

# Some Elements to Characterize Brazilian Interests in Infrastructure Integration in South America

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## *Summary*

*The integration of the region's infrastructure systems is seen by Brazilian diplomacy as a necessary component of the economic integration process. The Brazilian interest in the integration of the region's transport and energy network is not limited to its direct impact on trade. Brazil also has capabilities in the engineering services area as well as in the manufacture of equipment and construction materials, and has a relatively diversified capital goods producing sector. Regional projects are an alternative to the public investment restrictions existing in the domestic market.*

*The purpose of this paper is to present evidence that might be indicative of the fact that the Brazilian Government's support to Initiative for the Integration of Infrastructure in South America (IIRSA - Iniciativa para la Integración de Infraestructura Regional en Suramérica) in 2000 and the subsequent strengthening of the initiative at the 2004 Summit have played a role in the expansion of Brazilian firms in the South American territory. Research focuses on the area chosen to make the empirical and documentary evidence collection effort - namely, the public works engineering and construction sector.*

*In addition, the paper analyzes the announcements made within the framework of the Growth Acceleration Program (PAC - Programa de Aceleración del Crecimiento). It appears that the implementation of the PAC may result in the decision to give less priority to Brazil's regional integration. The reasons for this reordering of priorities may be found in the need to carry out electric power generation projects at the domestic level, and to seek domestic gas supply sources in order to reduce the country's dependence on the product from Bolivia.*

## *I. INTRODUCTION*

At the South American Presidential Summit held in Cusco in December 2004, twelve South American presidents signed an agreement intended to unify the region's two trade blocs, the Southern Common Market (MERCOSUR - *Mercado Común del Sur*) and the Andean Community, by launching an initiative to form the

South American Community of Nations, now renamed Union of South American Nations (UNASUR - *Unión de Naciones Suramericanas*).

Despite the search for diplomatic objectives, such as enhanced negotiating power and regional representation, the declaration places the economic integration of the regional space as a core objective. To make headway in that direction two strategies have been put forward: perfecting a free trade area<sup>1</sup> in the region, and integrating the energy, transport and communications systems "based on existing bilateral, regional and sub-regional experiences".

The idea of advancing towards the integration of South America within these schemes is not new.<sup>2</sup> Infrastructure investment and the integration of the region's infrastructure systems are seen, by Brazilian diplomacy, as a necessary component of the economic integration process and of the expansion of Brazilian sales in South America. Motivated by the relative lack of transport and communication connections between Brazil and its neighboring markets, Brazilian diplomacy has had this idea for a long time. The Initiative for the Integration of Regional Infrastructure in South America (IIRSA) was the product of ideas generated by diplomats and officials serving in the planning sector of the Brazilian Government. In addition, the incumbent Brazilian Government launched the idea of the South American Community of Nations -with great emphasis placed on infrastructure integration- and has probably been more proactive than prior administrations in terms of funding engineering works in the region that involved Brazilian projects, equipment and materials. Thus, the initiative for the integration of infrastructure systems, contained in the Cusco Declaration, is aligned with the Brazilian vision of the role that infrastructure investment plays in the economic integration process of the region.

The Brazilian interest in the integration of the region's transport and energy network is not limited to its direct impact on trade. On the one hand, Brazil also has capabilities in the engineering services area as well as in the manufacture of equipment and construction materials, and has a relatively diversified capital goods producing sector. Infrastructure projects may be a good way to make full use of, and expand, the production capacities of those three sectors. More specifically, the Brazilian engineering services providers and the equipment and construction material companies find in regional projects an alternative to the private and public investment restrictions existing in the domestic market.

There are few doubts about the advantages that Brazil will gain from an integrated transport and energy infrastructure. Likewise, integration will afford its neighbors new trade opportunities, as a result of lower transport costs, or due to the potential for attaining an enhanced integration of infrastructure subsystems.

The purpose of this paper is to present evidence that might be indicative of what major Brazilian diplomacy initiatives at the regional level converged with economic interests in infrastructure sectors that indicated the advisability of taking steps in the same direction. We do not intend to establish causal relationships; however, everything seems to indicate that the Brazilian Government's support to the IIRSA in 2000, and the subsequent strengthening of the initiative at the 2004 Summit, has played a role in the expansion of Brazilian firms in the South American territory. Research focuses on the area chosen to make the empirical and documentary evidence collection effort -namely, the public works engineering and construction sector.

It is not easy to find concrete evidence of this convergence of diplomatic initiatives and economic interests, partly because a broad-scope diplomatic initiative

such as the integration of infrastructure would hardly result from purely economic and sectoral motivations. Hence, this study sought to gather partial evidence of the economic reasons and the objective logistic needs that might have driven Brazilian diplomacy to emphasize infrastructure connection and integration issues at regional negotiations. To this end, we resorted to different information sources: statistical data, private and public stakeholders, official declarations, and public reports of the parties concerned.

This paper is structured as follows. The second section discusses the needs for infrastructure interconnection between Brazil and the rest of South America, and how the IIRSA initiative was designed to help satisfy those needs. The third section lists the current infrastructure difficulties, and how they motivated the announcements contained in the Growth Acceleration Program (PAC - *Programa de Aceleración del Crecimiento*). The study develops the hypothesis that the deterioration in the conditions of domestic infrastructure may lead to a reduction in the Brazilian energy necessary to carry out the projects designed to provide interconnection with the regional infrastructure. The fourth section examines the instability of the demand for construction services in Brazil and the need, on the part of the sectoral firms, to seek regional infrastructure projects in order to offset such volatility and absence of growth. Then, in the same section, we comment on the slow evolution of public-private partnerships (PPP) and concessions, which caused a reduction in investment in public goods, and also forced engineering service firms to seek to capture foreign markets. The fifth section presents an overview of the Brazilian Development Bank (BNDES - *Banco Nacional de Desarrollo Económico y Social*) financing and support of regional infrastructure projects, an undertaking conceived of as a financial support to the export of engineering services and construction goods. Finally, in the conclusions we review the central ideas discussed in the paper in an attempt to show the convergence of interests between the needs of engineering services and construction firms and the IIRSA initiative, as well as the difficulties -that might result from -and interfere with the initiative- redirecting the investment in public goods as announced by the PAC.<sup>3</sup>

## *II. INFRASTRUCTURE INTERCONNECTION NEEDS IN BRAZIL AND THE RATIONALE OF IIRSA*

### INFRASTRUCTURE INTERCONNECTION NEEDS IN BRAZIL

Inter-regional interconnection within the Brazilian territory is still insufficient, and the economic infrastructure is inadequate in the majority of its regions with less relative development. This situation was not better by the mid-1990s. With the intent to overcome this situation, President Cardoso's Government launched the idea of planning investment and certain public expenditure items in terms of territorial integration and development hubs. What were the characteristics of such hubs?

In the words of the main promoter and executor of the idea, José Silveira [2001], an integration and development hub "is not a transport corridor, but rather a geo-economic space sharing common features, where there are demands and opportunities that must be met via integrated actions. Such actions must be carried out in the fields of economic infrastructure (transport, energy, telecommunications, water resources), social development (education, health, sanitation, housing), information and knowledge (professional qualification, technological development, information access and dissemination) and environmental management".<sup>4</sup>

In 1997, in order to advance towards the definition of the idea, the Brazilian Government commissioned several studies to identify integration and development hubs in Brazil. Such studies surveyed the country's economic infrastructure network in order to detect the areas where there were imbalances between demand for and supply of the different components of such infrastructure. The analysis of the mechanisms to meet such demands, from the conceptual perspective of the hubs, resulted in a portfolio of private and public investment opportunities, efforts to coordinate the different infrastructure components, as well as actions and projects in the fields of social development, environment, information and knowledge.<sup>5</sup>

After a debate between the civil society and the governments of all Brazilian states, the national Government included in its Pluriannual 2000-2003 Investment Plan some of the projects and actions identified in the studies on hubs. Such investment plan was called *Avança Brasil*.

Yet Brazil not only has an inter-regional connection problem within its territory; its transport infrastructure has not been designed to favor intra-regional trade. This is certainly not just a Brazilian problem since, as Moreira [2007] correctly points out, during the natural resource-intensive goods exporting era, the countries' infrastructure was primarily designed for extra-regional trade, basically with Europe. There were not many commercial ties among countries that would justify the creation of an interconnection infrastructure and, in addition, there were also major geographic barriers, such as the Andes, the Amazon forest and mighty rivers hindering the exchange of goods and production factors.

The import-substitution process modified the countries' production structures, but the strongly protectionist policies in force at the time did not favor trade within the region and, hence, there were no incentives or reasons to create an infrastructure that might serve such a purpose.

