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PROJECT PERFORMANCE ASSESSMENT REPORT

Brazil

Recife Metropolitan Transport Decentralization
(Loan 3915-Br)

Belo Horizonte Metropolitan Transport
(Loan 3916-Br)

June 27, 2006

Sector, Thematic, and Global Evaluation Division
Independent Evaluation Group

Currency Equivalents (annual averages)

Currency Unit = Brazilian Reals (R$)

2005: US$1.00 = R$2.49 (January-October)
2004: US$1.00 = R$2.93
2003: US$1.00 = R$3.08
2002: US$1.00 = R$2.92
2001: US$1.00 = R$2.36
2000: US$1.00 = R$1.83
1999: US$1.00 = R$1.81
1998: US$1.00 = R$1.16
1997: US$1.00 = R$1.08
1996: US$1.00 = R$1.01
1995: US$1.00 = R$0.92

Abbreviations and Acronyms

AMBEL	Metropolitan Assembly of the Belo Horizonte Metropolitan Region
BHBUS	Plan to restructure the municipal bus system
BHMR	Belo Horizonte Metropolitan Region
BHTRANS	Belo Horizonte Transport and Transit Company (*Empresa de Transporte e Trânsito de Belo Horizonte*)
CAS	Country Assistance Strategy
CBTU	Brazilian Urban Railway Company (*Companhia Brasileira de Trens Urbanos*)
CMU	Country Management Unit
CPRH	Pernambuco Environmental Agency *(Companhia Pernambucana d Controle a Poluicao Ambiental e de Administracao de Recursos Hidricos)*
CTC	Centralized Traffic Control
CTRM	Transport Consortium of the Recife Metropolitan Region (*Consórcio de Transportes da Região Metropolitana do Recife*)
CTTU	Recife Municipal Bus and Traffic Company (*Companhia de Trânsito e Transporte Urbano*)
CTU	Municipality of Recife Bus Company *(Companhia de Transportes Urbanos)*
DER-MG	Minas Gerais State Roads Directorate *(Direção de Estradas de Rodagem)*
DER-PE	Pernambuco State Roads Directorate *(Direção de Estradas de Rodagem)*
DETRAN-PE	Pernambuco State Transit Department *(Departamento Estadual de Transito de Pernambuco)*
EBTU	Brazilian Urban Transport Company *(Empresa Brasileira de Transportes Urbanos)*
ERR	Economic Rate of Return
EMTU	Metropolitan Urban Transport Company *(Empresa Metropolitana de Transportes Urbanos)*
EMU	Electric Multiple Unit
GEIPOT	National Transport Planning Agency *(Empresa Brasileira de Planejamento dos*
ICB	International Competitive Bidding
ICR	Implementation Completion Report
IEG	Independent Evaluation Group (formerly, OED Operations Evaluation Department)
IFC	International Finance Corporation
IMF	International Monetary Fund
METROREC	Popular name of the Central line of the Recife Train Subdivision of CBTU
MREC	Municipality of Recife
MT	Ministry of Transport
NPV	Net Present Value
OED	Operations Evaluation Department (Now IEG)

PAD	Project Appraisal Document
PAR	Performance Audit Report
PCR	Project Completion Report
PIU	Project Implementation Unit
PPAR	Project Performance Assessment Report
PSR	Project Supervision Report
RAP	Resettlement Action Plan
RFFSA	Brazilian Federal Railways *(Rede Ferroviaria Federal SA)*
RMR	Recife Metropolitan Region
RTCC	Regional Transportation Coordination Commission of Belo Horizonte
SEAIN	State Secretariat for Foreign Affairs
SECTMA	Environment and Technology Secretariat of Pernambuco *(Secretaria de Ciencia e Tecnologia e Meio Ambiente do Estado de Pernambuco)*
SEI	Integrated Structural System (*Sistema Estrutural Integrado*)
SITURB	Integrated Urban Transport System *(Sistema Integrado de Transporte)*
STPP/RMR	Public Transport System for RMR Passengers *(Sistema de Transporte Publico de Passageiros da RMR)*
STU-BH	Belo Horizonte Subdivision of CBTU
STU-REC	Recife Subdivision of CBTU
TMBH	Trem Metropolitano de Belo Horizonte S.A.

Fiscal Year

Government: January 1 – December 31

Director, Independent Evaluation Group, World Bank	:	Mr. Ajay Chhibber
Manager, Sector, Thematic, and Global Evaluation Division	:	Mr. Alain Barbu
Task Manager	:	Mr. Peter Freeman

***Note**: Since Vinod Thomas – Director-General, IEG – was World Bank Country Director for Brazil during the period covered by the PPAR, he recused himself from all review and supervisory functions related to it.

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

About this Report

The Independent Evaluation Group 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, IEG 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 IEG. To prepare PPARs, IEG staff examines 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 IEG studies.

Each PPAR is subject to a peer review process and IEG 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 IEG Rating System

The time-tested evaluation methods used by IEG 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. IEG 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 IEG 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, and 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.

Contents

This report was prepared by Peter Freeman and Gabriel Siri, who assessed the project in June 2005. Romayne Pereira provided administrative support.

Principal Ratings

RECIFE METROPOLITAN TRANSPORT DECENTRALIZATION PROJECT (L3915-BR)

	*ICR Review**	*ES Rating*	*PPAR*
Outcome	Satisfactory	Satisfactory	Moderately satisfactory
Sustainability	Likely	Likely	Likely
Institutional Dev. Impact	Substantial	Substantial	Substantial
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Unsatisfactory

Belo Horizonte Metropolitan Transport Project (L3916-BR)

	*ICR Review**	*ES Rating***	*PPAR*
Outcome	Satisfactory	Satisfactory	Moderately satisfactory
Sustainability	Likely	Likely	Likely
Institutional Dev. Impact	Substantial	Substantial	Substantial
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Unsatisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible operational division of the Bank.

** The Evaluation Summary (ES) is an intermediate Independent Evaluation Group (IEG) product that seeks to independently verify the findings of the ICR.

Key Staff Responsible

RECIFE METROPOLITAN TRANSPORT DECENTRALIZATION PROJECT (L3915-BR)

	Task Manager/Leader	*Division Chief/ Sector Manager*	*Country Director*
Appraisal	Jorge Rebelo	Asif Faiz	Gobind Nankani
Completion	Jorge Rebelo	Jose Luis Irigoyen	Vinod Thomas

BELO HORIZONTE METROPOLITAN TRANSPORT PROJECT (L3916-BR)

	Task Manager/Leader	*Division Chief/ Sector Manager*	*Country Director*
Appraisal	Jorge Rebelo	Asif Faiz	Gobind Nankani
Completion	Jorge Rebelo	Jose Luis Irigoyen	Vinod Thomas

Preface

This Project Performance Assessment Report (PPAR) prepared by the Bank's Independent Evaluation Group (IEG) covers two urban transport projects in Brazil:

- **Recife Metropolitan Transport Decentralization Project (L3915-BR)**. The loan was for US$102.0 million. Actual loan disbursement was US$100.5 million. At project closing the total project cost was estimated at US$264.8 million as against US$203.8 million at appraisal. The difference (30 percent) was due to higher resettlement costs, delays in project completion because of exchange rate fluctuations increasing the amount or counterpart funding needed, as well as works and activities not envisaged at appraisal, but requested by local authorities.
- **Belo Horizonte Metropolitan Transport Project (L3916-BR).** The loan was for US$99.0 million. Actual loan disbursement was US$92.1 million. At project closing the total project cost was estimated at US$207.1 million as against US$197.3 million at appraisal. The difference was due to higher than expected resettlement costs and delays in project completion due to difficulties with counterpart funding.

Both projects were approved on June 29, 1995 and closed on June 30, 2004, two and a half years behind schedule, due to a combination of factors including disbursement delays and to allow time for implementation of the decentralization plans of the commuter rail systems from federal to local government. The projects were selected for assessment because Brazil's experiences with decentralization issues could be instructive and of value to other developing countries planning urban transport reforms.

In June 2005, an IEG mission traveled to Brazil and discussed the projects with senior government officials in the federal ministries of transportation, planning, and cities in Brasilia, as well as with authorities and technical staff of state and municipal governments. The Mission received substantive and logistical support from senior officials of the Brazilian Urban Railway Company (CBTU) regional offices in Recife and Belo Horizonte. Officials of the metropolitan transport companies, representatives of regional coordination authorities, and project beneficiaries were also interviewed, as well as other groups familiar with the projects (such as academic, professional organizations, and advocacy groups). At the request of the mission, the CBTU officials organized field trips to inspect the physical infrastructure and systems developed with Bank support.

