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BRAZIL

**BELO HORIZONTE ENVIRONMENTAL RESTORATION PROGRAM
(DRENURBS PROGRAM)
SUPPLEMENTAL FINANCING TO STAGE I**

(BR-L1335)

LOAN PROPOSAL

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ELECTRONIC LINKS	
REQUIRED	
1.	Annual work plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053594
2.	Monitoring and evaluation plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053605
3.	Environmental and social management report http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37048029
4.	Procurement plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37056777
OPTIONAL	
1.	Economic analysis http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053609
2.	Technical report - Bonsucesso watershed works http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053591
3.	Environmental classification and safeguards http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37086303
4.	DRENURBS Evaluation Report-Stage 1 http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053599
5.	Factors influencing the cost increase http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053593
6.	Institutional Capacity Assessment http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053595
7.	DRENURBS-Stage 1 progress monitoring report (loan 1563/OC-BR) http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37056113
8.	Draft progress monitoring report DRENURBS-Supplemental financing (BR-L1335) http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37055951
9.	Justification of retroactive reimbursement request http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053613
10.	Municipal Sanitation Plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053607
11.	Operating guides for implementation of Operational Policy OP-708 http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053588

12. Analysis of compliance with the Public Utilities Policy (OP-708)
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053604>
13. Program implementation manual
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053589>
14. Financial analysis of COPASA
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37055852>
15. Belo Horizonte Environmental Restoration Program (DRENURBS)–Stage 1 (loan 1563/OC-BR)
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053590>
16. Diagnostic assessment of the Belo Horizonte Urban Drainage Master Plan
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37053695>

ABBREVIATIONS

BOD	Biochemical oxygen demand
COFIE	Comissão de Financiamentos Externos [External Financing Commission]
COMUSA	Conselho Municipal de Saneamento [Municipal Sanitation Council]
COPASA	Companhia de Saneamento de Minas Gerais [Minas Gerais Sanitation Company]
COSO	Committee of Sponsoring Organizations of the Treadway Commission
DRENURBS	Belo Horizonte Environmental Restoration Program
ESMP	Environmental and Social Management Plan
IBGE	Instituto Brasileiro de Geografia e Estatística [Brazilian Institute of Geography and Statistics]
ICAS	Institutional Capacity Assessment System
INCC	Índice Nacional de Custo da Construção [National Construction Cost Index]
INPC	Índice Nacional de Preços ao Consumidor [National Consumer Price Index]
IPCA	Índice Nacional de Preços ao Consumidor Amplo [Extended Consumer Price Index]
IRR	Internal rate of return
ISA	Índice de Salubridade Ambiental [Environmental Health Index]
LIBOR	London Interbank Offered Rate
MBH	Município of Belo Horizonte
PDR	Plano de Desapropriação, Indenização e Relocalização [Expropriation, Compensation, and Resettlement Plan]
PEU	Program executing unit
R\$	Brazilian reais
SEAIN	Secretaria de Assuntos Internacionais [International Affairs Department]
SMOBI	Secretaria Municipal de Obras e Infraestrutura [Municipal Works and Infrastructure Department]
WWTP	Wastewater treatment plant

PROJECT SUMMARY

BRAZIL

BELO HORIZONTE ENVIRONMENTAL RESTORATION PROGRAM (DRENURBS PROGRAM) SUPPLEMENTAL FINANCING TO STAGE I (BR-L1335)

Financial Terms and Conditions			
Borrower: Município of Belo Horizonte (MBH) Executing agency: MBH, acting through its Municipal Works and Infrastructure Department Guarantor: Federative Republic of Brazil		Flexible Financing Facility:*	
		Amortization period:	25 years
		Original weighted average life:	15.25 years
		Disbursement period:	5 years
		Grace period:	5.5 years
Source	Amount (US\$)	Interest rate:	LIBOR
IDB (Ordinary Capital)	55 million	Inspection and supervision fee:	**
Local	55 million	Credit fee:	**
Total	110 million	Currency:	U.S. dollars from the Ordinary Capital
Project at a Glance			
Objective and description: The objective of the financing is to provide the MBH with resources in addition to loan 1563/OC-BR for the Belo Horizonte Environmental Restoration Program (DRENURBS) - Stage 1, to ensure that the program's targets and objectives are met. The general objective of the program is to help improve the quality of life of the MBH population, with interventions in the Bonsucesso watershed. Its specific objectives are to: (i) reduce flood risk; (ii) restore the quality of waterways; and (iii) ensure the sustainability of actions by improving drainage systems and urban environmental management. DRENURBS experienced significant cost increases owing to exogenous factors: (i) the appreciation of the Brazilian real vis-à-vis the U.S. dollar; (ii) inflation; (iii) rising construction costs; and (iv) an adjustment to the scope of the works. This financing addresses the need to cover these cost overruns and is consistent with the Bank's policy on additional financing of cost overruns for operations in progress (document GN-2329).			
Special contractual conditions. As conditions precedent to the first disbursement: (i) the program executing unit (PEU) will be created through a legislative act (paragraph 3.3); (ii) PEU staff will be appointed through a legislative act and the social/environmental consultant will be hired (paragraph 3.3); (iii) the works management firm will be hired (paragraph 3.3); and (iv) the Program Operating Manual will be approved by the Bank and enter into force (paragraph 3.3). As execution conditions: (i) the legal instrument on maintenance of the program's sanitary sewerage works will be signed by the MBH and the Minas Gerais Sanitation Company (COPASA) and enter into force within six months of the date of signature of the loan contract, with the Bank's no objection (paragraph 3.4); (ii) the Environmental and Social Management Plan and Expropriation, Compensation, and Resettlement Plan (PDR) will be sent to the Bank for its no objection, and the semiannual report will include the degree of progress in fulfilling the conditions in the environmental permits (paragraph 3.21); (iii) prior to commencement of the works, evidence will be submitted showing that the affected properties in the works areas were duly expropriated and the affected parties duly compensated, and that the affected families were covered by the applicable solutions provided for in the PDR (paragraph 3.21); and (iv) prior to the start of works, evidence will be presented that the works supervision firm has been duly hired (paragraph 3.3).			
Exceptions to Bank policies: The borrower requested a waiver of the Bank's policy on recognition of expenditures, retroactive financing, and advance procurement (document GN-2259-1; Operational Policy OP-507), so that expenditures for up to US\$18 million made prior to approval of the project profile and after 1 January 2011 can be recognized retroactively against the financing.			
Project consistent with country strategy: Yes [X] No []			
Project qualifies as: SEQ [X] PTI [X] Sector [X] Geographic [X] Headcount []			

* Under the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency and interest rate conversions. The Bank will take market conditions as well as operational and risk management considerations into account when reviewing such requests.

** The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the corresponding policies.

I. EXECUTION RESULTS AND NEED FOR ADDITIONAL RESOURCES

A. Background, problem to be addressed, and rationale

- 1.1 The Belo Horizonte Environmental Restoration Program (DRENURBS) – Stage 1, (loan 1563/OC-BR) was approved by the Bank on 30 June 2004, with a loan amount of US\$46.5 million and a counterpart contribution of US\$31 million, for a total of US\$77.5 million. It was conceived as a global multiple works program with three components: (i) flood risk reduction; (ii) improvement of waterway quality; and (iii) improvement of urban drainage and environmental management ([link 15](#)).
- 1.2 In December 2011, expenditures under DRENURBS–Stage 1 hit US\$101 million (US\$41 million from the loan and US\$60 million in counterpart resources), and the total costs of reaching the original program targets were estimated at US\$187.5 million. Given this, and in view of the positive outcomes¹ seen in the watersheds where works had been completed, the Município of Belo Horizonte (MBH) submitted a request² to the Brazilian government for support in obtaining a US\$110 million supplemental loan (US\$55 million loan and US\$55 million counterpart contribution) enabling it to complete the works³ in the Bonsucesso watershed and thereby meet the targets and objectives for all the watersheds under DRENURBS–Stage 1. The purpose of this document is to submit the proposed US\$55 million in supplemental financing requested by the borrower to the Bank’s Board of Executive Directors for consideration, to cover part of the cost overruns for the DRENURBS–Stage 1 works. The proposed financing will enable the original objectives to be met for five watersheds under the program and is consistent with the Bank’s policy on additional financing of cost overruns for operations in progress (document GN-2329) (paragraph 1.15).

B. Belo Horizonte Environmental Restoration Program

- 1.3 **The city of Belo Horizonte and its sanitation services.** Belo Horizonte, capital city of the state of Minas Gerais in Brazil’s Southeast region, has an area of 330 square kilometers and a population of about 2.4 million.⁴ Like other Brazilian cities, Belo Horizonte has experienced accelerated growth in recent decades, particularly since the 1970s. Rapid urban expansion, deficiencies in urban development planning instruments⁵ and the corresponding control and enforcement procedures, and weaknesses in the integrated planning of drainage works—

¹ DRENURBS received an honorable mention in the 2011 Metropolis Awards, given out at the “Cities in Transition” World Congress.

