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PROJECT PERFORMANCE ASSESSMENT REPORT

BRAZIL

**INTEGRATED MUNICIPAL PROJECT – BETIM MUNICIPALITY
(LOAN 7246)**

March 14, 2011

IEG Public Sector Evaluation
Independent Evaluation Group

Currency Equivalents (annual averages)

Currency Unit = Real (R\$)

2003	US\$1.00	R\$3.08
2004	US\$1.00	R\$2.93
2005	US\$1.00	R\$2.43
2006	US\$1.00	R\$2.18
2007	US\$1.00	R\$1.95
2008	US\$1.00	R\$1.83
2009	US\$1.00	R\$2.01

Abbreviations and Acronyms

ANA	<i>Agência Nacional de Água</i> (National Water Agency)
BACEN	<i>Banco Central do Brasil</i> (Brazilian Central Bank)
COPASA	(Minas Gerais) State Water and Sanitation Company
FEAM	(Minas Gerais) Environmental Agency
IGAM	(Minas Gerais) Water Institute
ICR	Implementation Completion Report
IEG	Independent Evaluation Group
IEGWB	Independent Evaluation Group (World Bank)
IQA	<i>Índice de qualidade de água</i> (Water quality index)
MG	<i>Minas Gerais</i> State
PPAR	Project Performance Assessment Report
SEMAS	(Betim) Municipal Social Assistance Secretariat
SEMEIA	(Betim) Municipal Environmental Secretariat
SOMMA	Municipal Development Fund

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To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and 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.

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Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

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This report was prepared by Roy Gilbert who assessed the project in January 2010. The report was peer reviewed by George Peterson and panel reviewed by John Eriksson. Maria Margarita Sanchez provided administrative support.

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Principal Ratings

	<i>ICR*</i>	<i>ICR Review*</i>	<i>PPAR</i>
Outcome	Satisfactory	Moderately Satisfactory	Moderately Satisfactory
Risk to Development Outcome	Moderate	Significant	Significant
Bank Performance	Satisfactory	Moderately Unsatisfactory	Moderately Unsatisfactory
Borrower Performance	Highly Satisfactory	Moderately Satisfactory	Moderately Satisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.

Key Staff Responsible

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Preface

This is the Project Performance Assessment Report (PPAR) of the Brazil Integrated Municipal Project – Betim Municipality (Ln7246) for which the World Bank approved a Loan of US\$24.1 million on July 1, 2004. An amount of US\$26,812 was cancelled and the Loan closed on June 30, 2009, as planned.

The report is based on a review of project documents, including the Implementation Completion Report, the Project Appraisal Document, legal documents and project files, and on discussions held with Bank staff involved in the project. An IEG mission visited Brazil in January 2010 to review project results and met with nearly 30 interlocutors including officials of Betim Municipality, Minas Gerais State (in Belo Horizonte) and the Federal Government (in Brasilia). The mission also met with project beneficiaries during field visits to project sites in Betim. IEG gratefully acknowledges the courtesies and attention of all these participants, and their keen interest in the project evaluation process.

IEG selected this operation for a PPAR field assessment to verify the ongoing performance of this important urban development project, one of the first financed by the Bank to be fully decentralized to the municipal level.

Following standard IEG procedures, copies of the draft PPAR were sent to government officials and agencies for their review, no comments were received.

Summary

The Municipality of Betim, (population 416,000) hosts a very important industrial hub of Brazil's third largest metropolitan region, Belo Horizonte (population 5.4 million). Betim itself has a strong economy, but families of the higher paid workers of its industries prefer not live there. Instead, they reside in the city of Belo Horizonte for the better services and amenities they say they find there, making a daily 25-30 km commute.

Today Betim's population is twelve times more than when the Fiat vehicle assembly plant, now Brazil's largest, launched industrial development there in 1970. So Betim is practically a new town. Urban service coverage today is generally good: 94.9 percent for water and 67.9 percent for sewage connections. However, only 9.1 percent of the city's sewage was treated in 2009. Raw sewage has turned the small Betim River—1.4m³/second flow—into an open sewer as it runs through the urban center.

To help address this problem, Betim municipality requested assistance through the Brazil Integrated Municipal Project – Betim Municipality reviewed here. This was the first “retail” municipal project designed to help one city as borrower that the Bank financed in Brazil. Earlier municipal assistance by the Bank had been through “wholesale” projects that supported many municipalities simultaneously. Betim itself had been a beneficiary of one such prior operation in Minas Gerais called *SOMMA*. A recent IEG study found that, worldwide, wholesale projects perform better than retail projects.

Betim municipality was well placed to take charge of this retail project and the loan. It had a healthy fiscal position strengthened partly with the assistance of *SOMMA*. Betim also had its own ambitious Strategic Development Plan. The acute environmental damage to the Betim River system, however, posed a development challenge for the municipality.

All three Project objectives—promoting socio-environmental development, reducing inequality/poverty, and enhancing Betim's quality of life—were substantially relevant to Betim's own Strategic Plan and to the Bank's 2008 Country Assistance Strategy (CAS). The first objective was substantially relevant to these documents' environmental priorities, even though it used a “socio-environmental development” formulation that was not adopted by these policy documents or defined by the project itself. Reducing inequality/poverty, the second objective, was substantially relevant, although disparate references - to reducing *inequality* in the project appraisal document (PAD) and to reducing *poverty* in the loan agreement (LA) - raises uncertainties about the project's intent. The relevance of the third objective of enhancing Betim's “quality-of-life”, to Betim and Bank priorities, was substantial - understanding “quality-of-life” improvements to come from the infrastructure and services provided by the project.

The relevance of the project design was modest, with its unrealistic expectation of fully cleaning up the Betim River very quickly and for including project institutional development components that were unrelated to the project objectives.

The pace of project implementation was uneven. Start-up stalled while loan effectiveness conditions were being met. Implementation peaked around mid-term during a 19 month period between October 2005 and July 2007 when 90 percent of the entire Loan was disbursed. Disbursements then stalled until the final months of the outgoing municipal administration in 2008. The falling US dollar - Brazilian real exchange rate sharply

reduced the local currency value of the Loan, and required significantly greater local counterpart funding than foreseen to pay for it.

The project's mid-term acceleration did not affect the implementation of the Betim Central sewage treatment plant, not financed by the Bank loan, but still the project's largest component accounting for 40 percent of total costs. Construction began three years behind schedule in the project's final months in early 2009. Among the causes of delay, common to the implementation experience of many other projects, were: protracted land acquisition that alone took two years; the need to change land use through a protracted approval process by the municipal council; engineering challenges of the site; and the initial reluctance of COPASA, the Minas Gerais (MG) state utility responsible, to undertake these works and the later challenge of fitting them into its state-wide work program. Legal action was taken against COPASA by MG's state prosecutor *ministério público* requiring COPASA to carry out the Betim works. During IEG's visit in January 2010, work was well advanced, and by end-May 2010, the contractor informed IEG that it had completed the job, handing the plant over to COPASA at that time.