Bank staff members at the Bank's resident mission in Brasilia were also consulted. The kind cooperation of all the government and nongovernmental officials consulted is gratefully acknowledged, as well as the support of Bank staff, both at headquarters and in Brasilia. IEG also reviewed the statistical and other information available in the Bank Staff Appraisal Reports (SARs), Implementation Completion Reports (ICRs), Country Assistance Strategies (CAS), Country Assistance Evaluations (CAEs), project correspondence files, and Bank documents on similar transport projects. Following standard IEG procedures, copies of the draft PPAR was sent to pertinent government officials and agencies for review and comments but no comments received.

Summary

This is a Project Performance Assessment Report (PPAR) for two urban transport projects in Brazil: The **Recife Metropolitan Transport Decentralization Project (L3915-BR)**, and the **Belo Horizonte Metropolitan Transport Project (L3916-BR).** The development objectives of the projects were almost identical:

i. The development of an integrated urban transport system under a regional transportation coordinating body, established to coordinate and recommend common policies on pricing, regulation, financing, project evaluation and selection;

ii. The decentralization of the respective subdivisions of the Brazilian Urban Rail Company from the federal to the state level;

iii. The reduction of negative environmental (mainly air quality and noise) impacts on the respective regions due to motor vehicles, and the promotion of non-motorized transport modes; and,

iv. The development of special strategies and actions to improve the accessibility of the low income population to employment centers, health and education facilities.

Brazilian Government policy is to decentralize from federal to local level the ownership and management of its commuter rail systems, achieve greater integration and institutional coordination in the provision of urban transport services and at the same time relieve traffic congestion and improve air pollution and public safety. The two projects in this PPAR were designed with these factors in mind, but the execution proved much more difficult than expected due to the impact of Brazil's financial crisis which had both economic and political repercussions. Lack of fiscal space led the Treasury to re-prioritize projects, relegating investment in infrastructure to a lower priority. This subsequently caused considerable delays in the execution of the urban transport projects, because local authorities did not want to accept the transfer of rail systems without a subsidy to cover the operating deficits. In 2004-05 the government introduced a special program to give high priority to a limited set of projects by assigning them "pilot project" status. The Belo Horizonte project was included in the initial list, but the Recife project, which required a much larger subsidy amount, was not. However, subsequent to this R$78 million was allocated to Recife by means of a special measure not subject to fiscal restrictions.

IEG has rated the outcome of both the Recife Metropolitan Transport Decentralization Project and the Belo Horizonte Metropolitan Transport Project as **moderately satisfactory**. The objectives of the two projects are relevant to the government's priorities and in line with the Bank's country assistance strategy for Brazil. The efficacy of both projects is rated modest inter alia because of the unfinished works and the lack of resolution on the issue of subsidies and payments necessary to compensate for delays. Until this is resolved transfer of assets and thus full decentralization cannot take place. Integration of the urban transport system is also not yet fully complete Efficiency is rated substantial in both cases. Although the long delays did reduce the economic rates of return, they were still well over the 10 percent threshold level. Because of

the recent availability of new financing for both projects and the renewed execution effort that has been under way, taken overall, the outcome though not fully satisfactory is an achievement in the difficult country circumstances.

Improvement in Recife's commuter metro system has contributed to a modest increase in passenger trips, but the increase in such trips has been less than half of the volume expected because the physical works are not finished. Similarly, in the case of Belo Horizonte, the growth of metro ridership has been well below the original target set at the time of project appraisal. This significance performance gap experienced in both projects can mostly be explained by the fact that some of the integration terminals that link the metro and the bus systems are still incomplete. Delays in the rehabilitation of the rolling stock of the metro systems have also contributed to the shortfall in passenger transit.

The impact of both projects on the institutional development of the urban transport sector in the respective regions is rated **substantial**. Bus/metro integration and the new decentralization model are pioneering achievements for Brazil. Progress has also been made in expanding state-municipal relations, improving transportation planning, and designing regulatory agencies.

Sustainability of both projects is rated **likely**. The recent breakthrough in the availability of financing in particular substantially increases the likelihood that the projects will be finished during the next few months and improves the prospects of maintaining over time the flow of net benefits generated by the project and advancing the transfer of the metro to the local level.

Bank performance with respect to both projects is rated **satisfactory**. The Bank recognized that the projects were risky given the extent of planned institutional change, but underestimated the complexity of the decentralization process, and the degree of politicization between the various authorities following the onset of the financial crisis. It could not reasonably have foreseen, however, the impact of the lack of fiscal space on prioritization in the infrastructure sector. The preparation and supervision of the projects was conducted in a thorough manner, with the teams trying to keep the urban transport decentralization process moving. The Bank was particularly proactive at the time the new government was elected at the end of 2002 and a new ministry took over responsibility at national level for the project. At one point the Bank sent strong warning signals and had to suspend loan disbursements in the face of non-compliance with decentralization clauses. But once there was agreement to try to get the project back on track the Bank facilitated between the parties and helped them to negotiate a new decentralization strategy and to sign agreements committing to a revised decentralization process. The persistence of the Bank has kept the option open for the completion of the decentralization agenda, even after the projects formally closed.

Borrower performance for both the Recife and Belo Horizonte projects is rated **unsatisfactory**. Brazil's Federal Government did not exhibit a steadfast commitment to the decentralization program, and CBTU, the implementing agency, did not demonstrate the commitment and negotiating skills necessary for the timely implementation of the projects. The change mid-project in administration at the ministerial level resulted in a discontinuity of policy with respect to the financing of the operations and disrupted the institutional reform schedule. Moreover, the state governments did not provide effective support for ensuring timely execution

of the projects. After loan closure the Federal Government recognized the negative impacts that its fiscal space policies were having in the social infrastructure sector and began to take steps to counteract the detrimental effects through for example the encouragement of private sector involvement and the allocation of separate funds to complete the projects that had been jeopardized. However, these actions were too late to prevent severe delays in their completion.

It is clear that the lack of timely funding was the principal cause of the delays and this was due to the financial crisis. The process of decentralization was prolonged because no-one knew for sure for how long this adverse situation would last. There are four key lessons however that the Bank has learned from its involvement in the Recife and the Belo Horizonte metropolitan transport projects:

- It is essential to create an enabling environment for the financial sustainability of urban transport operations; one that achieves a balance between being market-oriented but, at the same time, takes into account the urban environment and affordability issues. It is also important to define a fare policy that squarely faces the issues of cost recovery including, transparent passenger subsidies for the poor and funding mechanisms to cover operating deficits.

- The decentralization of urban rail systems from the federal to the state or a lower level of government is desirable because it brings the operator closer to the users, thus allowing for the service to be more responsive to user needs and wishes. Decentralization is also likely to facilitate integration with other transport modes since there will be fewer levels of government that have to be in agreement with tariff and subsidy policies.

- Conflicts among government institutions, political parties, as well as worker and private sector lobbies can be a major source of disruption in the execution of large urban transport projects. The Bank should be prepared to assist in the mobilization of negotiating skills for conflict resolution should they be needed.

- The time it takes to rehabilitate rolling stock should not be underestimated. Both projects show that the private firms responsible for delivery of the rehabilitated trains have experienced serious technical, administrative and financial problems that had to be resolved.

Ajay Chhibber
Acting Director-General
Evaluation

1. Background

1.1 The *Recife Metropolitan Transport Decentralization* and *Belo Horizonte Metropolitan Transport* projects originated in a decision made by the Government of Brazil to transfer the ownership and operational responsibilities for the subdivisions of the Brazilian Urban Railway Company (CBTU) from the federal to the state and municipal levels of government. The Bank had already partly financed the projects for São Paulo and Rio de Janeiro and more recently has become involved in Salvador and Fortaleza. Simultaneously, comprehensive integration of the urban transport systems, involving harmonization of routes and fares, was to be undertaken, requiring close coordination of the respective authorities.

1.2 Decentralization of the CBTU rail systems was viewed as a precursor to concessions to the private sector (as has been achieved in Rio de Janeiro). The interest in establishing private-sector concessions was to improve system efficiency, generate new investment, and reduce the fiscal burden that had been inherent in their operations.

1.3 With 14 municipalities in the Recife Metropolitan Region and 18 municipalities in Belo Horizonte Metropolitan Region, multimodal, inter-municipal, and state-municipal coordination is a complex undertaking. However, the concentration of several transport regulatory functions under the Metropolitan Urban Transport Company (EMTU) in Recife and under the Transport and Transit Company (BHTRANS) in Belo Horizonte was intended to enable better coordination within these large metropolises.