² The External Financing Commission (COFIEX) under the Ministry of Planning, Budget, and Management’s Department of International Affairs approved this request on 17 June 2011.

³ The works for the Bonsucesso watershed, which would be completed with the proceeds of this financing, are in progress. A downsizing of the program would therefore significantly jeopardize its outcomes.

⁴ Instituto Brasileiro de Geografia e Estatística [Brazilian Geography and Statistics Institute] (IBGE) – 2010 Census: <http://www.ibge.gov.br/home/presidencia/noticias>.

⁵ The Belo Horizonte Urban Master Plan and the land-use and occupancy law, both adopted in 1996, became the basis for the MBH’s urban policy: <http://gestaocompartilhada.pbh.gov.br/>.

compounded by a scarcity of financial resources—have played a part in the environmental and sanitary degradation of the waterways that make up Belo Horizonte’s hydrographic network. Three main factors have led to this:⁶ (i) deficiencies in the storm drainage system; (ii) direct discharges of residential and industrial wastewater; and (iii) unlawful disposal of solid waste.

- 1.4 **Institutional framework for urban sanitation.** The Conselho Municipal de Saneamento [Municipal Sanitation Council] (COMUSA) and the Agência Reguladora dos Serviços de Abastecimento de Água e Esgoto de Minas Gerais [Minas Gerais Water and Sanitation Regulatory Agency] make sector policy and regulate service, respectively. Water and sanitary sewerage service for the Município of Belo Horizonte is operated under concession by Companhia de Saneamento de Minas Gerais [Minas Gerais Sanitation Company] (COPASA), a state-owned company. In the município, 98% of residents have running water and approximately 95.5% have wastewater collection service. This level of sanitation service coverage is high compared with the average for Brazil (69%). The 107,000 residents currently not receiving sewerage service generally live in areas at risk for flooding, where it is difficult to implement conventional works. COPASA has the capacity to treat 100% of wastewater. Currently, only 69% of collected wastewater goes to plants for treatment, owing to the lack of riverbank interceptors, which are being built with resources from DRENURBS⁷ and the Growth Acceleration Program. Once these works are completed (2016), 99% of collected wastewater would be treated. COPASA uses integrated planning for the MBH wastewater collection and treatment system. The system is divided into two watersheds—Onça and Arrudas—each with a wastewater treatment plant (WWTP); these plants (Onça and Arrudas WWTPs) operate as secondary treatment facilities and have the capacity for all the wastewater.⁸
- 1.5 **Municipal sanitation policy.** Belo Horizonte’s Municipal Sanitation Policy, instituted by Law 8,260 of December 2001, seeks to ensure the protection of human and urban environmental health by organizing municipal planning and implementation of sanitation measures, works, and services. Its guidelines are consistent with Brazil’s National Sanitation Policy, which was introduced later, in 2007. Under Law 8,260/2001, sanitation is considered to be the set of actions relating to water supply, sanitary sewerage, urban drainage, solid waste management, and vector control services. Belo Horizonte’s sanitation policy is implemented via the Municipal Sanitation System, whose main institutional actors are COMUSA and the Secretaria Municipal de Obras e Infraestrutura [Municipal Works and Infrastructure Department] (SMOBI). The key policy instruments are

⁶ Diagnostic assessment of the Urban Drainage Master Plan (2000) ([see optional link 1](#)).

⁷ In 2003, the MBH developed the program known as DRENURBS—“Program for the environmental restoration and sanitation of the valley floors and natural-bed streams of Belo Horizonte”—which emphasized conserving the waterways that still flowed in their natural beds. The program identified some 200 kilometers of natural-bed waterways in the 47 existing subwatersheds.

⁸ COPASA, 2011.

the Municipal Sanitation Plan, the Municipal Sanitation Fund, the Municipal Sanitation Conference, and the agreement between the MBH and COPASA.

- 1.6 **Municipal Sanitation Plan.** The Municipal Sanitation Plan was instituted with the passage of Law 8,260 of 3 December 2001. Developed and updated every two years by the MBH, it is the Municipal Sanitation Policy instrument. The plan uses a multicriteria methodology to set priorities among the 98 watersheds and 256 subwatersheds in the município based on environmental sanitation indicators and indexes. Based on this plan, the public administration maps out and identifies priority sanitation investments in Belo Horizonte.
- 1.7 **Urban Drainage Master Plan.** Approved under Law 7,165 of 27 August 1996, the Urban Drainage Master Plan is the primary policy tool for urban drainage. The plan's main features are that it integrates such diverse disciplines as urban growth planning, land use planning, water pollution management, solid waste collection, and physical and geotechnical soil property analysis. It involves hydrological and water quality monitoring and drainage system management using specific hydrodynamic models that allow for prioritization of structural and nonstructural interventions.
- 1.8 **Conceptual overview.** DRENURBS, incorporated into the Belo Horizonte Environmental Restoration Program through Municipal Decree 13,916/2010, addressed the need to act along two complementary lines:⁹ (i) increasing the coverage of the sanitary sewerage system;¹⁰ and (ii) improving urban drainage.¹¹ The program is based on the integration of waterways into the city's landscape and on urban structure, factoring in the following principles: (i) an integrated approach to sanitation and environmental problems in watersheds; (ii) reduction of soil impermeability through riparian reforestation and the implementation of linear parks; (iii) conservation of downstream flows; and (iv) inclusion of affected communities and beneficiaries in the decision-making process. This strategy of integrating drainage with sanitation, urban renewal, and solid waste management seeks to maximize the social and environmental return on investments.
- 1.9 **Components and costs.** Based on these principles, the proposed program has three components: (i) flood risk reduction; (ii) improvement of waterway quality; and (iii) improvement of the urban drainage and environmental management system. Table I.1 shows the original cost estimates for the program.

⁹ Empirical evidence of the effectiveness of these measures can be found in: COBRAPE, 2010, Implantação e Monitoramento do PDR–DRENURBS [Implementation and Monitoring of PDR–DRENURBS, http://www.cobrape.com.br/det_portafolio.php?id=283, Leme Engenharia, 2008, Avaliação do Projeto Belém-Pará [Evaluation of the Belém-Pará project].

¹⁰ Riverbank rehabilitation, one type of intervention under DRENURBS, makes it possible to implement works at a number of points where wastewater is discharged into channelized and unchannelized streams.

¹¹ A look at the records kept by the Belo Horizonte Coordenadoria Municipal de Defesa Civil [Municipal Civil Defense Coordination Office] shows how serious the effects of flooding are: Since 1999, there have been 709 instances of damage caused by rains, including 112 flooded homes, and 102 landslides.

- 1.10 **Main expected outcomes of DRENURBS:** (i) improved scores on the Environmental Health Index¹² (ISA) for program watersheds; and (ii) reduction of flood zones in the areas of intervention.

Table I.1 - Cost and Financing (US\$ thousands)

Categories	IDB	Local	Total	
I Engineering and administration	5,420	4,350	9,770	12.6%
II Direct costs	40,730	10,550	51,280	66.2%
2.1 Flood risk reduction	39,185	6,130	45,315	
2.2 Improvement of waterway quality	-	3,180	3,180	
2.3 Urban drainage/environmental management	1,545	1,240	2,785	
III Associated costs	350	12,150	12,500	16.1%
IV Finance charges	-	3,950	3,950	5.1%
Total	46,500	31,000	77,500	100%
Percentages	60%	40%	100%	

C. Progress on the Belo Horizonte Environmental Restoration Program

- 1.11 Loan 1563/OC-BR, approved on 30 June 2004 and signed in July 2004, was declared eligible for disbursements on 18 January 2005. After a 29-month extension, the date of the last disbursement became 4 December 2011. Implementation has been satisfactory¹³ and achievement of program objectives is likely ([link 7](#)). The targets¹⁴ for DRENURBS-Stage 1 were adjusted after the startup missions in November 2005 and the April 2007 midterm evaluation, resulting in an extension of the execution period to December 2011 and, based on the criteria set out in the Municipal Sanitation Plan for 2004 to 2007 ([link 10](#)), a reduction in the number of targeted watersheds from eight to five (removing the Terra Vermelha, Av. Maria Carmen Valadares, and Piteiras watersheds). By the end of 2011, work was complete on the Primeiro de Maio, Baleares, Nossa Senhora da Piedade, and Engenho Nogueira watersheds. Of the planned projects for the Bonsucesso watershed, the following were completed: construction of three housing complexes for the resettlement of families living in areas at risk for flooding,¹⁵ compensation and/or expropriation of land from 298 families (with 27% of expropriation payments

¹² The Índice de Salubridade Ambiental [Environmental Health Index] (ISA), developed by the MBH, combines indicators of water supply, sanitary sewerage, solid waste, urban drainage, and vector control services received by residents; the Urban Watershed ISA is published periodically by the MBH: <http://gestaocompartilhada.pbh.gov.br/bh-em-numeros>.