Finally, inter-country infrastructure connection was inadequate not only because of geographic barriers or trade policy orientation. We should bear in mind that, by mid-20<sup>th</sup> Century, countries were engaged in diplomatic conflicts, and that all those factors, coupled with political nationalism, conspired against their physical integration.<sup>6</sup> The resolution of that conflict agenda and the redemocratization of countries, as from the late 1970s, made it possible to move towards the design and construction of regional infrastructure connection points.

The growth in intra-regional trade in the 1990s evinced the inadequacy of transport infrastructure connections and unveiled, in turn, the integration opportunities in the energy field. But it was precisely during that period that investment in the different types of infrastructure plummeted in the region.

In the new context of democratization, conflict resolution and intra-regional trade growth, the Brazilian Government launched, in 2000, the IIRSA in an attempt to enhance the connectivity of its domestic hubs with its neighbors' transport and infrastructure systems.

In the view of the Brazilian designers of IIRSA proposal, the South American integration hubs pursued two objectives: (i) overcoming border connection problems with neighboring countries, and (ii) taking the Brazilian integration and development hubs as example, building a shared prosperity space in the region from a sustainable development perspective (Silveira [2001]). This original Brazilian idea was clearly expressed in September 2001 by the Brazilian Minister of Planning, Martus Tavares:

"the essence of the South American hub proposal (...) is that of encouraging the integration of countries from a broad sustainable development perspective". Brazil's expectations concerning its involvement in the IIRSA initiative "are not limited to the international expansion of the transport corridors or energy systems. What we wish is development -one that is capable of contributing to fighting poverty as well as the regional and social disparities that characterize our continent".<sup>7</sup>

Furthermore, mirroring two peculiarities of the Brazilian reality -insufficient gas supply and budget constraints- the country's planning sectors deemed it necessary that IIRSA should focus particularly on the harmonization of regulations in the energy sector in order to facilitate trade of energy inputs and encourage private sector involvement in project financing and co-financing.

#### VALIDITY AND RELEVANCY OF IIRSA AS A RESPONSE TO THE PROBLEM OF INTEGRATION

The IIRSA initiative seeks to develop and integrate regional infrastructure. Its actions include: (i) the strengthening of the national investment capabilities and inter-country coordination; (ii) the standardization and harmonization of the institutional and infrastructure regulatory contexts; and (iii) the development and identification of a set of projects that foster private sector involvement.

The IIRSA portfolio contains more than 330 projects totaling US\$37 billion. From that set, 31 projects were selected as a result of technical debates and political agreements to form the so-called "Implementation Agenda Based on Consensus". These projects have been scheduled to be completed by 2010.<sup>8</sup>

Table 1 shows that, in line with the purpose of both facilitating transportation to connect the countries in the region and reducing its costs, the agenda is mostly made up of projects intended to interconnect national road networks -paving, duplication, improvements, bridges and border passes- accounting for 74% of the total amount to be invested until 2010. Of this total, 10 projects are underway and tenders for 5 other projects are about to be called for.

If we analyze the projects, we can see that there is a concentration of works connecting Brazil with other economies in the region as well as the Eastern region with the Western region and the Pacific ports, in this case through undertakings in the Andean region. These were undoubtedly two major deficits in the continent's road network. These projects will, therefore, facilitate trade from and to Brazil as well as the transportation of goods manufactured in the production clusters located in the Atlantic region to the Pacific region.

Three concerns may be mentioned in relation to IIRSA's current strategy. In the first place, the high concentration on road transport projects -particularly those located in the Peruvian Andes- is worthy of notice, as there is consensus about the fact that this is not the most efficient cargo transportation alternative. According to Brazilian specialists<sup>9</sup> consulted, maritime transport continues to be the most economical way of carrying products from the Brazilian Atlantic region to the Pacific coast, and that the projects designed to enhance the logistics and operation of Brazilian ports would be more efficient strategies to reach the Pacific region, and even the Asian market. Furthermore, there are doubts as to whether the most efficient way to export farming products from Brazil's western region is through the Pacific ports, when bulk transportation alternatives might be encouraged, at a lower cost per ton, involving the ports located in the Northern region of Brazil, and from there to Asia and the rest of the world.

It should be admitted, however, that on many occasions there are no alternatives to these road projects and that they are nonetheless justified because of the local benefits they generate. This may be the case of connection projects in border regions, linking economic activities on both sides of the frontier.

In the second place, several civil society sectors are worried about the environmental, social or cultural impact of some projects in the IIRSA portfolio. For instance, they are concerned about the fact that certain road projects may contribute to expanding the agricultural zone, thus accelerating or facilitating the destruction of ecosystems.<sup>10</sup>

In fact, many IIRSA projects are still blueprints or are not supported by a thorough study analyzing their feasibility and impacts. It is only natural to expect that a more in-depth assessment will help identify better the costs and benefits. In the opinion of the IIRSA Brazilian coordinator,<sup>11</sup> there is awareness about the concerns of the civil society and an effort is underway to improve project assessments in their different dimensions: logistics, social and environmental impact, and production chain competitiveness.

In the third place, the World Bank [2005] underscores the need to increase maintenance spending in Latin America to repair part of the existing infrastructure and extend the lifecycle of new projects. The organizations that are critical of IIRSA state the need to repair the infrastructure that is damaged before new large-scale projects are implemented. Adequate infrastructure maintenance is an old problem in Latin America. IIRSA idea is to expand infrastructure supply in the sense of facilitating integration. Therefore, it would not be fair to expect IIRSA to find a solution to the chronic lack of maintenance; yet it would be interesting to better integrate the issue of maintenance in its infrastructure supply expansion agenda.

### *III. CURRENT DEFICIENCIES IN BRAZILIAN INFRASTRUCTURE AND PAC ANNOUNCEMENTS*

Due to budget constraints and governance problems, the compliance level of the *Avança Brasil* program was low. After 2003, budget constraints on infrastructure investment were not overcome and the situation remains critical. With the exception of oil and telecommunications, the different infrastructure sectors are undergoing a period of low public investment and legal uncertainty hindering private investment in the sector.

The main infrastructure problems are long-lived: progressive deterioration in the road network; poor quality of port management; delays in the implementation of electric power projects and works; public administration problems in transport, port, environment and basic sanitation sectors, and an institutional and regulatory context that ensures little certainty to private investors.

New problems have arisen lately: the fragility of natural gas supply as a result of the crisis with Bolivia<sup>12</sup> and the air transport crisis, which is not ignored by the airport infrastructure.

In spite of the above-mentioned problems, there are some positive aspects: the approval of the basic sanitation regulatory framework, which will ensure the provision of public sanitation services; the making of the first PPPs by some Brazilian states; signs of improvement in the management of public spending in infrastructure through the Pilot Investment Plan, and, finally, the launching of the PAC, with greater resources allocated to infrastructure and the adoption of a new management and accounting system.<sup>13</sup>



The PAC organized its projects and actions in three infrastructure sectors: logistics, energy, and social and urban infrastructure. Emphasis has been placed on completing projects underway, on rehabilitating existing infrastructure and, just like with the idea of the old "Integration and Development Hubs", on coordinating the implementation of complementary projects so that they may boost their positive development externalities.<sup>14</sup>

For the 2007-2010 period, the PAC has estimated investments for R\$504 billion (approximately US\$252 billion) which, if distributed in four years, represents an average investment of US\$63 billion per year or 3.5% of the gross domestic product (GDP). Not all PAC decisions can be deemed as an addition to the investment that the Brazilian economy is already making, either because some projects are already underway or because the planned investment flows, as in the case of housing projects, are included in the ordinary annual investment that the public sector makes.<sup>15</sup>

More than 50% of the PAC investment amount -around US\$135 billion- will be used to fund energy infrastructure projects, basically in the oil and natural gas (US\$90 billion) and power generation (US\$34 billion) sectors. Social and urban infrastructure projects account for 34% of the expected investment, and logistics works represent approximately 12% of the estimated total (US\$29 billion).

It is for this reason that the PAC is focused on energy projects, which reflects, in the first place, the fear that economic growth combined with the recent lack of investment in generation may result in a new electric power crisis in 2009-2010, similar to the one the country faced in 2001. In the second place, the crisis with Bolivia stimulated the search for domestic gas sources and prioritized generation projects that were not dependent upon the Bolivian input (hydroelectric plants). In the third place, it evidences the need for investing in the intensification of oil field prospecting in order to adjust the supply to the future demand that will result from the expected economic growth.