1.4 Unfortunately, Brazil’s economy suffered a serious downturn in 2001-02 and this was accompanied by a substantial deterioration in the exchange rate. Lack of fiscal space led the Treasury to re-prioritize projects, relegating investment in infrastructure to a lower priority which subsequently caused considerable delays in the execution of both urban transport projects, because local authorities did not want to accept the transfer of rail systems without a subsidy to cover the operating deficits. In 2004-05 the government introduced a special program to give high priority to a limited set of projects by assigning them “pilot project” status. The Belo Horizonte project was included in the initial list, but the Recife project, which required a much larger subsidy amount, was not. However, subsequent to this, R$78 million was allocated for Recife by means of a special measure, not subject to fiscal restrictions.

1.5 Poverty and uneven wealth distribution are among Brazil's most pressing problems. Better urban transport is part of the government’s strategy to alleviate these income differences. The metro/bus systems of Recife and Belo Horizonte extend into the impoverished neighborhoods on the periphery of the metropolitan regions and provide a service for low-income workers to get to work and for the poor, whether employed or not, to reach health centers, educational facilities and make other essential trips. Passengers such as students, the disabled, and some commuters receive a *vale transporte,* a federally mandated subsidy paid by employers. Nevertheless, a segment of the poor population cannot even afford a bus-metro fare. It is estimated, for example, that over one-third of the population walks to work. But providing access and affordable transportation to the urban poor runs counter to cost-recovery considerations. The financial sustainability of the urban transport systems requires that revenues cover operating costs. Passenger trips on the system thus have to increase and operating costs to

decrease to a level where passenger transport subsidies are optimized. Achieving this balance is not easy.

1.6 Brazilian Government policy is to decentralize the ownership and management of the commuter rail systems to local level, to achieve greater integration and institutional coordination in the provision of urban transport services and at the same time relieve traffic congestion and improve air pollution and public safety. The two projects covered by this PPAR were designed with these factors in mind, but their execution proved more difficult than expected due to Brazil's financial crisis which had both economic and political repercussions.

2. Recife Urban Transport Project: Objectives and Components

2.1 The objectives and components of the project are shown in Box 1.

Box 1: Project Objectives and Components

Objectives (As stated in the SAR)

(a) The development of an integrated urban transport system for the Recife Metropolitan Region (RMR) under the existing regional transportation coordination commission established to coordinate and recommend common policies on pricing, regulation, financing, project evaluation and selection;

(b) The decentralization (transfer of ownership and operational responsibilities) of the Recife Subdivision of the Brazilian Urban Railways Company STU-REC from the federal to the state level;

(c) The reduction of the negative environmental (mainly air quality and noise) impacts on the RMR due to road-based vehicles and the promotion of non-motorized transport modes; and

(d) The development of special strategies and actions to improve the accessibility of the poor to employment centers, health centers and education facilities.

Components

(i) Infrastructure and Equipment component (planned total project costs US$ 191.1 million; actual US$ 249.8 million) to help build:

- Rail extension from Camaragibe (TIP) to Timbi, conversion of the south line from diesel to electric traction, separation of freight and passenger lines and additional stations required to enhance modal integration;
- The transfer terminals and physical accesses required for the actual integration between bus, rail, pedestrians, automobiles and bicycles.

(ii) Environmental and Traffic Safety component (planned US$ 0.35 million; actual Nil) to support:

- The design of an inspection and maintenance program for vehicle emissions and noise;
- The development of a traffic management control and safety program particularly in the area of influence of the rail system.

(iii) Institutional and Policy Development component (planned US$ 12.3 million; actual US$ 15.0 million). This component included support for the decentralization and modal integration process, improvements in system management and an action plan for the government to decide whether to concession out the system to the private sector. It included:

- Strengthening the Metropolitan Urban Transport Company (EMTU) for the Recife Metropolitan Region through a set of action plans related to the decentralization process and modal integration;
- Preparing an integrated Transport Policy, Land Use, and Air Quality Management strategy for the Recife Metropolitan Region.
- Provision of an action plan to improve the financial management of STU-REC;
- Developing an enabling environment and financial instruments for more substantial private-sector participation in the investment and operation of the operating agencies;
- Strengthening air-quality planning and monitoring of vehicles-based emissions.

2.2 With regard to the components, the non-timely implementation was due to delays caused by the lack of fiscal space and by a chronic shortage of counterpart funds. The environmental and traffic safety components were taken over by the Ministry of Environment and the Recife Municipal Bus and Traffic Company respectively. No Bank funds were subsequently used in this component. Most, but not all, of the studies were carried out, while the provision of support to the management of the decentralized system was not possible since full decentralization has not yet taken place.

3. Achievement of Project Objectives: Recife

Development of an Integrated Urban Transport System

3.1 This objective has been **modestly achieved**. The project has certainly contributed to the creation of an enabling environment through assistance with action plans, studies and advice on the development of an integrated urban transport system. But, unfortunately, the fiscal restrictions have caused serious implementation delays which have impacted the full achievement of physical integration and the transfer of assets from federal to local level. Although progress has been made towards full modal integration as yet this only covers about two thirds of metro/bus integration and cannot be completed until the remaining physical works have been finished. Fare integration is more advanced, but discussions are still being held in respect of a better solution for compensation for metro services.

3.2 Recife's existing transport coordinating body is the Recife Metropolitan Transport Company (EMTU). This is a state agency that coordinates all bus services in the Recife Metropolitan Region. It also tries to coordinate with the metro services. A Recife Metropolitan Transport Consortium (CTRM) is to be established which will have the authority to coordinate urban transport and set investment priorities in the region; in April 2005 Federal Law 11,107 on public consortia created a more favorable legal basis for the creation of the CTRM and a letter of intent between the State of Pernambuco and the Municipality of Recife was signed on March 30, 2006[1].

3.3 Recife was a pioneer in Latin America of a trunk and feeder system with modal and fare integration expanded through the development of the Integrated Structural System *(Sistema Estrutural Integrado – SEI).* The SEI is designed to ensure service connectivity and tariff integration between the modes. Integrated fares exist for all modes in the metropolitan region, including metro; SEI does not yet, however, cover the entire metropolitan region. Since loan closure two additional metro terminals and one bus terminal have been finalized, allowing for the integration of 12 new bus lines and bringing metro/ bus integration to about 65 percent complete. Construction is currently underway to expand the Camaragibe (Timbi) terminal and to integrate 10 further bus lines, but finalization will have to wait until the completion of the works on the South Line and the erection of two additional bus terminals by the State of Pernambuco. Urban transport modal integration has thus not yet reached the potential originally envisaged.

[1] This took place with the assistance of IFC Advisory Services which followed up on the work prepared under the loan at the request of the state and the municipality. The consortium is still expected to become operational with the transfer of the EMTU staff during 2006.

3.4 The Metropolitan Council for Urban Transport sets fare levels, while the Metropolitan Urban Transport Company (EMTU) manages and controls fare revenues. Bus operators are part of a tariff clearinghouse *(Câmara de Compensação)* managed by EMTU; it includes all bus operators in Recife's metropolitan region. However, the metro is not part of this clearinghouse. Compensation of the metro is based on the principle "who collects the fares, keeps them," given the assumption that most trips have two legs, thus in one direction the revenue is collected by the bus operators and in the other by the metro. This is not an optimal solution, and discussions on alternative ways of compensation are still ongoing, because the inclusion of the metro operator in CTRM now appears unlikely due to the completely different cost structures between bus and metro operations, as well as the lack of clarity regarding future subsidy levels for the metro mode.

Urban Transport Decentralization

3.5 The objective, to transfer ownership and operational responsibilities of Recife's urban railways from federal to state level, was **modestly achieved**. By loan closure the Federal Government had technically decentralized all operational and management responsibilities to the state and local authorities with both the State and Federal Governments having a representative on the board of the Recife Subdivision of the Brazilian Urban Railway Company (STU-REC). However, negotiations on full decentralization are still ongoing between the Ministry of Cities and the state, which is demanding compensation for the delays in the civil works completion due to the Federal Government imposing fiscal space restrictions. These negotiations now have a much better chance of succeeding because the Provisional Measure, 290 of April 12, 2006 *(medida provisoria)* has allocated R$78 million (not subject to fiscal restrictions) for the continuation of works in 2006. The works have already been prioritized and will mainly focus on the signaling for the section Rodoviária/ Camaragibi of the Central Line and a number of interventions at stations on this line. With this prioritization schedule it is expected that by the end of the year the South Line will be in experimental operation up to Cajueiro Seco (the original project target). Once the physical works are complete this will create a realistic background for the full decentralization negotiations to be successful.