¹³ According to the most recent progress monitoring report, the implementation progress score was 0.82.

¹⁴ DRENURBS assigned priority to approximately 35 kilometers of waterways located in eight subwatersheds. These subwatersheds have a combined catchment area of 23.5 km² (7.0 % of urban Belo Horizonte) and an estimated 86,160 direct beneficiaries.

¹⁵ 782 families have been relocated to date. Under the supplemental program, another 402 families will be affected; the applicable solutions are already included in the Voluntary Resettlement Plan.

still pending), half of the sewerage networks (65% of interceptors, 40% of wastewater collector networks, and 30% of wastewater connections), the flood control dam, and urban drainage management actions (20% of flood control reservoirs) ([link 3](#)).

D. Need for additional loan resources

- 1.12 The total cost of meeting the targets and objectives of DRENURBS–Stage 1 is estimated at US\$187.5 million, versus the initial estimate of US\$77.5 million. The borrower is assuming a significant portion (50%) of the cost overruns, bringing its share from the 40% originally planned to 46% of the total cost. The initial program was for US\$77.5 million (US\$46.5 million in IDB financing and US\$31 million in local counterpart funds from the MBH), and together the total is US\$187.5 million (US\$101.5 million in IDB financing and US\$86 million in local counterpart funds from the MBH).
- 1.13 An analysis of the DRENURBS–Stage 1 cost increases shows that they were due mainly to factors external to the program:¹⁶ (i) the program was designed with an exchange rate of 3.00 Brazilian reais to one U.S. dollar (2004), but the rate dropped to 1.79 reais to the dollar in July 2010, the year that the largest share of investments were made (38%); by mid-2011 the rate stood at 1.64 to one. The weighted exchange rate based on actual program expenses is, to date, 1.89 reais to the dollar, which translates into a 58.2% loss of investment capacity in reais—the evolution of the exchange rate explains a US\$45 million cost increase; (ii) inflation also had a major impact, cutting purchasing power by 47.68% from July 2004 to December 2011;¹⁷ and (iii) as the construction sector heated up, building costs rose even more quickly, especially cement and steel prices: the National Construction Cost Index (INCC) for Belo Horizonte, which is used for infrastructure works (representing 66.2% of the program's cost), rose by more than 65.74%¹⁸ over the same period, 18% more than inflation—the construction cost increase accounts for a US\$51 million cost increase. Additional endogenous cost overrun factors related to design changes resulting from adjustments to the scope and technical solution of the basic plans originally analyzed and to resettlement cost adjustments during execution were reviewed in detail, contract by contract, along with the supporting documentation generated during execution—those adjustments account for a US\$14 million overrun ([link 5](#)).

¹⁶ Effects similar in nature and magnitude were seen by the Social and Environmental Program for the Igarapés in Manaus (PROSAMIM) (loan 1692/OC-BR), also in Brazil, as well as by the PSU IV program (loan 1819/OC-UR) and the Integrated Sanitation Program for Ciudad de la Costa (loan 2095/OC-UR) in Uruguay, which have received supplemental financing.

¹⁷ Brazil's consumer price index (INPC) stood at 2,398.02 in July 2004 and 3,438.19 in December 2011: <http://www.ibge.gov.br>.

¹⁸ In July 2004, the INCC for Minas Gerais was 250.44. It was 409.8 in December 2010 and 415.10 in 2011: <http://www.ibge.gov.br/home/estatistica/indicadores/precos/sinapi/defaultindice.shtm>; the value of land in Belo Horizonte rose 103.66% from July 2004 to December 2011.

Table I.2 Factors in the Cost Increase

Item	Amount (US\$ millions)
Exchange rate change US\$/reais	45
Construction cost index (INCC ¹⁹)	51
Cost overruns	14
Total	110

- 1.14 The proposed supplemental financing will enable the program to be implemented as originally envisaged and its objectives to be met, facilitating the execution of specific priority projects and activities identified in the 2010 Municipal Sanitation Plan that require additional resources. The projects and activities to be targeted by the supplemental financing are a set of works and actions in the Bonsucesso watershed that are in the bidding phase. Continuing to implement the program as a single operation will make it possible to finalize actions already begun, address key implementation priorities identified by the community, and minimize transaction costs, while continuing to pursue the strategic approach agreed with the MBH so as to ensure net positive environmental and social impacts on the population. The supplemental financing will be spent to conclude the works in the Bonsucesso watershed, where more than 42,000 people are exposed to unhealthy conditions and hazards by living in unstable, flood-prone areas. The proposed investment will not only significantly lower flood risk, but will make it possible to increase sewage treatment in the Arrudas WWTP by 280 liters/second, bringing one of the largest unserved watersheds into the system. As a result of the DRENURBS-Stage 1 interventions in the Bonsucesso watershed, it dropped from 9th to 14th on the list of 98 watersheds identified in the Belo Horizonte Municipal Sanitation Plan as posing high health risks. Once interventions are complete, the watershed will be fully cleaned up and will no longer be high-risk. In other words, if the Bonsucesso watershed works move forward, this watershed will be removed from the “high-risk” list.
- 1.15 The request for supplemental financing meets all the conditions set forth in Bank document GN-2329, “Additional Financing of Cost Overruns for Operations in Progress” (Operational Policy OP-310), because: (i) the request was made within the effective disbursement period;²⁰ (ii) program implementation is satisfactory; (iii) the higher-than-estimated costs are the result of exceptional circumstances beyond the control of the borrower; (iv) a reduction in the agreed targets would jeopardize the program objectives; (v) the requested financing will make it possible to meet the program’s objectives without undermining its economic, financial,

¹⁹ Applicable to infrastructure works, over the consumer price index because of the construction market’s high burden.

²⁰ The MBH filed the letter of request with the International Affairs Department (SEAIN) under Brazil’s Ministry of Planning in November 2010, and SEAIN’s External Financing Commission (COFIEX) approved its request on 17 June 2011.

institutional, or environmental feasibility; (vi) the borrower does not have sufficient resources of its own to finance all the work and finds it necessary to request additional resources;²¹ (vii) the borrower is in a position to contribute the additional counterpart funds to increase the original percentages approved in the program's financing matrix;²² and (viii) Brazil is current on its payments to the Bank.

- 1.16 **Lessons learned:** (i) Cost escalation: Although the magnitude of the increase in construction costs, compounded by the strong appreciation of the Brazilian real, went beyond predictable patterns, greater resources should have been included in the program's cost escalation calculations; (ii) Studies: Only basic studies had been done for the projects, while the execution studies later revealed higher-than-expected amounts; the type of intervention (valley floor projects) calls for having more definitive studies prior to approval of financing; and (iii) Execution: The executing agency's lack of experience with the Bank's policies and procedures significantly delayed the start of activities, although the MBH's internalization of the program and its execution proved a key factor in its success. Based on the lessons learned, the following mitigation measures are included: (i) Cost escalation: The MBH performed an analysis of macroeconomic factors for the cost escalation calculations; (ii) Studies: MBH produced the projects based on final, detailed studies; and (iii) Execution: The PEU has a skilled team that has experience with Bank policies and procedures.
- 1.17 **Consistency with the country strategy.** The supplemental financing is consistent with the Bank's 2012-2014 country strategy with Brazil (document GN-2662-1), as it will help achieve the strategic objective of improving the condition of the country's infrastructure in the priority sector of water and sanitation, by enhancing coverage and access to sanitation services and stormwater drainage. The program will serve to improve health, social integration (of resettled populations), and the environment (restoration of degraded areas). It is consistent with the priority area of supporting infrastructure for competitiveness and social welfare, and will contribute to reaching the lending targets of the Ninth General Increase in the Resources of the Bank (document AB-2764) for "poverty reduction and equity enhancement" and "to support climate change initiatives, sustainable energy (including renewable energy), and environmental sustainability." The operation will help meet regional targets²³ and calls for climate change adaptation measures.²⁴
- 1.18 **Consistency with Bank policies.** This program and the MBH's urban sanitation objectives for Belo Horizonte are consistent with the objectives and conditions of the Public Utilities Policy (Operational Policy OP-708) and with the operational

²¹ The MBH is absorbing a major share of the cost increase by increasing its contribution in the *pari passu* arrangement.

²² COFIEX approved the DRENURBS supplemental operation with a 50%-50% *pari passu* requirement.

²³ Targets 2.2.1, 2.2.4, and 2.5.3 and outputs 3.1.5, 3.2.2, and 3.2.5 in Tables 2 and 3 of Annex I of document AB-2764.