Finally, the focus on energy generation is also associated with financing availability. Petrobras is the major investor in the oil and gas sector, where mechanisms are in place for the granting of concessions to the private sector. In the field of electric generation and transmission the BNDES is expected to provide financing, and Electrobras is expected to take part in PPPs for energy generation purposes.

What is the relationship between the need to invest in domestic infrastructure, particularly in the energy sector, and the proposals to encourage connection infrastructure and to fund regional investment projects in which Brazilian enterprises are involved?

From the viewpoint of the organization of public and private infrastructure investment, there is no contradiction between the two, as both may be deemed to be complementary, particularly in the case of domestic logistic projects and regional connection logistic projects.

It is worth noting, however, that the fact that most PAC investments are concentrated on energy results, in part, from the regional integration difficulties that forced Petrobras to change its investment location decisions and accelerated hydroelectric generation projects in Brazil.

In sum, the fear of a new energy crisis and the urgency to improve domestic logistics, particularly in the areas of roads and ports, should compel the Government to concentrate its efforts and resources on domestic infrastructure.

One additional element may reinforce the present focus on domestic projects, and it has to do with the PAC financing structure. Of the US\$252 billion allocated for

investment, only US\$34 billion will come from the national budget. The remaining US\$216 billion will come from other sources. Publicly owned Petrobras and Electrobras will contribute US\$110 billion, and the remaining US\$106 billion will be funded by public and private banks.<sup>16</sup>

The main public bank that will provide PAC with funds is the BNDES. However, it is not clear -from the bank's announcements of its involvement in the PAC projects and from the intentions to use the BNDES to finance regional projects- how financing demands and funding availability are to be reconciled. Annually, the bulk of the bank's funding for infrastructure is used domestically, and only a small portion is earmarked to finance construction equipment and services in South America. There will probably be little room to expand financing to South America, and the bank is likely to focus on figuring out how to reconcile the different domestic investment demands for financing.<sup>17</sup>

For instance, in 2006 the BNDES disbursed US\$24 billion, of which approximately US\$7.9 billion were used to finance infrastructure projects. Assuming that the recent growth in the share of infrastructure in the total disbursed by the bank continues, a total of US\$13.5 billion in loans can be anticipated for 2010. Yet such amount is much lower than the financing demands placed on the bank. According to the information available on PAC financial sources until 2010, the BNDES is expected to finance US\$2 billion per year in logistics infrastructure. In addition, the Bank will have to help finance around US\$8.5 billion in electric power projects and almost US\$8 billion in social and urban infrastructure annually.<sup>18</sup>

During its first term, the Lula administration faced budget constraints, prioritized current expenditure, and encountered serious governance obstacles to carry out infrastructure works. This caused a deterioration in the situation of domestic infrastructure and an increase in the supply deficit in various infrastructure sectors (roads, generation, airports). The PAC constitutes an attempt to reduce governance problems, create a better framework to encourage private sector investment and make a more intensive use of the BNDES, as well as of publicly owned companies to guarantee the provision of higher public investment amounts. The domestic dilemmas and the need to make up for the time lost will reduce to a certain extent the effort and attention being given to the regional infrastructure interconnection problems.

#### *IV. REASONS FOR THE INTERNATIONALIZATION OF ENGINEERING SERVICE PROVIDERS*

The engineering services sector in Brazil developed a great potential for conceiving and carrying out infrastructure projects. Some of these companies gained part of their experience in projects outside Brazil, and that international activity was instrumental in their development *vis-à-vis* the sluggish growth and fluctuations of the domestic market.

This section will discuss two topics. Firstly, the role that the volatile growth of the domestic demand for engineering services played in the internationalization process undergone by the companies in the sector. Secondly, the role that the difficulties for managing public investment and ensuring the involvement of the private sector played in the investment in public goods.



## THE SLOW GROWTH AND FLUCTUATIONS OF THE DOMESTIC MARKET AS FACTORS PROMOTING THE INTERNATIONALIZATION OF THE SECTOR SINCE THE 1980S

What is known as "engineering services" comprise three segments: (a) project engineering, (b) construction, and (c) industrial erection. Typically, firms in this sector operate in more than one segment, so that they are responsible not only for the conceptual development of a project but also for the management, execution and set-up of the works.

Figure 1 shows the monthly output of cement<sup>19</sup> in the last thirty-seven years. Cement is a key construction input and may be deemed as a proxy for the level of construction activity in the country.

The economic expansion in the 1970s made it possible for large engineering firms to attain technological development and increase their production capacity. By the late 1970s, Brazilian engineering firms began their internationalization process by capitalizing on the abilities developed in the Brazilian public investment market and seeking to absorb a portion of large investment projects in Latin America, Africa and the Middle East oil-producing countries.

The early 1980s recession was instrumental in the companies' internationalization strategies. The more than 25% plunge in cement production between 1981 and 1985 serves to illustrate the magnitude of the crisis. When the domestic market contraction became permanent, after 1982, the size that some companies had acquired left no room for minor adjustments to ensure subsistence with what was left of the domestic demand, and forced them to intensify their internationalization efforts. It is then important to highlight the three factors that fostered such internationalization.

Firstly, the financial surpluses accumulated during the previous decade allowed to partially finance the search for new foreign markets. Secondly, thanks to their technical and managerial capabilities, developed in the preceding decade, the capture of markets in Latin America, Africa and the Middle East continued. Finally, the availability of public financing and the existence of public insurance and guarantee mechanisms made it possible for businesses to expand beyond the limits that their self-financing capacity would have imposed.<sup>20</sup>

Between 1985 and 1995, monthly cement production fluctuated between 1.7 and 2.5 million tons, exceeding on few occasions the 1981 record level. The volatility and stagnation of domestic demand reinforced the internationalization process, and at the same time compelled firms to restructure and diversify their domestic activities.<sup>21</sup>

From 1996 to the end of 2002, cement sales recovered considerably, and its production reached between 3.0 and 3.5 million tons per month. This was due to the rise in public investment as compared to its low levels in the first half of the 1990s, but mainly to the recovery of the residential construction sector, propelled by the improvement in the actual income of the population. During this period, cement sales to families grew more than sales to businesses.

Moreover, private investment experienced a recovery, which had a positive impact on industrial erection works. As from 2000, this economic recovery process lost stamina and only in 2002 did a positive trend in cement sales take place as a consequence of the flight of financial assets caused by the increased uncertainty in the political panorama.

From this highly stylized scenario, it becomes evident that the major engineering services firms only partially gained back, between 1996 and 1999, the demand dynamism they had enjoyed in the 1970s. But this recovery had very different characteristics. Firstly, there was an increased share of residential construction undertaken on an informal basis or by homeowners themselves. Secondly, public investment recovered only partially -very far from the levels attained in the 1970s. Thirdly, although private investment opened up new opportunities, the engineering services market had already undergone a transformation with the arrival of multinational enterprises.<sup>22</sup>

As a consequence of the situation described so far, engineering services providers and construction material firms rank among the major Brazilian groups having international investments and operations. Table 2 shows Brazil's seventeen leading multinational groups, seven of which -highlighted on the table- are related to the engineering services, construction, and construction materials sector. Odebrecht, Andrade Gutierrez and Queiroz Galvão are engineering and construction firms. Two groups operating in the cement business -Votorantim and Camargo Correa- decided to internationalize their operations due to the sluggish growth of the domestic market. Two groups are in the construction material business: Gerdau and Tigre. Finally, more than 25% of Gerdau and Odebrecht's income is generated abroad -in fact, Gerdau is Brazil's third largest multinational group in terms of sales volume.

#### THE SLOW EVOLUTION OF PUBLIC-PRIVATE PARTNERSHIPS AND CONCESSIONS

In the last years, monthly cement production was around the 3 million tons, i.e. below the average levels recorded between late 1997 and 2002. The private construction carried out by homeowners remained the major component of cement demand. As from mid-2005, production witnessed a highly volatile growing trend, as a result of the rise in family income. Only in late 2006 did monthly cement production exceed 3.5 million tons, the peak level during the 1997-2002 period.

Public investment by the Federal Government, already low by the end of President Fernando Henrique Cardoso's Government, remained depressed during First Lula's Presidency (2003-2006). This performance is typically attributed to the need to meet the primary surplus targets. Yet, in the face of increased income, the Government chose to maintain the surplus targets by prioritizing current expenditure and, hence, leaving little room for public investment. This was a deliberate fiscal policy decision.