3.6 The Bank-funded project assisted in the negotiation[2] of a new decentralized model with the Federal Government and in the preparation of the legal documents for the eventual complete transfer of the system. With the advent of a newly elected Federal Government at the end of 2002, the administration of Recife's Urban Transport Project was transferred from the Ministry of Transportation to the newly created Ministry of Cities, and the discontinuity this caused resulted in further delays to the implementation schedule. The new management adopted a more gradual decentralization model taking into account the constraints on the Federal Government's limited budgetary allocations over the previous three years. The process was lengthened and

[2] At one point, the Federal Government tentatively agreed to pay metro staff salaries for a period of six months once the system had been turned over to local authorities, but Brazil's newly elected government in January 2003 did not wish to formalize this arrangement, in part because it was opposed by the politically influential railway union, which wanted its members to retain their federal employee status.

divided into several stages, commencing with the establishment of a mixed federal-state company in charge of managing the system and supervising the ongoing works. The new model was developed by CBTU and is now under discussion at senior government levels.

Reduction of Negative Environmental Impacts and Promotion of Non-motorized Transport Modes

3.7 Achievement of this objective was **modest**. The main reduction of the adverse environmental impacts of this project, mainly air pollution and noise impacts, was expected to come from the improvements in the metro system which of course is not yet complete. On the Rodoviária-Camaragibe section, however, the train has absorbed many of the passengers transported by bus and private car previously using Caxangà Avenue and congestion has also decreased to unknown degrees in some other areas influenced by the metro system. The designing of measures to inspect vehicle emissions and noise pollution was not implemented with loan funds as envisaged, because the inspection/maintenance function was taken over at federal level by the Ministry of Environment. This Ministry is still studying its own plan to check vehicles for compliance with environmental standards at point of licensing, and has not yet moved to implementation.

3.8 Similarly the comprehensive traffic management and safety measures to reduce traffic congestion and decrease accidents, with particular emphasis on the zone of influence of the rail system, was taken over and funded by the Recife Municipal Bus and Traffic Company (CTTU). However, CTTU has successfully introduced a bicycle path in downtown Recife as well as several successful safety and traffic restraint measures including traffic light system enhancements and improved parking policies.

Improved Access for the Poor

3.9 This objective was **substantially achieved**. Metro is cheaper than the bus and even though the system is not yet finished there has been a 25 percent increase in average daily ridership since project start-up. Access by the poor has improved through the construction and rehabilitation of integrated terminals. The construction of bridges, viaducts, and pedestrian over/underpasses has also facilitated access for people walking to stations. Moreover, the number of fatal accidents involving pedestrians has fallen. Access to social, health, and community services has been improved by bringing these activities directly to the metro stations. For example: Health Week, when free health services are offered, and Citizens' Week, when identity cards, work permits, birth certificates, and other documents are issued. The commuter rail system carries 12 percent of all passenger trips in the metropolitan region and although some of the really poor especially in the north-west of Recife live too far from the metro to benefit from it, progress has been made within the scope of the project. The last annual user survey carried out by the metro operator at the end of 2005, showed that service quality has improved, especially in terms of security, (an external company now provides metro security services). Some 16 percent of trains now have air conditioning (with a further 12 percent to be added by year end) and since May 2005 two additional trains run in peak hours to reduce overcrowding.

4. Ratings: Recife

Relevance

4.1 The objectives of the project are **substantially relevant**. They are consistent with Brazil's current development priorities of growth and monetary stability and with the Bank's country and sector assistance strategies. The project aims to increase the efficiency of urban transportation by improving the infrastructure and changing the regulatory framework of transport services to support the goals of decentralization and inter-modal integration, and by encouraging the expansion of private sector participation. This is in line with the strategic thinking in the Bank's urban strategy paper "Cities on the Move". The targeting of the benefits to the poor and the objective of improving air quality in the city are also important and in line with both the CAS and government policy. However, the fact that there have been serious delays shows that during the financial crisis the government had higher priorities.

Efficacy

4.2 The efficacy of the project is rated **modest.** The urban transport system is not yet fully integrated. Although the responsibility for operational and management decisions of the metro system has been transferred, full decentralization (transfer of assets) will not be complete until the financial issues resulting from the delays due to the financial crisis are resolved. This could still take appreciable time, and will probably only gain momentum once the physical works are complete. The IEG mission confirmed that the installation of the automatic signaling system of the last 4.5 km. of the line is now also in place and is being commissioned. Three urban bus terminals that serve as connecting nodes on the Central Line have been completed, but only two of the seven terminals on the South Line. The train station at the end of the Central Line (Timbi-Comaragibe) is finished, and the task of constructing the structures of 10 new train stations and the modernization of two existing stations in the South Line is 80 percent complete. The construction of the double electrified track at the beginning of the South Line from Recife to Cajueiro Seco (13.4 km) is also finished.

4.3 However, the project as a whole cannot realize its full potential until all the physical works have all been accomplished. Although the demand for commuter metro trips has risen, they have increased at a much lower rate than expected. Traffic was projected to increase to 118 million passengers per year by 2005 (PAD, 1995), but the present utilization is less than 60 million. The performance gap is largely explained by the fact that the rail networks and some of the integration terminals are not yet finished, nor are the all the linkages between the metro and the bus systems. Furthermore, postponements in the rehabilitation of the rolling stock have also affected ridership. While trains were originally projected to be ready by December 2002, the expected date is now December 2007. Only 16 percent of existing trains are air conditioned.

4.4 A fundamental cause of the major delays in the execution of the project was the slowing down of the decentralization process by the government in the light of the national financial crisis. There was also a new government elected, leading to a change of the responsible ministry for the project, which exercised its prerogative to re-examine the project rationale. Moreover, there were significant disbursement delays due to late effectiveness and underperformance of

winning contractors in the procurement of equipment. Project cost overruns, financed by counterpart funding, were largely due to added public works not envisaged at appraisal, additional costs for resettlement, higher land market values than anticipated and new activities with high social benefits subsequently requested by local authorities. Moreover, the delays in the completion of the project inflated the costs of the contracts and increased management expenditures. All these delays have increased the subsidy requirements which the State Government is not prepared to fund and at this time the Federal Government is still considering whether to fund.

Efficiency

4.5 Project efficiency is considered **substantial**. Although the economic rate of return (ERR) dropped from 28 percent (estimated at project appraisal) to 22 percent at project closing (June 2004), a reworking of the analysis (May 2006) still gives a satisfactory ERR of 17.5 percent, provided that the anticipated passenger usage materializes as planned once the entire project is finished.

4.6 With regard to the unfinished components, only part of the South Line is in commercial operation. A number of station buildings are also finished but not in use which means that some investments have had to be left idle, constituting some losses in terms of the opportunity cost of the money that has been invested to build them. However, overall the project can still achieve a good return.

Outcome

4.7 IEG rates the outcome of the project as **moderately satisfactory.** The rating is based on an overall assessment of the relevance, efficacy, and efficiency as indicated and an assessment of the four objectives, three of which were modestly achieved and one substantially achieved. The timetable to achieve the objectives was of course severely disrupted by the financial crisis in Brazil. Project closure was extended by 2.5 years over the originally planned completion date and since closure a further two years has elapsed up to the finalization of this report. Since R$78 million has been allocated by the Federal Government the completion of the project is looking much more likely. However, several matters are still outstanding, including the delivery of the rehabilitated trains, the sorting out of compensation issues so that full decentralization can be achieved and the attainment of the number of passenger trips estimated at appraisal. For these reasons IEG does not believe a fully satisfactory rating is appropriate.

Institutional Development

4.8 The impact of the project on the institutional development of Recife's urban transport sector is rated **substantial**. Bus/metro integration and the (virtually completed) establishment of CTRM are pioneering achievements in Latin America. Intervention by the Bank did assist in the negotiation of a new decentralization model after the newly elected Federal Government designating a new ministry to be responsible for the project. Action plans were drawn up and culminated in signed agreements between the parties. The decentralization efforts for the metro system have culminated in a transfer of operational and management responsibilities to the local

level. The loan also financed a study to evaluate private sector participation in the operations and management of the system, so that the state could weigh its decisions once the system is formally decentralized. The conclusions of this study led the state and municipality to hire IFC Advisory Services to assist in setting up a formal metropolitan authority following a new Consortium Law; and also to prepare the competitive bidding for bus routes under EMTU jurisdiction. The delays due to the lack of fiscal space, however, have meant that the financial aspects of decentralization have not been finalized while support to the management of the decentralized system could not take place for the same reason.