²⁴ Withdrawal of residents from at-risk areas.

guidelines for applying the policy ([link 11](#)). The policy-making, regulatory, and service delivery functions are separate. COPASA's operating revenues cover its operation and maintenance costs and its capital costs (paragraph 3.24). COPASA offers a reduced rate and has a program to provide access to service to low-income residents ([link 14](#)).

II. SUPPLEMENTAL FINANCING FOR DRENURBS-STAGE 1

A. Objectives

- 2.1 The objective of the financing is to provide additional resources for the Belo Horizonte Environmental Restoration Program (DRENURBS) - Stage 1 (loan 1563/OC-BR), for the purpose of ensuring that the program's objectives are met. The general objective of the program is to help improve the quality of life of the MBH population, with interventions in the Bonsucesso watershed. Its specific objectives are to: (i) reduce flood risk; (ii) restore the quality of waterways; and (iii) ensure the sustainability of environmental improvements.

B. Components

- 2.2 The investments to be made with this supplemental loan will complete the Bonsucesso watershed projects that could not be implemented with the amount of the original loan ([link 2](#)): (i) installation of micro and macro drainage for approximately 5.7 kilometers of waterways; (ii) installation of approximately 11.2 km of sewerage system and 8.7 km of interceptors for approximately 1,644 new service lines that will route wastewater to the Arrudas WWTP; (iii) execution of approximately 2.16 km of road system; (iv) promotion of urban revitalization and creation of social use areas (approximately 5.5 hectares); and (v) resettlement of 349 families living in flood-prone zones.

C. Financing

- 2.3 This proposal is seeking US\$55 million in supplemental financing from the Bank (50%), with a local counterpart contribution of US\$55 million (50%), for a total of US\$110 million. The "direct costs" heading includes 15% for contingencies and cost escalation (see the breakdown of costs by source in Table II.1).

Table II. 1 – Cost and Financing (US\$000)

Investment categories		DRENURBS – Stage 1			Supplemental			Total		
		IDB	Local	Total	IDB	Local	Total	IDB	Local	Total
I	Engineering and administration	5,420	4,350	9,770	7,864	394	8,258	13,284	4,744	18,028
II	Direct costs	40,730	10,550	51,280	29,608	51,116	80,724	70,338	61,666	132,004
2.1	Flood risk reduction	39,185	6,130	45,315	26,976	47,802	74,778	66,161	53,932	120,093
2.2	Improvement of waterway quality	-	3,180	3,180	1,236	2,920	4,156	1,236	6,080	7,336
2.3	Urban drainage and environmental management	1,545	1,240	2,785	1,396	394	1,790	2,941	1,634	4,575
III	Associated costs	350	12,150	12,500	17,528	0	17,528	17,878	12,150	30,028
3.1	Land and compensation	-	11,720	11,720	17,000	0	17,000	17,000	11,720	28,720
3.2	Monitoring and evaluation	200	400	600	275	0	275	475	400	875
3.3	Audits	150	30	180	253	0	253	403	30	433
IV	Finance charges	-	3,950	3,950	-	3,490	3,490	-	7,440	7,440
Total		46,500	31,000	77,500	55,000	55,000	110,000	101,500	86,000	187,500
Percentages		60%	40%	100%	50%	50%	100%	54%	46%	100%

III. PROGRAM IMPLEMENTATION

A. Borrower and executing agency

- 3.1 As with loan 1563/OC-BR, the borrower will be the Município of Belo Horizonte (MBH), which will also act as executing agency through its Municipal Works and Infrastructure Department (SMOBI). The guarantor of the borrower's financial obligations will be the Federative Republic of Brazil.

B. Execution mechanism

- 3.2 SMOBI will implement the program through a program executing unit (PEU), which will be created via a legislative act. The PEU will integrate the SMOBI structure and will coordinate program implementation and administration of the loan proceeds, in addition to serving as interlocutor between the Bank and the MBH and other participating entities. Accordingly, the PEU will be responsible for coordination, execution, evaluation and monitoring, meeting deadlines, and reaching the targets set for the program, as well as for bidding and contracting processes for works, goods, and consulting services. The PEU team will consist of full-time staff from the engineering, social/environmental, and financial areas. In addition, the PEU will hire a social/environmental consultant to assist with program execution. The PEU will use a firm for administrative/financial and accounting management. Works construction will be supervised by the PEU, with the support of a works supervision firm.

3.3 Roles and procedures for the management and implementation of the supplemental program will be outlined in the Program Operating Manual ([link 13](#)). The PEU will submit the Program Operating Manual to the Bank for its no objection, ensuring that the planned actions are based on technical, economic, and social/environmental viability criteria accepted by the Bank for this type of investment. **As contractual conditions precedent to the first disbursement: (i) the PEU will be created through a legislative act; (ii) its staff will be appointed through a legislative act and the social/environmental consultant will be hired; (iii) the Program Operating Manual will be approved by the Bank and enter into force; and (iv) the works management firm will be hired.** A special contractual condition will be the hiring of the works supervision firm prior to the start of the works.

3.4 COPASA will maintain the program works, consistent with its jurisdiction under the law. As a special execution condition, the legal instrument between the MBH and COPASA will be signed and enter into force within six months of the date of signature of the loan contract, with the Bank's no objection.

C. Disbursements, retroactive financing, and recognition of expenditures

**Table III.1 – Disbursement schedule
(US\$ millions)**

	IDB	Local	Total
Year 1	21.4	4.3	25.7
Year 2	9.7	13	22.7
Year 3	13.1	18.4	31.5
Year 4	8.7	14.1	22.8
Year 5	2.1	5.2	7.3
Total	55.0	55.0	110.0

3.5 **Disbursements.** Given the original program's execution period, an execution period of five years from the effective date of the loan contract is envisaged for this supplemental loan, reflecting the time needed to complete the works for the Bonsucesso watershed. The proposed deadline for the physical start of the works will be 24 months from signature of the loan contract. The disbursement schedule is given in Table III.1.

3.6 **Retroactive financing.** The borrower has requested a waiver to Operational Policy OP-507 on recognition of expenditures, retroactive financing, and advance procurement (document GN-2259-1), so that up to US\$18 million in expenditures made by the borrower prior to approval of the project profile (22 May 2012) and after 1 January 2011 can be recognized retroactively against the financing ([link 9](#)). The requested retroactive financing amount (US\$18 million) corresponds to 33% of the loan amount. All of the expenditures that will be recognized for retroactive financing correspond to contractual processes undertaken in the framework of the original program, in keeping with the Bank's procurement policies.

3.7 The request is justified in view of the MBH's laudable efforts to continue implementation of DRENURBS-Stage 1, particularly with regard to the commitments made in the Bonsucesso watershed,²⁵ regarding: (i) the beneficiaries;

²⁵ This watershed was prioritized based on the criteria set in the initial program, which was conceived as a global multiple works program; however, the interventions in this watershed required additional studies and therefore could not begin alongside the initial program works.

- (ii) health hazards and flood risk to which the beneficiaries would be exposed; (iii) potential loss of all the infrastructure already built in the event of flooding; (iv) risk of reoccupation of cleaned up areas; (v) risk to areas downstream from the watershed of a collapse of unfinished infrastructure; and (vi) environmental risk posed by discontinuing actions, considering that the Bonsucesso watershed contains green areas of environmental importance.
- 3.8 This effort to maintain the program's commitments are coupled with timely planning by the MBH, which submitted the request for supplemental financing to the Planning Ministry's International Affairs Department (SEAIN) in November 2010. The request was approved on 17 June 2011, and was only green-lighted by that department to enter Bank programming in mid-2012. It is important to note that a significant portion of the counterpart contribution corresponds to works financed by the federal government's Growth Acceleration Program, and that the MBH is executing a significant number of development programs and other actions related to commitments²⁶ for the 2014 World Cup, which justifies the exception to Operational Policy OP-504 for the request for retroactive financing.
- 3.9 **Recognition of expenditures.** The Bank can recognize out of the local contribution eligible expenditures made by the borrower prior to the loan approval date, for up to US\$15 million (27.2%) of the estimated amount of the local contribution, provided that requirements substantially similar to those established in the loan contract have been met. Those expenditures must have been made on or after 22 May 2012, but in no case will expenditures made more than 18 months prior to the loan approval date be included.