In 2003, President Lula's Administration seemed to be convinced that the way to resolve the dilemma of investing more in public goods and maintaining the primary surplus -with increased current expenditures- was to encourage the creation of PPPs and grant concessions for certain public goods and services to the private sector, especially roads. Yet, four years later, the Federal Government has not managed to establish any PPP. There are several reasons for this, but it is clear that this situation of leaving little space for public investment, either directly or through different private participation modalities, has exerted additional pressure on the search for external markets by sectoral firms.

One main reason was the delay in the creation of a comprehensive legal and regulatory framework for this type of partnerships. This framework, with all its details, was only finalized in 2007, although from the legal point of view, the Government was prepared to call for tenders since the beginning of 2006.

Throughout 2003, the Government worked on the proposed PPP legislation it subsequently submitted to the National Congress for approval. Due to defects in the bill and the complexity of the subject, the parliamentary debate lasted the entirety of 2004, and the bill was only passed and enacted by the end of that year. Once enacted, its implementation was regulated and decisions were made as to how certain mechanisms, such as the guarantee fund, would work. This process took practically all 2005, a year when governmental actions were very much affected by the political crisis.

One controversial issue regarding the implementation of the law (how to record PPPs' potential liabilities) was only defined by the end of 2006, i.e. one and a half year after the law was enacted. Through a resolution of the National Treasury, it was determined that if a government entity -the national, state and/or municipal government- assumes a certain risk in a project implemented under the PPP modality, the entity must record such obligation as a debt and comply with the limits laid down in the Fiscal Responsibility Act.<sup>23/24</sup>

But not only the definition of the legal-regulatory framework was slow. There were also delays and difficulties encountered in the economic and financial formulation of the projects. This is one of the deficits of Lula's Government in this area.

At the end of 2003, the Government defined 23 projects that could be carried out under the PPP modality, but made very little progress in structuring the economic and financial proposal and model of such projects during the two years that the enactment and regulation of the law took. Consequently, at the end of 2005, the Government only had two projects at a more advanced definition stage, and only then did it begin to work on the financial details of the proposal.<sup>25</sup> Finally, in April 2006 the tender specifications -indeed a pre-requisite for any bidding process- were sent to the National Audit Office (*Tribunal de Contas da União* - TCU).<sup>26</sup> Then, in compliance with the law, it was necessary to submit the bidding specifications to the interested parties' consideration in a public hearing, an event that took place in September 2006, when the Government decided it would call for tender only in 2007.

By December 2006, only four of the 23 projects launched in 2003 were considered a priority, and only one had its feasibility study and economic and financial model completed.<sup>27</sup> Several of those 23 projects were removed to be granted to concession, but the concession process did not make much progress either. The authorities attributed this patent stagnation to the excess of control exerted by the TCU, government attorneys and environmental agencies (Fiocca [2006]).

The third factor that stalled the establishment of PPPs was the ideological disputes within the Government as to whether these partnerships and concessions were really necessary to enhance infrastructure investment. Apparently, those who questioned the need to entrust the private sector with public goods investments demanded extremely high compensation schemes from the private sector in the bidding specifications, which ended up being hardly realistic and attractive for investors and giving rise to permanent debates on the economic and financial parameters of partnerships and concessions. This dispute may be considered another management deficit of the Government in terms of infrastructure investment.<sup>28</sup>

The case of the construction of the North-South railway serves to illustrate the conflict existing within the incumbent administration. In December 2003, this project was given top priority among those to be put up for tender under the PPP modality. Later it was announced that it would be granted in concession, which meant

that public moneys would not have been shared with the private party under the PPP scheme. Between 2005 and 2006, three calls for tenders were made, but they were suspended due to disagreements within the Government as to the economic and financial model (Fiocca [2006]).

A second example is the case of road concessions. After almost seven years of studies and discussions, in November 2006, the TCU approved the conditions to grant concessions for 2,600 kilometers of roads. When everything was ready to call for bids, in January 2007, the Government decided to reconsider the question of tolls as it understood that they rendered the concessionaire excessive yields. The revision of the potential concessionaire's profitability affected the first PPP project, which was ready for execution since its profitability scheme was similar to the one established in the original concession documents. In short, in March 2007, the economic and financial parameters of the first PPP and concessions were again subjected to revision. In July 2007, the TCU approved the new concession specifications, with lower yields and tolls, and the Government announced that by October of the current year the bidding process would be finalized. Moreover, it decided to turn the PPP project into a concession and to reduce tolls after conducting a new study on traffic flow and on the likely reduction of the expected returns.

It is no surprise that, due to the limitations and characteristics of the Brazilian demand for engineering services, the sector's leading firms need geographically diversified markets. This makes these companies' interests be in line with the need to improve and integrate the regional infrastructure. Large firms have the capacity to work in regional projects and this may serve them as the vehicle to stabilize the use of their capacities.

However, financing is a crucial factor in the capacity of businesses to take part in competitive bids for a major infrastructure project. According to a study commissioned by the Ministry of Development, Industry and Trade (MDIC - *Ministerio de Desenvolvimento, Industria e Comercio*) in 2002, the Brazilian civil construction sector is fairly concentrated in terms of capital volume. In spite of being in a position to compete at the global level, the firms analyzed in this study stated that they needed the financial support of international counterparts. Without such support, their permanence abroad turns out to be difficult.<sup>29</sup> It is here where the role of the BNDES becomes important.

## *V. THE ROLE OF THE BNDES IN LONG-TERM FINANCING AND IN THE INTERNATIONALIZATION OF FIRMS IN THE ENGINEERING SERVICES SECTOR*

Public financing was important in the internationalization of engineering services companies in the past. Today, the BNDES plays a significant role in this process. Indeed, in the last years, Brazilian engineering services firms were awarded the execution of several infrastructure projects in South America as a result of combining their capacities and the BNDES' financial support in project structuring.

The role of financing becomes obvious if we think that in a public work construction project, the construction firm must advance a portion of the wages, the material purchase and equipment rental. The financing needs do not end with the initial advance payments since, on many occasions, as a project progresses, the construction firm may be required to increase its working capital and, in this process, the lending agency plays a central role.

A bank like the BNDES may grant long-term financing under highly competitive conditions, which will be instrumental for the firm's bidding quotation, and therefore,

for improving its position in the project-awarding process. In other words, funding makes the project viable and enables the engineering firm to initiate the works with bridging credit, thus meeting their cash needs until payments are actually received.

#### THE ROLE OF THE BNDES IN LONG-TERM FINANCING

The fact that the BNDES is funded with public resources enables it to structure longer-term operations than those available in the rest of the Brazilian financial system. The Bank's fund structure as of 2006 was made up of contributions from the Unemployment Insurance Fund (FAT - *Fundo de Amparo ao Trabalhador*)<sup>30</sup> (more than 50% of the total); special contributions from the Social Integration Program (PIS - *Programa de Integração Social*) and the Civil Servants' Savings Program (PASEP - *Programa de Formação do Patrimônio do Servidor Público*)<sup>31</sup> (14%); external sources (8%); equity capital (10%) and other minor sources. By the end of 2006, its total assets amounted to US\$88 billion and its credit portfolio amounted to US\$69 billion.<sup>32</sup>

As mentioned in the third section, the BNDES' annual disbursements totaled US\$24 billion in 2004 and experienced a significant rise in the last two years as a result of the bank's enhanced activity and the Brazilian economic recovery that began at the end of 2005.<sup>33</sup>

Figure 2 shows the evolution of the two credit segments in Brazil -the targeted and non-targeted credit segment<sup>34</sup>- *vis-à-vis* the GDP throughout the 2001-2007 period. This Figure further illustrates the BNDES loans as a share of GDP. These account for approximately 5% of the Brazilian GDP and represented between 50% and 60% of the targeted loans in that period. In addition, the Figure shows the recent growth in non-targeted financing, from 15% of the GDP in 2002-2004 to more than 20% of the GDP in 2006-2007.

The average cost of the BNDES' domestic resources is lower than the cost of the National Treasury domestic resources. There are two remuneration rates for the FAT funds transferred to the bank: the long-term interest rate (*Taxa de Juros de Longo Prazo - TJLP*),<sup>35</sup> which is applied in the case of the ordinary or traditional operations funded by the bank (e.g., the financing of purchases of domestic capital goods), and the LIBOR rate plus exchange rate variation for the funding of projects involving the production and marketing of goods intended for the international market. The bank pays a maximum rate of remuneration of 6% on the FAT ordinary resources per year.<sup>36</sup> PIS/PASEP special deposits are remunerated at the TJLP as from the liberalization of the loans granted to final beneficiaries.<sup>37</sup>

The interest rate charged to the borrowers of the BNDES is composed of the bank's financial cost (TJLP or LIBOR + exchange rate variation), a basic rate of remuneration to the bank (up to 3% per year to cover operating expenses),<sup>38</sup> and a credit risk rate ranging between 0.8% and 1.8% per year

Hence, there is a subsidy for borrowers, resulting basically from the difference between the BNDES' long-term financing cost and the same financing provided by the private banking sector or the private securities market. But the fact is that this kind of private market is virtually non-existent in Brazil. When a firm is unable to obtain funds from the BNDES, it must resort to external funding for its long-term operations or give up the idea altogether.<sup>39</sup>

It is possible to estimate, however, the fiscal cost involved in the fact that a public sector asset (FAT) is remunerated below the minimum cost of the public sector's



internal debt. The counterpart of this public sector cost represents a benefit for the private sector, which borrows from the BNDES at the TJLP rate, and is able to lend the Treasury at the SELIC rate, which is higher.