M&E's negligible rating comes from a design that did not focus upon intended outcomes foreseen by the objectives. This made meaningful implementation and utilization of M&E very difficult. The consequences include a lack of data on project outcomes, and uncertain data on the full final project costs of the operation.

Thus far, results in promoting sustainable socio-environmental development, the project's first objective, have not yet been achieved, but are likely to be significant when the central sewage plant becomes fully operational, sewage interceptors are connected and illegal sewage discharge is curbed. These considerations of expected future benefits make for a substantial efficacy rating. Betim River pollution continues and, at this writing, the river's water quality remains poor. It should be set for a steady improvement, however, as the Central sewage treatment plant becomes fully operational, provided that continuing illegal sewage discharge elsewhere in Betim is curtailed. When fully operational and with all sewage interceptors connected, the Central treatment plant will have capacity to treat all sewage collected in Betim, well above the 9.1 percent treated in 2009.

Mainly for the lack of project baselines and targets, the project's second objective of reducing inequality or poverty did not yield evidence at the level of the Betim municipality, but localized and specific project efforts led to overall substantial efficacy. The Project resettled 887 low-income families from flood prone areas, some into new housing areas developed under the operation, in accordance with Bank safeguards. Also a review by the project of the Federal Government's *Bolsa Familia* conditional cash transfer program in Betim identified additional eligible low-income beneficiaries, expanding coverage three-fold.

Enhancing the quality of life in Betim, the project's third objective, had mixed results with modest efficacy. Drainage works, involving a storm water retention basin, improved lining of river and canal banks, and dredging, reduced the risks of future flooding. Sub-projects called *Avenidas Sanitarias* brought better street-level drainage and road access to selected neighborhoods of Betim. Work began on two of the three planned urban parks but was not completed. They are now fenced off without public access. More generally, Betim's ability to improve municipal services in the future is enhanced by the strengthening of its already sound municipal finances over the 2004-2009 project period.

The efficiency of the project investments is rated modest. Final data show cost overruns in local currency of 25 percent. The appraisal method of cost-benefit analysis may not be applicable at completion, however. Proxy benefits estimated at appraisal, beneficiaries' willingness to pay for environmental improvements such as the recreational use of urban parks and other environmental improvements, should by now be measurable as concrete results—results that still have to materialize when expected benefits actually materialize.

IEG rates the overall outcome as *moderately satisfactory*, as the project has yet to fully achieve its relevant objectives but is likely to do so, albeit with moderate shortcomings. The risk to development outcome is rated *significant*, because population and economic growth will continue to challenge the urban environment, and illegal sewage discharges still need to be curbed. Bank performance is rated *moderately unsatisfactory*, a higher rating requiring a stronger project design with realistic environmental targets, a fuller preparation of key components, and a results framework built around clear intended outcomes and an M&E system to track progress in achieving them. Bank supervision could have more readily recognized the challenges faced by project implementation. Borrower performance is rated *moderately satisfactory* for Betim's commitment to the project investments especially through increased counterpart funding, but with shortcomings being the late delivery of key components and less than fully satisfactory record keeping.

The lessons of the experience include:

- If the scope of an autonomous municipal development project goes beyond municipal responsibilities, as this project's did by invoking environmental and sanitation improvements and monitoring that are state-level responsibilities in the case of Betim, project design should include a Project Agreement with the Bank that binds any state level parties to an operation through the Bank—COPASA in this case.
- Bank preparation of investment projects that target environmental improvements should deploy relevant specialized technical knowhow and experience effectively so that environmental problems are properly appraised and feasible targets set for improvements. For this project, illegal sewage discharge, that continues to pollute the river, needed more analysis and preventative action, while river water quality targets should have been more modest and achievable over a reasonable time period.
- The preparation of components in investment projects, especially key ones such as the Betim Central sewage treatment plant, should routinely take into account land acquisition, land use zoning, stakeholder commitment and site difficulties, to set a realistic and achievable path to implementation.
- Policies and actions to curb the causes of environmental degradation should be at the core of operations designed to improve the urban environment. The lesson from this project is the need to include measures to curb the illegal discharge of sewage, observed on site by the IEG mission in Betim that, if not

curtailed, could bypass the environmental gains made by additional sewage treatment.

Daniela Gressani
Deputy Director-General
Evaluation

1. Background

1.1 The Municipality of Betim and its 416,000 residents¹ host a very important industrial hub of Brazil's third largest metropolitan region, Belo Horizonte, itself with a population of 5.4 million in 2008. Betim's estimated GDP of R\$21.5 billion (US\$11.0 billion) in 2007 makes it economically the second largest municipality in Minas Gerais (MG) State. A GDP per capita of R\$51,700 (US\$26,500) ranks Betim's as one of the highest in Brazil, thanks to value-added by the Fiat vehicle assembly plant, Brazil's largest, and a major Petrobras oil refinery. Betim's high GDP per capita does not mean that its residents are predominantly high income, however. On the contrary, most highly paid industrial employees who work in Betim's industries prefer to live in better served residential areas of the capital, Belo Horizonte, making a daily 25-30 km commute to their places of work in Betim. The majority of Betim's population is moderate to low-income, with 29 percent considered to be poor. Moreover, 20 percent of the population received some kind of conditional cash assistance such as through the Federal Government's *Bolsa Familia* program (PAD p. 9).

1.2 Betim's population has grown rapidly since industrial development was launched there in 1970, with the establishment of the Fiat assembly plant. Then Betim had just 35,174 inhabitants. Its population today is twelve times greater, making Betim in this respect, a new town. Most "new" urban development has taken place along an 8 km axis between the large industrial plants to the east of the municipality and the old town center to the west (see map at end of this report). Some of these residential areas, if not *favelas*, still lack basic sanitation services. While 94.9 percent of Betim's population has adequate water supply and 67.9 percent are connected to sewer networks, only 9.1 percent of the sewage collected is actually treated. The resulting pollution of Betim's watercourses has turned the small Betim River² into an open sewer as it meanders through the town, prompting the municipality's request for Bank assistance to clean it up.

1.3 That assistance came through the Brazil Integrated Municipal Project – Betim Municipality (Ln 7246) reviewed by this Project Performance Assessment Report (PPAR), and called "the Project" hereafter. This was the first example in Brazil of direct Bank support to an individual municipality as Borrower (with a Federal Government guarantee). For dealing with just one municipality, this kind of operation is called a "retail" municipal development project in a recent IEG study of this sector (IEG 2009). Before this, Bank support for municipal development in Brazil had been for many municipalities indirectly through intermediary institutions. IEG's study found such

¹ By population, Betim ranks in 52nd place among Brazil's 5,500 municipalities, some 850 of which, with more than 25,000 inhabitants each, accommodate most of the country's urban population.