Sustainability

4.9 The sustainability of the Recife project is rated **likely**. After project closure the situation did not look good and the uncertainty about Federal Government funding led to the cancellation of the contracts and demobilization of some firms involved in the execution of the project. This situation, however, was reversed following the breakthrough leading to the allocation of R$27 million in 2005 and a further R$78 million in 2006. That sufficient funds for maintenance will be available appears probable. Possible future constraints on available finances will obviously be affected by the usage of the system and the fare levels imposed. At this stage, and judging by similar experiences in other cities in Brazil that have followed this route, sustainability looks on balance to be secure.

Bank Performance

4.10 The Bank's performance is rated as **satisfactory**, given the exceptional circumstances that befell the project and the proactive actions of the project team to try to get the project back on track. Quality at entry was satisfactory based on the experiences with previous decentralization projects in Brazil and was vetted by a panel of urban transport experts. The Bank recognized that the project was risky given the extent of planned institutional change, but probably underestimated the complexity of the decentralization process in Recife, as well as the degree of politicization between the various authorities that followed the onset of the financial crisis. It would have been unreasonable, however, to have expected the project team to have anticipated the financial crisis leading to the fiscal space restraints that eventuated.

4.11 The supervision of the project was conducted in a thorough and professional manner with the team interacting with all stakeholders frequently, especially when key decision points were reached. IEG’s mission confirmed that the Bank's role in trying to keep the process moving is recognized and appreciated in Brazil, particularly with regard to policy advice. The Bank was proactive at the time the new government was elected and a new ministry took over responsibility at national level for the project. At one point Bank sent strong warning signals and even suspended the execution of the project for three months in the face of non-compliance with decentralization clauses. Once there was agreement to try to get the project back on track the Bank acted as an “honest broker” between the parties and helped them to negotiate a new decentralization strategy and to sign agreements committing to a revised decentralization process. The persistence of the project team has kept the option open for the completion of the decentralization agenda, even though the project has closed. It is unlikely that it could have done more.

Borrower Performance

4.12 Borrower performance is rated **unsatisfactory**. Clearly, the decentralization process and the physical and modal integration of the transport systems was a politically and technically complex undertaking. Different pressure groups bent on gaining advantage or maintaining the status quo also made it difficult to carry out the reforms timeously. The local project management team worked assiduously to advance the project, but it did not have the authority to ensure the results.

4.13 Brazil's Federal Government, the CBTU presidency and the State of Pernambuco did not evidence ownership and a steadfast commitment to the decentralization program in the prevailing climate of severe financial restraint. CBTU took a long time to work out the details of the new decentralization model and even longer to commence implementation. It also did not demonstrate the negotiating skills necessary for the timely implementation of the project. The change in leadership at the ministerial level midway through project execution resulted in a discontinuity of policy and disrupted the timetable for institutional reform. Most importantly, project implementation was adversely affected by the postponement of funds to cover operating deficits, previously assured by the Federal Government.

4.14 After loan closure the Federal Government recognized the negative impacts that its fiscal space policies were having in the social infrastructure sector and began to take steps to counteract the detrimental effects such as the encouragement of private sector involvement in some urban transport projects and the allocation of separate funds to complete projects that had been jeopardized. However, these actions were too late to prevent severe disruption of the Recife project.

5. Belo Horizonte Urban Transport Project: Objectives and Components

5.1 The objectives and components of the project are shown in Box 5.

Box 2: Project Objectives and Components

Objectives (As stated in the SAR)

(a) The development of an integrated urban transport system for the Belo Horizonte Metropolitan Region under a regional transportation coordination commission established to coordinate and recommend common policies on pricing, regulation, financing, project evaluation and selection.
(b) The decentralization of the Brazilian Urban Railways Company (STU-BH) from the federal to the state and municipal levels.
(c) The reduction of negative environmental impacts through reductions in the level of traffic congestion and the promotion of non-motorized transport modes.
(d) The development of special strategies and actions to improve the accessibility of the low-income population to employment centers, health and education facilities.

Components

(a) Infrastructure and Equipment component (planned total project costs US$ 182.7 million; actual US$ 191.6 million) to help build :

(i) The rail extension of STU-BH and the additional stations required to enhance modal integration;
(ii) The transfer terminals and physical accesses required for the actual integration between buses, rail, pedestrians, automobiles and bicycles;
(iii) A centralized road traffic signal control system to improve traffic management and control at about 250 road intersections in Belo Horizonte;

(b) Environmental and Traffic Safety component (planned US$ 0.36 million; actual US$ 0.50 million) to support :

(i) The design of an inspection and maintenance (I/M) program for vehicle emissions and noise; and
(ii) A traffic management and safety program;

c) Institutional and Policy Development component (planned US$ 14.3 million; actual US$ 15.0 million) to help in :

(i) Strengthening the RTCC for the BHMR;
(ii) Preparing an integrated Transport Policy, Land Use and Air Quality Management strategy for the BHMR to meet both transport and air quality targets and to introduce sound cost-recovery, tariff, regulatory and subsidy policies;
(iii) Implementing a cost-based financial management system in the STU-BH;
(iv) Developing and enabling environment and financial instruments for more substantial participation of the private sector in the investment and operation of the operating agencies; and
(v) Strengthening air-quality planning and monitoring of vehicle-based emissions.

5.2 The civil works program although seriously delayed is now being completed. Although the traffic management program was largely successful, the environmental program was taken over by the Ministry of Environment and Bank funds were not used in this activity. Except for item (v) appropriate support was given where possible to assist with strengthening and policy development.

6. Achievement of Project Objectives: Belo Horizonte

Development of an Integrated Urban Transport System

6.1 This objective was **substantially achieved**. The process of integrating the Belo Horizonte metro system with private bus operations has become effective and is expected to consolidate. The municipality, operating through the Belo Horizonte Transport and Transit Company (BHTRANS), and following the plan to restructure the municipal bus system (BHBUS), has become a pioneer in Brazil in concessioning municipal bus routes through competitive bidding.

6.2 The project's main metro terminals have been substantially integrated with the municipal (and some inter-municipal bus services) in terms of timing and connectivity of services. Since loan closure the number of integrated bus lines has increased from 155 to 170. Currently 60 percent of the demand for metro services is integrated and fare integration between the metro and municipal bus services is now realized through the use of smart cards, while fare integration involving inter-municipal buses is via an integrated paper ticket. The municipality of Belo Horizonte has also financed interventions to facilitate integration in the stations of Carlos Prates, Lagoinha and Santa Efigenia. Nevertheless, the works for some stations and their connections to the bus system are still incomplete and consequently full rail-bus integration has been delayed. The State of Minas Gerais has also been less effective in integrating the rail system with the buses that run between the different municipalities of the Metropolitan Region of Belo Horizonte. This is because of a strong bus-owner lobby that is apprehensive about loss of ridership to the metro, and is thus opposed to route rationalization.

6.3 A further positive development during project implementation has been the good collaboration between BHTRANS and STU-BH. More recently, a dialogue has also developed between these organizations and DER-MG. A series of meetings has taken place under the auspices of the Regional Transportation Coordination Commission (RTCC) which have led to better coordination of transport policies within the Metropolitan Region. For example positive dialogue has been established within the same forum with the State of Minas Gerais. This development is supported by a new state law that gives the state a greater representation in the decision making body of the Metropolitan Region. Considering the strength of the bus lobby this is a major step forward resulting from the groundwork prepared under the loan.

6.4 There is a program sanctioned under state law that enables the restructuring of the public transport system of the Metropolitan Region and delegates the supervision of all municipal and inter-municipal bus services to the new company that will take over the metro rail system from the Federal Government. Following the pattern successfully utilized for the municipal system, the lines of the inter-municipal bus system that are now operating under state supervision will be concessioned out through competitive bidding. The restructuring process is aimed at rationalizing the system and avoiding competing lines along the same route.

6.5 Under the project, three studies in support of modal integration were successfully carried out: i) The origin/destination survey for the Belo Horizonte Metropolitan Region; ii) The METROPLAN, an integrated urban transport, land use, and air quality management strategy for

the Metropolitan Region; iii) A study on the fare structure of the public transport system in the BHMR. All of these studies were important building blocks to achieving system integration.