This fiscal cost in terms of the gross domestic product depends on the difference between the SELIC and the TJLP rates as well as on the relation between the FAT assets and the public GDP. The greater the rate difference, the higher the fiscal cost for a given FAT/GDP ratio. In the last years that rate differential has diminished, as compared to the second half of the 1990s, but the FAT assets grew in GDP terms. Table 3 shows Giambiaggi's [2007] calculation of the fiscal cost of the SELIC-TJLP rate difference in the current decade.

#### THE ROLE OF THE BNDES IN THE SUPPORT OF ENGINEERING SERVICES EXPORTS

In the second half of the 1990s, the BNDES created an export financing system, with different credit lines and conditions. According to the data shown in Table 4, the disbursements made through the various export credit lines between 2000 and 2006 amounted to around US\$4.3 billion, with a minimum US\$2.6 billion in 2001, and US\$6.4 billion in 2006. Although these are significant amounts, when compared to the total annual export figures for the same year, the proportion of BNDES-financed sales was about 5%, with a maximum 6.5% in 2002. You may say, then, that the BNDES financing is not significant for Brazilian exports as a whole, as the sector has other credit lines available. However, BNDES financing may be important for certain types of producers or sectors.<sup>40</sup>

Export credit disbursements account for a little less than 30% of the bank's total disbursements and are distributed in more or less equal parts between pre and post-shipment financing, as shown in Table 5. In the last years, there was an increase in the share of pre-shipment financing in total export credits.

The BNDES' operations to finance infrastructure works abroad are devised as engineering services export operations, under the post-shipment modality. But in the case of these services, financing must comply with certain requirements. Basically, for Brazilian exports of goods to be eligible to be included in the project, they should account for at least 35% of the total financing. This percentage may be lower depending on the profitability of the project, or higher depending on the potential for maximizing the export of goods associated with the engineering project. Basic and detailed engineering projects may be totally financed and may even be considered as exports of Brazilian goods when calculating the required minimum 35%.

The financing cost consists of the basic interest rate plus the commission charged by the BNDES and the financial entity performing the transaction. The basic interest rate is the London Interbank Ordinary Rate (LIBOR) rate in the term of the credit granted by the Brazilian exporter to the foreign importer. The BNDES' Commission is 1% on the financed amount. Credits may be given for a maximum period of 12 years.

The documents that structure the operation must be secured by a banking institution or credit insurance. Recently many credit operations to finance service exports were performed within the framework of the Reciprocal Payment and Credit Agreement (CCR - *Convênios de Crédito Recíproco*). The CCR is a mechanism combining multilateral offsetting with a bridging credit and guarantee system for balances offset among 12 central banks.<sup>41</sup> This mechanism is used to guarantee bank instruments issued by the banks in the countries participating in foreign trade transactions. It offers three



types of guarantees: convertibility, transfer and automatic refund. The CCR makes it possible for the exporter to eliminate trade risk and transform the sovereign risk of the importer's country into sovereign risk of its own country.

In sum, Brazilian engineering services providers can resort to a financing mechanism offered at international costs, for a maximum term of 12 years and with either private or official risk mitigation mechanisms. Table 6 shows the sectoral distribution of export credits in all their modalities.<sup>42</sup>

Construction services received in average between 1% and 1.5% of the credits between 1995 and 2002. In 2003, financing rose to 3% of the total foreign trade, and in 2004 and 2005 its share ranged between 5% and 6%, to drop again to 3% in 2006. The share of construction and engineering services does not compare with the magnitudes of automobile vehicles and transport equipment (airplanes) but their growth in recent years has been really significant.

What construction and engineering service export projects is the BNDES financing in South America? Table 7 shows the main operations already approved in South America, including engineering services and other projects. Loans total US\$1.7 billion. None of these projects is included in the IIRSA portfolio. Even though the BNDES has not provided additional information about the nature of these projects, available data -sales of EMBRAER (*Empresa Brasileira de Aeronáutica*) airplanes to TAME in Ecuador, irrigation, harvesters, subways- makes it difficult to classify them exclusively as integration projects, at least in the sense used by IIRSA for the term.<sup>43</sup> Such projects contribute to the improvement of the transport and energy infrastructure as well as to the agricultural development of the countries where the projects are undertaken, but they do not appear to have as their central goal the facilitation of the economic integration of the South American countries.

The BNDES seeks to support construction projects that generate additional exports of Brazilian goods and services. According to a BNDES estimation, the ten greatest endeavors financed by the bank in the areas of energy and transport in the region generated exports for US\$287 million for more than 1,600 firms.<sup>44</sup>

Ten engineering services export project are currently being analyzed by the BNDES. As it can be seen in Table 8, of all the projects under study, four belong to the IIRSA portfolio and only one is included in the Implementation Agenda Based on Consensus. The four IIRSA projects are at a very early stage of the process of analysis, as they are at the prospect stage.

The projects whose credits have already been approved and the projects still under analysis are highly concentrated on the energy sector (gas pipelines and hydroelectric works), and this may be associated with the capacities of Brazilian firms, which have greater expertise in this type of projects already executed in Brazil or in their international experiences.

Box 1 presents the example of the financing operation related to the expansion of the San Martin Gas Pipeline in Argentina, a typical export credit for engineering services, associated with the exportation of materials manufactured in Brazil and whose guarantee system was structured according to the CCR scheme.

In sum, the BNDES seems to be acting as an export credit bank that conditions its financing facilities to the use of Brazilian capital goods, making use of the competitive advantages of domestic firms in engineering services provision, and in the machine and equipment manufacturing sectors. However, the evidence gathered

so far indicates that the rationale of the integration projects financed by the BNDES is different from that of the projects in IIRSA portfolio, which are focused on the connection of infrastructure systems. The BNDES works within a shorter-term horizon, funding projects which become immediately mature by generating greater exports of Brazilian machinery and capital goods (for instance, subway cars), while IIRSA projects would not result in higher export rates until roads are completed, new markets are captured or distribution networks are established.

## VI. CONCLUSIONS

Brazil needs to integrate its infrastructure with the rest of the South American countries and, in turn, each country concerned needs to improve its connections with its neighbors. The integration and development hubs discussed and designed by the Brazilian planning sector in the 1990s were direct predecessor of IIRSA, an initiative put forward by Brazilian diplomacy in 2000 that seeks the integration of different geographic and economic hubs through investments in infrastructure connection and other complementary development actions. Brazilian diplomacy used the vision of its country's planners to devise and put

forward an initiative that met the requirements of Brazil's trade and territorial integration. However, it must be made clear that this initiative flourished because, despite the strong identification to its origin and design, IIRSA expresses a need for all the South American countries.

This paper sought to illustrate the objective convergence of interests between the regional infrastructure integration initiative and the need of firms in the engineering services and construction material sectors to gain international markets, while showing the weaknesses and characteristics of the Brazilian construction industry and its motivations for the internationalization of the companies in this sector.

Domestic demand for engineering services and construction materials experienced slow growth and high volatility rates since the 1980s, compelling Brazilian firms in the sector to seek access to new foreign markets and settle abroad to offset domestic difficulties. Among Brazil's 17 leading internationalized economic groups, seven of them are engineering services companies, cement firms and construction material manufacturers. In recent years, there has been no improvement in the areas of investment in public goods and large engineering projects in Brazil, circumstances that have added further pressure to this search for external markets.

The BNDES has recently contributed to the development of this convergence of interests between the integration initiative and the companies' needs by financing the exporting effort of Brazilian engineering services firms and their suppliers, who are taking part in infrastructure works in the region. The financed amount is a small portion of the bank's export credit portfolio and most of those projects are more geared to attain internationalization than connection. The evidence gathered about the BNDES's role seems to suggest that regional infrastructure integration is subordinated to the more general strategy of supporting the exporting and internationalization effort of firms in the sector.