² As it crosses the town, the Betim River runs for 35 kms from the Varzea das Flores dam in the north to the large Paraopeba River to the south (whose flow is one hundred times greater). At its maximum (within the town), the Betim River is 25 meters wide with an average flow of 1.4m³ per second. That is about twice the width and flow of the Rock Creek in central Washington DC. Throughout this report "Betim River" refers to the small system within the urban area that comprises the river itself, and its two smaller tributaries, the Areias and the Imbirucu (see photo on p. 4 and map at end of this report).

“wholesale” municipal development projects to be stronger performers than retail operations.³

1.4 Betim municipality was well placed to take full responsibility for the loan and for implementing a retail project by itself. It had been an active participant in the (wholesale) Minas Gerais Municipal Development – *SOMMA* - Project (Ln3639) that helped strengthen Betim’s municipal governance and financial management. With municipal revenues consistently exceeding expenditures, Betim municipality could meet the stringent primary surplus requirements to allow it to borrow under Brazil’s 2000 *Lei da Responsabilidade Fiscal*, or fiscal responsibility law. Betim’s own confidence in its future economic development potential while considering social and environmental issues at the same time, is apparent in the municipality’s Strategic Development Plan (Box 1).

Box 1: Municipality of Betim: Strategic Development Plan

Activity 1: Socio-economic analysis of the Belo Horizonte metropolitan region and the municipality of Betim.
Activity 2: Analysis and understanding of economic perspectives of impacts of large scale investments by Petrobras locally.
Activity 3: Identification of other economic activities that could set up in Betim and their locational requirements (infrastructure, logistics, labor force. Institutional arrangements, legal requirements and improvements of public service delivery).
Activity 4: Evaluation of economic development strategies of Betim’s local (municipal) government regarding actions under its own responsibility and actions taken on behalf of the state and federal governments.
Activity 5: Learning from prior experiences of accommodating heavy industry by other municipalities with similar profiles to Betim’s.
Activity 6: Evaluation of the environmental and urban development potential and constraints of implementing new industries in Betim.
Activity 7: Elaborating scenarios for the future economic development of Betim, with special attention to existing and potential industrial clusters.
Activity 8: Analysis of the potential urban development, environmental and socio-economic impacts of each of the scenarios.
Activity 9: Cadastres and maps of areas, land and property of interest to economic activity in the Municipality.
Activity 10: Consolidation of the proposals of the Strategic Development Plan of the Municipality of Betim.

Source: Municipality of Betim <http://www.ffcep.com.br/betim2020/conteudo/atividades.html>

1.5 The industrial development and demographic growth of Betim have been remarkable, but have taken their toll on the urban environment. Untreated sewage transforms the Betim River from a clean water stream as it enters the city into an open sewer by the time it has traversed the town center some 12 km downstream. At present, it discharges some 1.4 m³ per second of very poor quality water into the much larger Paraopeba River 23 km further downstream. Thus water quality of the Betim River, the key environmental performance indicator of the project (ICR p.8), is an iconic indicator of the quality of life of Betim that the project sought to enhance.

³ In the past ten years, the Bank has supported 228 municipalities through three State-level “wholesale” projects in Bahia, Ceará and Minas Gerais. The projects were: Minas Gerais Municipal Development (P00654; FY95-FY02; US\$150m; outcome - Sat); Ceará Urban Development and Water Resource (P006436; FY95-FY04); US\$140m; outcome - M.Sat); Bahia Municipal Infrastructure Development & Management (P006562; FY97-FY05; US\$100m; outcome - Sat). “Retail” projects after Betim’s were: (i) Santa Maria-Rio Grande do Sul (RS) Integrated Municipal Development Program FY08; (ii) Sao Luis Enhancing Municipal Governance and Quality of Life Project FY08; (iii) Teresina Enhancing Municipal Governance and Quality of Life Project FY08; (iv) Uberaba Agua Viva Project FY 2007; (v) Integrated Municipal Project - Betim Municipality FY04. Other than Betim’s, all are ongoing at this writing and have yet to be evaluated by IEG.

2. Relevance of Bank Support to Betim’s Development

RELEVANCE OF OBJECTIVES

2.1 Across the three Project objectives (Box 2)—promoting socio-environmental development, reducing inequality/poverty, and enhancing Betim’s quality of life—relevance to Betim’s Strategic Plan and the Bank’s 2008 Country Assistance Strategy (CAS) was mixed.

Box 2: Brazil: Integrated Municipal Project – Betim Municipality (P082328)	
Project Development Objective (PDO):	Project Components
<p>- as formulated in the PAD: To assist the municipality of Betim in: (a) promoting sustainable socio-environmental development; (b) reducing inequality, and (c) enhancing the city’s quality of life through integrated investments in urban environment infrastructure and social services coupled with broader efforts to improve municipal governance, regulatory policy and institutional strengthening.</p> <p>- as formulated in the Loan Agreement: To assist the Borrower (Betim Municipality) in achieving a sustainable socio-environmental development, reducing poverty, and enhancing the quality of life in the Borrower’s territory (LA Schedule 2).</p>	<p><u>Municipal Policies and Institutional Capacity Strengthening</u> (appraisal cost estimate US\$2.1 million; actual cost US\$0.7 million). (i) updating and implementing Betim’s long-term strategic development plan; (ii) strengthening Betim’s policies, regulation and management capacity for service provision; and (iii) strengthening SEMEIA, the municipal environmental secretariat.</p> <p><u>Social Inclusion</u> (appraisal cost estimate US\$6.8 million; actual cost US\$7.2 million). (i) carrying out a resettlement plan for population on banks of Betim River; (ii) strengthening SEMAS, the municipal social action secretariat; and (iii) an evaluation of the <i>Bolsa Familia</i> program in Betim.</p> <p><u>Municipal Infrastructure and Urban Environmental Rehabilitation</u> (appraisal cost estimate US\$34.7 million; actual cost US\$82.1 million). (i) about 42 kilometers of secondary sewerage network and sewerage interceptors (of which 22.7 kilometers were executed); (ii) one sewage treatment plant with a capacity of about 500 liters per second; (iii) about 7,500 sewerage connections; (iv) about 15 kilometers of macro-drainage, about 18 kilometers of secondary roads improvements; (v) about 5 open air flood regularization basins; (vi) protecting the water through the establishment of three urban parks (totaling about 30 hectares); and (vii) restoring riparian vegetation.</p> <p><u>Project Management</u> (Appraisal cost estimate US\$3.0 million; actual cost US\$5.7 million). support to overall implementation, coordination and supervision of the project.</p>
<p>Note: Estimated total project costs at appraisal were US\$49.2 million. Actual total costs at completion were reported by the ICR as US\$98.2 million. IEG estimates that about 75 percent of the overrun was due to the declining US dollar:Brazilian real exchange rate, while 25 percent of the overrun was due to higher local costs (in Brazilian reais) of project investments. Sources: PAD p.10; LA Schedule 2; ICR p. 25).</p>	

2.2 ***Promoting sustainable socio-environmental development: substantial relevance.*** This objective’s relevance derives from its links to environmental priorities highlighted by the 2003 CAS, the 2008 CAS and Betim’s strategic development plan. The 2003 CAS emphasized dealing with environmental vulnerability in metropolitan areas, where Betim is located and brown environmental problems are most acute (2003 CAS p. 44). The 2008 CAS called for specific Bank attention to the increasing challenges of the “urban environmental agenda” that includes protecting water sources, wastewater treatment and urban drainage in Brazil, all actions taken by this project (2008 CAS Annex p. 28). As noted earlier, two key activities of Betim’s strategic development plan, the environmental

constraints facing new industries and the environmental impacts of development scenarios, have a bearing on the project objective. The relevance of the first objective would have been higher with a better formulation that did not rely upon the little used expression “socio-environmental development”, a term not defined in the project itself, nor adopted by the policy documents mentioned here.