Urban Transport Decentralization

6.6 This objective has been **modestly achieved**. The decentralization process has had a long history of unmet targets and postponements. A preparation of a detailed transfer program was approved as early as November 1995 but did not materialize. In 2000, under pressure from the Bank to comply with the project decentralization clause, a date was set for transfer for December of that year, which was also not met. A new agreement was then reached between the Federal Government, the state, and the Municipalities of Belo Horizonte and Contagem to implement the decentralization by June 30, 2001 for three months. Failure to meet this target deadline culminated in the suspension of disbursements by the Bank in October 2001. A Special Council for the Transfer of the System (including all relevant stakeholders) continued to meet, and the Bank extended the project's closing date one more year to give the government additional time to iron out the details of the transfer, warning CBTU and state authorities that no more extensions would be granted if the transfer did not take place by December 20, 2002. Nevertheless, in response to a request by Brazil's newly elected government, Bank did agree to extend the loan until December 2003 to give the new ministry that took over the management of the project, the new Ministry of Cities, time to review the process and allow a revised, more gradual decentralization model to be implemented. Finally, the project closed on June 30, 2004, with assurances by the Federal Government that the necessary funding would be provided to finish the project and proceed with the decentralization.

6.7 After loan closure the Federal Government decentralized all management and operational decisions to the State and local authorities who then appointed a superintendent. The State of Minas Gerais, the Municipality of Belo Horizonte and the Federal Government are all now represented on the board of STU-BH. Negotiations on the full decentralization (transfer of assets) are ongoing. It is also the first urban transport project to be included in the Government's "pilot project" funding arrangement - with the proviso that the system is to be transferred to local authorities upon completion. This is an important break-through since the funding of the deficits was the sticking point. It is expected that now that the funding necessary to complete the project has been allocated, a final agreement on the transfer of the system will soon be reached.

Reduction of Negative Environmental Impacts and the Promotion of Non-motorized Modes

6.8 This objective was **substantially achieved**. A key objective of the project was to reduce traffic congestion, air pollution, and noise levels by reducing the use of automobiles and buses. A cleaner and quieter transport system is sought through an increase in the use of the metro system, the installation of modern traffic control and new traffic light systems, and the encouragement of the use, where appropriate, of non-motorized transport.

6.9 More passengers using the commuter rail system have resulted in less traffic congestion in the streets and, although, the share of urban commuter trips carried by the Belo Horizonte metro is relatively small and the increase in ridership has been lower than expected, good progress has been made within the scope defined for this objective. A centralized traffic

management system has been successfully installed to monitor vehicle circulation, regulate traffic lights in response to traffic conditions, and post electronic messages to drivers. From the control room managed by BHTRANS, it is now possible to observe the flow of traffic at key intersections in the city and make automated adjustments to improve traffic flows. The real time traffic light system which facilitated a smoother flow of car trips through “green waves” has decreased the number of “stop and go” movements caused by the previous inefficient mechanical system. Introduction of the traffic light control system has significantly improved traffic flows, reduced vehicle accidents, and improved pedestrian safety. The physical installations have now been completed, and once the system is fully operational, further improvement in traffic circulation and the speeding up of buses is expected to lower fuel consumption by more than 10 percent and reduce vehicle emissions and noise. Moreover, resources are now available to install the two air pollution monitoring stations, which at the project completion date had not yet been set up. The design of an inspection and maintenance program for vehicle emissions and noise was not done. The ICR notes that the State/Municipality will assume this responsibility, following the guidelines provided by the Federal Ministry of Environment.

6.10 The expansion and modernization of the traffic light system has also facilitated pedestrians and bicycles at specific crossing points. Pedestrian safety was improved through an increase in the number of traffic lights that can be activated by pedestrians and by longer pedestrian cycles. Other measures to improve walking, such as improved access to stations through the construction of sidewalks and overpasses were undertaken. A bicycle path has been built in the city, and a bicycle parking facility has been set up at São Gabriel station, with another planned for Vilarinho.

Improved Access for the Poor

6.11 This objective was **modestly achieved**. Three-quarters of metro users come from low-income households and for many users it is cheaper to use the metro than the bus. But of course, delays in project execution have resulted in a much lower than expected numbers of users, which until the works are finished reduces the income from the rail extension, and increases the pressure to raise fares. Access by the poor to the metro/bus system has improved, nonetheless, at most stations. Seven minibus lines with reduced fares (R$ 0.35 instead of the basic fare of R$ 1.45) have been established to serve disadvantaged areas. The extension of the system to Vilarinho, in Venda Nova, and the integration of the system at São Gabriel have improved access for the poor, while low income persons have benefited through the improvement in access at both the Vilarinho and Eldorado stations.

7. Ratings: Belo Horizonte

Relevance

7.1 The relevance of the project's objectives is rated **substantial.** The objectives of the project are consistent with Brazil's current development priorities and with the Bank's current sector and country assistance strategies. The Government's goals of economic growth and economic efficiency are reflected in the project's objectives as is poverty reduction. The metro

represents a support system for the poor; more than three-quarters of its users come from lower-income households. However, the fact that there have been serious delays shows that during the financial crisis the government had higher priorities.

Efficacy

7.2 On balance, efficacy is rated **modest**. Important steps have been taken to improve the urban transport system in Belo Horizonte, and the access is already better for residents north and west of the metropolitan region to jobs and services in downtown areas, but the project is not yet complete and therefore the full benefits are not yet being experienced by the users; the final components of the project should, however, be finished in the next few months. At the time of the mission, the signaling system in the last third of the north branch line (5.7 km.) between São Gabriel and Vilarinho was still manual and thus hindering normal operation of the trains, which ran only every 25 minutes. The frequency of metro trains is expected to shorten eventually to one every seven minutes. Stations at São Gabriel, Central and Lagoinha are still being modernized; eight escalators and two elevators are being installed.

7.3 Notwithstanding the improvements made to the metro system, the expected passenger transit is well below expectations. The increase in passenger trips since the start of the project has been moderate and is now about 120,000 passengers per weekday – much lower than the original target of over 320,000 passengers projected to be achieved by project completion (SAR, 1995). This wide performance gap can be explained to a large extent by the fact that some of the linkages between the metro and the bus systems have not been completed and by delays in the rehabilitation of the rolling stock. Ridership is expected to improve significantly once the last components of the project are finished. However, it is unlikely that that the anticipated levels of traffic will be reached immediately as the system will take some time to “bed down”.

7.4 The municipality has effectively restructured the bus system within the city and been a pioneer in the concessioning of the municipal bus routes through competitive bidding. At this stage though only 60 percent of the demand for metro services can be described as integrated. Moreover, although management and operational decisions have been decentralized to the state and local authorities, negotiations for full decentralization including transfer of assets are only likely to be resolved once the physical project has been completed.

7.5 A centralized traffic management system installed to monitor vehicle circulation and regulate traffic lights in response to traffic conditions has improved traffic flows, reduced vehicle accidents and improved pedestrian safety. The number of motor-vehicle accidents in Belo Horizonte has fallen sharply during the life of the project (from 38,547 in 1995 to 13,073 in 2004). The reduction occurred largely during the period 1995-97 and can be attributed at least in part to road safety measures including the improved signaling system at pedestrian crossings.

Efficiency

7.6 Efficiency is rated as **substantial** despite the fact that delays in the execution of the project have reduced the stream of benefits that it generates. The ERR was 31 percent at project appraisal, 17 percent by project closing in June 2004 and is now 15.4 percent. However, this is still a good return and means that the ERR will still be well over the threshold 10 percent

acceptability level when the works are finally finished. Fortunately the funds have at last been secured for this purpose.

7.7 The actual costs of the project are higher than the appraisal estimate because of additional costs for resettlement, higher land market values, higher costs of counterpart financing, and additional works not envisaged at appraisal. Operational and financial performance is likely to improve when the physical installations are finished and the institutional and policy development measures are implemented. The project did suffer considerable disbursement interruptions, mainly due to late effectiveness (postponed by 10 months due to problems related to registration of the loan with the Central Bank) and delays in the procurement process.

Outcome

7.8 Overall, IEG rates the outcome of the project **moderately satisfactory**. The rating is based on the assessments of the relevance, efficacy, and efficiency indicated above and an assessment of the four objectives, two of which were modestly achieved and two which were substantially achieved. The timetable to achieve the objectives was severely disrupted by the financial crisis in Brazil. The physical works included in the project are however now being completed after long delays.