If we analyze the announcements made within the framework of the PAC, it appears that the incumbent Government's priorities seem to be redirected towards investment in domestic public goods (energy and, to a lesser extent, roads). The

implementation of the PAC may result in the decision to give less priority to Brazil's regional integration. The reasons for this reordering of priorities may be found in the need to carry out electric power generation projects in order to avoid an energy crisis in the near future, and to seek domestic gas supply sources in order to reduce the country's dependence on the product from Bolivia, which has become a riskier source.

If progress is made in the implementation of the PAC, there will be an excess of demand for BNDES funds. Given the reorientation of investment towards domestic objectives, the BNDES's future financing should focus on infrastructure and public goods projects in Brazil. As a result, the funds to support engineering and infrastructure connection projects should be subordinated to the central priority, i.e. invest within the Brazilian territory.

For Brazil, infrastructure integration in South America has another component: the search for and prospecting of oil and, mainly, gas reserves. Petrobras has been actively involved in this endeavor since the mid-1990s by expanding its regional investments in the production of oil and gas and, to a lesser extent, in the production of other energy resources, oil refining and by-product distribution.

For future analysis of infrastructure integration in South America, it seems necessary to study Petrobras' internationalization strategy in the region from a perspective similar to the one adopted in this paper. Undoubtedly, the company succeeded in diversifying its operations and in securing, in the past, the supply of gas to Brazil; however, the difficulties that arose with the supply of Bolivian gas seem to have raised new concerns about the future strategy of Brazil and the company in this field.

## Notes

<sup>1</sup> During the last two years, a great diversity of subjects has been added, and the predominance of the trade dimension in the negotiations aimed at defining the thematic agenda of this integration project has become diluted.

<sup>2</sup> In 1993, Brazil boosted the building of a South American Free Trade Area (ALCSA - *Área de Libre Comercio Sudamericana*). In 2000, the first South American presidential meeting was held, and it is within that context that the infrastructure integration project was launched through the IIRSA initiative. Such initiative is intended to develop the region's transport, energy and telecommunications areas. Since its inception, IIRSA has had the formal support of the Inter-American Development Bank (IDB), the *Corporación Andina de Fomento* (CAF), and the Financial Fund for the Development of the Rio de la Plata Basin (FONPLATA). At present, in addition to these institutions, the Brazilian Development Bank (BNDES - *Banco Nacional de Desenvolvimento Econômico y Social*), a Brazilian public banking institution, deems the initiative to be a priority and is willing to earmark funds to finance projects contemplated in the same.

<sup>3</sup> This article draws on, and enlarges on, the arguments contained in Iglesias [2008].

<sup>4</sup> José Silveira served as Strategic Planning and Investment Secretary of the Ministry of Planning during President Cardoso's administration.

<sup>5</sup> Nine hubs were identified: Northern Arch, *Madeira-Amazonas*, *Araguaia-Tocantins*, West, Trans-North-eastern, *São Francisco*, Southeastern, South West, and Southern. According to the President's Address to Congress [2002], public and private investments worth US\$137 billion were planned for the 2000-2007 period.

<sup>6</sup> Some examples are the choice of the railway gauge in border areas and the delays in building border bridges linking Argentina and Brazil.

<sup>7</sup> This statement makes it clear that the goal of overcoming border connection and national system interconnection problems was central, but not the only one. It was initially proposed to replicate for IIRSA the same objectives that had guided the definition of the integration and development hubs in Brazil. Later in his speech, Minister Tavares suggested using the same methodology as the one applied in the definition of hubs in Brazil and in the organization of the *Avança Brasil* program -i.e., "conducting studies and debating their outcomes with the society, encouraging private investment decisions, seeking institutional and legal improvement and putting in place an efficient and transparent public governance and management" (Tavares [2001]).

<sup>8</sup> IIRSA, like *Avança Brasil*, has established a project classification system under which projects are grouped by integration hubs, i.e. geographic or economic areas that would have greater development prospects by working on an integrated basis.

<sup>9</sup> Interview held with the infrastructure coordination board of the Brazilian National Industry Confederation.

<sup>10</sup> The Lima Declaration of July 2005, signed by a group of 29 South American, European and American civil society organizations, highlighted several controversial aspects of IIRSA. These organizations make up the IIRSA Articulation, a group of non-governmental organization

(NGOs) dedicated to exchanging information and promoting civil society engagement around IIRSA initiative. To these organizations, many of IIRSA's projects are located in areas of great natural wealth and high biological and cultural diversity. There are doubts as to whether these projects will help to integrate their people or, contrarily, will adversely affect them by impacting the ecosystems on which they depend (BIC [2005]).

<sup>11</sup> Presentation by the IIRSA Brazilian coordinator at the Brazilian National Industry Confederation, August 15, 2006.

<sup>12</sup> Nearly one half of the domestic supply of such product comes from Bolivia. The crisis resulting from the decision to nationalize Bolivian gas threatens the supply of natural gas and reinforces the need to seek alternative supply sources and adopt a new legal framework for the sector that may attract new investments since the gas sector, according to specialists, lacks a regulatory framework that organizes the market, sets the conditions for the various uses of the product and promotes the involvement of the private initiative in the different services of the gas production chain.

<sup>13</sup> The creation of a Managing Committee, which is to back and monitor investments, as well as the obligation of the Executive Branch to render accounts every four months to society are very positive steps in terms of public investment management.

<sup>14</sup> In addition, the PAC has a wide-ranging legislative agenda including measures intended to reduce the current expenditure on the public sector, limited tax allowance on capital goods purchased to carry out infrastructure works, and several legislative reforms that would foster infrastructure development, such as a new regulatory framework for the natural gas sector, a regulatory framework providing for the competence required at the different public administration levels in environmental matters, and improvement of the legislation regarding regulatory agencies.

<sup>15</sup> The Government estimates that the PAC will be able to raise the investment rate by one percentage point of GDP in 2007 to 22%, and expects that rate to be 25% of the GDP in 2010.

<sup>16</sup> Actually, the PAC identifies a series of investments that should be privately funded through PPPs, concessions and other mechanisms.

<sup>17</sup> One of PAC measures was to tone down the bank's lending conditions by extending the grace as well as the loan repayment periods.

<sup>18</sup> The BNDES authorities are aware of the dilemma they will have to face in the future. The bank's financial director announced that there will be a US\$1.5 billion excess demand for funds in 2007. For this reason, among other strategies, the bank will reschedule an issue of external bonds maturing this year and funds in the international market again as from next year (Valor Econômico, August 23, 2007).

<sup>19</sup> To soften its fluctuations, the value of the month is equal to the moving average for the last three months.

<sup>20</sup> Actually, public insurance and guarantee mechanisms were more significant in the mid and late 1970s than in the 1980s.

<sup>21</sup> Some leading companies shifted to other production segments.

<sup>22</sup> It is worth noting that, as from 1995, as a result of the constitutional reforms proposed by the Cardoso administration, foreign companies are allowed to take part in bids for public works.

<sup>23</sup> This accounting methodology will be compulsory (a) if the public partner receives more than 40% of the expected income or (b) assumes more than 40% of any contingent additional cost of the project, or (c) pays more than 40% of the contract consideration.

<sup>24</sup> In January 2007, the National Audit Office (*Tribunal de Contas da União* - TCU), the administrative and legal audit agency of the Executive Branch, determined that the National Treasury Secretariat's resolution was legally defective and had to be modified.

<sup>25</sup> According to news reports, in January 2006, the federal project that was to be put up for tender under the PPP modality -two federal highway sections in the state of Bahia (BR 116 and BR 324)- was being analyzed by the Ministry of Planning, the BNDES and the International Financial Corporation. The other project, declared to be of governmental interest, was the *Pontal* irrigation project, located in *Petrolina* (state of *Pernambuco*).

<sup>26</sup> The TCU revision was delayed and the bidding specifications were approved in July 2006.

<sup>27</sup> A technical deficit example may be found in the federal government's executive order of 2006, which authorizes the private sector to submit PPP studies. Should the studies be satisfactory, the entity that conducted the studies is to be paid by the winning bidder.

<sup>28</sup> According to press reports available, the debate focused on the toll or subsidy ceilings, which had to be expressly stated in the bidding specifications, on the basis of which interested firms had to make their bidding proposals. Additionally, there was the concern that the dispute would not result in a sufficient reduction of toll values, due to the participating firms' propensity to collude.

<sup>29</sup> Of the 150 firms with some foreign market experience analyzed in this study, only two had constant presence abroad (MDIC [2002]).