Fig 1. The polluted Betim River: but set to begin its recovery

Photo by Roy Gilbert

2.3 Reducing inequality/poverty: substantial relevance. Bank, Betim and Federal priorities for equity and poverty reduction make project aims in these directions relevant, but uncertainties about the intent of the Betim project come from the disparate formulations of this objective in different project documents where they should be identical. The PAD called for reducing *inequality*, while the Loan Agreement (LA) aimed for reducing *poverty*. In these circumstances, IEG looked for evidence of relevance to reducing either inequality or poverty. The project objective is relevant to consolidating Brazil’s poverty reduction gains that features strongly in the 2008 CAS, while reducing inequalities is consistent with Betim’s aim for a more even distribution across income levels among its resident population.⁴

2.4 Enhancing the city’s quality of life: substantial relevance. While it does not explicitly elaborate the quality-of-life goals to be achieved by the project, the PAD does

⁴ At the national level, these aims have been reflected in recent results, notably the fall of the national Gini coefficient from 0.60 in 2002 to 0.54 in 2006 (CAS 2008 Annex 2 p. 5). Poverty in Brazil had likewise fallen from 34.1 percent of the population in 2003 to 29.5 percent in 2005.

list the instruments or components to achieve these goals, namely integrated investments in urban environment infrastructure and social services coupled with broader efforts to improve municipal governance, regulatory policy, and institutional strengthening (PAD p. 10). The ICR (p. 39) notes that a better quality of life will come from urban improvements, the environmental recovery of the Betim River, stronger municipal management of public spaces and services. Beyond the Betim River improvement itself, quality-of-life enhancement as a project objective would have had greater relevance with more precisely measurable and verifiable improvements for the lives of the citizens as the project intended.

RELEVANCE OF DESIGN

2.5 **Modest:** Two weaknesses in project design lessened its relevance. Firstly, MG State and its sanitation utility COPASA were crucial players for ensuring project success, yet were not formally harnessed to the operation through the Bank, as they would have been through a Project Agreement with the Bank. The PAD (p. 6) explicitly acknowledged the risks entailed and a legal covenant (LA Section 5.1) entitled the Bank to suspend disbursements to the Municipality of Betim, should COPASA not comply with its agreement with Betim to implement and finance the agreed sanitation works. But this meant that, in the event of a failure by COPASA, the sanction would not have been applied to COPASA, but to the Betim Municipality. Secondly, the project design included institutional components that, while intrinsically important in themselves, were not directly related to the project objectives.

2.6 COPASA was a key stakeholder, but a reluctant party to the Project. Legal action by Betim municipality in 1996 against COPASA led to action by MG State's public prosecutor, *ministério público*, against COPASA, requiring it to make investments in sanitation in the municipality that it should have done earlier. In Brazil, where states have primary responsibility for managing the environment, and most municipalities delegate their constitutional water and sanitation responsibilities to their respective states (as Betim had done in 2006), project design should make clear where ultimate responsibilities lie.

2.7 The Project's first component, Municipal Policies and Institutional Capacity Strengthening, does not connect clearly with the objectives of the operation. The PAD would have made its case better had it provided a results chain to show how a component consisting of actions of updating an urban plan, strengthening policy options analysis and cost implications, proposals for alternative development goals related to fiscal performance, methodologies for stakeholder impact evaluation and consensus building, indicators and evaluation criteria for impact of policy actions, detailed monitoring of financial performance, and strengthening the environmental secretariat of the municipality (PAD p. 14) would promote socio-environmental development, reduce inequality/poverty, or enhance Betim's quality of life, the intended results of the project.

3. Implementation Experience

3.1 The pace of project implementation was uneven. Startup stalled. The project was approved in July 2004, and the loan became effective in April 2005. The delay resulted

from difficulties Betim encountered in setting up a project financial system, a condition of effectiveness. The first disbursement came six months later in October 2005, after which disbursements picked up rapidly. From October 2005 to July 2007, a 22 months period, more than 90 percent of the Loan was disbursed (ahead of schedule). In the following twelve months, however, nothing was disbursed until the penultimate disbursement of US\$1.6 million in October 2008 during the final months of the outgoing municipal administration. Only one US\$0.8 million disbursement was made to the new incoming Betim municipal administration in 2009.

3.2 With implementation underway during 2005-2007, project costs denominated in US dollars began to rise and doubled by completion. There were two reasons for this. First, the Brazilian real appreciated significantly against the US dollar. Instead of the US\$1.00 = R\$3.21 exchange rate projected in the PAD, the actual exchange rate averaged US\$1.00 = R\$2.03 over the 2004-2010 period—an appreciation that explains 75 percent of the increase in US dollar project costs. Second, project costs measured in Brazilian reals themselves rose—accounting for the remaining 25 percent of the rise in US dollar project costs.⁵ Since the US dollar value of the loan disbursed remained the same as the loan commitment, this increase was financed by a sharp rise in counterpart funding from its appraisal estimate of US\$25 million to actual counterpart financing of US\$73.8 million by project closing.

3.3 With project financing thus assured, the rhythm of most works and technical assistance picked up. In particular, activities on resettlement and improving river and canal drainage accelerated.

3.4 Implementation of the Betim Central sewage treatment plant, the project's largest component with a cost of US\$38.8 million⁶--40 percent of the project total—financed by counterpart funds, was delayed as COPASA's own annual report of 2008 and the ICR (p. 17) report. Work started only in final months of the project in early 2009, three years later than planned. Bank loan funds were not allocated to this component. The 1996 action by the MG State prosecutor (*ministério público*) against COPASA to carry out the work also required COPASA to fully finance it. The main reasons for the delay included:

- Inadequate initial preparation that led to the plant twice being re-designed: first to shift from manual to automatic control and, second, to double the plant's capacity.⁷

⁵ This increase of project costs in Brazilian reals reported here is an IEG estimate that assumes these costs were incurred throughout implementation when different exchange rates were in force. As is normal Bank practice, ICRs do not report project costs in local currency and IEG did not see reports of final project costs in Brazilian reals.