D. Fiduciary risks

- 3.10 Fiduciary management of the executing agency was evaluated based on the Institutional Capacity Assessment System ([ICAS](#)) (link 6) and on a risk workshop held with key personnel to be involved in program implementation and administration. As a result of the risk analysis exercises performed during the design phase, overall fiduciary risk was found to be low (see Annex III). The procurement risks identified are related to higher-than-anticipated costs resulting from price adjustments and delays in bidding processes, which adversely affect the execution timetable and can lead to cost increases. The risk of such increases is medium, since the designs are ready for all the works to be put out for bid, and the budgets for the final designs include estimated amounts for contingencies and cost escalation.²⁷ The mitigation measure is to perform a detailed cost analysis prior to each bidding process, and where increases are higher than current costs plus

²⁶ It is possible these may not materialize by the agreed dates and/or that bridge loans on market conditions would be required, with high costs and short terms inconsistent with development projects of this nature.

²⁷ The INCC, which primarily drove costs to continue to rise (7.48% in 2011), would now apply only to the portion still to be contracted – not to the retroactive financing portion. At the same time, the exchange rate is 2 reais to the dollar, while the supplemental financing was structured with an exchange rate of 1.70 reais to the dollar, substantially limiting the risk of additional cost overruns.

estimated contingencies, they will be financed with local counterpart resources. The risk of delays in the bidding processes is low, given the executing agency's experience with the Bank's policies and the fact that the final plans and designs are ready. The mitigation measure consists of optimizing the bidding processes through ongoing, strict monitoring of the deadlines involved (see Annex III).

E. Procurement

- 3.11 Goods, works, and consulting services will be procured in keeping with the Policies for the Procurement of Goods and Works Financed by the IDB (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants Financed by the IDB (document GN-2350-9) and with the agreed procurement plan. The thresholds to be applied for international competitive bidding and shortlists of consultants will be those currently in effect for Brazil (see Annex III).

F. Accounting/financial management, audits, and evaluation

- 3.12 The executing agency, through the PEU, will handle program accounting and financial management, as it did for loan 1563/OC-BR. Consolidated financial statements will be submitted at the close of each year.
- 3.13 **Evaluation and monitoring.** Monitoring and evaluation will be based on the following Bank supervision tools: Implementation Plan, annual work plan, procurement plan, results matrix, results monitoring plan, and risk management plan (see Annex II). In addition, the executing agency will submit a midterm evaluation, prepared by an independent consultant, 18 months after the date of the first disbursement. This evaluation will serve as an input for preparing the program's Loan Results Report. The executing agency will also submit a final evaluation, prepared by an independent consultant, within 90 days from the date by which 90% of the financing proceeds have been disbursed. The final evaluation will cover, *inter alia*: (i) results of financial execution; (ii) fulfillment of the established targets; (iii) an ex post economic evaluation; and (iv) compliance with contractual commitments.

G. Feasibility

- 3.14 **Technical feasibility.** In addition to restoring waterways and reestablishing their flows in the Bonsucesso watershed, with the associated benefits of flood control, completion of this program will further the integration of the various infrastructure systems, particularly sanitation, drainage, solid waste collection, and road system expansion. The drainage works will help with erosion and flood control, thereby reducing the damage and trauma caused by flooding—mainly for the people living in at-risk areas ([link 2](#)).
- 3.15 **Socioeconomic feasibility.** A socioeconomic feasibility update study was conducted for the works financed under the Belo Horizonte Environmental Restoration Program (loan 1563/OC-BR). The following components were evaluated: (i) sanitary sewerage systems; (ii) stormwater drainage; (iii) road system; and (iv) restoration of social use areas. The baseline date for the benefits and costs is

April 2012. The study followed the same methodology as the original study. The economic value of the benefits of sanitary sewerage, drainage, and road systems for all the watersheds except Bonsucesso, and of area restoration were calculated using the “willingness to pay” values from the original study, updated to July 2012 using monetary corrections of average family income and the national consumer price index (INPC). For the Bonsucesso watershed road project, for which no socioeconomic appraisal had been performed during preparation of the original operation, a road model was used (travel cost savings). The costs used for the appraisal were current investment and operation and maintenance costs, valued at efficiency prices.

- 3.16 A cost-benefit analysis was performed for each component in each watershed where it was technically feasible to separate out the benefits generated by each works project implemented, in addition to an overall analysis for all interventions in each watershed. The results show that the sanitary sewerage, restoration and protection of social use areas, and road system projects appraised with the additional costs remain economically viable, with economic internal rates of return of more than 12% per annum and cost-benefit coefficients higher than 1. The stormwater drainage and flood control projects are viable for the Baleares, Primeiro de Maio, and Engenho Nogueira watersheds, while the analysis for the Bonsucesso and Nossa Senhora da Piedade watersheds found internal rates of return (IRRs) of less than 12% per annum. The interdependence between different components and interventions should be taken into account when appraising valley floor projects. Accordingly, the socioeconomic viability study used the watershed as the unit of analysis. In the overall appraisals for each watershed, the interventions taken as a whole proved economically viable, with IRRs of more than 12% per annum and cost-benefit coefficients above 1. See “Economic analysis” ([link 1](#)).
- 3.17 **Risk analysis.** A risk analysis was performed for the interventions, by watershed. The sensitivity of the following variables was tested: (i) investment costs, separately, for the sanitary sewerage, drainage, roads, and social use area components; (ii) aggregate operating and maintenance costs for all components; (iii) willingness-to-pay values, individually, for sanitary sewerage (separating collectors and networks), stormwater drainage, road system (for all watersheds except Bonsucesso), and social use area components; (iv) benefits of the road system in terms of reducing transportation costs, for the Bonsucesso watershed only; and (v) benefits of resettlement. The likelihood of nonviability of the interventions was found to be low (less than 10%) for all watersheds except Bonsucesso. For the Bonsucesso watershed, the likelihood of nonviability is 30%, making it necessary to verify that the cost of additional works will not exceed the cost that would make the project unviable in that watershed.
- 3.18 **Ability to pay.** The ability to pay of sanitary sewerage system beneficiaries was calculated for the Bonsucesso watershed only, as it is the only one where sewerage networks will be installed. In the other watersheds, system work will consist of minor enhancements to existing systems. Ability to pay was not calculated for the

drainage and road works. It was verified that the monthly account charge for service was below 5% of average family income. Based on IBGE data, the average monthly income of families living in the watershed was estimated at 2,524.27 reais (R\$) per month for 2012.²⁸ Based on COPASA's earnings report, the average monthly account charge for service was found to be R\$44.64 per household in 2011, or 1.76% of average family income. For low-income families, COPASA²⁹ applies a reduced rate, averaging R\$13.20 per household per month as of July 2012. Taking R\$435.40 as average monthly income for low-income households, the average monthly account charge would be 3.25% of family income.

- 3.19 **Social equity and poverty reduction.** This operation qualifies as a social equity enhancing project (SEQ) and a poverty-targeted investment (PTI), as described in the report on the Ninth General Increase in the Resources of the Bank (document AB-2764), based on sector and geographic criteria. The percentage of low-income beneficiaries is 34% in the Bonsucesso watershed (26% in the original program's area of influence), while the percentage of low-income residents in the município of Belo Horizonte is 30.5%.
- 3.20 **Environmental and social viability.** Program execution will have a net positive environmental and social impact, inasmuch as it will help to solve the city's drainage, sanitation, and urban development problems, and to relocate families whose dwellings are in areas prone to flooding and sanitation hazards. Nevertheless, owing to their nature, the program works may produce short-term adverse local impacts of low to medium intensity during construction (e.g. noise or traffic disruption), which will be mitigated by well-established measures. Additionally, implementation of the supplemental program will result in the need to resettle some 402 families. Resettlement processes, even in cases where living conditions are improved, pose risks that will be mitigated and monitored based on the Expropriation, Compensation, and Resettlement Plan (PDR) for affected families and businesses, which was informed by the municipal housing policy guidelines and by the Involuntary Resettlement Policy (Operational Policy OP-710). With regard to the Women in Development Policy (Operational Policy OP-761/document GN-2531-10), the program has called for placing property documentation for resettled families in the woman's name, from Stage 1.³⁰ Employment and income-generating activities, while primarily aimed at young people,³¹ will also seek to ensure that young women are able to enter the market for training for upcoming international events, particularly in the food and hotel industries.
- 3.21 Pursuant to the guidelines of the Environment and Safeguards Compliance Policy (Operational Policy OP-703), the proposed supplemental financing operation has

²⁸ Average income for Bonsucesso: R\$811.66/person. Family size: 3.11 persons.

²⁹ Meeting held on 9 August 2012 in Belo Horizonte.

³⁰ As female heads of household, or with their spouses, respecting the new Brazilian Civil Code, Law 10,406/2012.

³¹ Who are statistically less skilled and less employable.

been classified as a category “B” operation ([link 3](#)). During the preparation phase, an environmental assessment of the supplemental operation and of the environmental and social management of DRENURBS-Stage 1 was carried out, as summarized in the Environmental and Social Management Report ([link 3](#)). This report also describes the Environmental and Social Management Plan (ESMP) and the Expropriation, Compensation, and Resettlement Plan (PDR) for this operation. As a contractual execution condition, there must be full compliance with the ESMP, PDR, Program Operating Manual, and environmental control reports/plans. As an additional contractual execution condition, prior to commencement of the works, evidence must be submitted showing that the affected properties in the works areas were duly expropriated and the owners duly compensated, and that the affected families were covered by the applicable solutions provided for in the PDR.

