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**PROJECT PERFORMANCE ASSESSMENT REPORT**

**BRAZIL**

**SÃO PAULO METROPOLITAN DECENTRALIZATION PROJECT  
(LOAN 3457-BR)**

**RIO DE JANEIRO METROPOLITAN DECENTRALIZATION PROJECT  
(LOAN 3633-BR)**

**September 3, 2002**

*Sector and Thematic Evaluation Group  
Operations Evaluation Department*

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## Currency Equivalents

Currency Unit	=	Brazilian Cruzeiros (Cr\$)
US\$1	=	Cr\$ 280 (April 20, 1991)
US\$1	=	BRL 2.3 (December 2001)

## Fiscal Year

January 1-December 31

## Abbreviations and Acronyms

AMTU-RJ	Metropolitan Agency for Urban Transport of Rio de Janeiro
BNDES	Banco Nacional de Desenvolvimento Economico e Social (National Economic and Social Development Bank)
CBTU	Companhia Brasileira de Trens Urbanos (Brazilian Urban Train Company)
EBTU	Empress Brasileira de Transportes Urbanos (Brazilian Urban Transport Enterprise)
FEPASA	Ferrovias Paulistas S.A. (São Paulo State Railways)
GOB	Federal Government of Brazil (Governo Federal)
GEIPOT	Empresa Brasileira de Planejamento dos Transportes (National Transport Planning Agency)
RFFSA	Rede Ferroviaria Federal S.A. (Federal Railways)
SP	Governo Estadual do São Paulo (State of São Paulo)
RJMTD	Rio de Janeiro Metropolitan Transport Decentralization Project
OED	Operations Evaluation Department
SAR	Staff Appraisal Report
STM	Secretary Metropolitan Transportation
RTCC	Regional Transport Coordination Commission
ANTP	National Association of Public Transport
SPMTD	São Paulo Metropolitan Transport Decentralization
CBTU-RJ	Rio de Janeiro Subdivision of CBTU
CBTU-SP	Brazilian Urban Train Company, São Paulo Subdivision
FLUMITRENS	Companhia Brasileira de Trens Urbanos
SUPERVIA	Companhia Fluminense de Trens Urbanos
CPTM	Concessionaria de Transportes Ferroviarios S.A. Metropolitan Train Company of São Paulo Companhia Paulista de Trens Metropolitanos

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September 3, 2002

**MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT**

**SUBJECT: Project Performance Assessment Report on Brazil  
São Paulo Metropolitan Decentralization Project (Loan 3457-BR)  
Rio De Janeiro Metropolitan Decentralization Project (Loan 3633-BR)**

Attached is the Project Performance Assessment Report (PPAR) on two urban transport projects in Brazil. São Paulo Metropolitan Transport Decentralization (SPMTD; L3457-BR) was approved in fiscal 1992 for US\$126 million; it closed, fully disbursed, on March 31, 1998, two years behind schedule. The total project cost was US\$293 million, with the balance provided by the borrower. Rio de Janeiro Metropolitan Transport Decentralization (RJMTD; L3633-BR) was approved in fiscal 1993 for US\$128.5 million; it closed, fully disbursed, on December 31, 2000, three years behind schedule. The total project cost was US\$311 million, with the balance provided by the borrower.

The objectives of the two projects were the same: to assist the government with (i) decentralization of the Brazilian Urban Train Company (CBTU); (ii) institutional and organizational strengthening; (iii) financial and operational sustainability of the commuter rail systems; (iii) contributing to poverty alleviation; and (iv) improvements in traffic congestion, air pollution, and safety.

OED rates the outcome of the SPMTD project **satisfactory** and the outcome of the RJMTD project **moderately satisfactory**. Both projects are substantially relevant to Brazil's current development priorities and consistent with the Bank's sector and country strategy. The strategy embodied in the projects, of first refurbishing and then transferring the system to state governments, is relevant to the political and economic reforms that have been undertaken in Brazil. The willingness of the state governments to assume financial responsibility for the commuter rail systems was the key issue facing the federal government in divesting its responsibility for the CBTU commuter rail systems.

The efficacy and efficiency of the São Paulo project was substantial, while they were modest for the Rio project. Responsibility for the commuter rail systems was successfully transferred in both cases. In 1994, CBTU-São Paulo assets and operations were transferred to the state of São Paulo, which formed a new company, CPTM, to operate commuter rail service. Similarly, CBTU-Rio de Janeiro was transferred to the state of Rio in 1994, and the commuter rail company it created, Flumitrens, was privatized in a concession program supported by the Rio de Janeiro State Reform-Privatization Project.

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Improved condition of the commuter rail system in São Paulo has helped increase ridership from 503,000 passengers per weekday in 1993 to a little over one million per weekday in 2001 against a revised SAR target of 830,000 passenger trips per day by project completion. In contrast, ridership in the Rio commuter rail system, despite physical improvements to the system, decreased from about 500,000 passengers a day in 1992 to 168,000 a day in 1998. It has increased since the concessionaire took over in 1998, reaching 330,000 in 2001, but remains well below the revised SAR target of 900,000 passengers a day by project completion. This contrasted performance is largely explained by institutional factors.

The institutional development impact achieved by the São Paulo project is rated **substantial**. The State Secretary for Metropolitan Transport, created as a condition of the loan, has improved transportation planning and is responsible for part of the institutional strength observed in São Paulo. The formation of the Regional Transport Coordination Commission brings the prospect of building metropolitan-wide institutions that can overcome some of the fractured governance structure of the large metropolitan area, which consists of many municipal governments.

The institutional development impact of the Rio project is rated **substantial**. The project achieved important institutional changes, including the decentralization and concessioning of the system, and provided initial support for the concessioning of the Rio Metro and the ferryboat, and the dissolution of the state-owned bus operator. The project also supported the creation of a regional coordination body. However, the institutional framework within which urban transport is provided in Rio de Janeiro remains weak and fragmented.

The sustainability of the São Paulo project is rated **likely**. The commuter rail system has shown remarkable improvements in recent years, and the state government continues to make investments in the system, improve management techniques, and integrate the system with other urban transport modes. All these point to a well-established institutional and financial basis for sustaining the project benefits. The sustainability of the Rio project is **non-evaluable**. The basis for sustaining project benefits is still being put in place and faces a variety of difficulties: problems with the concession contract, lack of investment in the sector, sluggish ridership, and a lack of progress in modal integration. This suggests that the sustainability of the commuter rail system will come under intense pressure, though recent progress on the contractual impasse and modal integration should help improve the likelihood of sustainability.

Bank performance for both projects is rated **satisfactory**. Both projects were prepared and supervised very diligently and professionally. The Bank's role in the project is highly appreciated within Brazil, especially the policy advice and sector dialogue. Borrower performance for both projects is rated **satisfactory**. The federal government showed commitment for the decentralization program, and CBTU, the implementing agency for both projects, excelled in implementing the projects. The performance of the state governments was mixed. The state government of São Paulo, through STM and CPTM, performed well, provided effective leadership in implementing the project in a timely fashion, and carried out the agreed institutional reforms. The performance of the state government of Rio de Janeiro was deficient, however. The leadership of the Rio STM changed frequently, resulting in discontinuity of policy and project ownership. Flumitrens and the Rio regulatory agency ASEP also performed poorly.

Experience with these projects confirms some key OED lessons for private sector development:

- Transferring inherently unprofitable operations to the private sector is best addressed by the use of negative concessions. Yet, negative concessions must be approached with caution
- Concessions are likely to succeed if they are not too dependent on government actions.
- Strong regulatory institutions are essential for the success of concessions.
- Effective dispute resolution is an essential component of successful private sector development.
- Simple performance measures are preferable to complex measures.
- Alternative sources of finance to fund urban transport improvements should be explored.

Attachment



Robert Picciotto  
By Gregory K. Ingram



**OED Mission: Enhancing development effectiveness through excellence and independence in evaluation.**

### **About this Report**

The Operations Evaluation Department assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, OED annually assesses about 25 percent of the Bank's lending operations. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons. The projects, topics, and analytical approaches selected for assessment support larger evaluation studies.

A Project Performance Assessment Report (PPAR) is based on a review of the Implementation Completion Report (a self-evaluation by the responsible Bank department) and fieldwork conducted by OED. To prepare PPARs, OED staff examine project files and other documents, interview operational staff, and in most cases visit the borrowing country for onsite discussions with project staff and beneficiaries. The PPAR thereby seeks to validate and augment the information provided in the ICR, as well as examine issues of special interest to broader OED studies.

Each PPAR is subject to a peer review process and OED management approval. Once cleared internally, the PPAR is reviewed by the responsible Bank department and amended as necessary. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

### **About the OED Rating System**

The time-tested evaluation methods used by OED are suited to the broad range of the World Bank's work. The methods offer both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. OED evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (more information is available on the OED website: <http://worldbank.org/oed/eta-mainpage.html>).

**Relevance of Objectives:** The extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). *Possible ratings:* High, Substantial, Modest, Negligible.

**Efficacy:** The extent to which the project's objectives were achieved, or expected to be achieved, taking into account their relative importance. *Possible ratings:* High, Substantial, Modest, Negligible.

**Efficiency:** The extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. *Possible ratings:* High, Substantial, Modest, Negligible. This rating is not generally applied to adjustment operations.

**Sustainability:** The resilience to risk of net benefits flows over time. *Possible ratings:* Highly Likely, Likely, Unlikely, Highly Unlikely, Not Evaluable.

**Institutional Development Impact:** The extent to which a project improves the ability of a country or region to make more efficient, equitable and sustainable use of its human, financial, and natural resources through: (a) better definition, stability, transparency, enforceability, and predictability of institutional arrangements and/or (b) better alignment of the mission and capacity of an organization with its mandate, which derives from these institutional arrangements. Institutional Development Impact includes both intended and unintended effects of a project. *Possible ratings:* High, Substantial, Modest, Negligible.

**Outcome:** The extent to which the project's major relevant objectives were achieved, or are expected to be achieved, efficiently. *Possible ratings:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Bank Performance:** The extent to which services provided by the Bank ensured quality at entry and supported implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of the project). *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.

**Borrower Performance:** The extent to which the borrower assumed ownership and responsibility to ensure quality of preparation and implementation, and complied with covenants and agreements, towards the achievement of development objectives and sustainability. *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.



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<p>This report was prepared by Mr. Binyam Reja (Task Manager), who assessed the project in August 2001. Mr. William Hurlbut edited the report. Ms. Romayne Pereira provided administrative support.</p>
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## Principal Ratings

### *São Paulo Metropolitan Decentralization Project (L3457-BR)*

	<b>ICR Rating</b>	<b>ES Rating*</b>	<b>PPAR Rating</b>
Outcome	Satisfactory	Satisfactory	Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development	Substantial	Substantial	Substantial
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Satisfactory

### *Rio de Janeiro Metropolitan Decentralization Project (L3633-BR)*

	<b>ICR Rating</b>	<b>ES Rating**</b>	<b>PPAR</b>
Outcome	Satisfactory	Moderately Satisfactory	Moderately Satisfactory
Sustainability	Likely	Non-evaluable	Non-evaluable
Institutional Development	Substantial	Substantial	Substantial
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Satisfactory

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible operational division of the Bank. The Evaluation Summary (ES) is an intermediate OED product that seeks to independently verify the findings of the ICR.