⁶ Betim municipality informed IEG that the cost of the plant was R\$74.5 million. This converts to US\$38.8 million using the average of the US dollar exchange rates for 2008 (R\$1.83) and 2009 (R\$2.01) the two years during which the plant was planned and built.

⁷ The basic sequence of aerobic and anaerobic treatment remained in the design, however. As a first step, aerobic treatment is a bacterial process that involves aeration of untreated sewage sludge. The next step is anaerobic treatment, particularly suited to tropical conditions, in sedimentation tanks using micro-organisms to break down remaining biodegradable material in the absence of oxygen.

- Land acquisition difficulties, taking two years to resolve. The existing owner wanted to receive other land in compensation, something that proved difficult to find.
- The site had to be converted from rural to urban land use, requiring protracted deliberations by the Betim municipal council.
- COPASA's own limited capacity to carry out work that was not its top priority, when it had several large projects underway elsewhere in MG State.
- Differences between COPASA and Betim municipality over the cost sharing of the plant construction took time to settle, until COPASA accepted responsibility for nearly 100 percent.
- After work started in September 2008, soil conditions at the site made foundation work difficult. Twice as many piles had to be sunk as originally foreseen in the design, making the foundation work take twice as long to implement.
- Laying main sewage interceptors that would connect the existing sewage network to the plant suffered delays through the collapse and erosion of unstable drainage channels (Fig 3) and the imposition of unduly high technical standards where these interceptors crossed railway lines.



Fig 2. The difficult work of laying sewage interceptors in Betim town

Photo by Roy Gilbert

3.5 During field visits in Betim in January 2010, the IEG mission saw that work on the plant was well advanced in the challenging conditions of the site. By end-May 2010,

one month before project closing, the contractors handed it over to COPASA. By this writing, IEG received reports that the plant is currently operational, at about one third of its design capacity thus far.

4. Results of the Operation

MONITORING THE RESULTS (M&E)

4.1 **Overall Negligible:** The low rating comes from a design that did not directly address the intended project outcomes foreseen by the objectives. This made implementation and utilization of M&E all but impossible. The consequences are scarce data on project outcomes, and poor record-keeping generally.

4.2 **Design:** The weakness underlying M&E derives from a project results framework (PAD Annex 3) that focuses more upon tracking project inputs than addressing the objectives of the Project. M&E does not include baselines, targets or indicators needed to measure progress toward achieving these objectives. The M&E's intermediate outcome indicators were mostly input indicators that would be triggered by the delivery of project components, such as a specific number of municipal offices to be improved. M&E design lacked performance indicators related to the achievement of the second project objective of reducing inequality and/or poverty.

4.3 **Implementation:** Implementation of a weak M&E, while allowing follow-up of the implementation of the project components, did not allow outcomes to be monitored. Even the tracking of inputs, the components, did not pass smoothly from one municipal administration to the next in Betim. Thus, M&E did not help produce complete and detailed final project cost data for the incoming municipal administration as the IEG mission noted. IEG requested these data from Betim Municipality during the first semester of 2010, receiving a partial data set in mid-2010 that pointed to a total project cost of more than US\$128.1 million. The ICR, on the other hand, reports a total and complete final cost of US\$98.2 million⁸ (details Box 2). The difficulty of reporting costs and the inconsistency of the results raise concerns about financial reporting and record keeping at the municipal level. This experience points to the need for more solid M&E in future municipal development projects, especially of the retail kind that directly depend upon the municipalities themselves for day-to-day management.

4.4 **Utilization:** Utilization of M&E now rests with the new municipal administration of Betim, whose difficulties in estimating the actual costs of this project reflect the shortcomings in utilizing even the partial M&E set up under this project.

⁸ In this report, IEG uses the figure of US\$98.2 million reported by the ICR, as it covered all project components, unlike the partial estimates provided by Betim to the IEG mission that left some small components out.

OBJECTIVE 1. PROMOTING SUSTAINABLE SOCIO-ENVIRONMENTAL DEVELOPMENT

4.5 **Efficacy: Substantial.** Actual results have been mixed thus far. The Betim River system water quality still remains very poor at this time (by when there should have already been a full improvement according to the original PAD plans for the project). The lack of progress to date is the result of the delays in bringing the Betim Central sewage treatment plant into operation. There should be a long and steady improvement, however, as the plant approaches full capacity operation, with all interceptors connected to it (or another one of Betim's smaller treatment plants) and illegal untreated sewage discharge into the river prevented. A promising sign is the current Betim mayor's awareness of the urgency of curbing illegal sewage discharge in the municipality. With these conditions met, the project can be expected to achieve a worthwhile result in the near future, but will fall short of the original intent in two ways: firstly pure, potable standard water may be impossible to achieve ever with Betim's growing population, according to MG environmental experts; and secondly, the eventual improvement will come long after the 2009 target set for it by the PAD (p. 31). A water quality index IQA, that measures the biological demand for oxygen and the level of fecal coli forms shows that the quality of Betim River water declined less in traversing the city in 2009 (minus 50 IQA) than it did in 2004 (minus 64 IQA) (Table 4.1). However, the 19-23 IQA range of the downstream water quality is still very poor by MG State environmental standards. Summing up the three reasons for this shortfall: (i) the necessary sewage treatment has barely begun; (ii) illegal discharge of raw sewage continues and (iii) the ecological recovery of such a highly polluted water course as the Betim River will take several years.



Fig 3. Final link to Betim Central sewage treatment plant (Jan 2010)

Photo by Roy Gilbert

4.6 **More sanitation services:** Betim municipality was better served by basic urban water and sanitation services in 2009 than before the Project in 2004 (Table 4.2). The Project provided 6,500 additional sewerage connections, short of the project target of 7,500, but still accounting for nearly half of all new connections in Betim over this period. The share of the population served by sewage collection rose from 63.6 percent before the project in 2004 to 67.9 percent in 2009, after the project. Thus sewage connection services grew at about twice the rate of urban population growth, but more than 30 percent of the population still produces sewage that is uncollected sewage. But, as noted earlier, in 2009 still only 9.1 percent of collected sewage was treated, a share

that is expected to rise, however, with a fully operational Betim Central plant that will have more capacity than needed to treat all sewage collected in Betim.

Table 4.1 Betim River Water Quality Indices 2004 and 2009 in IQA^{a/}

	2004	2009 ^{b/}
Upstream (entering the city)	83	73
Downstream (leaving the city)	19	23
Water quality decline(traversing the city) ^{c/}	-64	-50

Source: Instituto Mineiro de Gestão das Águas – IGAM

Notes: ^{a/}IQA (Water quality index) measured by MG State Environmental Secretariat. IQA is a composite index based upon fecal coliforms present in the water and the biological demand for oxygen. Minas Gerais recognizes the following IQA standards: Excellent 90-100; Good 70-90; Average 50-70; Bad 25-50; Very bad 0-25. ^{b/} Does not include data for December 2009. ^{c/} upstream IQA reading minus downstream IQA reading.