- 3.22 **Institutional viability.** The institutional capacity assessment performed using the ICAS methodology ([link 6](#)) shows a satisfactory development level and low risk, which is consistent with the satisfactory performance currently shown by the PEU, based on its experience using and applying the Bank’s various tools throughout its implementation of loan 1563/OC-BR. The MBH has taken ownership of the program, including it in its strategic plans, as has the population of Belo Horizonte, which ensures that the authorities will continue to make it a priority ([link 4](#)).
- 3.23 **Financial viability.** A financial analysis of COPASA has shown that the agency will be able to carry the costs of operating and maintaining the sanitary sewerage infrastructure financed by the program. This financial analysis consisted of a historical analysis based on the agency’s financial statements as well as financial modeling that projected its estimated financial condition for the next five years ([link 14](#)). The historical financial data indicate that COPASA has been able to cover its operating and maintenance costs, fixed-asset depreciation, and finance charges with its own resources, deriving from its service charges.
- 3.24 **Financial guarantee.** The Federative Republic of Brazil’s conditions for guaranteeing the borrower’s financial obligations are compliance with the Fiscal Responsibility Law, adherence to the fiscal adjustment program, and a counter-guarantee from the MBH. An analysis of the MBH’s accounts, performed during program preparation, shows that the required conditions are being met and that it has the headroom to be able to offer the counter-guarantee.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	Aligned		
Lending Program	Lending to support: (i) Poverty reduction and equity enhancement, and (ii) Climate change initiatives, renewable energy and environmental sustainability.		
Regional Development Goals	(i) Incidence of waterborne diseases (per 100,000 inhabitants), and (ii) Annual reported economic damages from natural disasters.		
Bank Output Contribution (as defined in Results Framework of IDB-9)	(i) Households with new or upgraded sanitary connections; (ii) Number of households with new or upgraded dwellings, and (iii) Municipal or other sub-national governments supported.		
2. Country Strategy Development Objectives	Aligned		
Country Strategy Results Matrix	GN-2662-1	Improve the country's infrastructure conditions: Water and sanitation.	
Country Program Results Matrix	GN-2696	The project is included in the 2013 Country Program Document.	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	Highly Evaluable	Weight	Maximum Score
	9.1		10
3. Evidence-based Assessment & Solution	9.7	33.33%	10
4. Ex ante Economic Analysis	10.0	33.33%	10
5. Monitoring and Evaluation	7.5	33.33%	10
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	Low		
Identified risks have been rated for magnitude and likelihood	Yes		
Mitigation measures have been identified for major risks	Yes		
Mitigation measures have indicators for tracking their implementation	Yes		
Environmental & social risk classification	B		
IV. IDB's Role - Additionality			
The project relies on the use of country systems (VPC/PDP criteria)	Yes	Financial management: Internal audit. Procurement: Information system, Shopping method, Advanced use of national public bidding (Electronic public bidding system).	
The project uses another country system different from the ones above for implementing the program			
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment	Yes	Improving waterway quality, reducing contamination, and strengthening the capacity of BMH to manage the collection and treatment of solid wastes.	
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

The objective of the proposed supplementary financing is to provide additional resources to the MBH to ensure compliance with the objectives of loan 1563/OC-BR (DRENURBS): i) reduce flooding risks; ii) support the recuperation of environmental quality of waterways, and iii) ensure the sustainability of the environmental improvements. The evaluation of the cost increases experienced by DRENURBS indicates that they originated primarily by factors external to the program, having to do mainly with exchange rate appreciation and inflation.

The project documents present a diagnosis of the current state of implementation and an adequate justification for the need of additional resources. The expected results are defined with respect to the supplementary financing. The vertical logic of the project is clear, and most indicators are SMART and have baselines and target values.

The project includes an updated cost-benefit analysis. The monitoring mechanisms have been identified and budgeted. The evaluation plan is based on an ex-post cost benefit analysis.

The risks identified in the risk matrix are reasonable and they include mitigation measures and related metric to track their implementation.

RESULTS MATRIX

Impact	To help improve the quality of life of residents of the município of Belo Horizonte through an integrated approach to waterway restoration.		
Purpose	(i) Reduce flood risk; (ii) Restore the quality of waterways; and (iii) Ensure the sustainability of environmental improvements.		
Impact indicators	Baseline (2011)	Target	Impact¹
Improved Environmental Health Index (ISA) ² for those living in the Bonsucesso watershed's catchment area	0.67	0.89	25% 1563/OC-BR and 75% BR-L1335
Outcome indicators (purpose)	Baseline (2011)	Target	Impact³
1. Pollutant load intercepted from the waterways in the Bonsucesso watershed (kilograms BOD/day)	1,850	2,480	25% 1563/OC-BR and 75% BR-L1335
2. Illegal disposal of solid waste in the Bonsucesso watershed (cubic meters/year)	136	67	
3. Area with flooding problems in the Bonsucesso watershed's catchment area (number of areas as defined in the technical annex)	4	0	

¹ Achievement associated with loan 1563/OC-BR, operation BR-L1335, or a combination of the two.

² Índice de Salubridade Ambiental [Environmental Health Index] (ISA) for the various urban watersheds in Belo Horizonte's 2008-2011 Municipal Sanitation Plan (pages 59-64): <http://portalpbh.pbh.gov.br/pbh/contents.do?evento=conteudo&idConteudo=44584&chPlc=44584>.

The ISA, created by the Município of Belo Horizonte (MBH), evaluates indices and indicators relating to the population's service coverage with regard to: water supply, sanitary sewerage, solid waste, urban drainage, and vector control.

$$ISA = [Iab] \times 0.05 + [Ies] \times 0.35 + [Irs] \times 0.25 + [Idr] \times 0.20 + [Icv] \times 0.15$$

Where:

Iab: Water supply index → Index already established in Belo Horizonte (Ref. 1.4 of the Proposal for Operation Development).

Ies: Sanitary sewerage index → Contribution from the outputs under component 2, particularly 2.1, and outcome 1.

Irs: Solid waste index → Indirect contribution from outputs 1.2 and 1.3 under component 1 (access to solid waste collection), and outcome 2.

Idr: Urban drainage index → Contribution from the outputs under component 1, particularly 1.1 and 1.2, 1.3 as regards sustainability, and outcome 3.

Icv: Vector control index → Contribution from the outputs under components 1, 2, and 3, particularly 1.1, 1.3, 2.1, and 3.2.

Output indicators by component	Baseline 2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target	Means of verification	Impact
Component 1: Flood risk reduction									
1.1 Construction of macro and micro drainage works									
Macrodrainage channels built (km)	2.05		3.95	0.47	1.28		7.75	Semiannual progress reports on program execution.	25% 1563/OC-BR and 75% BR-L1335
Microdrainage channels built (km)	1.56			2.82	0.88		5.26		25% 1563/OC-BR and 75% BR-L1335
1.2 Linear parks and social use areas along waterways									
Linear parks established (ha)	0.20		4.88	0.32			5.40	Semiannual progress reports on program execution.	25% 1563/OC-BR and 75% BR-L1335
Social use areas created (ha)	0.67			0.31	0.02		1.00		25% 1563/OC-BR and 75% BR-L1335
1.3 Construction of roads along waterways									
Bank-side roads built (km)	2.25			1.43	0.73		4.41	Semiannual progress reports on program execution. Lead: PEU	25% 1563/OC-BR and 75% BR-L1335
1.4 Relocation of families									
Number of families relocated in the Bonsucesso watershed following PDR ⁴ guidelines	728		200	202			1,130	Semiannual progress reports on program execution. Lead: PEU	25% 1563/OC-BR and 75% BR-L1335

⁴ Master plan for relocation.

Output indicators by component	Baseline 2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target	Means of verification	Impact
Component 2: Improvement of waterway quality									
2.1 Construction of sewerage system									
Sanitary sewerage networks built (km)	10.67			7.28	3.92		21.87	Semiannual progress reports on program execution. Lead: PEU	25% 1563/OC-BR and 75% BR-L1335
Sanitary sewerage interceptors built (km)	0			7.14	3.85		10.99	Semiannual progress reports on program execution.	25% 1563/OC-BR and 75% BR-L1335
New sanitary sewer service lines connected ⁵ (No.)	3,155				1,068	576	4,799	Semiannual progress reports on program execution. Lead: PEU	25% 1563/OC-BR and 75% BR-L1335
Component 3: Improved urban drainage and environmental management									
3.1 The community is informed and involved in monitoring execution of the works through community-based organizations and is committed to the sustainability of the interventions									
Committee of community representatives up and running.	0	1					1	Semiannual progress reports on program execution and minutes of meetings and visits Lead: PEU	100% BR-L1335
Project briefings held for community representatives	10	19	5				34		100% BR-L1335
Community organizations and reference groups brought on supervised visits to the work sites so they can monitor execution of the works	10	19	24				53		100% BR-L1335

⁵ “Connected” means that the service line reaches the home.