## Key Staff Responsible

### *São Paulo Metropolitan Decentralization Project (L3457-BR)*

	<b>Task Manager</b>	<b>Sector Manager</b>	<b>Country Director</b>
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### *Rio de Janeiro Metropolitan Decentralization Project (L3633-BR)*

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\* Ratings from the OED Evaluation Summary (ES) of the ICR

\*\* ES ratings not available, pending the finalization of the OED review of the ICR, which was recently issued.



## Preface

This is a Project Performance Assessment Report (PPAR) on two urban transport projects in Brazil:

- **São Paulo Metropolitan Transport Decentralization (SPMTD; L3457-BR).** Approved in fiscal 1992 for US\$126 million, the project was fully disbursed and closed on March 31, 1998, two years behind schedule. The total project cost was US\$293 million, with the balance provided by the borrower.
- **Rio de Janeiro Metropolitan Transport Decentralization (RJMTD; L3633-BR).** Approved in fiscal 1993 for US\$128.5 million, the project was fully disbursed and closed on December 31, 2000, three years behind schedule. The total project cost was US\$311 million, with the balance provided by the borrower.

The PPAR assesses the results of urban transport reforms in São Paulo and Rio de Janeiro, with a special focus on the Bank's contribution to institutional development and policy reforms in the two metropolitan regions. The report also draws lessons from the Rio commuter rail concession experience for broader applicability in urban transport concessioning in Brazil. The concession was supported by follow-on Bank projects.

The PPAR was prepared by the Operations Evaluation Department (OED). In August 2001, an OED mission traveled to Brazil to discuss the projects with relevant government officials, representatives of the private sector, labor groups, beneficiaries, and professional and trade organizations. Bank staff in charge of the projects at headquarters and at the country office were also interviewed. The kind cooperation and invaluable assistance of all those consulted are gratefully acknowledged. OED staff also reviewed the President's Reports, Staff Appraisal Reports (SARs), Implementation Completion Reports (ICRs), transcripts of Board proceedings, project correspondence files, Bank documents on other transport projects, and other Bank and non-Bank materials.

Following standard OED procedures, copies of the draft PPAR was sent to the relevant government officials and agencies for their review and comments. Comments received are included in Annex D.



# 1. Background and Introduction

## URBAN TRANSPORT DECENTRALIZATION

1.1 Much of the World Bank's activity in the urban transport sector of Brazil in the 1990s has assisted with devolving urban transport provision from the federal government to state and municipal governments. Brazil's 1988 Constitution made urban transport the responsibility of state and municipal governments, consistent with an overall theme of decentralizing the provision of services. For urban transport, this decentralization program required, and still requires, considerable realignment, mostly in the commuter rail systems.

1.2 Federal companies have operated commuter rail transport in Brazilian cities since 1964, when the federal government centralized investment and policy decisions for urban development. In 1976, the federal government created a dedicated urban transport company, the Brazilian Urban Transport Company (EBTU), to implement government policy and oversee public investment in urban transport. In 1984, the commuter rail services were split off from the national freight rail system to form the Brazilian Urban Trains Company (CBTU) and provided commuter rail service until the decentralization program started.<sup>1</sup> When it was established, CBTU had nine operating subdivisions providing commuter rail services in nine states. In 1988, EBTU was abolished and the federal government decided to transfer the urban rail systems to the local authorities to comply with the constitutional mandate.

1.3 Many of the CBTU commuter rail systems were in a state of disrepair by the early 1990s. Service interruptions were common, deferred maintenance had allowed the systems to deteriorate, and the systems required large subsidies. The Brazilian government believed that a necessary precursor to transferring the systems to state control was refurbishing the systems to keep them from being an undue fiscal burden on states.

## BANK LENDING FOR URBAN TRANSPORT IN BRAZIL

1.4 Bank involvement in the decentralization of CBTU commuter rail systems started with the São Paulo Metropolitan Transport Decentralization (SPMTD) project, approved in fiscal 1992. A year later, the Bank approved the Rio de Janeiro Metropolitan Transport Decentralization (RJMTD) project. Both projects were designed to improve the operation and viability of the rail systems to the point that state governments would be willing to take control. Since the two projects, Bank support has been extended to other states, with similar projects approved to support decentralization of CBTU systems in Belo Horizonte, Recife, Salvador, and Fortaleza.

1.5 The Bank has also continued its support to the states of São Paulo and Rio de Janeiro with follow-on projects: the São Paulo Integrated Urban Transport Project and Rio de Janeiro Mass Transit Project. Both projects, approved in fiscal 1998, are designed to consolidate the decentralization and rehabilitation of the system and provide a basis for better physical and institutional coordination in the provision of urban transport services in the metropolitan regions. In addition, in fiscal 1997 the Bank approved the Rio de Janeiro State Reform-Privatization Project to support, among other things, the concessioning of the Rio commuter rail system and the Metro. In São Paulo, the Bank approved in January 2002 the São Paulo Metro 4 Line Project to support the development of a new Metro line, which will be partly financed by the private sector.

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1. The freight rail was operated by RFFSA until it was concessioned to private interests in the 1990s.

## URBAN TRANSPORT CONCESSIONING

1.6 In Rio de Janeiro, the commuter rail system (CBTU-RJ) was transferred to the state and four years later privatized in a concession program supported by the Rio de Janeiro State Reform and Privatization Project. The state-owned commuter rail authority, Flumitrens (successor of CBTU-RJ), was concessioned to private interests, who formed Supervia. The motivation for the concession was both the poor performance of the public rail system (first CBTU-RJ and then Flumitrens) and the fiscal stress caused by the subsidies required to operate the system. At the end of 1995, the commuter rail (Flumitrens) and heavy rail (Metro) in Rio together accounted for US\$300 million in subsidies, approximately 8 percent of the revenues of the State of Rio de Janeiro.<sup>2</sup>

1.7 More broadly, the decentralization of the CBTU rail systems in Brazil is viewed as a precursor to concessioning those systems to the private sector. In São Paulo, officials have discussed and studied the concessioning of the state-run commuter rail system to the private sector, although no plans to do so have been formalized. There is substantial interest within Brazil in the prospect of using private sector concessions to improve the performance of urban rail transit, provide new investment, and reduce the fiscal burden caused by those systems. In fact, the more recent Bank-supported urban transport projects in Brazil have loan covenants requiring the state governments to increase private sector participation in the commuter rail systems either through concessions or other options after decentralization is completed.

## INSTITUTIONAL CONTEXT

1.8 Institutional issues abound in both São Paulo and Rio de Janeiro. The integration of several transport modes requires coordination across municipal and state governments, and the involvement of metropolitan planning agencies. Private sector concessioning requires even broader institutional commitment, to form and maintain regulatory bodies and dispute resolution mechanisms. São Paulo has a more developed institutional and fiscal environment than Rio de Janeiro, enabling it to continuously improve the system, while Rio has continued to suffer from a weak institutional and fiscal environment.

1.9 The State of São Paulo Secretary for Metropolitan Transportation (STM, or Secretaria dos Transportes Metropolitanos) runs both the Metro system and the commuter rail system. The STM also regulates inter-city buses and shuttle vans between selected stations in the Metro and CPTM system. The Municipality of São Paulo regulates bus service within the city. The STM has provided effective leadership on many metropolitan transportation issues and has provided planning during the past several years. The concentration of several transport planning, regulatory, and operational functions within the STM has allowed some degree of metropolitan-wide and multi-modal coordination. In addition, recent institutional innovations with the creation of an informal coordination body—the Regional Transportation Coordination Commission (Câmara Temática)—has improved inter-municipality coordination on transportation issues. However, with 39 municipalities in the São Paulo Metropolitan Region, formal inter-municipal and multi-modal coordination remains a critical challenge.

1.10 Rio de Janeiro has a similar institutional setup for urban transport, but the metropolitan region differs considerably from São Paulo. Rio was the capital, financial, and cultural center of Brazil from colonial times. In 1960, when the capital was moved to Brasília, a long period of decline began for Rio. It was not until the 1990s that the city began to recover economically.<sup>3</sup> The

2. SAR 15869-BR, Rio de Janeiro State Reform-Privatization Project, 1997.

3. World Bank Report No. 19747-BR, "Brazil, Rio de Janeiro: A City Study," Volume 1, June 19, 1999.

transport system in Rio de Janeiro reflects the long period of economic decline and the fiscal stress and public under-investment that occurred as a result. While São Paulo expanded the Metro system during the 1970s and 1980s, and more recently invested substantially in commuter rail, rail transit in Rio did not receive State investment, except as counterpart funding for the Bank project. It has consequently fallen into disrepair, and the deferred maintenance has contributed to dramatic drops in ridership. On the institutional side, as in São Paulo, Rio has a Secretary of Metropolitan Transport that oversees transport issues in the metropolitan region including the commuter rail system, subway, and ferryboats. The mayors regulate municipal buses in their respective municipalities, but because mayors often come from political parties in opposition to the State Governor, coordination across institutional boundaries has been a problem.

## **SECTOR CONTEXT**

1.11 Urban transport in São Paulo and Rio comprises private automobiles, walking trips, and a large and diversified public transport sector. Public transport is provided by the heavy rail Metro system, the commuter rail system, a large number of privately owned bus companies, and a growing number of vans, some of which operate without official sanction and outside of the formal system of regulated transportation.

1.12 Within the motorized transport sector, there has been a shift away from buses and commuter rail toward private automobiles. In São Paulo, the fraction of all motorized trips taken by private car rose from 38 percent in 1977 to 42 percent in 1987 and 47 percent in 1997. Buses in São Paulo accounted for 54 percent of motorized trips in 1977 and 43 percent in 1987, but declined to 38 percent in 1997. The commuter rail system, although it has recently shown an increase from 500,000 trips a day to 1,000,000 trips a day, makes up a very small and declining portion of all passenger trips: only 2.07 percent of total trips in 1997, down from 3.03 percent in 1987. In short, private automobile is increasing and public transport is declining, with the exception of the Metro. The Metro increased its share of total trips from 2.5 percent in 1977 to 5.4 percent in 1997. The increase in Metro ridership is largely due to the increases in capacity. Line 3 of the Metro, which now extends from downtown almost 20 kilometers into the eastern part of the city, opened in 1979, and Line 2, through the financial district near Avenida Paulista (approximately 5 kilometers southwest of downtown), opened in 1991.

1.13 The predominant mode of motorized transport in Rio de Janeiro is buses, which accounted for 70 percent of motorized trips in 2000. Commuter rail accounts for 3 percent of total trips, while Metro accounts for 4 percent. Private automobile accounts for 22 percent of total trips in Rio, which is considerably less than São Paulo's private car share (47 percent). However, as in São Paulo, Rio also shows the same modal shift from public transport to private automobile. In 1994, the share of private automobile was 14 percent of all trips, while public transport was 86 percent. In 2000, private automobile modal share increased to 22 percent, and public transport modal share declined to 78 percent. Vans, on the other hand, have increased in recent years and now transport more than the Metro and commuter rail combined.