<sup>30</sup> The Constitution mandates that at least 40% of the FAT funds must be earmarked for the BNDES employment generation projects in Brazil. The remaining 60% must be used for unemployment insurance funding. In 2006, 54% of the bank's capital consisted of FAT funds. This fund is made up of two contributions: the PIS, which is calculated on sales of private firms and on payroll; and the PASEP, which is calculated on the federal, state and municipal government revenues.

<sup>31</sup> The results of the financial applications of the FAT are the fund sources of these special deposits, which are allocated to finance BNDES-administered employment promotion programs.

<sup>32</sup> "*El apoyo de Brasil a los proyectos en Sudamérica*" a BNDES' presentation at IIRSA meeting held in July 2007 (<http://www.iirsa.org>).

<sup>33</sup> The value in US dollars of disbursements also grew as a result of the appreciation of the domestic currency.



<sup>34</sup> Targeted funds implies that they are allotted to a given use, such as the loans for housing or for the purchase of capital goods, which is the BNDES' main activity.

<sup>35</sup> The TJLP is lower than the SELIC rate, which is the basic rate used as a reference for the monetary policy as well as the minimum rate paid by the Treasury in connection with domestic funds.

<sup>36</sup> The difference between the effective annual TJLP and the 6% per year is capitalized into the outstanding balance owed by the bank to the FAT.

<sup>37</sup> Non-allocated special deposit resources are remunerated at the SELIC rate.

<sup>38</sup> When private banks act as financial intermediaries, this 3% is the intermediation commission for the private institution.

<sup>39</sup> In spite of the lack of a domestic long-term credit market, not always is there excess demand for the BNDES funds. When this is the case, the bank gives preference to the most profitable transactions until its lending capacity becomes exhausted. Any profitable project approved but not financed in a given period is given priority in the subsequent period.

<sup>40</sup> Private banks offer short and mid-term pre-shipment credit lines, and large exporters, who have very good credit ratings, have access to long-term facilities structured on the basis of their revenues from foreign sales. In 2002, private trade financing was substantially reduced, as well as other foreign sources of financing to Brazil. The BNDES acted in order to offset the lower supply of financing from private lenders.

<sup>41</sup> All Latin American Integration Association (ALADI - *Asociación Latinoamericana de Integración*) members participate in the CCR excluding Cuba and the Dominican Republic.

<sup>42</sup> This shows the total distribution of export credits. No data was available on the sectoral distribution of post-shipment finance.

<sup>43</sup> Some of them, like the Caracas Line 4 Subway were already being financed since 2001.

<sup>44</sup> Statement by the BNDES Foreign Trade Superintendent (Globo, August 6, 2006).

EXPANSION OF GAS PIPELINE CAPACITY IN ARGENTINA. SAN MARTIN PIPELINE.  
TRANSPORTADORA DE GAS DEL SUR

The BNDES approved a credit for up to US\$237 million for exports of Brazilian goods and services to Argentina, for the project aimed at expanding the natural gas transport capacity of *Transportadora Gas del Sur* (TGS) a subsidiary of *Compañía de Energía S.A.*, in which *Petrobras Energía S.A.* (PESA), a subsidiary of *Petrobras Argentina*, owns an interest. The expansion of the transport capacity of TGS will result in enhanced gas and electricity supply to the Buenos Aires region.

More than 80% of the BNDES loan will be allocated to the services involved in the project of *Constructora Norberto Odebrecht* (CON) as well as to the construction equipment and material. The remaining percentage will be used to acquire the pipes manufactured by CONFAB. The credit is given to the Brazilian firms in the supply credit modality, and a special corporation was created in Argentina to assume the counterpart entry for the materials and services used in the construction.

The loan is given under the terms of ALADI's CCR. The CCR provides for the offsetting of payments resulting from export and import operations among countries in the region. The Brazilian Government suspended the use of this mechanism in 2000, a decision that obstructed the financing of export operations, thus increasing the risk of the countries in the region.

Table 1

IIRSA PROJECTS – THEIR NATURE AND AMOUNTS IMPLEMENTATION AGENDA BASED ON CONSENSUS

Sector	Sub-Sector	Number of Projects	Estimated Investment (US\$ Million)
Transport	Roads	16	4,629.4
	Bridges	6	102.3
	Border Passes	3	10.7
	Railroad	2	551.0
	Waterways	1	108.0
Energy	Gas Pipeline	1	1,000.0
Communications	Miscellaneous	2	2.2
<i>Total</i>		<i>31</i>	<i>6,403.6</i>

Source: IIRSA.

Table 2

## BRAZIL: MAJOR MULTINATIONAL FIRMS AND THEIR FOREIGN OPERATIONS, 2004-2005

Firm	Sector	Sales (US\$ millions)	Operations in Regional Markets <sup>a</sup>					Internationalization Category <sup>b</sup>		
			LAC	NA	EU	AP	OTH	(>50%)	(>25<50%)	(<25%)
Petrobras	Oil	40,763	x	x	x	x	x			x
CVRD	Mining	10,377	x	x	x	x	x			x
Gerdau	Iron and Steel	7,383	x	x	x				x	
Usiminas	Iron and Steel	4,607	x							x
Embraer	Aircraft	3,854		x	x	x				x
CSN	Iron and Steel	3,692		x	x				x	
Camargo Corrêa	Cement & Textile	2,796	x							x
Norberto Odebrecht	Engineering & Construction	2,205	x	x	x	x	x	x		
Votorantim Cimentos	Cement	1,733		x						x
TAM	Air Transport	1,703	x							x
Andrade Gutierrez	Engineering & Construction	1,372	x		x	x	x			x
Klabin	Paper & Cellulose	1,028	x							x
Weg	Engines	830	x		x	x			x	
Queiroz Galvão	Engineering & Construction	---	x						---	---
Marcopolo	Vehicle & Auto Accessories	605	x		x	x	x		x	
Tigre	Pipes & Connections	437	x				x			x
Sabó	Auto parts	---	x	x	x				x	

Notes: <sup>a</sup> LAC = Latin America and the Caribbean; NA = North America; AP = Asia Pacific; EU = Europe; OTH = Others.

<sup>b</sup> Calculated as a percentage of turnover (or payroll) of subsidiaries abroad.

Source: ECLAC [2006].

Table 3

**FISCAL COST OF THE SELIC-TJLP DIFFERENCE**

Year	(% of GDP)
2000	0.2
2001	0.3
2002	0.3
2003	0.5
2004	0.3
2005	0.5
2006	0.4

Source: Giambiaggi [2007].

Table 4

**BNDES EXPORT CREDITS**

Indicators	2000	2001	2002	2003	2004	2005	2006	2007-07 (until July inclusive)
Brazilian Exports (US\$ billion)	55	58.2	60.4	73.1	96.5	118.3	137.47	87.3
BNDES Export Finance Disbursements (US\$ billion)	3.1	2.6	3.9	4	3.9	5.9	6.4	2.4
BNDES Export Disbursements/ Brazilian Exports (%)	5.6	4.5	6.5	5.5	4.0	4.9	4.7	2.7
BNDES Export Disbursements/ Total Disbursements (%)	24.5	23.5	31.5	33	27.9	29.6	26.6	15.4

Source: BNDES (<http://www.bndes.gov.br>).

Table 5

EXPORT FINANCING FACILITIES - AMOUNTS US\$ million								
Export Support Modalities	2000	2001	2002	2003	2004	2005	2006	2007 (until July inclusive)
Pre-shipment	810	410	67	1,407	1,578	2,953	3,959	2,057
Short-Term Pre-shipment			634	90	15	82	50	29
Special Pre-shipment	494	559	577	485	328	131	506	183
Post-shipment	1,779	1,633	2,670	2,025	1,940	2,697	1,863	141
<i>Total</i>	<i>3,082</i>	<i>2,602</i>	<i>3,948</i>	<i>4,007</i>	<i>3,861</i>	<i>5,863</i>	<i>6,377</i>	<i>2,409</i>

Source: BNDES (<http://www.bndes.gov.br>).