Institutional Development

7.9 The impact of the project on institutional development is rated **substantial.** Bus/metro integration is unprecedented in Latin America and when it is complete it will be an important achievement. Progress has been made in expanding state-municipal relations and improving transportation planning. The concepts of decentralization and of giving priority to the integration of the urban transport system in the metropolitan regions are now fully endorsed by state and municipal authorities and the legal framework has also been completed. Training activities and studies related to modal integration were successfully carried out. A blueprint for urban transport development for the next ten years now exists in a metropolitan region that previously did not have a long term master plan for the urban transport sector.

7.10 The project furthered the development of a Regional Transportation Coordination Commission designed to coordinate and recommend policies on pricing, urban transport regulation, and investment priorities in the metropolitan region. However, the formal institutional framework for managing urban transport in the metropolitan region is only now being set up.

7.11 Institutional development has in addition been furthered by the introduction of a modern traffic management system to monitor vehicle circulation and regulate traffic. The project's track and rolling stock maintenance workshop, which was set up with project funding, is adequately equipped and well-managed. Training of STU-BH management was also satisfactorily accomplished. The mission visited a housing development financed under the project where people displaced by the construction of the São Gabriel Station have been relocated. The dwellings of 450 families were expropriated, and 150 were provided with adequate new houses - the rest chose to receive monetary compensation. Although resettlement was not a big issue in this project the learning from the Bank's safeguard measures has been fully absorbed.

Sustainability

7.12 The sustainability of the Belo Horizonte project is rated **likely**. Although physical and modal integration have progressed slowly, a positive trend has been maintained. The recent breakthrough in the availability of financing augers well for the project to be finished in 2006 and improves the likelihood that the flow of net benefits generated by the project will be maintained over time. The state and municipal governments continue to advance the modal integration of the transport system and are making the final arrangements for the transfer of the metro to the local level.

Bank Performance

7.13 The Bank's performance is rated **satisfactory**, given the exceptional circumstances that befell the project and the proactive activities of the project team to get the project back on track. Bank advice was instrumental in developing the design of the project based on previous experiences in earlier projects, and its contribution to institutional development and policy reform in the Belo Horizonte metropolitan region was valued. Bank assistance in temporarily bridging the financial gap created by the Federal Government's budgetary constraints was critical for making advances in the decentralization possible, allowing time for political and financial decisions to be made. The progress made in the development of an integrated transport system in the metropolitan region and in the decentralization of Brazil's urban railway company was furthered by the Bank's insistence in holding government offices accountable for project commitments.

7.14 The Bank recognized that the project was risky given the extent of planned institutional change, but underestimated the complexity of the decentralization process in Belo Horizonte, and the degree of politicization between the various authorities following the onset of the financial crisis. It clearly could not have anticipated the time that the project was going to take following the onset of the national financial crisis, basing its experience on previous urban projects in Brazil. Delays occurred before effectiveness due to the ambiguousness of Brazilian procurement law that led to the small contractor association unsuccessfully challenging Bank's standard bidding documents in court. It also underestimated the impact of the lack of fiscal space on prioritization in the infrastructure sector. The Bank was proactive at the time the new government was elected and a new ministry took over responsibility at national level for the project. Once there was agreement to try to get the project back on track the Bank acted as an "honest broker" between the parties and helped them to negotiate a new decentralization strategy. The persistence of the project team kept the option open for the completion of the decentralization agenda, even though the project had closed and now the indication from the Federal Government is that funds will be made available to complete the project this year.

Borrower Performance

7.15 The Borrower's performance is rated **unsatisfactory**. The performance of the implementation agency at the local level (STU-BH) was satisfactory in terms of project preparation and implementation, and the Municipality of Belo Horizonte actively participated in the execution of the project. Brazil's Federal Government, the CBTU presidency and the State of

Minas Gerais did not evidence ownership and a steadfast commitment to the decentralization program in the prevailing climate of severe financial restraint; there was a lack of leadership at senior government levels in furthering the objectives of the project, and the project had major failings: (i) the Federal Government failed to fulfill loan agreement commitments relative to the timely provision of funds and to the date for actual transfer of ownership (assets) of the commuter metro systems; (b) the state has not yet concluded the integration of the inter-municipal bus services with the metro; and (c) the late signing of loan agreement and the effectiveness postponement of 10 months caused considerable project implementation and disbursement delays.

7.16 After loan closure the Federal Government recognized the negative impacts that its fiscal space policies were having in the social infrastructure sector and began to take steps to counteract the detrimental effects such as the encouragement of private sector involvement in some urban transport projects and the allocation of separate funds to complete projects that had been jeopardized. However, these actions were too late to prevent severe delays in the completion of the Belo Horizonte project.

8. Lessons Learned

The following are the main lessons that the Bank has learned from its involvement in the Recife and the Belo Horizonte metropolitan transport projects:

- It is essential to create an enabling environment for the financial sustainability of urban transport operations; one that achieves a balance between being market-oriented but, at the same time, takes into account the urban environment and affordability issues. It is also important to define a fare policy that squarely faces the issues of cost recovery including, transparent passenger subsidies for the poor and funding mechanisms to cover operating deficits.
- The decentralization of urban rail systems from the federal to the state or a lower level of government is desirable because it brings the operator closer to the users, thus allowing for the service to be more responsive to user needs and wishes. Decentralization is also likely to facilitate integration with other transport modes since there will be fewer levels of government that have to be in agreement with tariff and subsidy policies.

- Conflicts among government institutions, political parties, as well as worker and private sector lobbies can be a major source of disruption in the execution of large urban transport projects. The Bank should be prepared to assist in the mobilization of negotiating skills for conflict resolution should they be needed.

- The time it takes to rehabilitate rolling stock should not be underestimated. Both projects show that the private firms responsible for delivery of the rehabilitated trains have experienced serious technical, administrative and financial problems that had to be resolved.

Annex A. Basic Data Sheet

RECIFE METROPOLITAN TRANSPORT DECENTRALIZATION PROJECT (L3915)

Key Project Data *(amounts in US$ million)*

	Appraisal Estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Original commitment	102.00	100.50	98.5
Total project cost	203.80	264.78	130.0
Cancellation		1.50	

Project Dates

	Original	*Actual*
Board approval	-	06/29/1995
Signing	-	04/03/1996
Effectiveness	-	09/19/1996
Closing date	12/31/2001	06/30/2004

Staff Inputs (*staff weeks*)

	Actual/Latest Estimate	
	N° Staff weeks	*US$ ('000)*
Identification/Preparation	17.8	70.5
Appraisal/Negotiation	7.6	35.5
Supervision	65.2	382.5
ICR	5.5	27.2
Total	96.1	515.7

Mission Data

	Date (month/year)	*No. of persons*	*Specializations represented*	*Performance rating Implmen. Progress*	*Dev. Obj.*
Identification/ Preparation	February 1994	3	Senior Transport Planning (2); Senior Railway Engineer (1)		
Appraisal/ Negotiation	March 1995	9	Senior Transport Planner (2); Senior Railway Engineer (1); Financial Analyst (1); Resettlement Specialist (1); Metro Infrastructure Consultant (1); Senior Legal Council (2); Transport Demand Specialist (1)		
Supervision	Aug.1,1995	2	Resettlement Specialist (1); Sr. Transport Planner (1)	HS	HS
	Nov. 30,1995	1	Sr. Transport Planner (1)	S	S

Date (month/year)	No. of persons	Specializations represented	Performance rating Implmen. Progress	Dev. Obj.
Mar.1, 1996	3	Sr. Anthropologist (1); Sr. Transport Planner	S	S
		(1); Sr. Railway Engineer (1)	S	S
Oct.11,1996	1	Prin.Trans Specialist (1)	U	S
Mar.7,1997	2	Transport Planning (1); Resettlement Specialist (1)	S	S
June 12, 1997	1	Transport Specialist (1)	S	S
July 9, 1997	1	Transport Specialist (1)	S	S
Nov.21, 1997	1	Transport Specialist (1)	S	S
Feb. 20, 1998	2	Transport Specialist (1); Resettlement Specialist (1)	S	S
May 4, 1998	1	Transport Specialist (1)	S	S
July 14, 1998	2	Transport Specialist (1); Resettlement Specialists (1)	S	S
Dec. 3, 1998	1	Transport Specialist (1)	S	S
Feb. 4, 1999	2	Transport Specialist (1); Railway Engineer (1)		S
April 1, 1999	2	Transport Specialist (1); Resettlement Specialist (1)	S	S
May 25, 1999	1	Transport Specialist (1)	S	S
June 11, 1999	1	Transport Specialist (1)	S	S
August 12, 1999	2	Resettlement Specialist (1); Transport Specialist (1)	S	S
Febr. 21, 2000	1	Transport Specialist (1)	S	S
Febr. 21, 2000	3	Pr. Transport Specialist (1) Civil Works Consultant (1); Resettlement Cons (1)	S	S
Oct. 4, 2000	2	Principal Transport SP (1); Resettlement Specialist (1)	S	S
Mar. 15, 2001	2	Lead Transp. Specialist (1); Financial Mgmt. Spe. (1)	S	S
Aug. 8, 2001	3	Lead Trans. Spec (1); Civil Infras. Spec (1); Resettlement Specialist (1)	S	S
Mar. 26, 2002	2	Task Mgr.-Transp. Spec (1); Infrastructure Eng. (1)	S	S
July 11, 2002	2	Lead Trannsport Special (1); Infrastructure Consult (1)	S	S
Oct. 7, 2002	1	Lead Transport Spec. (1)	U	S
Dec. 30, 2002	1	Lead Transport Specialist (1)	U	S