## **POVERTY REDUCTION AND URBAN TRANSPORT**

1.14 The commuter rail systems in São Paulo and Rio de Janeiro carry relatively small shares of the total urban transport trips. Yet, they have strong links to poverty, extending from the central cities to some of the poorest neighborhoods in the outlying parts of both metropolitan regions. For many of the poor the commuter rail system is the most practical way of getting from the poor suburbs to their jobs in the downtown areas. In general, commuter rail serves a lower income population than the more centralized Metro. In São Paulo, the commuter rail system

predominantly serves districts where the average income is less than R\$1,000 a year. Similarly, in Rio, over 50 percent of the commuter rail users earn less than three minimum wages. This makes the poverty context of commuter rail decentralization and any associated private sector development especially important.

1.15 *Violence and Urban Transport.* Unlike any other social service (such as water supply, education or health), the lack of adequate urban transport services can lead to violent demonstrations. This has been the experience in the Brazilian cities, where frequent system breakdowns and shutdowns often led many angry riders to set stations and trains on fire and demonstrate for better services. In 1996, for example, the temporary shutdown of the Noroeste-Sudeste line in São Paulo was accompanied by a violent demonstration, which increased the urgency and relevance of improving the commuter rail system.

## SUMMARY

1.16 In sum, urban transport in Brazilian cities continues to evolve. The decentralization of urban commuter responsibilities from the federal government to state governments has been completed in São Paulo and Rio de Janeiro, and continues now in other states. The reform agenda has been taken a step further in Rio with concessioning of the system to the private sector, and plans are underway in São Paulo to involve the private sector in the commuter rail and Metro systems in that city. The following sections examine the experience and lessons of the decentralization and concessioning of the commuter rail systems in these cities, with a focus on the role of the Bank-supported reforms in improving efficiency of the system, increasing investment, and ensuring system sustainability.

## 2. Relevance of World Bank Assistance

2.1 The overall objectives of the two assessed projects are given below; their specific objectives and components are listed in Annex A.

- Decentralization of the commuter rail system from the federal government to the respective state governments
- Institutional and organizational strengthening
- Financial and operational sustainability of the commuter rail system in both states
- Contribution to alleviate poverty
- Improvements in congestion, air pollution, safety.

2.2 The strategy embodied in the projects, of first refurbishing and then transferring the system to state governments, is highly relevant to the political and economic reforms that have been undertaken in Brazil. The willingness of the state governments to assume financial responsibility for the commuter rail systems was the key issue facing the federal government in disposing its responsibility of the CBTU systems. The improvement of the financial performance of the systems as a necessary precursor to decentralization therefore responds correctly to the fiscal environment of both the federal and state governments. In the context of the fiscal decentralization program, many revenue sources were transferred from the federal government to state and municipal governments, which left the federal government with inadequate resources to fund commuter rail operations and investment. Yet, the state governments, even though they had more revenue sources, were not willing to assume fiscal responsibility for what has been, under federal ownership, a money-losing and undercapitalized commuter rail system. Therefore, the Bank's support in filling the financial gap was critical to making the decentralization happen and getting both the federal and state

governments to agree on the decentralization program for the commuter rail system. Federal and state government officials interviewed during the PPAR mission indicated that without the Bank's financial help the decentralization would not have taken place, and that the consequent improvements would not have been enjoyed by the users of the commuter rail system.

### **3. São Paulo: The SPMTD Project**

#### **DECENTRALIZATION**

3.1 The decentralization of the commuter rail system, CBTU-SP, was successfully carried out in 1994. The assets and operations were transferred to the state of São Paulo, which formed CPTM to operate rail service on the system. Then, in 1996, the passenger rail component of the state-run rail company, FEPASA, was transferred to CPTM. The CPTM system now comprises 270 kilometers of track on six lines.

3.2 The SPMTD project provided US\$126 million which, when combined with counterpart funds, was part of a US\$293 million refurbishment and investment program to facilitate the upgrading and transferring of CBTU-SP assets to CPTM. The final disbursement of the Bank loan occurred in 1998. The refurbishment program included track improvements, purchase of additional rolling stock, and refurbishment of existing rolling stock. Much of that investment was on the East Line, Line E, a major commuter rail artery from low-income neighborhoods to the east of the city into the downtown.

#### **INSTITUTIONAL IMPROVEMENTS**

3.3 The SPMTD project has provided assistance to improve the institutional framework within which urban transport in São Paulo is planned and managed. STM-SP, whose creation was a condition of the loan, has improved transportation planning and is responsible for part of the institutional strength observed in São Paulo. The Bank also encouraged the formation of the Regional Transport Coordination Commission (RTCC), which is currently discussing about integrated transport planning in the São Paulo metropolitan region. The RTCC brings the prospect of building metropolitan-wide institutions that can overcome some of the fractured governance structure of the large metropolitan area, which consists of many municipal governments (Para 1.8, 3.16). STM-SP has produced an integrated strategic plan for urban transport, land use, and air quality strategy for São Paulo, the Plano Integrado de Transportes Urbanos para 2020 (PITU 2020). The Bank's support through the SPMTD project and the follow-on, São Paulo Integrated Urban Transport project was critical in producing this plan, which envisions an integrated urban transport system with an emphasis on public transport to relieve the increasing congestion and air pollution in the metropolitan region.<sup>4</sup>

#### **MODAL INTEGRATION**

3.4 While integration could still be improved in São Paulo, it is important to note that the CPTM system is better integrated with the Metro and intercity buses now than before. The strong leadership of the State of São Paulo STM has facilitated a planning process that is more unified across modes. The institutions and physical infrastructure to facilitate better modal integration are

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4. However, there are still some disagreements between the Municipality of São Paulo and the State, although the technical staff from both governments often come to a consensus.

in place or are being put in place in the São Paulo metropolitan region. Some of the improvement is the result of Bank encouragement for a greater focus on modal integration. The recent extension of Line 3 of the Metro, combined with the improvements to Line E of the CPTM, have improved the integration of those two modes for residents of the eastern parts of São Paulo. The Metro and CPTM run parallel now from the Bras station near downtown to the Corinthians-Itaquera station. Plans are underway for extending CPTM's Line E to Barra Funda, providing more direct links to both Metro and the central part of São Paulo. This link is financed by the follow-on Bank project (São Paulo Integrated Urban Transport Project, Barra Funda-Roosevelt Link). With this link and the proposed Line 4, Metrorail and CPTM will be all connected between them and with the bus systems.

### **FISCAL IMPACT**

3.5 CPTM has improved its operating revenues and reduced the reliance on government subsidies. Tariffs have been adjusted upwards from US 10¢ per trip to nearly US 80¢ in 1998 (the flat fare is now us 66 cents, but comes down to 57 with the purchase of a booklet of 10 tickets).<sup>56</sup> CPTM still does not cover operating costs from fare revenues, however, and must rely on government subsidies, albeit at a much reduced level. Annual subsidies to CPTM have declined from US\$77 million in 1990 to US\$47 in 1998, close to the SAR target of US\$37 million. Officials estimated that increases in ridership, fares, or both would be necessary for the CPTM system to generate revenues that cover operating costs. Some officials estimated that CPTM can cover operating costs with average daily ridership of approximately 2 million persons or that a fare increase of approximately 50 percent.<sup>7</sup> But on the other hand, the Bank argues that CPTM needs to be streamlined and that a substantial reduction in operating costs is possible if the system is run by the private sector.

### **BENEFITS TO THE POOR**

3.6 Bank support for the decentralization of the CBTU-SP system to CPTM, and the associated physical improvements of the CPTM system, has improved transport service for the poor. The improvements in service conditions have helped close the still-substantial gap between the perceived service quality in the Metro, which serves a higher-income population, and the CPTM, which serves a lower-income population. An estimated 78 percent of daily CPTM riders earn less than 5 minimum wages.<sup>8</sup> The noticeable improvement in the CPTM system provides a valuable improvement in the quality of life of poorer residents, while better linking those residents to the jobs, services, and opportunities in the central part of the metropolitan region. Anecdotal evidence suggests that users of the CPTM system are aware of the recent improvements. Because the uneven distribution of wealth is one of the most pressing challenges facing Brazil, the targeting of transportation benefits to the urban poor by the SPMTD project is an important success.

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5. Implementation Completion Report, Report No. 18814; Brazil: São Paulo Metropolitan Decentralization Project, January 22, 1999.

6. In a comment to an earlier draft, the Region notes that "the fares have in general been around 90 percent of the bus tariff, except in 2001 when they were the same. But while the inter-municipal buses have distance-based tariffs which can be as high as US\$1.5, CPTM has a flat fare. The argument for this flat fare is to protect those that live furthest, which in São Paulo are the poor, but experience shows that a zonal or distance based fare makes more economic sense."

7. Interview with CPTM officials, August 1, 2001.

8. Implementation Completion Report, Report No. 18814, Brazil: São Paulo Metropolitan Decentralization Project, January 22, 1999, p. 10.

3.7 Despite the improvements in CPTM train conditions and services, however, public opinion polls suggest that São Paulo residents still rank CPTM trains low when asked to prioritize options for transportation. The National Association of Public Transport (ANTP, Associação Nacional de Transportes Públicos) surveys residents of the São Paulo metropolitan region to assess public opinion about various transport modes. In the most recent survey (fall 2000), when asked to evaluate the service on six modes of transport (private automobile, Metro, CPTM, bus, taxi, and van), survey respondents gave the lowest satisfaction ratings to CPTM trains, although, since the project was completed CPTM had the highest increase in satisfaction rating when compared with the other modes. In pair-wise preference comparisons across modes, CPTM trains were typically preferred least often. Complaints included crowded trains and concerns about personal security and crime.<sup>9</sup> The reduced headways and increased presence of security personnel, made possible in part by the project, have helped improved these conditions, but the public in São Paulo still sees much need for improvement. This requires acquisition of more trains and better signaling, electrification, and telecom systems to make the system even more reliable.

### URBAN TRANSPORT EXTERNALITIES

3.8 By improving the commuter rail system, the projects intended to reduce the use of the more polluting and congestion-creating modes of private automobiles and buses. But data are not available to assess the extent to which the projects helped reduce congestion and air pollution in the metropolitan regions. Given the small share of the commuter rail system in the total urban transport trips, it is unlikely that the projects had any measurable impact. In fact, during the project implementation period, the modal share for public transport declined, while the share of private automobiles increased (para 1.10-1.11). This is consistent with the worldwide trend where the increase usage of private automobile and buses is difficult to reverse despite improvements to rail-based transport systems.<sup>10</sup>

### RATINGS

#### Outcome

3.9 The PPAR rates the outcome of the SPMTD project **satisfactory**. The rating is based on the assessment of the relevance, efficacy, and efficiency of the projects. The project is substantially relevant for Brazil's current development priorities and consistent with the Bank's sector and country strategy for Brazil (Chapter 2). The efficacy and efficiency is also substantial as discussed below.

#### *Physical Targets*

3.10 Most of the physical targets set out at appraisal were met. The project financed the improvement of track infrastructure, rehabilitation of 50 trains and 19 stations, and construction of a new commuter rail station, a new telecom and signaling system, and a new operational control center. The PAR mission visited several of the rehabilitated stations on Line E and rode

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9. For the ANTP survey results, see ANTP, *Atitude frente aos transportes na Região Metropolitana de São Paulo*, August 2001, especially pp. 17-23, 27.