4.7 Water supply services, already good in Betim prior to the project, expanded at a similar rate to that of the growth of the urban population. Solid waste collection and disposal, on the other hand, expanded at a far more rapid pace. These services were beyond the scope of the project design and changes in the level of service are not attributable to the project.

Table 4.2 Improvements to Sanitation Services in Betim Municipality 2004 and 2009

Indicator	2004	2009
- urban population (number)	365,678	425,451
Water:		
- share served by water (percent)	93.1%	94.9%
- total connections (number)	85,329	100,217
- length of network (kilometers)	1,169	1,263
- total consumption (thousands of cubic meters per year)	16,447	18,964
Sewerage:		
- share served by sewage collection (percent)	63.6%	67.9%
- total connections (number)	58,095	74,465
- length of network length (kilometers)	480	548
- total produced (thousands of cubic meters per year)	13,157	15,171
- total collected (thousands of cubic meters per year)	8,969	11,552
- total treated (thousands of cubic meters per year)	220	1,048
Solid Waste:		
- total collection (tonnes per year)	53,235	84,848
- total disposal and treatment (tonnes per year)	49,515	67,626

Source: Betim municipality data provided to IEG mission

4.8 ***Sewage network and Betim Central treatment plant coming into operation:*** IEG learned that the contractors handed over the completed Betim Central sewage treatment plant to COPASA at the end of May 2010. At this writing the plant is running test operations up to one third of the design capacity of the plant. More sewage interceptors still need to be connected and the plant's treatment sludge will have to become biologically active for full treatment to take effect. While it is still too early to report definitive results, the well tried aerobic and anaerobic technologies used by the plant are likely to function properly. The plant was expected to come into full capacity operation at the end of 2010. If all goes according to plan, it would be able to treat 500 liters per second, or 15,780 cubic meters per year effectively. This exceeds the 15,171 cubic meters of sewage currently produced in Betim, and is well in excess of the 11,552 cubic meters currently collected (Table 4.2).

4.9 ***Greater environmental role for Betim municipality:*** The project sought greater Betim involvement in environmental matters through the strengthening of its municipal environmental secretariat, SEMEIA with some results. SEMEIA now prepares municipal environmental plans for Betim annually. It carried out environmental education programs by sending teams of municipal experts to local factories and industrial plants including the Petrobras oil refinery, to help them comply with environmental regulations within the municipality. Through SEMEIA, Betim entered into cooperation agreements for urban environmental protection with other municipalities of the Belo Horizonte metropolitan region and elsewhere in MG State, such as the important cities of Ouro Preto and Juiz de Fora. Since a 2002 agreement with MG States environmental agency FEAM, Betim took on responsibility (from MG State) for issuing environmental licenses for smaller works.

OBJECTIVE 2. REDUCING INEQUALITY OR POVERTY

4.10 ***Efficacy: Substantial.*** Persuasive evidence of achievements at the level of Betim municipality in these areas is scarce for three basic reasons: (i) no specific baselines were measured at appraisal; (ii) there were no explicit or specific targets establishing by how much inequality or poverty should be reduced; (iii) especially for inequality no specific Project actions were designed to reduce it. There were however, project interventions with significant localized interventions within specific areas or affecting specific groups.

4.11 ***Resettlement:*** Altogether, 887 families were resettled peacefully from flood-prone canal and river banks in Betim, somewhat more than the 820 originally foreseen. As described to IEG by Betim municipality officials, the resettlement procedures complied with Bank safeguards on involuntary resettlement. All affected families were surveyed by the municipality and direct contact made with municipal social workers. Affected families contacted by the IEG mission during field visits confirmed these arrangements. Betim's "Evaluation Commission" in the *Secretaria de Obras*, the municipal secretary of works, assessed the value of compensation to be paid and prepared a final action plan for resettlement with the knowledge and involvement of the affected communities. Several beneficiaries told the IEG mission that they had opportunities to question the conditions of the plan, particularly the compensation and alternative housing offered, but most did not, finding the conditions offered to be adequate. These reports point to a resettlement process that was in compliance with Bank safeguards in this area.

4.12 Nearly half these families were accommodated in a housing estate called *Celso Pedrosa* that was specifically built for this purpose. Others were re-housed in five existing projects in Betim. In Celso Pedrosa itself, five families, all previously resident in Betim, told the IEG mission that their present houses were far superior to their previous dwellings, located in favelas and others in areas prone to flooding. The success of the Celso Pedrosa estate was confirmed by the many improvements and extensions made to the original core unit with its kitchen/bathroom/one bedroom.

4.13 **Broader social protection:** The project also helped strengthen Betim municipality's social services secretariat, *SEMAS*, by helping it adopt a consolidated social assistance system called the *Sistema Unico de Assistencia Social* that provided a one-stop shop where needy citizens of Betim could seek social services from the municipality. Through the Project, SEMAS also conducted a review of the Federal Government's *Bolsa Familiar* conditional cash transfer program in Betim. It resulted in the threefold expansion of the program after finding 43,000 families were eligible, against the 14,000 who had received assistance prior to the project. But a counterpoint to these gains was the threefold increase of the professional cadres of SEMAS during project implementation from 180 to 500, without following the proper *concurso público* recruitment procedures required under Brazilian law. The overall result has been SEMAS retaining a strong core but carrying a contingent of less than fully qualified staff.



Fig 4. Celso Pedrosa Housing Estate

Photo by Roy Gilbert



Fig 5. Housing extension work in Celso Pedrosa

Photo by Roy Gilbert

OBJECTIVE 3. ENHANCING BETIM'S QUALITY OF LIFE

4.14 ***Efficacy: Modest.*** Actual results obtained by the project were mixed across the outcomes that derived from different project components. They were stronger in helping to reduce the risks of flooding in the municipality. They were weaker in not providing useable recreational areas in the form of urban parks promised by the project. It is clear that more still has to be done to give Betim a better quality of life, making it an attractive residential location for families of all income groups.

4.15 ***Road and drainage improvements:*** Quality of life improvements in some Betim neighborhoods resulted from project investments in what were called locally *Avenidas Sanitarias*. These consisted of street paving of major access roads to selected neighborhoods, the installation or improvement of drainage, and final landscaping. Altogether, eleven such *avenidas* were thus upgraded. The IEG mission visited four *avenidas* three of whose works were completed to a high standard, while one was still unfinished. Through easing access to key neighborhoods throughout Betim, they contribute to improved traffic conditions throughout the municipality. Cleared of informal occupation by squatters, river and canal banks could be stabilized and drainage channels improved under the project. Such improvements were made to sections of the Betim River and adjacent drainage canals. The IEG mission inspected a storm water



Fig 6. *Avenida Sanitaria* nearly completed in Betim (Jan 2010)

Photo by Roy Gilbert

retention basin built to temporarily hold run-off during heavy rainfall. Taken together, these efforts better control and ease flows to reduce the risk of flooding that had seriously affected neighborhoods like the *Jardim Santa Cruz*. Some of this work involved the relocation of families especially on river and canal banks prone to flooding. As already noted, resettlement was conducted in accordance with Bank guidelines.