Table 6

SECTORAL DISTRIBUTION OF EXPORT CREDITS Percentage										
Year	Total (US\$ thousand)	Food & Beverage	Basic Metallurgy	Metal Products	Machinery	Electrical Material & Machinery	Automobile Vehicle	Other Mat. & Equipemnt Material	Construction	Remaining Sectors
1995	368.90	0.1	2.3	5.0	51.0	13.3	23.7	2.4	0.1	2.3
1996	402.60	0.2	0.7	7.7	39.2	16.3	26.1	0.0	1.1	9.9
1997	1,209.70	15.9	1.7	1.4	17.9	4.0	5.5	39.4	0.1	14.2
1998	2,091.60	5.3	1.6	1.5	16.9	2.1	8.5	48.1	1.5	16.1
1999	2,091.50	9.4	9.4	2.5	8.8	1.5	7.6	39.2	1.5	21.6
2000	3,076.40	7.9	6.8	0.5	6.6	4.0	12.6	46.9	1.1	14.8
2001	2,602.20	16.8	2.3	0.7	5.2	2.1	7.1	53.9	1.7	11.8
2002	3,946.20	11.3	1.5	1.5	5.4	0.9	4.1	59.4	1.0	16.0
2003	4,005.90	8.1	0.7	0.9	2.6	0.7	19.4	48.5	3.0	19.1
2004	3,861.00	6.2	1.0	0.3	5.3	1.2	20.5	53.2	5.9	12.3
2005	5,861.90	3.0	1.4	0.4	11.3	2.3	27.6	40.9	5.0	13.0
2006	6,376.40	6.1	0.3	0.2	10.7	3.2	31.1	27.9	2.8	17.7
2007 (until July inc.)	2,409.00	6.0	0.0	0.8	13.2	4.1	26.5	25.4	2.6	21.3

Source: BNDES (<http://www.bndes.gov.br>).

Table 7

**BNDES FINANCED PROJECTS IN SOUTH AMERICA EXPORTS OF ENGINEERING SERVICES AND OTHERS**

Country / Project	Financing in US\$
Argentina	516,000,000
TGS - San Martin Gas Pipeline	200,000,000
TGN - Norte Gas Pipeline	37,000,000
Albanesi - Gas Pipelines	279,000,000
Chile	208,000,000
Santiago Subway Expansion	208,000,000
Colombia	28,000,000
Transmilenio Transport System	28,000,000
Ecuador	511,565,000
Embraer Airplanes for TAME	61,600,000
San Francisco Hydroelectric Plant	242,965,000
Manabi Irrigation	113,000,000
Tabacundo Irrigation	64,000,000
Interoceanic Highway	30,000,000
Paraguay	77,000,000
Highway 10	77,000,000
Uruguay	29,000,000
UTE Transmission Line	3,000,000
Maldonado Irrigation	26,000,000
Venezuela	326,400,000
La Vueltoza Hydroelectrical Plant	121,000,000
Caracas Subway, Line 4	107,500,000
Caracas Subway, Line 3	78,000,000
Corn & Cattle Prod. Upgrade / Fondafa II	19,900,000
<i>Total</i>	<i>1,695,965,000</i>

Source: BNDES [2005].



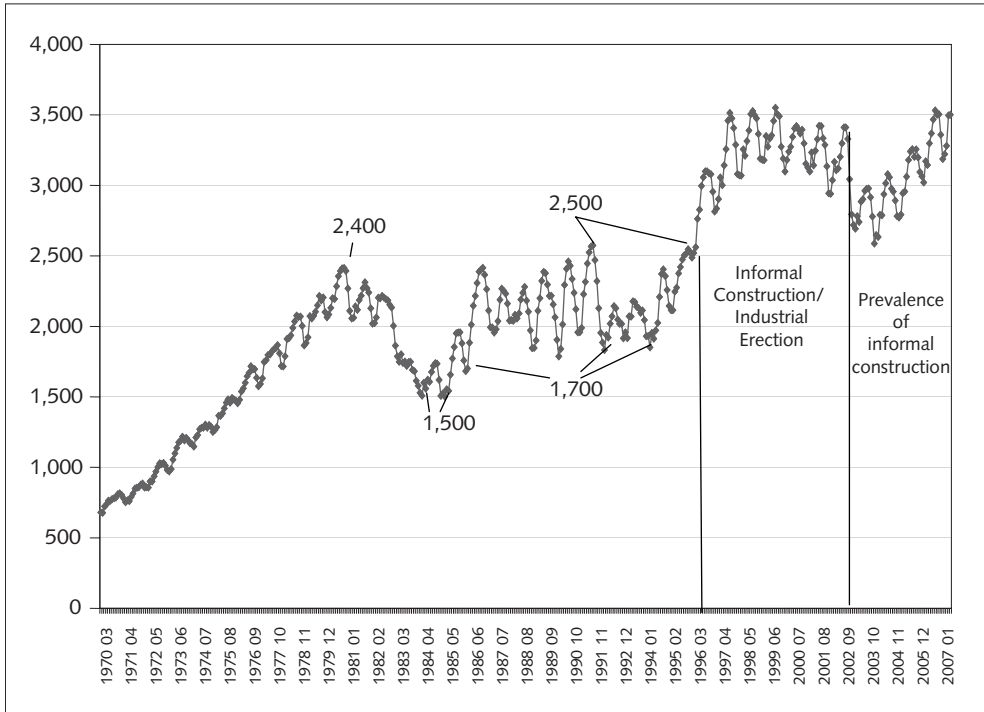
Table 8

ENGINEERING SERVICES EXPORT PROJECTS TO BE APPROVED BY THE BNDES SOUTH AMERICA		
Country/Project	Stage	IIRSA
Argentina		
TGS - San Martin II Gas Pipeline	Structured	
Santa Fé Aqueduct	Structured	
Central Trans-Andean Railway	Prospect	Yes
Northeast Gas Pipeline	Prospect	Yes / Agenda based on Consensus
Ecuador		
Toachi Pilatón Hydroelectric Project	Structured	
Tena Airport	Prospect	
Colombia		
Meta River Waterway Complex	Prospect	Yes
Peru		
Paita-Yurimaguas Highway	Prospect	Yes
Venezuela		
Tocoma Hydroelectric Project	Structured	
Orinoco River, Third Bridge	Prospect	

Source: CNI [2006].

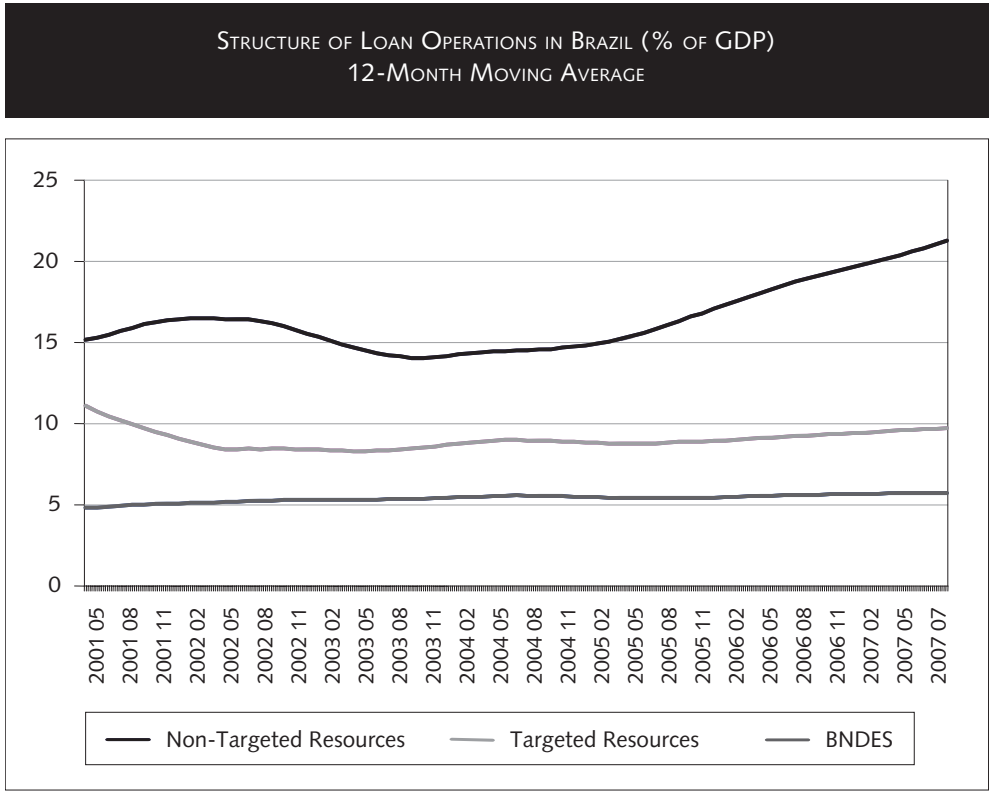
Figure 1

CEMENT PRODUCTION (THOUSAND TONS) 3-MONTH MOVING AVERAGE



Source: Prepared by the author based on data from the National Workers' Union of the Cement Industry (SNIC - *Sindicato Nacional de la Industria del Cemento*).

Figure 2



Source: Brazilian Central Bank.

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