10. In a comment to an earlier draft, the Region notes that "Nonetheless, in São Paulo a number of bus kilometers were saved by the passengers captured by rail, an increase of 600,000 passengers per day at 10 kilometers per trip is equivalent to 6 million passenger kilometers, a significant figure which would have a higher bus-kilometers equivalent.

on some of the refurbished trains, and found those stations and trains to be clean, in good repair, and comfortable.

### ***Impact on Ridership***

3.11 The improvement in the condition of the commuter rail system in São Paulo has attracted riders back to the system. Table 4.1 shows CPTM (and CBTU-SP) average daily ridership from 1984 to July 2001. After increasing in the 1980s, ridership declined from 714,000 passengers per weekday in 1991 to 503,000 passengers per weekday in 1993, presumably because of the deteriorating condition of the commuter rail system. Since 1993, however, ridership has increased and currently stands at a little over 1 million passengers per weekday, which compares favorably with the revised SAR target for 0.83 million passengers trips per day by project completion. The original SAR target for 1.2 million riders a day by project completion was revised downwards during the mid-term review after it became clear that delays in the implementation would hamper achieving the target by the original project closing dates. CPTM officials attribute much of the ridership increase to the refurbishment program supported in part by the SPMTD project. This includes the track and station improvements on the East Line (Line E) and the addition of new cars that allowed reductions in some peak hour headways.

**Table 3.1. São Paulo Rail Transit, Average Daily Ridership (thousands)**

<b>Year</b>	<b>CBTU- SP/CPTM</b>	<b>SAR Targets</b>	<b>Comments</b>
1984	617		
1985	678		
1986	677		
1987	700		
1988	683		
1989	723		
1990	733		
1991	741	940	
1992	544	1015	Project approved
1993	503	1040	Project became effective
1994	635	1197	CPTM Takes over, mid-term review, targets revised downwards. Project closing date extended.
1995	669	1260	
1996	633	1260	Revised downwards to 830
1997	810		
1998	804		Project completed
1999	766		
2000	869		
2001	1,003		

Source: São Paulo, CPTM, 2001; SAR Targets are from the Staff Appraisal Report, Report No.10012-Br, São Paulo Metropolitan Transport Decentralization Project.

Note: 2001 is for January-July

### ***Fleet Size and Availability***

3.12 CPTM fleet availability has shown improvement in recent years. In 2001, the fleet availability was nearly 80 percent compared to 70 percent in 1993, but less than the SAR target of 87 percent by project completion.

3.13 CPTM has been able to reduce average peak hour headway (the time interval between two trains) in recent years, most notably on Line C (with headways reduced from 17 minutes in 1997 to 6 minutes in 2000) and Line E (reducing headways from 10 minutes in 1997 to 8 minutes in 2000). Both Lines C and E were refurbished and equipped with new trains in part by the SPMTD project. The SAR targets, 8-12 minutes on most routes, generally have been met.

### ***Train Safety***

3.14 Safety on the CPTM trains has substantially improved. The number of fatal accidents involving pedestrians hit by trains fell from 141 in 1996 to 37 in 2000, and the number of passengers hanging (or “surfing”) on the outside of the train, dropped from 4,029 in 1996 to 88 in 2000.<sup>11</sup> This has occurred while CPTM, with funds from the SPMTD project, has increased security and put in place barriers that make it more difficult for people to cross the tracks.<sup>12</sup> The track improvements have been predominantly in the poor neighborhoods along Line E and to the southwest, and the poor have likely substantially benefited from the safety improvements and the reduction in fatalities.

### **Institutional Development Impact**

3.15 The PPAR rates the institutional development impact of the SPMTD project **substantial**. The creation of STM-SP has improved transportation planning and is responsible for part of the institutional strength observed in São Paulo. The formation of the Regional Transport Coordination Commission (RTCC-Câmara Temática) brings the prospect of building metropolitan-wide institutions that can overcome some of the fractured governance structure of the large metropolitan area, which consists of many municipal governments (para 1.8, para 3.3). The most important factor in the development of the urban transport system was the priority attached to it by the Governor’s office in the last eight years, particularly after some riots due to train failure. The state capitalized on the SPMTD project and complemented with its own investments. The results in terms of improvement of level-of-service and ridership have been substantial.

### **Sustainability**

3.16 The sustainability—the resilience to risk of net benefits flows over time—of the São Paulo project is rated **likely**. The São Paulo commuter system has shown remarkable improvements in recent years, and the state government continues to make investments, improve management techniques, and integrate the system with the rest of the modes in São Paulo. All these point to the fact that institutional and financial basis for sustaining the project benefit are well established in São Paulo.

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11. Data supplied from CPTM.

12. A common means of “surfing” was to jump onto trains just before or past station platforms, in areas that before the recent investment had few barriers to block access.

### **Bank Performance**

3.17 OED rates the Bank performance for the SPMTD project **satisfactory**. The project was prepared and supervised very diligently and professionally. The Bank's role in the project is highly appreciated within Brazil, especially the policy advice and sector dialogue. The Bank was instrumental in ensuring that the federal government's decentralization program took place and in responding in a timely fashion to prepare a well-thought out and designed project. The Bank success with working in this pioneering project has enabled it to increase its participation in the urban transport in São Paulo, providing further assistance to the state for the construction of the CPTM Barra Funda-Roosevelt Link and Metro Line 4 (para 1.3-1.4).

### **Borrower Performance**

3.18 Borrower performance is rated **satisfactory**. The federal government showed commitment for the decentralization program, and CBTU, the implementing agency for the project, excelled in implementing the project. Occasional counterpart funding problems were caused mostly by macroeconomic reforms and currency changes in the mid-1990s. This had a negative impact on the project, especially in delaying the rehabilitation of the rolling stock, which has affected ridership. The state government of São Paulo, through STM and CPTM, performed well, provided effective leadership for implementing the project in a timely fashion, and carried out the agreed institutional reforms.

## **4. Rio de Janeiro: The RJMTD Project**

### **DECENTRALIZATION**

4.1 The CBTU-RJ system was decentralized to the state of Rio de Janeiro in 1994, resulting in the formation of a state government-owned commuter rail company, Flumitrens. Bank assistance to rehabilitate track, rail cars, and stations was essential for the decentralization. Interviews with officials in CBTU, Flumitrens, and Supervia, the private-sector successor to Flumitrens, indicate that the Bank funds were a vital source of rehabilitation and investment. Unlike in São Paulo, in Rio, the Bank and the Federal Government were often the only source of financial support for major public works investment in commuter rail transit before the present administration.

### **INSTITUTIONAL IMPROVEMENT**

4.2 The RJMTD project, in conjunction with the follow-on projects, Rio de Janeiro Mass Transit and Rio de Janeiro State Reform-Privatization, has led to important institutional changes in the organization of urban transport provision in the metropolitan region. Among the key developments are the decentralization of CBTU-RJ to Flumitrens and its subsequent concessioning to Supervia, the concessioning of the Rio Metro and ferryboat company (CONERJ), and the dissolution and auctioning of routes of the state-owned bus operator to the private sector. Furthermore, the RJMTD project contributed to the creation of a regional coordination body, AMTU-RJ, to coordinate (informally) urban transport planning and operations among municipalities and between municipalities and the state. This body has been meeting consistently for eight years. Although it does not have the power to decide, it is an important forum of discussion of the main transport issues including the proliferation of vans, integrated

tariffs, specifications for a smart card. There was also a mass transport plan and an Origin-Destination survey prepared for Rio.

4.3 Despite these achievements, the institutional framework for urban transport in Rio de Janeiro remains too weak and fragmented to sustain the improvements in the commuter rail system. This is in large part owing to the lack of coordination and disagreements between the Governor and Mayor's office on urban transport issues. Furthermore, the state government's inability to achieve the modal integration clause provided in the concession contract and<sup>13</sup> deliver the rehabilitated trains according to the concession contract have had a detrimental effect on the performance of the concessionaire and its ability to increase the train supply earlier. In addition, in the past three years, the State of Rio de Janeiro has had four Secretaries of Transport, another sign that transportation leadership has been fragmented and short-term.

#### **MODAL INTEGRATION**

4.4 AMTU-RJ has been promoting modal integration but has not yet succeeded in ensuring an integration of the buses with the rail system, in part owing to the refusal of bus operators to integrate with the rail system.<sup>14</sup> Ensuring modal integration in Rio requires considerable political commitment, which is currently not evident.<sup>15</sup>

#### **FISCAL IMPACT**

4.5 After decentralization of CBTU-RJ, the money-losing rail transit operation became a major source of fiscal stress for the state government<sup>16</sup>. In 1995, Flumitrens (commuter rail) and Metro (heavy rail) together required subsidies that total approximately 8 percent of the revenues of the state of Rio de Janeiro.<sup>17</sup> In 1998, the bulk of the Flumitrens system was concessioned to a private consortium, which formed Supervia. The primary motivation for the concession was to introduce private management techniques that would reduce costs, improve efficiency, and reduce the large public subsidies required for rail transit. The state government could not cover the large operating losses of the rail systems, hence the attractiveness of involving the private sector and eliminating or at least reducing what was a large drain on the public purse.

4.6 When Flumitrens took over operations from CBTU-RJ, the state government of Rio de Janeiro provided an annual subsidy of R\$187 million in 1995 to keep the system running. After some restructuring in 1996, mostly involving staff reduction, government subsidies declined to R\$155, and further declined in 1997 to R\$148. With the concessioning of the commuter rail system

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13. In commenting to an earlier draft, the Region notes that "The position of the mayor's office to have a flat tariff for the whole municipal territory, has caused distortions which led to a proliferation of informal vans which have captured one third of bus passenger market."

14. The Region notes that "the Secretary of Transport in Rio lacks support of the Governor and is opposed by a strong bus lobby in the legislative branch to better integrate the buses to commuter rail operations. Some progress has been made but it has been slow and not enough."

15. The Region notes "Both Bank projects have pushed the modal integration agenda and made it a major issue. More substantial results will hinge on the Governor's determination to comply with the integration clauses of the concession contract in Rio and to stand up to the bus owners and their lobby."

<sup>16</sup> In comments to the Draft PPAR, the Region notes that "This happened because the Mayor of Rio which had an agreement with the State to assume the ownership and operations of Rio Metro when the State would receive CBTU, changed his mind leaving both money losing institutions with the State. In retrospect, this was a major mistake for the Municipality of Rio which could have had better control of all municipal based systems."

17. Staff Appraisal Report, Rio de Janeiro State Reform – Privatization Project, Report No. 15869-BR, June 6, 1997, p. 13.

to Supervia in 1998 the government direct subsidy for operating the system was virtually eliminated.

