an analysis of:

- The pre-crisis growth experience and its relationship to the global economy;
- The immediate impact of the crisis and the policy response; and
- The medium term prospects for the country.

The Brazil country study's main finding is that, while the global crisis impacts on the Brazilian economy were immediate and strong, Brazil is emerging stronger than when it entered in it. Indeed, the Brazilian economy demonstrated a strong resilience and is experiencing a quick and strong economic recovery. The country's good performance was made possible because of a process of far-reaching structural reforms and price stabilization in the nineties, followed by the consistent adoption of a sound macroeconomic policy framework in the present decade. Steady macroeconomic

policies allowed the government to create fiscal space and credibility for the adoption of quick policy responses which accelerated the recovery.

The study recognizes that the previous favorable external environment contributed to enhance macroeconomic fundamentals, but highlights that the correct economic policy choices played a central role in creating strong macroeconomic foundations and boosting the country's long term economic growth potential.

This consisted in a strong commitment to prudent macroeconomic policies and the setting up of several "insurance" mechanisms against adverse shocks in the booming period ahead of the global crisis. The first was the generation of a large primary surplus during the last decade. The second was a marked improvement in debt composition, with a debt management strategy directed to reduce exposure to the exchange rate, interest rate shocks and rollover risks. This freed monetary policy from fiscal dominance and has served as an insurance against macroeconomic shocks that frequently combine exchange rate and interest rate shocks and increased rollover risks.

The third insurance consisted in the adoption of the inflation targeting regime, which has been very successful in anchoring inflation expectations. The fourth insurance consisted in the improvement of external solvency. Benefiting from increased commodity prices, exports grew continuously from US\$ 60 billion in 2002 to US\$ 198 billion in 2008. The robust external performance and increased capital flows led to strong accumulation of international reserves, which reached US\$ 206 billion in

December 2008 from US\$ 37 billion in 2002. Total external debt fell to US\$ 200 billion (from US\$ 210 billion in 2002) and public debt fell to US\$ 67 billion (from US\$ 110 billion in 2002). As a result, Brazilian public sector external net debt became negative, and Brazil's external debt sustainability indicators improved noticeably.

The fifth insurance was the improvement in the country's net external liability composition. Promoted by the increasing importance of foreign direct investment and portfolio investment in equities, the change on the net external liability introduced a pro-cyclical bias into the current account as dividends and profits flows are more sensitive to the business cycle than debt interest payments.

As the more intense effects of the global crisis are losing force and normality returns, the Brazil case study points out that expectations about Brazil's medium term prospects are quite positive. Brazil's good performance during the global crisis eliminated remaining skepticism about the country's macroeconomic foundations and its ability to cope with severe adverse external shocks. In fact, the global crisis was an opportunity for the Brazilian economy to pass a severe stress test and to demonstrate that its good economic performance in 2003-08 could not be attributed only to favorable external conditions.

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Brazil's good performance during this stress test makes it internationally better positioned than before the crisis. Strong foreign direct investment and portfolio flows since March 2009 show the attractiveness of the country. The evolution of the exchange rate, sovereign risk, stock markets and other financial indicators also suggest a stronger credibility.

While the good pre-global crisis conditions insured Brazil against the shock and allowed the country to quickly overcome the financial crisis, in the post crisis period these conditions can represent valuable assets for Brazil's short and medium term economic growth perspectives. These include a recent growth cycle based on productivity growth and capital accumulation, low public and external indebtedness, flexible exchange rate regime and improved government debt and net external asset composition, a sizeable domestic demand and significant trade diversification.

Despite the positive prospects for the short and medium run, there are still uncertainties about the long run economic growth conditions. Brazil still faces a pending structural reform agenda of the pre-global crisis period. In addition, medium term effects of the crisis and the maintenance of some of the policy reactions adopted to weather the effects of the global crisis could harm the country medium run growth prospects. Indeed, both issues - how the government will dismantle its anti-crisis package (exit strategy) and the resumption of the structural reform agenda -, will determine the medium and long term growth prospects.

The Brazil case study identifies the fiscal reform agenda as the most important pending issue. While the reduction of the primary surplus should not put at risk fiscal solvency in the short run, the irreversible nature of a good part of the fiscal stimulus will further reduce the space for future countercyclical fiscal policies. With a higher level of recurrent mandatory expenses, fiscal policy options to resume the declining path of indebtedness will be restricted to further increases in taxation and lower levels of public investment, adversely effecting growth conditions.