	Date (month/year)	No. of persons	Specializations represented	Performance rating Implmen. Progress	Dev. Obj.
	June 25, 2003	1	Lead Transport Specialist (1)	S	S
	Sept. 24, 2003	2	Lead Transport Specialist (1); Sector Leader (1)	S	S
	Oct. 24, 2003	1	Lead Transport Spec (1)	S	S
	Mar.4, 2004	1	Lead Transport Specialist (1)	S	S
ICR	June 23, 2004	2	Lead Transport Specialist (1); Transport Specialist (1)	S	S

BELO HORIZONTE METROPLITAN TRANSPORT (LOAN 3916)

Key Project Data *(amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Original commitment	99.00	92.10	93
Total project cost	197.34	207.09	105
Cancellation		6.90	

Project Dates

	Original	*Actual*
Appraisal Mission	-	04/24/1995
Board approval	-	06/29/1995
Signing	-	11/30/1995
Effectiveness	-	04/19/1996
Closing date	12/31/2001	06/30/2004

Staff Inputs *(staff weeks)*

	Actual/Latest Estimate	
	N° Staff weeks	*US$ ('000)*
Identification/Preparation	37.7	97.8
Appraisal/Negotiation	2.8	34.1
Supervision	63.8	423.0
ICR	5.5	27.24
Total	109.8	582.14

Mission Data

	Date (month/year)	*No. of persons*	*Specializations represented*	*Performance rating Imple,Prog,*	*Dev. Obj.*
Identification/ Preparation	February 1994	3	Senior Transport Planner (2); Senior Railway Engineer (1)		
Appraisal/Negotiation	March 1995	9	Senior Transport Planner (2); Senior Railway Engineer (1); Financial Analyst (1); Resettlement Specialist (1); Metro Infrastructure Consultant (1); Senior Legal Council (2); Transport Demand Specialist (1)		
Supervision	August 1, 1995	2	Resettlement Specialist (1); Sr. Transport Planner (1)	HS	HS
	Nov. 30, 1995	1	Sr. Transport Planner (1)	S	S
	March 1, 1996	3	Sr. Anthropologist (1); Sr. Transport Planner (1); Sr. Railway Engineer (1)	S	S
	Oct. 11, 1996	1	Prin Trans Specialist (1)	U	S
	March 7, 1997	2	Transport Planning (1); Resettlement Specialist (1)	U	S

	Date (month/year)	No. of persons	Specializations represented	Performance rating Imple,Prog,	Dev. Obj.
	July 16, 1997	1	Transport Specialist (1)	S	S
	Oct. 8, 1997	1	Transport Specialist (1)	S	S
	Nov. 21, 1997	2	Transport Specialist (1); Resettlement Specialist (1)	S	S
	Feb. 20, 1998	2	Transport Specialist (1); Resettlement Specialist (1)	S	S
	May 7, 1998	3	Transport Specialist (1); Infrastructure Engineer (1); Transport Planner (1)	S	S
	Dec. 3, 1998	2	Transport Specialist (1); Transport Engineer (1)	S	S
	Feb. 10, 1999	2	Transport Specialist (1); Railways Specialist (1)	S	S
	June 12, 1999	2	Transport Specialist (1); Station Specialist (1)	S	S
	June 12, 1999	2	Pr. Transport Specialist (1); Infrastructure Consultant (1)	S	S
	June 12, 1999	1	Transport Specialist (1)	S	S
	June 12, 1999	2	Pr. Transport Specialist (1), CIL Works Cons. (1)	S	S
	Oct. 29, 2000	1	Principal Transport SP (1)	U	S
	Mar. 21, 2001	2	Lead Transport Specialist (1); Fin. Mgmt. Specialist (1)	S	S
	Mar. 14, 2002	1	Tsk. Mgr. and Tra. Spe (1); Transport Planner (1); Systems Specialist (1)	S	S
	Dec. 30, 2002	1	Lead Transport Specialist (1)	U	S
	June 27, 2003	2	Lead Transport Specialist (1); Financial Management (1)	S	S
	Oct. 28, 2003	1	Lead Transport Specialist (1)	S	S
	Feb. 6, 2004	1	Lead Transport Specialist (1)	S	S
ICR	June 26, 2004	3	Lead Transport Specialist; Transport Specialist (1); Signalling Consultant (1)	S	S

Annex B. List of Persons Consulted and Organizations Visited

BRASILIA

Secretaria de Assuntos Internacionais (SEAIN). Ministério do Planejamento
- José Carlos Miranda Secretário
- Carlos Eduardo Lampert

Companhia Brasileira de Trens Urbanos (CBTU)
- João Luiz da Silva Diaz
- Flavio Mota Monteiro
- Rossinélio Lopez da Fonte

Ministério dos Transportes
- Paulo Sérgio Oliveira Passos

Ministério das Cidades
- Ermínia Therezinha Menon Maricato

Secretaría Nacional de Transporte e da Mobilidade Urbana. Ministério das Cidades
- José Carlos Xavier Secretário
- Luiz Carlos Bertotto Director de Cidadenia e Inclusão Social
- Jaqueline Filgueiras Assessora de Gabinete

Ministério do Planejamento
- Nelson Machado

RECIFE

Secretaria de Infra-Estrutura do Estado de Pernambuco
- Rosa Lúcia Muller Padolfi Secretária Executiva de Transportes

Superintendência de Trens Urbanos do Recife (STU-REC)
- Sileno Souza Guedes
- Manoel Marinho de Barros Filho Coordenador de Operação
- Regilma Souza Assessora ao Superintendente

Municipality of Recife
- Dilson Peixoto

Metropolitan Urban Transport Company (EMTU)
- Evandro José Moreira de Avelar President

BELO HORIZONTE

Empresa de Transporte e de Trânsito de Belo Horizonte (BHTRANS)
- Ricardo Medanha Ladeira Diretor - Presidente

Prefeitura Municipal de Belo Horizonte

- Fernando Damata Pimentel — Mayor
- Rodrigo de Oliveira Perpétuo — Gerente de Relações Internacionais
- Rogério Carvalho Silva — Assessor

Superintendência de Trens Urbanos de Belo Horizonte (STU-BH)

- Luiz Roberto Pieroni — Superintendente
- Maria Madalena Franco Garcia — Assessora
- Eduardo Antônio de Freitas Martins — Gerência de Planejamento e Engenharia de Manutenção
- Fernando de Melo Bernardo — Assistente Técnico
- Haroldo Alves Lins Júnior — Assessor Reassentamento

Secretaria de Estado de Transporte e Obras Públicas

- Agostinho Patrús — Secretário de Estado
- Roman Victor César — Assessor

Direção de Estradas de Rodagem do Estado de Minas Gerais (DER-MG)

- Luis Otávio Mota Valadares — Diretor de Transporte Metropolitano

ACADEMICIANS, AND PROFESSIONAL, CORPORATIVE, AND ADVOCACY ORGANIZATIONS

Universidade Federal de Pernambuco

- Cesar Cavalcanti de Oliveira — Professor Adjunto

Universidade de Brasilia (CEFTRU)

- Yaeko Yamashita — Professor - Programa de Transportes
- Joaquim Aragão — Professor

Movimiento National Pelo Direito ao Transporte (MDT)

- Olmo Xavier — Executive Secretary

Secretaria de Planejamento Urbano, Transportes e Meio Ambiente. Olinda

- Prof. Oswaldo Lima Neto — Secretário

Comissão Municipal de Transporte e Trânsito de Belo Horizonte

Raimundo Machado Filho — Membro da Comissão