4.7 Yet, the state government's financial obligations did not cease because, after the concessioning, it had to continue paying the salaries of former Flumitrens staff whom Supervia did not retain. During the concessioning process, the Bank offered the State of Rio support for a staff retrenchment similar to that under the RFFSA retrenchment program. But the State chose to maintain the staff, at a high cost to the government. Under the concession agreement, Supervia was allowed to choose the composition of its staff, drawing from both former Flumitrens employees and hiring new staff from outside. As a result, Supervia retained about 1,036 of Flumitrens' 4,170 employees, and hired another 1,013 from outside. This left the state government with about 3,134 employees, whose salaries it had to pay because there was no formal staff retrenchment program. This cost the state government R\$8 million in monthly payroll or R\$100 million a year.<sup>18</sup> At present, the State retains about 1,036 of its original 4,170 employees at a cost of R\$36m a year. Of these about half are working in other State departments and the rest has been kept to handle the portions of the system that were not concessioned.

4.8 Despite measures taken to cut costs and improve efficiency, Supervia claims that it loses approximately R\$2 million per month, and officially it claims to have a deficit of approximately R\$170 from capital and operating expenditures as of December 2000. This figure is the one cited in a claim for compensation filed with the regulatory agency (ASEP) in which Supervia estimates the cost of late delivery of rehabilitated trains, which the State was supposed to deliver according to the concession contract. The figure is contested by the State and a report is being prepared by an independent consultant to inform ASEP.

4.9 Further cost-cutting measures in recent months by Supervia management have reduced this deficit, but Supervia estimates that it will need approximately 500,000 riders per day to cover its operating costs from farebox revenues, substantially higher than the current ridership level.

4.10 The commuter rail system in Rio de Janeiro moves approximately 330,000 daily riders on 264 kilometers of track. By comparison, the CPTM system in São Paulo moves approximately 1 million riders per day on 270 kilometers of track. The Rio system follows the decentralized urban form of the metropolitan area and covers a large area relative to the number of passengers carried. This likely contributes to the continuing operating deficits.

## **BENEFITS TO THE POOR**

4.11 In Rio, since significantly fewer people than expected patronize the commuter rail lines, the improvement in the transport needs of the poor is less significant than it could have been. However, the least poor, especially those that do not have "vale-transporte," are still using rail, especially if they can walk to it, because it is cheaper and faster than bus. While the rail lines go into some of the poorest neighborhoods and most of the current riders are poor, a majority of the poor avoid using the system and prefer other modes because until the recent improvements the reliability and safety of the system had reached very low points.

## **A CAVEAT ON OPERATIONAL AND FINANCIAL TARGETS: TIME LAG**

4.12 Most of the operational and financial targets have not been met in Rio. But, it is important to note that there is a time lag between when physical projects are completed and when

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18. Implementation Completion Report, Rio State Reform and Privatization Project.

operational and financial improvements are likely to materialize. The physical improvements in the Rio project have only been completed recently (June 30, 2001), and therefore operational and financial performance are likely to improve further, especially when other supporting policy measures are put in place and riders gain confidence in the improved commuter rail system. This suggests that while the Rio project appears to have fallen substantially short of its targets, its future may not be as bad as its current status may suggest (see section on ratings).

## RATINGS

### Outcome

4.13 The PPAR rates the outcome of the RJMTD project **moderately satisfactory**, versus the ICR rating of satisfactory. The PPAR rating is based on the assessment of the relevance, efficacy, and efficiency of the projects. The project is substantially relevant for the state's current development priorities and consistent with the Bank's sector and country strategy for Brazil (Chapter 2). The efficacy and efficiency are modest, however, for the reasons discussed below.

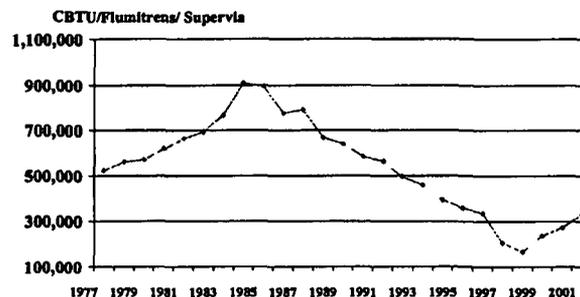
### Physical Targets

4.14 Most of the physical targets were met, but there were significant delays in delivering the rehabilitated trains because of contractor performance and delays in counterpart funding. The project financed rehabilitation of 19 stations, construction of 13 overpasses, rehabilitation and maintenance on 25.4 kilometers of infrastructure, and construction of 8 kilometers of track on the Gramacho-Saracuruna extension. The project also rehabilitated and modernized 55 trains and 9 locomotives. One workshop was re-equipped and the telecommunication and signaling system were improved. All of these improvements are more or less on target with the SAR projections. But the delay in rehabilitating the trains adversely affected ridership.

### Impact on Ridership

4.15 Despite the physical improvements, expected ridership in the Rio commuter rail system has not yet materialized. As shown in the Fig 4.1 ridership declined every year from 1984 until 1998, when the concessionaire took over.<sup>19</sup> The failure to attract riders back to the commuter rail system is in part attributable to the delays in procuring the rehabilitated trains, most of which were not delivered until 1999. Ridership has since increased, reaching 330,000 in 2001, and yet substantially lower than the revised SAR target for 900,000

**Figure 4.1. Average Daily Ridership, Commuter Rail and Metro, Rio de Janeiro**



Source: Secretaria de Transportes do Estado do Rio de Janeiro - Política de Transporte de Passageiros para a Região Metropolitana do Estado do Rio de Janeiro - July 2000

19. The data for rail ridership on the CBTU/Flumitrens/Supervia systems vary slightly depending on the source. World Bank data cite a high of 940,000 paying passengers per day in 1984 (the year CBTU-RJ took over system), with declines in ridership in every year since then (except 1991) to 1998. Source: Staff Appraisal Report, Rio de Janeiro Mass Transit Project, report no. 15937-BR, December 2, 1997, Annex 10A, p. 87 (for data until 1996).

average daily passenger by project completion.<sup>20</sup>

### *Fleet Size and Availability*

4.16 Flumitrens was not able to improve the size and availability of its fleet, which declined throughout the 1990s. Since the Supervia takeover in 1998 and the delivery of the rehabilitated trains, fleet size and availability have improved. In 1991, fleet availability was 56 percent and declined every year, reaching 29 percent in 1996. In 2000, fleet availability increased to 75 percent, and increased to 80 percent in 2001, meeting the 80 percent availability projected in the SAR.<sup>21</sup>

4.17 Similarly, the peak-hour headways for the commuter rail system in Rio have not made any noticeable improvement, mainly because of the delays in the delivery of the rehabilitated trains and the number of trains. The average headway projected in the SAR for the Rio commuter system was between 5 minutes and 15 minutes. The average headway in 2000 was between 10 minutes and 29<sup>22</sup> minutes.<sup>23, 24</sup>

### *Train Safety*

4.18 Safety also improved in the Rio commuter rail system, especially after Supervia took over operations. The number of people hanging on the outside of the train has dropped from 8,760 a year before concessioning to 511 in 2000.<sup>25</sup> Today there are practically none. Similarly, before 1998, there were about 25 criminal incidents per day; that number has declined to 2.5.<sup>26</sup> Finally, barring vendors from the trains has contributed to safety, cleanliness, and reduced crime.

### **Institutional Development Impact**

4.19 The PPAR rates the institutional development impact of the RJMTD project **substantial**. The project achieved important institutional changes, including the decentralization of CBTU-RJ to Flumitrens and the subsequent concessioning of the system to Supervia, and provided initial support for the concessioning of the Rio Metro and the ferryboat, and the dissolution of the state-

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20. In commenting to a previous draft, the Region notes that “the main reasons cited by the experts for this fall in ridership and difficult demand recovery are: (i) The train reliability before concessioning was very low; (ii) after the concessioning the headways at peak are still too long due to lack of trains; (iii) the modal integration promised by government is not being enforced; (iv) a fare incentive system with peak and off-peak fares has not yet been put in place by Supervia because it is difficult to enforce without a smart card system; and (v) large deficit, resulting from low fares and fare evasions, and lack of government subsidy to maintain the system.”

21. Data supplied by CBTU.

22. With the delivery of all the RJMTD trains the headway meets the SAR target.

23. Data supplied by CBTU.

24. The Region notes that “this headway can only be further reduced by an increase in fleet, which will make the train more competitive with bus. Since Flumitrens let the fleet portion not rehabilitated by the RJMTD project degrade, the train availability at the end of the project was lower than expected, because the minimum maintenance requirements on the non-rehabilitated fleet were only made after the concession. With the concessionaire this situation has improved, but the fleet capacity at peak is still not enough to meet the headway targets required to compete with bus which should be even lower than the SAR targets.”

25. Supervia data.

26. Supervia data.

owned bus operator. In addition, the RJMTD project supported the creation of the regional coordination body, AMTU-RJ. However, the institutional framework within which urban transport is provided in Rio de Janeiro remains weak and fragmented, mainly because of the lack of coordination between the mayor and governor's offices. In particular, the institutional environment remains adverse for the organized development of the urban transport system and for the development of a more comprehensive planning strategy for the sector. Commitment by the governor and the mayor of Rio is lacking, especially for integrating the buses with rail. Nevertheless, the project has resulted in important institutional development, most notably the establishment of the AMTU-RJ.

### **Sustainability**

4.20 The sustainability—the resilience to risk of net benefits flows over time—of the Rio project is **non-evaluable**, versus the likely rating in the ICR. The decentralization and concessioning of the Rio commuter rail system are largely irreversible. There is a constitutional mandate to decentralize urban transport to states, and the concessioning policy of the state government appears to be well grounded. However, the basis for sustaining the stream of project benefits to passengers is still being put in place and faces a variety of difficulties. Some institutional and financial issues—weak financial framework of the commuter rail system, lack of progress in modal integration and sluggish ridership, inadequate institutional capacity to monitor and enforce the Supervia concession contract, and ongoing contractual disputes between Supervia and the state government (see Section 5)—threaten the continued stream of project benefits. Progress in resolving the contractual difficulties and modal integration can improve the prospect for sustainability, but these depend very much on the state government's determination to achieve modal integration.

### **Bank Performance**

4.21 OED rates the Bank performance for the RJMTD project **satisfactory**. The project was prepared and supervised very diligently and professionally. The Bank was instrumental in ensuring that the federal government's decentralization program took place and in responding in a timely fashion to prepare a well-thought out and designed project. The Bank also played an important role through this project, and other follow-on projects to promote the concessioning of the commuter rail system. The Bank's role in the project is highly appreciated within Brazil, especially the policy advice and sector dialogue.

### **Borrower Performance**

4.22 Borrower performance is rated **satisfactory**. The federal government showed commitment for the decentralization program, and CBTU, the implementing agency for the project, excelled in implementing the project. Occasional counterpart funding problems were caused mostly by macroeconomic reforms and currency changes in the mid-1990s. This had a negative impact on the project, especially in delaying the rehabilitation of the rolling stock, which is affected ridership.

4.23 The performance of the state government of Rio de Janeiro was deficient in the maintenance of the trains after decentralization but progressed well in the decision-making for the concession. The leadership of the Rio STM, which was stable for the first four years after decentralization, changed frequently, resulting in discontinuity of project ownership.