"The fiscal reform agenda remains as the most important pending issue"

Sharing the Brazilian Experience on Public Debt

By Denise Marinho

Much has been said about public debt in Brazil. Yet, few publications to date have sought to elucidate the role played by improved debt management practices in reducing the costs and risks of Brazilian government liabilities. These issues are explored in a new book published by the Brazilian National Treasury in partnership with the World Bank, launched last August in Brasília.

The book explains why Brazil has become a model for public debt management and its Treasury an international reference. "Dívida Pública: A Experiência Brasileira" ("Public Debt: The Brazilian Experience") sheds light on the evolution of Brazil's debt management over two centuries. The book was edited by Anderson Caputo Silva, World Bank Senior Debt Specialist, and by Lena Oliveira de Carvalho and Otávio Ladeira de Medeiros, respectively Manager and General Coordinator of the Public Debt Strategic Planning Department of Brazil's Finance Ministry. The book has 23 chapter authors, most from the National Treasury, but also World Bank staff and representatives of other institutions of the Federal Government and academia.

The first part of the book traces the origins and history of the public debt in Brazil, from the colonial period until recent days. The second part explains in detail the management of the Brazilian public debt and how it has become an international best practice. The third part is an overview of the bond market in Brazil.

The book is available for free download at the website of the Brazilian National Treasury:

http://www.tesouro.fazenda.gov.br/divida_publica/downloads/livro/livro_eletronico_completo.pdf

The English version of the book is expected to be released later this year.





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the legacy of the Games for the city and Brazil is not limited to improvements in infrastructure, creation of job and growth, but it will stir Rio's cultural transformation. On the other hand, Professor Allen Sanderson, an authority in sports economics from the University of Chicago, is more cautious and sees many challenges for making the most of the Games. Opinions apart, Seynabou Sakho explains how World Bank loans for one and a half billion dollars will help Rio city and State rise to the challenges ahead.

Hurdles are also on the way for the climate change commitment in Copenhagen. While a global partnership is needed on emission reductions and associated compensations, the way forward is still not clear. Adriana Moreira addresses another equally urgent theme for Brazil and other tropical forested countries: reducing emissions from deforestation and degradation (REDD) schemes. Walter Vergara shares with us the finding of a new World Bank report assessing the risk of the Amazon dieback. And on the eve of the summit in Denmark, Barbara Farinelli and Christophe de Gouvello present the "Brazil Low Carbon Country Case Study", an extensive analytical study tackling climate change mitigation options in Brazil. Fernando Blanco reports on his Brazil-specific contribution to a DEC-PREM project on how crisis policy responses and post-turmoil global recovery will impact developing country medium growth prospects. Last, but not least, Romero Rocha sheds new light on how the success in poverty reduction differs across age groups in Brazil.

In the months to come, the world's eyes will still be watching closely Brazil. So will the Brazil CMU. Enjoy your reading!

*Makhtar Diop
Brazil Country Director*

In the Loop

Some of the quarter's noteworthy events

Local Economic Development and Impact Evaluation Seminar, November 16 to 20

The seminar brought together rural and urban development project teams from Brazil and several Latin American Countries to exchange knowledge on impact evaluation and gender dimensions of sustainable development.

II Latin American Forum of Heads of Communication of Finance Ministries and Central Banks, November 18-20

The Forum, sponsored by the Bank, brought together in Rio de Janeiro high level representatives from 13 Latin American and Caribbean countries to discuss economic and government communication in the post crisis scenario.

Brazil Brown Bag Lunch Series

Tertiary Education and Lifelong Learning in Brazil, October 13

Jamil Salmi (HDNED) and comments by Simon Schwartzman (lets)

The authors presented an in-depth analysis of the tertiary system's main strengths and weaknesses and discussed policy recommendations and detailed action plans from their study.

Mandated Benefits, Employment, and Inequality in a Dual Economy, November 5

Rita Almeida (HDNNSP)

The author discussed her work on the effect of enforcing labor regulation in an economy with a dual labor market. Results include that stricter enforcement leads to higher unemployment but lower income inequality. At the top of the formal wage distribution, workers bear the cost of mandated benefits by receiving lower wages.

Poverty and Inequality: Recent Development in Brazil, December 3

Ricardo Paes de Barros (Ipea)

Paes de Barros, one of the foremost researchers on Brazilian social issues spoke about the riddle of the recent strong decline in poverty and inequality in Brazil.