4.16 ***Urban parks not ready for use:*** Two of the three parks initially planned, covering 30 hectares, were demarcated but not landscaped. Work on them was not underway during IEG's visits. Although fenced off to prevent trespass, the IEG mission saw fencing broken in a few places, where garbage had been illegally dumped. In these conditions, they do not yet constitute urban parks for public recreational use, and thus far, have not generated the real intended benefits that can only begin to be realized when they come into use.

4.17 ***On balance, some enhancement of Betim's quality of life:*** On the positive side of the scorecard: drainage and road improvements have been brought to specific areas through the *avenidas sanitarias*. On the negative side: the continuing severe pollution of the Betim River system, and the abandoned urban parks. We can expect the quality of life in Betim to improve in the medium term as unfinished projects come into use and Betim municipality makes new investments in municipal services and infrastructure.



Fig 7. Urban park not ready for use (Jan 2010)

Photo by Roy Gilbert

4.18 Stronger Betim finances in recent years favor such improvements and a greater role of the municipality in enhancing the quality of life there (Table 4.3). Municipal revenues and expenditures doubled over the 2004-2009 period of the project—more than twice the rate of Brazil’s GDP growth—and an already healthy budget surplus has increased. These trends have given Betim municipality a significant investment capability of its own, the equivalent of US\$64 million annually. These positive trends are due to economic growth and stronger financial management at the municipal level. While neither cause can be attributed directly to the project, nor can financial improvements alone guarantee a better quality of life in the city, they help ensure a favorable context for achieving more of the kind of the improvements foreseen by the project.

Table 4.3 Betim’s finances strengthened between 2004 and 2009 (in millions of Brazilian reals)

Indicator:	2004	2009
<i>1. Municipal revenues</i>	475.1	939.3
<i>2. Municipal expenditures</i>	467.9	911.9
<i>3. Municipal surplus: deficit (1. minus 2.)</i>	+7.2	+27.4
<i>4. Municipal investments</i>	83.7	128.3
<i>5. Municipal investments as share of expenditures (%)</i>	17.6%	13.7%

Source: Betim municipality data provided to IEG mission



Fig 8. Quality of life in Betim

Photo by Roy Gilbert

EFFICIENCY IN ACHIEVING RESULTS

4.19 ***Efficiency rating: modest.*** The likely efficiency of the project investments in generating benefits through improved sanitation (sewerage connections, sewerage mains, and the waste treatment plant), urban drainage, and parks was estimated at appraisal, using the Contingent Valuation Method that surveyed 1,400 potential beneficiaries in Betim to learn how much they would be willing to pay for the improvements intended by the project (PAD Annex 9). The ICR re-applied the same approach with updated values of costs and benefits to yield an estimated ERR at completion of 18 percent (ICR annex 3). Such an approach may not yield the best measurement of project efficiency at completion, however, for two reasons. First, completion estimates should measure real benefits and not the hypothetical proxy benefits of the ex-ante contingent valuation method. For this project, real benefits mean the actual improvements of reduced pollution and functioning urban parks. It is difficult to understand, for instance, how a project investment in urban parks made three years ago could generate an (contingent valuation method) estimate of 47 percent ERR (ICR p.33) when the parks are not complete and generating no real benefits at this writing. A measurement instead of actual benefits, their delays in coming on stream, and project cost increases noted earlier would point to a significantly lower ERR at completion of this and other delayed components than at appraisal. The consequent loss of project efficiency leads to the modest rating here.

5. Ratings

OUTCOME

5.1 ***Rated: Moderately Satisfactory.*** Overall, the project achieved or is likely to achieve its relevant objectives with moderate shortcomings. This outcome rating is based upon the following consideration of the relevance and efficacy of each of the three objectives. The first promoting socio-environmental development was, despite its imprecise formulation, substantial relevant to Bank and Borrower priorities. It has not yet been met, but is likely to be achieved with substantial efficacy as environmental improvements begin to take hold in Betim, albeit later than planned and to a lesser degree than intended. The second, reducing inequality/poverty, has also been substantially relevant to Betim and Bank priorities, and was achieved with substantial efficacy through localized impacts on poor communities vulnerable to flooding and more broadly through expanding the coverage of the *Bolsa Familia* program in Betim. The third, enhancing Betim's quality of life was modestly relevant for not having a precise and measureable outcome. At this writing, it has still not been met, but is likely to obtain modest efficacy as municipal services begun under the project are fully delivered. Efficiency in achieving these objectives is less than planned and rated modest owing to cost overruns and delays in realizing the benefits of project investments that lower their present value.

5.2 The Betim River is an icon of the city's environment and quality of life. Its condition is therefore symbolic of the performance of this operation—still in poor environmental condition, but set for improvement after the full operation of the recently completed Betim Central sewage treatment plant, and the eventual effective prevention of the illegal discharge of untreated sewage. The project itself has much the same performance status as the river.

RISK TO DEVELOPMENT OUTCOME

5.3 ***Rated: Significant.*** The highest risk comes from the continued population growth and economic expansion of Betim, beyond current projections, and the consequent growing demand for water, sanitation and other urban services. Particularly problematical are illegal “clandestine” discharges of untreated sewage that, if unchecked, will continue to pollute whatever treatment plants are in operation. The project did not address this issue or help the municipal authorities to suppress what has been a common practice. In comments on this report, the Bank Country Department pointed out that this problem was not ignored by COPASA. IEG witnessed considerable illegal discharge during its field visits to Betim, and considers that curbing it should be a central part of the design of a project aimed at improving the urban environment. Technical and financial risks are low. Most of the improvements introduced by the project use proven technologies that have worked successfully elsewhere and the municipal and state authorities have strong enough finances to ensure operation and maintenance. Political and governance risks are moderate; successive municipal administrations of different political parties have all been committed to the project, but information flows among them about project performance have been less than agile. The risk from natural disasters is low. The most likely natural disaster event in Betim is flash flooding the worst effects of which the project itself took action to mitigate.

BANK PERFORMANCE

5.4 ***Preparation and quality-at-entry: rated Moderately unsatisfactory.*** Weaknesses in project design left two objectives with imprecise formulations, such as socio-environmental development and quality-of-life. Not having the project objectives incorporated into the project’s results framework (PAD p. 30) meant that the project design did not make full use of that framework to help articulate the intended results to be obtained and the results chain linking them to the project components. With insufficient analysis of baselines and targets, an unrealistic expectation was raised of bringing the Betim River water to top quality—almost drinkable—by 2009, year five of the project. Also, the most important single project investment, the Betim Central sewage treatment plant could have been more fully prepared. Its details were given only cursory treatment by the 106 page PAD in two short paragraphs (pp. 18 and 56). Inadequate preparation meant that challenges and risks typically facing this kind of investment—land acquisition, land-use zoning, stakeholder commitment, and engineering difficulties on site—were not properly thought through, leading to more than three years delay in start up, and the plant not completed at project closing.