## 5. The Rio Commuter Rail Concession

5.1 In 1998, Supervia, a consortium of domestic and foreign interests, took over operation of the Rio de Janeiro commuter rail system from the state agency, Flumitrens, in a 20-year concession contract let through a competitive bidding process. The contract required the concessionaire to make payments to the state government for the right to operate the system (positive concession). Studies financed by the RJMTD project suggested that the system would require operating subsidies at least in the first three years. The State argued that in view of the Concession Law, which does not allow operating subsidies, it would find alternatives to increase the capital subsidy to make the concession viable and agreed to the following concession terms:

- Allow increases in the maximum tariff from R\$0.6 per trip to R\$0.9<sup>27</sup> upon provision of air-conditioning in trains by the concessionaire.
- Transfer the cash flows from Metro concession payments to the concessionaire over a period to be proposed by the concessionaire in its bid to allow him to undertake the rehabilitation and modernization of some trains.
- Ensure the implementation of the investment program laid out in the Rio Mass Transit project.
- Exclude 64 kilometers of rail tracks in the fringe of the metropolitan region, which were of different gauge and low ridership.
- Assume the cost of all personnel unwanted by the concessionaire by the end of the transition period.

5.2 The winning concessionaire agreed to pay the minimum price of R\$36.2 million laid in the bid document, but also offered much more. In addition to agreeing to an investment plan, the winning concessionaire agreed to a reduced amount of the transfer from the Metro lease payment than was allowed in the bid document (R\$59.9 million in net present value over a 28-month period, versus R\$81.1 million in net present value over the life of the contract).<sup>28</sup> It assumed the rehabilitation of some of the existing trains, some civil works and signaling work. In the end, the concessionaire offered a sum equivalent to R\$297.7 million, estimated to be 671 percent higher than the minimum bid price.<sup>29</sup>

### STATUS OF THE CONCESSION AGREEMENT

5.3 Since it took over operations, the concessionaire has improved the performance of the system (see Chapter 4). However, interviews with officials in several agencies give a strong impression that the terms of the contract dealing with the investment program have not been fulfilled. Officials had differing opinions about whether the contract had been violated by the concessionaire or the government, however, and it is likely that there are disputes between the government and Supervia, and that the investment program has not been pursued as quickly or vigorously as envisioned in the agreement.

5.4 Supervia officials claim that the state government delayed by 2.5 years investment obligations that had been promised under the concession agreement.<sup>30</sup> Forty-eight rail cars that were to have been rehabilitated have not yet been delivered to Supervia as planned. A substantial

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27. This is still 90 percent of the municipal bus fare, and 60 percent of comparable inter-municipal bus fares.

28. ICR, Rio de Janeiro State Reform Privatization Project, P. 6; P. 87-88.

29. ICR Rio Reform project, P.87-88.

30. Interview with Regina Amelia Oliveira, Director of Planning, Supervia, August 6, 2001.

portion of these cars and all the rehabilitated fleet under the RJMTD project has now been delivered to Supervia. Representatives of Flumitrens, on the other hand, claim that the delay of government investment is not a violation of contract, and that while the State of Rio de Janeiro is obligated to refurbish rolling stock, that has been delayed because Supervia has been slow to deliver the equipment to be refurbished.<sup>31</sup> Supervia claims that delays with the government investment obligation provoked delays in its own investment plan, and caused a re-negotiation of the contract, which was recently completed. So far, Supervia has invested about R\$55 million in capital expenditure, significantly less than what it promised to invest under the concession agreement. Supervia expected to invest R\$35 million more by the end of 2001. The re-negotiated obligation on investments now requires Supervia to invest R\$311 million. But given the experience so far, the company's financial situation, and prevailing macroeconomic conditions, the new investment target is unlikely to be met. It should also be noted that the government is late in meeting its own investment obligation and this appears to be the main reason for most of Supervia's complaints .

### **INADEQUATE REGULATORY CAPACITY**

5.5 The difficulties surrounding the Supervia concession are due in part to the weak regulatory environment for the concession. The concession contract is regulated by the Agencia Reguladora de Servicos Publicos (ASEP), an agency of the State of Rio de Janeiro. The Rio de Janeiro State Reform-Privatization project supported the establishment of ASEP, but in doing so it eschewed sector-specific knowledge in regulation in favor of economies of scope associated with regulating different industries within one agency. But the resulting agency appears to be ineffective and overwhelmed. The ASEP staff of 20 oversees seven concessions, ranging from transportation to energy to water supply. It augments its own staff with support staff from Flumitrens and the Rio Metro to monitor the performance of Supervia and the Metro concessionaire. But ASEP clearly seems to be overworked, both in the number of concession agreements it must monitor and in the range of industries it must monitor, in some cases without the benefit of expert knowledge. Putting the regulatory responsibility of many unrelated sectors into one regulatory agency therefore appears to have been a misguided strategy.

5.6 ASEP monitors three aspects of Supervia performance, punctuality, regularity, and headways.<sup>32</sup> All three indicators were defined as part of the 1998 concession agreement, but the measures of punctuality and regularity do not allow easy comparisons with other systems. Overall, ASEP's basic data collection does not correspond well to standard international transit indicators, and the indices are not reported here because the non-standard measures are difficult to interpret. This is another indication that the regulatory task overburdens the current ASEP staff.

### **POLITICAL INTERFERENCE**

5.7 A law passed by the state assembly in 1997 established ASEP as an independent regulatory agency, removed from direct political control, and protecting its commissioners from arbitrary removal during their fixed term. Yet, the new state government that came to power 1999 summarily dismissed the ASEP staff because it claimed that these people were too close to the public enterprises that were concessioned. For nine months the agency was essentially dormant, until new staff were appointed.<sup>33</sup> This had a substantial negative impact on ASEP. First, ASEP

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31. Interview with Luis Carlo Lino, Vice-President, Sergio Wanderley Costa Lima, IBRD program coordinator, and Claudio Costa, Engineering Department, Flumitrens, August 6, 2001).

32. Interview with Eduardo Ribeiro Alves and Sergio Ruy Barbosa Guerra Martins, Advisors, ASEP, August 8, 2001.

33. Interview with Eduardo Ribeiro Alves and Sergio Ruy Barbosa Guerra Martins, Advisors, ASEP, August 8, 2001.

had to retrain new staff and recover from the lost time. Second, the firing of the entire agency staff demonstrated that ASEP does not have the intended level of political independence; this appears to have affected the current staff. Representatives of ASEP stated that the agency's role is not to assess who is responsible for the failure to meet the terms of the Supervia contract, but seemed to be inclined to focus on factors that explain Supervia's under-performance (such as emphasizing the poor repair of the system at the time Supervia took control). In addition, the agency has never taken any form of disciplinary action against Supervia.<sup>34</sup> All of this suggests that ASEP has so far taken a tentative, rather than an aggressive, approach to resolving the difficulties in the Supervia concession.

#### **POOR CONFLICT-RESOLUTION SYSTEM**

5.8 The poor state of regulatory oversight of the Supervia concession is exacerbated by the lack of conflict-resolution mechanisms in Brazil. Several persons interviewed for this review stated that civil cases face substantial delays in the court system. Some speculated that the delays are so long that, as a practical matter, disputes between concessionaires and the government are settled out of court. In such an environment, the regulatory agencies are the only source of oversight and effective resolution of contract disputes. In that light, the inability of ASEP to resolve the dispute between Supervia and the government raises the possibility that there is no alternative to the parties resolving the dispute on their own. But the lack of effective dispute resolution is problematic because the more powerful entity (the government or the concessionaire) could abuse that power and behave opportunistically during contract renegotiation.

## **6. The Future of Commuter Rail Concession in Rio**

6.1 The Bank is assisting further improvements to the commuter rail system in Rio through the Rio de Janeiro Mass Transit project, approved in fiscal 1998. A reformulation of the project was approved by the Board in December 2001 in light of the changing circumstances regarding Supervia's contractual relationship with the government and the fact that Supervia assumed part of the investment plan originally included in the loan. The reformulation called for the cancellation of about US\$16m saved with the concession and the replacement of the rehabilitation of existing trains by the acquisition of twenty new air-conditioned trains. In addition, the reformulation allowed for civil works to install busways in areas not served by the Supervia network and also to access key stations of the network. Finally, to reduce the burden of the counterpart funds on the State, the reformulation recognizes as counterpart funds part of the investments that Supervia assumed in the concession contract. The question of whether the Bank should restructure the 1998 loan to allow the purchase of 20 new air-conditioned rail cars, rather than rehabilitating the existing ones, was central to the reformulation. The concession contract would anyway force the government to provide 40 more rehabilitated trains. Flumitrens and Supervia asked to replace these 40 rehabilitated trains by 20 new air-conditioned trains. After analyzing the issue, the Bank accepted the argument that the trains to be rehabilitated had been cannibalized to the point that their rehabilitation would be costly and, in some cases, not effective given their deteriorated condition since appraisal of the loan. The Bank agreed to include in the reformulation the 20 new trains after the concessionaire agreed to such change in its contract with the State.

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34. Interview with Eduardo Ribeiro Alves and Sergio Ruy Barbosa Guerra Martins, Advisors, ASEP, August 8, 2001.

6.2 Many people within Brazil believe that low capacity is an important contributor to the low rail transit ridership in Rio because the rail headways at peak are not competitive enough with the bus headways. The demand in the rail system in Rio appears to be supply-driven at peaks, and Rio appears to have strong latent demand for rail transit services. The present Supervia fleet of about 120 trains has a capacity of 440,000 passengers per day, which is 100,000 passengers more than the current ridership level. But, during peak time, this capacity can be insufficient to keep headways between 5 and 10 minutes to keep pace with the buses that would integrate with rail. And, in some routes, passenger densities at peak can reach up to eight passengers per square meter, which is not comfortable. In such an environment, increasing capacity by purchasing new rail cars warrants attention.

6.3 Yet, focusing on capacity increase ignores the range of issues related to Supervia's performance. The lower-than-expected ridership on Supervia should be evaluated in light of several concerns. The Rio government seems less committed to pursuing a broad range of infrastructure,<sup>35</sup> regulatory, and modal integration improvements, all of which point to the need for a more comprehensive effort than simply increasing rail capacity. Although the Bank has made these part of its policy dialogue with the government, substantial progress in modal integration and regulatory improvement has been elusive.

6.4 While many interviews in Rio de Janeiro commented on the need for better modal integration, it seems that some in the rail sector conceive of modal integration as protecting rail systems (including Supervia) from competition from buses and vans. Officials in both the private and public sector in Rio do not seem to have progressed in thinking about modal integration as a process of leveraging several infrastructure systems to meet transportation needs, including (but not limited to) the benefits of allowing competition between modes and systems.

6.5 Overall, there are enough warning signs in the planning, management, and implementation of commuter rail in Rio to suggest that adding capacity without addressing other problems would not necessarily translate into ridership increases that would be sufficient to cover costs—Supervia's ridership problem is more than a capacity problem, and adding capacity—if no other actions are taken to improve management, planning, and regulatory oversight—may not lead to increased ridership that would justify the investment. Since the Bank has chosen to allow for the increase in the capacity of the Supervia system by allowing loan funds to be used to purchase more rail cars, it is essential that the support be leveraged with improvements in the concessioning environment, regulatory institutions, management, and planning. All these have been included in the loan reformulation, and there is a need to ensure their compliance.