Output indicators by component	Baseline 2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target	Means of verification	Impact
3.2 Watershed residents are informed regarding sanitation and health issues and aware of the need to contribute to the preservation and maintenance of revitalized spaces.									
Door-to-door campaigns to raise awareness on environmental sanitation and provide information on projects	12		8	10			30	Semiannual progress reports on program execution and minutes of campaigns, meetings, and visits (DRENURBS monitoring system) Lead: PEU	100% BR-L1335
Educational courses and events held relating to sanitation and health	30		6	10			46		100% BR-L1335
Number of persons having received guidance on proper solid waste disposal (based on municipal ordinances)	1,000		1,000	1,000			3,000		100% BR-L1335
Number of Community Committee members having received training to serve as environmental agents	34		12	22			68		100% BR-L1335
Number of children (ages 6 to 12) and adolescents (ages 13 to 19) who have taken part in environmental appreciation activities	1,435		1,400	1,695			4,530		100% BR-L1335

Output indicators by component	Baseline 2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target	Means of verification	Impact
3.3 Actions for the social sustainability of resettled families in the Bonsucesso watershed									
Number of meetings and events held to strengthen the condominium associations set up at the three housing complexes built by the program (7 per complex = 21)	72		8	10	3		93	Semiannual progress reports on program execution and minutes of courses, campaigns, meetings, and visits (DRENURBS monitoring system) Lead: PEU	100% BR-L1335
Number of vocational training courses held for resettled persons	1		2	6	2		11		100% BR-L1335
Number of persons that took a course (previous indicator) and are part of production and income-generating groups	30		30	30			90		100% BR-L1335
3.4 Water quality monitoring for the Bonsucesso watershed									
Water quality monitoring campaigns carried out in the Bonsucesso watershed (125)	40		36	28	20	41	165	Semiannual progress reports on program execution and report of findings regarding water quality in the watershed Contracting of specialized firm with program resources. Lead: PEU.	100% BR-L1335

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country: Brazil

Project number: BR-L1335

Project name: Belo Horizonte Environmental Restoration Program (DRENURBS Program) Supplemental Financing to Stage I

Executing agency: Município of Belo Horizonte, through its Secretaria Municipal de Obras e Infraestrutura [Municipal Works and Infrastructure Department] (SMOBI)

Prepared by: Mónica Merlo and Carlos Lago (FMP/CBR)

I. EXECUTIVE SUMMARY

- 1.1 The fiduciary evaluation was based on the experience gained by the executing agency during implementation of DRENURBS (loan 1563/OC-BR) and the other entities involved in the program.
- 1.2 The country's financial management systems are adequate and reliable. A 2009 study found a number of weaknesses in terms of the quality and timeliness of the country's budgetary controls, and in the internal and external oversight system, which needs to be modernized to improve efficiency. In the case of country procurement systems, no country procurement modality is currently being used in loans from international lending organizations, because the modalities in question do not include all of the principles of international good practices and those set forth in the Bank's procurement policies and procedures.

II. THE EXECUTING AGENCY'S FIDUCIARY CONTEXT

- 2.1 The Municipal Works and Infrastructure Department (SMOBI) will implement the program through the program execution unit (PEU), which will be created by legislative act. The PEU will integrate the SMOBI structure and will coordinate program execution and administration of loan proceeds. It will also be accountable to the Bank for serving as interlocutor with the Município of Belo Horizonte and other participating entities. The PEU will be responsible for the coordination, execution, evaluation, monitoring, and fulfillment of agreed deadlines and targets for DRENURBS-Supplemental Financing.
- 2.2 The PEU will be responsible for coordination, execution, evaluation and monitoring, meeting deadlines, and reaching the targets set for the program, as well as for bidding and contracting processes for works, goods, and consulting services. The PEU team will consist of full-time staff from the engineering,

social/environmental, and financial areas. In addition, the PEU will hire a social/environmental consultant to assist with program execution. The PEU will use a firm for program administrative/financial and accounting management.

III. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS

- 3.1 The financial management evaluation performed using the Bank's Institutional Capacity Assessment System shows that the executing agency performs well, with a low level of risk; the evaluation of goods and services management also found low risk. The specific fiduciary risks and their mitigation measures are laid out in the matrix presented below.
- 3.2 The following should be considered:
 - a. Conditions precedent to the first disbursement: (i) creation of the PEU through a legislative act; (ii) appointment of PEU staff through a legislative act and hiring of social/environmental consultant; (iii) hiring of the program management firm; and (iv) Bank approval and entry into force of the Program Operating Manual.
 - b. Special execution conditions: Hiring of the works supervision firm.
 - c. Exchange rates for accounting purposes: "monetization" exchange rate for the recording of advances and presentation to the Bank (date of preparation) for the reimbursement of payments made and recognized against counterpart funding.
 - d. The bidding documents and results of bidding processes reflected in the procurement plan will be available on the website of the Município of Belo Horizonte (www.pbh.gov.br). The borrower will update the procurement plan at least every six months or as required by the Bank to reflect real program execution needs and the progress made. The procurement plan will also be available on the Bank's website (www.iadb.org) in the project procurement section.

IV. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

- 4.1 Fiduciary agreements and requirements in procurement specify provisions applicable to all procurement processes envisaged in the program.
 - 1. Procurement execution**
- 4.2 Procurements will be executed by the executing agency, through the PEU. Works, goods, and nonconsulting services will be procured following the Policies for the Procurement of Works and Goods Financed by the IDB (document GN-2349-9). Consultants will be selected and hired in accordance with the Policies for the Selection and Contracting of Consultants Financed by the IDB (document GN-2350-9).

- 4.3 **Procurement of works, goods, and nonconsulting services.** Contracts for works, goods, and nonconsulting services¹ generated under the program and subject to international competitive bidding will be executed using the Bank's standard bidding documents. Tendering subject to national competitive bidding will be conducted using national bidding documents agreed upon with the Bank (or documents satisfactory to the Bank if these have not yet been agreed upon). The program's sector specialist will review the corresponding technical specifications during preparation of procurement processes.
- 4.4 **Selection and contracting of consultants.** Consulting services for the program will be executed using the standard request for proposals issued by, or agreed upon, with the Bank (or satisfactory to the Bank if these have not yet been agreed upon), irrespective of the amount of the contract. The program's sector specialist will review the terms of reference for contracting consulting services.
- 4.5 **Selection of individual consultants.** Individual consultants will be selected on the basis of their qualifications for the work in question, comparing the qualifications of at least three candidates. When the situation so requires, announcements can be placed in the local or international press to obtain résumés from qualified consultants.

Table of Threshold Amounts

Works			Goods ²			Consulting	
International competitive bidding	National competitive bidding	Shopping	International competitive bidding	National competitive bidding	Shopping	International advertising of consulting services	100% national shortlist
> 25,000,000	< 25,000,000 and > 500,000	< 500,000	> 5,000,000	< 5,000,000 and > 100,000	< 100,000	> 200,000	< 1,000,000

- 4.6 Thresholds for prior review are set based on the type of procurement risk presented by the project. The thresholds to be considered for prior review are set out below.

Threshold for Prior Review³

Works	Goods ⁴	Consulting services
Processes costing over US\$5 million; the first process in each method irrespective of the amount; and all direct contracting.	Processes costing more than US\$500,000, if the electronic bidding method was not used for goods; and all direct contracting.	Processes costing more than US\$1 million; the first process in each selection method irrespective of the amount; and all direct contracting.

¹ The Bank's procurement policies treat nonconsulting services similarly to goods.

² Including nonconsulting services.

³ During project execution, the Bank may alter the prior review thresholds at its discretion, if it considers that the fiduciary context of the executing agency and/or country has changed. In this case, the Bank will notify the execution unit of the decision, and the latter will incorporate the new execution conditions in the procurement plan.

⁴ Including nonconsulting services.