5.5 ***Supervision: rated Moderately Unsatisfactory.*** Bank supervision missions did not highlight the challenges that project implementation faced. Five supervision missions rated implementation progress very highly even while the project’s main component, the Central sewage treatment plant was unable to get off the ground. Lack of implementation progress with this important plant—with building starting up just six months prior to project closing—should have been reflected critically in each of these supervision mission assessments. Instead, the supervision missions based their assessments upon counterpart commitments to *future* implementation—hence the Bank’s positive evaluation of implementation progress, even when it was stalled. Bank missions could not influence COPASA as an executing agency of that component, as it was not formally a partner of the Bank in this project, but Bank missions could have worked more closely with the municipality to bring pressure to bear for accelerating the works.

5.6 ***Overall Bank Performance: rated Moderately Unsatisfactory***

BORROWER PERFORMANCE

5.7 ***Government: rated overall Satisfactory.*** In the case of this project, under “Government” the present rating covers the Federal Government as guarantor and the Betim Municipal Government as borrower of the loan. Both are rated satisfactory, the Federal Government for fulfilling its fiduciary role under the loan effectively and the Betim Government for aligning its policy priorities and the project and for substantial increases in counterpart funding above the initial commitment at appraisal.

5.8 ***Implementing Agency: rated Moderately Satisfactory.*** In the case of this project, under “Implementing Agency” the rating covers the Betim Municipal Secretariats responsible for the execution of the project. These included the Secretariat of Infrastructure and Works, the Secretariat of Environment and the Secretariat of Social Assistance. Collectively they contributed actively to project implementation, albeit with significant delays to key components, and less than complete record keeping and

reporting. The inability to complete the execution of key project components within the time frame set was a moderate shortcoming.

5.9 *Overall Borrower Performance: rated Moderately Satisfactory*

MONITORING AND EVALUATION

5.10 *Rated: Negligible.* M&E design did not focus upon intended outcomes foreseen by the objectives. This made meaningful implementation and utilization of M&E to track progress in achieving the intended results very difficult. Beyond the lack of data on project outcomes, the consequences of weak M&E also made the assembly of final project cost data challenging.

6. Lessons

- If the scope of an autonomous municipal development project goes beyond municipal responsibilities, as this project's did by invoking environmental and sanitation improvements and monitoring that are state-level responsibilities in the case of Betim, project design should include a Project Agreement with the Bank that binds any state level parties to an operation through the Bank—COPASA in this case.
- Bank preparation of investment projects that target environmental improvements should deploy relevant specialized technical knowhow and experience effectively so that environmental problem are properly appraised and feasible targets set for improvements. For this project, illegal sewage discharge, that continues to pollute the river, needed more analysis and preventative action, while river water quality targets should have been more modest and achievable over a reasonable time period.
- The preparation of components in investment projects, especially key ones such as the Betim Central sewage treatment plant, should routinely take into account land acquisition, land use zoning, stakeholder commitment and site difficulties, to set a realistic and achievable path to implementation.
- Policies and actions to curb the causes of environmental degradation should be at the core of operations designed to improve the urban environment. The lesson from this project is the need to include measures to curb the illegal discharge of sewage, observed on site by the IEG mission in Betim that, if not curtailed, could bypass the environmental gains made by additional sewage treatment

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Annex A. Basic Data Sheet

BRAZIL INTEGRATED MUNICIPAL PROJECT – BETIM MUNICIPALITY (LN 7246)

Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
Total project costs	49.0	98.0	200
Loan amount	24.0	24.2	101
Cofinancing	-	-	-
Cancellation	-	-	-

Cumulative Estimated and Actual Disbursements

	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10
Appraisal estimate (US\$M)	3.1	6.5	12.6	20.1	24.0	24.0
Actual (US\$M)	0.1	5.2	19.5	21.8	23.4	24.2
Actual as % of appraisal	3.2%	80.0%	154.8%	108.5%	97.5%	100.8%
Date of final disbursement:	September 4, 2009					

Note: Planned disbursements were estimated in the PAD at appraisal in US dollars. Actual disbursements were made in Brazilian reals. Exchange rate fluctuations over the period between the two currencies explain minor inconsistencies between the two sets of data.

Project Dates

	<i>Original</i>	<i>Actual</i>
Initiating memorandum	09/10/2003	09/10/2003
Negotiations	05/20/2004	05/20/2004
Board approval	06/15/2004	07/01/2004
Signing	-	01/18/2005
Effectiveness	-	04/12/2005
Closing date	06/30/2009	06/30/2009

Staff Inputs (staff weeks)

		<i>Staff Weeks</i>	<i>USD Thousands (including travel and consultant costs)</i>
Lending	FY03	8	39.12
	FY04	45	207.76
	FY05	2	14.49
	Total	55	261.37
Supervision	FY05	21	112.76
	FY06	25	74.74
	FY07	19	97.72
	FY08	17	81.04
	FY09	6	0.00
	Total	88	366.26

Mission Data

	<i>Name</i>	<i>Title</i>	<i>Unit</i>
Lending	Stefania Abakerli Baptista	Social Development Spec.	LCSSO
	Fernando Blanco Cossio	Senior Economist	LCSPE
	Dean A. Cira	Sr Urban Spec.	EASVS
	Martin P. Gambrill	Senior Water Engineer	LCSUW
	Paula Dias Pini	Senior Urban Development Spec. - TTL	LCSUW
	Juan D. Quintero	Sr Environmental Engr.	EASRE
	Emilio H. Rodriguez	Consultant	LCSPT
	Maria Angelica Sotomayor	Senior Economist	LCSUW
Supervision	Joao Vicente Novaes Campos	Financial Management Specialist	LCSFM
	Juliana Menezes Garrido	Infrastructure Specialist	LCSUW
	Lizmara Kirchner	Water & Sanitation Specialist	LCSUW
	Menahem Libhaber	Lead Sanitary Engineer	LCSUW
	Luis R. Prada Villalobos	Senior Procurement Specialist	LCSPT
	Anemarie Guth Proite	Procurement Specialist	LCSPT
	Tatiana Cristina O. de Abreu	Finance Analyst	LOADM
	Paula Dias Pini	Sr. Urban Specialist - TTL	LCSUW
ICR	Bernice van Bronkhorst	Sr. Urban Specialist - TTL	LCSUW
	Francesco Divillarosa	M&E Specialist	Consultant
	Marcus da Silva Ferreira	Engineer	Consultant

Maps