## **7. Some Lessons for São Paulo Concession Plans**

### **THE METRO LINE 4 PROJECT**

7.1 The Bank recently approved the São Paulo Metro Line 4 Project (January 2002) for US\$209 million (about 10 percent of the approximate US\$2 billion cost of the project) to support construction of Metro Line 4. The new line will be built in part with private investment funds, and then operated under a concession to the private sector. The project appraisal states that 80 percent of the capital cost of Line 4 will be provided by the public sector, with 20 percent provided by the concessionaire.<sup>36</sup> The Line 4 project is central to plans to integrate the currently

35. The Rio government has provided counterpart funds for the Bank-supported projects.

36. Project Appraisal Document, São Paulo Metro Line 4 project, June 30, 2001, draft, p. 2.

separate Metro and CPTM networks. Line 4 will connect the CPTM and Metro systems on the southwest side of São Paulo, providing direct rail transit service from the south and southwest of São Paulo into the downtown business and financial centers.

7.2 The private sector development instrument for Line 4 is expected to be a 30-year concession contract or other options, which must generate at least us\$180 million. During that time, the concessionaire will receive the fares collected on the line. An electronic “smart card” system currently being developed will allocate fares across the concessionaire and Metro based on ridership on the two systems; persons who travel partly on Line 4 and partly on other Metro lines will have their fares split accordingly across Metro and the concessionaire. The concessionaire will be required to meet Metro maintenance procedures (currently approximately 90 percent of Metro rolling stock is available at any time, on average).<sup>37</sup>

### **CPTM CONCESSION PLANS**

7.3 As part of the loan condition for the ongoing São Paulo Integrated Urban Transport project, CPTM is required to develop a plan for private sector concession of part or all of the CPTM rail transit system. CPTM hired consultants who studied the whole system from a project finance standpoint and concluded that it is financially feasible to have an operating concession with an agreed investment plan financed by the State. However, currently CPTM decided that for political reasons it would start with concessioning one line that is independent from the rest of the system and that has multiple functions such as connection to the airport.

### **REGULATION AND DISPUTE RESOLUTION**

7.4 For the concession plans in São Paulo to succeed, it is important to address regulatory issues beforehand. An important element of private sector development reform is recasting the government’s role from providing service directly to regulating the provision services by the private sector. In rail concession contracts, this takes the form of designing the contract ex ante and monitoring and enforcing the contract ex post.

7.5 Since contracts cannot be sufficiently detailed ex ante and are inevitably incomplete, unforeseen circumstances arise that require either clarification of the contract terms or possible changes to the contract. Such changes require strong institutions that can guard the interests of both the government and the concessionaire within a rule of law framework that provides assurances that the terms of any changes will be fair and that the principles underlying such terms can be anticipated. In short, strong regulatory institutions are required for the smooth operation of rail concessions, and to allow parties to the concession contract to adapt to changing circumstance and unforeseen contingencies.

7.6 The experience with Supervia concession illustrates how unanticipated problems and conflicts can arise, and underscores the importance of an appropriate regulatory mechanism to adapt to changing circumstances and resolve disputes as they arise. For both the Line 4 and CPTM concessions to succeed, it is important that the a regulatory oversight is well developed—able to provide both the needed level of government commitment to bolster private sector confidence for investment and ensure that the private sector is held to terms of the agreement in ways that are fair to both sides. In addition, dispute-resolution institutions, including the court system, must be sufficiently developed to ensure success in the long-term.

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37. Data on Metro fleet availability are from São Paulo Metro, 2001.

## 8. Lessons for Private Sector Development

8.1 The review of urban transport reform in Rio de Janeiro and São Paulo confirms a number of OED lessons for private sector development.

8.2 ***Transferring inherently unprofitable operations to the private sector is best addressed by the use of negative concessions.*** The concession to Supervia has thus far primarily had the effect of shifting operating losses from the public to the private sector. To the extent that management practices have improved and ridership has increased, the magnitude of the operating losses will now be smaller. But, the commuter rail system in Rio de Janeiro may be inherently unprofitable, especially at social tariffs, and shifting those losses from the public to the private sector will not make the losses disappear, nor can the private sector carry such losses indefinitely. For private concessioning to succeed when farebox revenues do not cover costs, a negative concession, whereby the government pays the concessionaire to cover losses, must be used. But negative concessions are not allowed under Brazilian law. Therefore, as Brazil expands its concession program in urban transit, the government may consider amending the concession law to allow for negative concessions, which can transfer unprofitable operations, but economically and socially viable, to the private sector in a transparent way.

8.3 ***Yet, negative concessions must be approached with caution.*** Negative concessions are a variant of output-based aid promoted by the Bank, where the government pays a private concessionaire to provide service for the duration or part of the contract period based on the fulfillment of specific output/outcome targets. The fate of the concessionaire is therefore dependent on the government fulfilling its commitment under the terms of the contract. But government policies in many countries, Brazil included, are not stable over a long period, and reversals are common, especially during economic crisis or when political parties opposed to privatization come to power. This makes negative concessions, and output-based aid more broadly, vulnerable to discretionary government behaviors, and their broad application should be informed by a thorough analysis of the likely government commitment and policy stability over a long period of time. This could also suggest that negative concessions be combined with various types of partial risk guarantees so that the risks of government default can be controlled.

8.4 A corollary of the above lessons is that ***concessions are likely to succeed if they are not too dependent on government actions.*** The Supervia concession was designed as a positive concession, but its success hinged, and continues to hinge upon, the government fulfilling its investment obligation and enforcing the modal integration clause in the concession contract. The lack of timely delivery of the rehabilitated trains affects ridership, and the lack of modal integration affects the latent demand for rail transit in Rio. The problem of the Supervia concessions were further compounded by the failure of the State Government to deliver the new Metro lines for operation on schedule, causing a delay in payment of the Metro concession fees which had been promised to the Supervia concessionaire.

8.5 ***Strong regulatory institutions are essential for the success of concessions.*** The privatization of Flumitrens was done as a long-term concession agreement, with emphasis on writing a detailed concession contract. This is regulating by contract, rather than by administrative regulation. The tendency for rail concession to rely more on contracts than regulatory institutions is due, in part, to a belief that new democracies in developing countries will have weak regulatory institutions. Hence, the contract might be viewed as substituting for regulatory discretion. Yet, especially for rail concessions, which cover long time periods, the contracts will inevitably require interpretation—something that can only be done within the context of strong institutions, rule of law, and an independent judiciary or administrative review process that respects both the contract law and the rights of the public. In short, rail concessions,

even when based on a detailed concession contract, will still require a strong regulatory framework.

8.6 Regulatory agencies should ideally have stable leadership and some level of independence from direct political pressures. Rio de Janeiro's regulatory institutions, primarily ASEP, do not provide effective oversight, nor do they give private concessionaires clear incentives. Overall, concessioning, at least in Supervia's case, resembles less a contract than an ongoing negotiation between two parties, with numerous changes in the relevant actors, institutions, and the political environment. This is hardly a formula for successful concessioning. Investments in rail transit capacity, without changes in the regulatory environment, will likely have limited effect. Capacity increases should be specifically tied to regulatory improvements that give ASEP more stability, independent political authority, and a clearer mandate to oversee private sector developments.

8.7 ***Effective dispute resolution is an essential component of successful private sector development.*** This includes court systems that are independent of other branches of government and that are perceived by all parties to yield timely, fair decisions. In countries with backlogged court systems, private sector development might require either prioritization of disputes to ensure that those cases are resolved or the development of alternative resolution procedures such as arbitration, mediation, or independent administrative review.

8.8 ***Simple performance measures are preferable to complex measures.*** Complex measures of performance are difficult to implement, require a higher level of agency expertise, and are more open to interpretation and hence sources of conflict between private contractors and the government.

8.9 ***Alternative sources of finance to fund urban transport improvements should be explored.*** Brazilian cities have few options to fund public sector capital investment. The national development bank, Banco Nacional de Desenvolvimento Economico e Social (BNDES) lends money for major capital investments, but beyond that, no municipal bond market supports rail transit projects in either Rio or São Paulo. Private concession agreements therefore appear to be implemented, in part at least, because the public sector cannot borrow. For example, a recent Bank report suggests that public lending institutions in Brazil have shifted their attention to private concession companies because lending to the private sector does not count against municipal lending ceilings.<sup>38</sup> This distorts the incentives and creates pressure to pursue concessioning in situations where the institutional environment and the sector itself might not be suitable for a concession. Overall, the Bank should carefully evaluate the extent to which concessioning has been adopted in Brazil in response to inefficient public sector fiscal and lending policies, and should consider municipal and sub-national fiscal reform among possible solutions to the shortage of urban transport finance in the country.

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38. Brazil: Financing Municipal Investment, Issues and Options, World Bank report number 20313-BR, April 20, 2001.

## Annex A. Project Objectives and Components

Project Name	Project Objectives	Project Components
<p><b>São Paulo Metropolitan Transport Decentralization Project</b></p> <p><b>Costs and Financing:</b> The project cost was USD294 million (versus USD281 million estimated at appraisal). The Bank loan amount was for USD128.5 million, which was fully disbursed. The loan was approved in fiscal 1993 and closed in December 31, 2000, three years behind schedule.</p>	<ol style="list-style-type: none"> <li>1. Support the Federal Government in its efforts to transfer São Paulo subdivision of the Brazilian Train Company (CBTU-SP) to the State of São Paulo to enhance its management and operations;</li> <li>2. Introduce institutional, organizational, and financial policy reforms to ensure long-term financial sustainability, improved multimodal integration, expanded capacity and reduction in subsidies; and</li> <li>3. Contribute to poverty alleviation and environmental improvement.</li> </ol>	<p><b>Institutional development Component (10%):</b></p> <ol style="list-style-type: none"> <li>a) Establish organizational, financial and institutional reforms for improved cost recovery and transfer of CBTU assets to their respective States;</li> <li>b) Operationalize multi-modal tariff integration between rail and feeder bus systems and non-motorized vehicles and introduce cost based fare structures which reflect peak and off-peak services and improve targeting of subsidies;</li> <li>c) Identify an investment program to consolidate the rehabilitation and decentralization program in São Paulo;</li> <li>d) Study and recommend management, technical and financial improvements for operating efficiency and for franchising or concessioning rail services to the private sector; and</li> <li>e) Provide technical and management training to entities participating in the project.</li> </ol> <p><b>Investment Component (90%)</b></p> <ol style="list-style-type: none"> <li>f) Civil works and goods to implement the rehabilitation of stations, track, rolling stock, signaling, power supply, telecommunications fencing of the right of way, traffic engineering equipment and construction of transfer points.</li> </ol>
<p><b>Rio de Janeiro Metropolitan Transport Decentralization Project</b></p> <p><b>Costs and Financing</b></p> <p>The project cost was</p>	<ol style="list-style-type: none"> <li>1. Assist the Federal Government in its efforts to transfer the CBTU-RJ (Rio de Janeiro) system to the State in order to enhance its management and operations;</li> <li>2. Introduce institutional, organizational, and financial policy reforms to assure CBTU-RJ's long term financial sustainability</li> </ol>	<p><b>Institutional Development component (10%)</b></p> <ol style="list-style-type: none"> <li>a) Introduce and establish organizational, financial, and institutional reforms in the urban transport sector in Brazil, including the implementation of a plan of action for the transfer of remaining viable CBTU systems to their</li> </ol>