- 4.7 **Recurrent expenditures.** These consist of the operating and maintenance expenses incurred by the PEU to run the program during its lifetime, including: utility and communication expenses, translations, office supplies, photocopies, mail, and other expenses necessary for proper management of the program. These expenses will be financed from the loan proceeds, out of the annual budget approved by the Bank, pursuant to PEU administrative procedures, which will be reviewed and accepted by the Bank provided they do not violate the fundamental principles of competition, efficiency, and economy.
- 4.8 Recurrent expenditures also include the costs of consultants hired to assist the PEU during the life of the loan. Operating costs do not, however, include civil servants' wages.
- 4.9 **Retroactive financing.** The borrower has requested a waiver to Operational Policy OP-504 on recognition of expenditures, retroactive financing, and advance procurement (document GN-2259-1), so that up to US\$18 million in expenditures made by the borrower prior to approval of the project profile (22 May 2012) and after 1 January 2011 can be recognized retroactively against the financing ([link 9](#)). The requested retroactive financing amount (US\$18 million) corresponds to 33% of the loan amount. All of the expenditures that will be recognized for retroactive financing correspond to contractual processes undertaken in the framework of the original program, in keeping with the Bank's procurement policies.
- 4.10 **Recognition of expenditures.** The Bank can recognize out of the local contribution eligible expenditures made by the borrower prior to the loan approval date, for up to US\$15 million (27.2%) of the estimated amount of the local contribution, provided that requirements substantially similar to those established in the loan contract have been met. Those expenditures must have been made on or after 22 May 2012, but in no case will expenditures made more than 18 months prior to the loan approval date be included.
- 4.11 **Domestic preference.** No margins for domestic preference will be applied.
- 2. Initial procurement plan**
- 4.12 The current proposal is attached. The agreed-upon version may be updated during program execution, depending on circumstances ([Procurement plan link](#)).
- 3. Procurement supervision**
- 4.13 The following contracts will be subject to ex ante review by the Bank: (i) each works contract with an estimated cost equal to or greater than US\$5 million; (ii) the first procurement process, regardless of the amount involved; (iii) each contract for the procurement of goods with an estimated cost equal to or greater than US\$500,000; (iv) each consulting contract with an estimated cost equal to or greater than US\$1 million; and (v) contracts awarded through direct contracting, as required by the Bank's procurement policies.
- 4.14 Bearing in mind the prior review threshold amounts, and considering the special characteristics of the program and the proven operational capacity of the executing

agency, an ex post review will be conducted, each year, covering at least one in every five signed contracts that are subject to ex post review.

4. Records and files

- 4.15 The files will be located in the offices of the PEU under appropriate security conditions.

V. FINANCIAL MANAGEMENT

A. Programming and budget

- 5.1 Program execution will be the responsibility of the Município of Belo Horizonte, through its Municipal Works and Infrastructure Department (SMOBI). This agency is governed by the Fiscal Responsibility Law - Complementary Law 101/00 of 4 May 2000, which covers budgetary planning (four-year multiyear plans), budgetary guidelines, annual plans, budget execution, fulfillment of targets, asset management, transparency, oversight, and inspection; and also by Law 4320/64 of 17 March 1964, the general regulations of the financial law for the preparation and control of the budgets and balance sheets of federal, state, and municipal entities.
- 5.2 The Multiyear Budget Act 2010-2013 (Law 9,801 of 30 December 2009) and the 2012 Budget Act (Law 10,369 of 30 December 2011) are currently in force. The Multiyear Budget Act 2014-2017 will be prepared in 2013.
- 5.3 The draft annual budget law for the subsequent fiscal period is formulated on the basis of proposals submitted by each agency to the Mayor (Prefeito), who subsequently forwards them to the Municipal Council (Vereadores) for approval. Lump-sum amounts are approved for each line of the work plan, and their distribution by type of expenditure is reported in the corresponding accounting.
- 5.4 The physical and budgetary targets included in the plan are monitored using the Sistema Orçamentário, Financeiro e Contábil [Budget, Finance, and Accounting System] (SOF) and the Sistema de Informação da Gestão Estratégica [Strategic Management Information System] (SIGEOR).
- 5.5 Appropriations to SMOBI, as a municipal budgetary unit, are included in the respective budget laws.

B. Accounting and information systems

- 5.6 The processes for budgeting, financial reserves for procurements, pledges, contracting, recognition of expenditures, authorization of payments, and accounting records will follow the normal MBH procedures, based on existing processes: the multiyear and annual budget laws and the SOF. Project records will be entered in the SOF. For program execution, SMOBI will make use of a management firm, which will provide a project management system (planning, control of contracts, financial oversight, etc.). That system, in its module for financial reporting, including disbursement requests, should be linked to the SOF and involve active participation by permanent staff of the PEU in its use and application. Reports will

be delivered to the PEU monthly, although records should be kept up-to-date on an ongoing basis so they can be produced whenever needed.

- 5.7 Program accounting by source of financing and account code, based on the nomenclature used in the program investment categories, will be done through the Sistema de Gerenciamento de Projetos [Project Management System] (SGP).

C. Disbursements and cash flow

- 5.8 For the approval and recognition of expenditures, subject to prior authorization in the budgetary framework of the respective pledge and commitment authorization, inspectors for each contract will operate under Law 8,666. The respective settlements will be implemented through bank payment orders, with electronic transfers to the registered accounts of contractors or suppliers, made by the PEU and generated through the SOF.
- 5.9 Loan disbursements will be entered into an account held by SMOBI in the program's name. The executing agency will, at the appropriate time, provide specific banking information and include the respective process and stakeholder flow charts in the Program Implementation Manual and the Rules and Procedures Manual (covering technical, administrative, financial-accounting, and internal control procedures).
- 5.10 Bank disbursements will be made mainly through advances, according to the estimated cash flows projected for the program for the following 120 days; they will be designed so that each disbursement can be fully used and accounted for within 180 days. Supporting documents, including advances for works, tax invoices, payment vouchers (bank transfers), etc., should be kept in the files of the executing agency (PEU).

D. Internal control and audits

- 5.11 The Office of the Comptroller General is the central internal oversight authority for the Município of Belo Horizonte. Its institutional mission is to coordinate and articulate periodic actions in the performance of the classic audit, corrective, and societal oversight functions.
- 5.12 The Office of the Comptroller General acts in concert with government departments and decentralized agencies, to continuously fine-tune internal controls and integrate them with societal oversight.
- 5.13 In its work, the Office of the Comptroller General of Belo Horizonte, established by Municipal Law 9,155 of 12 January 2006, adheres to constitutional mandates and the guidelines of the Fiscal Responsibility Law.
- 5.14 The purpose of the municipal Auditor-General is to supervise and perform internal audits, thereby fostering the evaluation of internal control mechanisms in municipal government departments and decentralized agencies. Accordingly, it seeks to fine-tune the performance and conformity of acts and procedures relating to public management and expenditure processing in particular, taking into account administrative, oversight, financial, budgetary, operational, and asset factors.

- 5.15 The Office of the Auditor, preferably, acts preventively, without prejudice to its ability to investigate irregularities, based on the fundamental constitutional principles of public administration promoting administrative transparency.

E. External control and reports

- 5.16 The project's financial statements will be audited by a firm of independent auditors acceptable to the Bank (degree of eligibility I). Audits will be contracted using the loan proceeds, pursuant to selection procedures and an audit scope acceptable to the Bank. The audit work will abide by international auditing standards. The reports to be audited will include basic financial statements (cash flow statements, use of resources), notes to the financial statements including reconciliation of liabilities with the IDB and fund advances, an opinion on the internal control system (COSO), compliance with contractual clauses of a financial accounting nature, management letter, and comfort letter. Audited financial statements as of 31 December of each year will be submitted to the Bank within 120 days following the end of each calendar year, starting in the year in which loan disbursements begin, and will also report on midterm visits (as of June) and review disbursement processes and procurements, as needed.

F. Financial supervision plan

- 5.17 The current IDB proposal is attached. The agreed-upon version may be updated during program execution, according to circumstances ([Financial supervision plan guide](#)).

G. Execution mechanism

- 5.18 The organizational mechanism for program execution (organizational scheme) will include the preparation and entry into force, as a condition precedent, of Operating Regulations covering financial accounting and internal controls, eligibility criteria for the multiple works component, and the prescribed roles and responsibilities of the agencies involved in the program: SMOBI and COPASA, with the corresponding process and stakeholder flow charts.

H. Other financial management requirements and agreements

- 5.19 To support program management, the executing agency will hire a management firm, which will provide a program management system. To the extent possible, this system should be installed as part of the PEU systems, and work with the financial reports issued by the SOF. It will be operated by permanent staff of the PEU, to provide necessary institution-strengthening.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-____/____

Brazil. Loan ____/OC-BR to the Município of Belo Horizonte
Belo Horizonte Environmental Restoration Program
DRENURBS Program - Supplementary Financing to Phase I

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Município of Belo Horizonte, as Borrower, and with the Federative Republic of Brazil, as Guarantor, for the purpose of granting the former a supplementary financing to Phase I of the Belo Horizonte Environmental Restoration Program – DRENURBS Program. Such financing will be for an amount of up to US\$55,000,000 from the Ordinary Capital resources of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ____ 2013)