<p>USD311 million (versus USD 272 million estimated at appraisal). The Bank loan amount was for USD126 million, which was fully disbursed. The loan was approved in March 1992 and closed in March 1998, one year and half later than planned.</p>	<p>(including cost-efficiency gains, improved multimodal integration, expanded capacity, and substantial reduction in subsidies); and</p> <p>3. Contribute to poverty alleviation and environmental improvement (better targeting of subsidies, improved access to work, decreased travel time to work, reduced congestion and pollutant emissions, and reduced accidents and fatalities through the provision of safer and more comfortable rail transport) in the Rio de Janeiro Metropolitan Region.</p>	<p>respective states;</p> <p>b) Operationalize multi-modal and tariff integration between CBTU-RJ, METRO feeder bus systems, passenger ferry services, and non-motorized vehicles, introduce long-run variable cost-based fare structures for peak and off peak services, and improved targeting of subsidies;</p> <p>c) Identify an investment program to consolidate the rehabilitation and decentralization in CBTU-RJ;</p> <p>d) Study and recommend different management alternatives, technical improvements, and financial reforms for improving the operating efficiency of the METRO, CONERJ and the CTC, including management contracts and franchises or concessions to the private sector; and</p> <p>e) Provide technical and management training CBTU staff as recommended in the organization and manpower development studies (and after decentralization, to the staff of the new State operation agency), and to staff of other transport agencies participating in the project.</p> <p><b>Investment component (90% of the loan)</b></p> <p>f) Civil works and goods to implement the proposed rehabilitation of stations, track, rolling stock, telecommunications, fencing of the right of way, and construction of transfer points within stations to integrate CBTU-RJ with other modes.</p>
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## Annex B. Bank-Supported Urban Transport Projects in Brazil

Proj ID	Project Name	FY	Loan	
			US\$ M	Status
P006292	URBAN MASS TRANSPORT	1978	88	Closed
P006307	URBAN TRANS II-RAIL	1980	159	Closed
P006316	URBAN TRANSPORT III	1981	90	Closed
P006366	URBN TRNSPRT IV	1987	200	Closed
P006379	METRO TRANSP.SPAULO	1992	126	Closed
P006547	METRO TRANSP. RIO	1993	129	Closed
P006564	BELO H M.TSP	1995	99	Active
P038882	RECIFE M.TSP	1995	102	Active
P039197	RJ State Reform and Privatization Project	1998	200	Closed
P006559	(BF-R)SP.TSP	1998	45	Active
P043421	RJ M.TRANSIT PRJ.	1998	186	Active
P048869	SALVADOR URBAN TRANS	1999	150	Active
P060221	FORTALEZA URBAN TRANSPORT PROJECT 2002		85	Active
P051696	SÃO PAULO METRO LINE 4 PROJECT	2002	209	Active

## Annex C. Basic Data Sheet

### SÃO PAULO METROPOLITAN DECENTRALIZATION PR (L3457-BR)

#### Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>
Total project costs	280.9	293.4
Loan amount	126.0	125.6
Economic rate of return		1.80

#### Cumulative Estimated and Actual Disbursements

	<i>FY92</i>	<i>FY93</i>	<i>FY94</i>	<i>FY95</i>	<i>FY96</i>	<i>FY97</i>	<i>FY98</i>
Appraisal Estimate	20.0	55.0	95.0	115.0	126.0	N/A	N/A
Revised Appraisal Estimate	N/A	N/A	9.5	85.2	126.0	N/A	N/A
Actual	0.0	0.0	16.6	51.4	81.5	112.6	126.0
Actual as % of estimate	0.0	0.0	18	45	65	89	100
Actual as % of revised	0.0	0.0	18	60	65	89	100

Date of final disbursement: 7/16/98

#### Project Timetable

<i>Stage of project cycle</i>	<i>Date Planned</i>
Identification (Executive Project Summary)	December 5, 1990
Preparation	April 1, 1991
Appraisal	July 1, 1991
Negotiations	February 18, 1992
Board Presentation	March 31, 1992
Signing	September 3, 1992
Effectiveness	February 3, 1993
Project Completion	March 31, 1998
Loan/Credit Closing	March 31, 1998

#### Staff Inputs

<i>Stage of project cycle</i>	<i>Planned</i>		<i>Revised</i>		<i>Revised</i>	
	<i>Weeks</i>	<i>US\$</i>	<i>Weeks</i>	<i>US\$</i>	<i>Weeks</i>	<i>US\$000</i>
Through Appraisal	N/A	N/A	N/A	N/A	71.6	254.8
Appraisal/Negotiation	N/A	N/S	N/A	N/A	39.4	137.2
Board-Effectiveness	N/A	N/A	N/A	N/A	22.3	78.5
Supervision	N/A	N/A	N/A	N/A	58.3	199.4
Completion	N/A	N/A	N/A	N/A	4.5	20.0
<b>Total</b>	N/A	N/A	N/A	N/A	<b>196.1</b>	<b>689.9</b>

## Mission Data

Stage of project cycle	Month/ year	No. of persons	Days in field	Specialized staff skills represented a/	Performance rating		Types of problems
					Implementation Status	Development Objectives	
<b>Identification/Preparation</b>							
1	10/90	2	20	UP, TP	N/A	N/A	N/A
2	1/91	2	14	UP, TP	N/A	N/A	N/A
3	4/91	6	78	UP, TP, RE, FA	N/A	N/A	N/A
<b>Appraisal Through Board Approval</b>							
1	7/91	6	90	UP, TP, RE, FA	N/A	N/A	N/A
2	10/91	1	3	UP	N/A	N/A	N/A
<b>Board Approval Through Effectiveness</b>							
	11/92	2	10	TP, RE	1	1	N/A
<b>Supervision</b>							
1	5/93	2	12	TP, RE	2	2	
2	10/93	3	6	TP, RE, FA	2	2	PMP
3	2/94	2	6	TP, RE	2	2	PP
<b>(Midterm Review)</b>							
	7/94	2	4	TP, RE	S	S	PP, PP
5	7/95	2	6	TP, RE	S	S	PP, FP
6	2/96	2	6	TP, RE	S	S	PP, FP
7	10/96	1	4	TS	S	S	PP, FP
8	12/96	1	3	TS	S	S	PP, FP
9	2/97	1	3	TS	S	S	
10	7/97	1	4	TS	S	S	
11	2/98	1	3	TS	S	S	
<b>Completion</b>							
Total	N/A	37	272	N/A	N/A	N/A	N/A

a/ Staff Skills: FA=Financial Analyst; RE=Rail Engineer, TP= Transport Planner; TS=Transport Specialist; UP=Urban Planner. Problems: CLC: Compliance with covenants; FP: Financial Performance; TA: Technical Assistance Progress; PMP; Project Mgt. Progress PP: Procurement Progress; SP: Studies Progress

**RIO DE JANEIRO METROPOLITAN TRANSPORT DECENTRALIZATION PROJECT(L3633-BR)**
**Key Project Data (amounts in US\$ million)**

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>
Total project costs	271.92	311.38
Loan amount		
Date physical components completed		12/31/2000
Economic rate of return		17,69

**Staff Inputs**

<i>Stage of project cycle</i>	<i>Actual/Latest Estimate</i>	
	<i>No. Staff weeks</i>	<i>US\$('000)</i>
Identification/Preparation	30	180
Appraisal – Board	18.4	54
Supervision	59.7	248
ICR	9	27
<b>Total</b>	<b>117.1</b>	<b>509</b>

**Mission Data**

<i>Stage of project cycle</i>	<i>Month/ year</i>	<i>No. of persons</i>	<i>Specialized staff skills represented a/</i>	<i>Performance rating</i>	
				<i>Implementation Status</i>	<i>Development Objectives</i>
<b>Identification/Preparation</b>	02/1991	4	Urban planner, transport planner, transport economist, railway engineer	S	S
	04/1991	6	Urban planner/res.spec, transport planner, transport economist, railway and procurement engineer, financial analyst, state finances specialist, rolling stock engineer, telecom/signaling engineer	S	S
<b>Appraisal/Negotiation</b>	07/1991	6	Urban planner, transport planner, transport economist, railway and procurement engineer, financial analyst, state finances specialist, rolling stock engineer, telecom/signalling engineer	S	S
	08/1992	3	Urban planner, transport planner, railway and procurement engineer, lawyer	S	S
	<b>Supervision</b>				
	05/1993	3	Transport planner, railway engineer/procurement specialist	S	S
	09/2000	1-2	Transport planner, railway Specialist, civil works specialist, rolling stock specialist	S	S
<b>ICR</b>	12/2001	1	Transport specialist railway	S	HS
		2	engineer, transport specialist	S	HS

## **Annex D. Borrower Comments**

CRT/060-02/COORD.CBTU/BIRD

Rio de Janeiro, August 16, 2002.

Ao  
The World Bank  
1818 H. Street N.W.  
Washington, D.C. 20433  
U.S.A.

At.: Mr. Alain Barbu, Manager  
Sector and Thematic Evaluation Group  
Operations Evaluation Department

Dear Mr. Barbu,

Thank you for sending us the evaluation report of the Rio de Janeiro and São Paulo projects.

Following are our general comments:

At first, we believe the reports should have been prepared separately for both systems because they are different ones and we think it should not be an appropriate vehicle for making comparisons.

In fact, it seems that your evaluation might have been highly influenced by the successes in São Paulo project and that certainly affected the judgment on Rio de Janeiro project.

We strongly disagree with your assessment that the project is moderately satisfactory in RJ. Not only did it cause a total revolution in all urban systems in RJ but also, under very difficult circumstances such as the introduction of the Real, delays by the industry in delivering the trains, it met the most of the technical targets as well or better than the SP project which you considered satisfactory at the time of closure.

We also believe that the sustainability of RJ is not at stake as evidenced in a recent visit of your Managing Director, Mr. Goldstein, who had a chance to verify that Supervia is doing very well.

We believe also that with the same rigor you have judged RJ, the SP project 4 years after should be considered Highly Satisfactory.

We agree that the regulatory agency model used must be reviewed and we also believe that negative concessions should be allowed by our law. But that was not part of our project.

You did not stress enough how extraordinary was our and the Bank teams performance particularly the Task Manager's, Mr. Rebelo who worked very hard throughout the project always in conjunction with our team. He had to deal with several State governments and Secretaries and the project came out mainly because he worked so closely with us.

Also, the effort made with the AMTU-RJ was not sufficiently highlighted in your report.

It seems like the team sent by OED did not have the practical experience to understand the importance and work that was done and appears to have made a major mistake in lumping together the RJ and SP projects in one evaluation, because in the end neither one was covered with the necessary depth.

We hope this will help and you will review your evaluation to reflect our preoccupation.

Sincerely yours,

FLÁVIO MOTA MONTEIRO  
CBTU/BIRD Project Coordinator

c.c.: Mr. Jorge M. Rebelo - Lead Transport Specialist  
Finance, Private Sector & Infrastructure







## **IMAGING**

Report No.: 24795  
Type: PPAR