

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BRAZIL

PROGRAM FOR THE IGARAPÉS IN MANAUS

(BR-X1017)

NONREIMBURSABLE FINANCING PROPOSAL

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ELECTRONIC LINKS

REQUIRED

1. Annual Work Plan (AWP)
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35101133>
2. Monitoring and evaluation arrangement
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35099615>
3. Complete procurement plan
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35088889>

OPTIONAL

1. Economic evaluation
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35104839>
2. Operating Regulations
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35100953>
3. Types of house connections
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35140749>
4. Social and environmental strategy
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35023153>
5. CETI Report No. 1 – Financial agreement
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35150405>
6. CETI Report No. 2 – Rate assessment
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35150445>
7. Environmental improvement with social inclusion
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35150452>
8. Subsidies for determining a rate system
<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35150456>

ABBREVIATIONS

AdA	Águas do Amazonas [Amazonas Water Company]
AECID	Agencia Española de Cooperación Internacional para el Desarrollo [Spanish Agency for International Development Cooperation]
ANEEL	Agência Nacional de Energia Elétrica [National Electric Energy Agency]
ARSAM	Agência Reguladora dos Serviços Públicos Concedidos do Estado do Amazonas [Regulatory Agency for Public Services under Concession of the State of Amazonas]
AWP	annual work plan
BOD	biochemical oxygen demand
CEF	Caixa Econômica Federal [Federal Savings Bank]
CETI	Centro de Estudios de Transporte e Infraestructura S.A. [Argentine consulting firm]
COD	chemical oxygen demand
DVISA/SEMSA	Departamento de Vigilância Sanitária da Secretaria Municipal de Saúde [Health Surveillance Section of the Municipal Health Department]
FECASALC	Fondo Español de Cooperación para Agua y Saneamiento para América Latina y el Caribe [Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean]
FVS	Fundação de Vigilância em Saúde do Amazonas [Amazonas Health Surveillance Foundation]
GEA	Governo do Estado do Amazonas [Government of the State of Amazonas]
IMPLURB	Instituto Municipal de Planejamento Urbano [Municipal Urban Planning Bureau]
IPAAM	Instituto de Proteção Ambiental do Estado do Amazonas [State of Amazonas Environmental Protection Bureau]
MPN	most probable number
OFCAS	Oficina del Fondo de Cooperación para Agua y Saneamiento [Office of the Water and Sanitation Cooperation Fund], AECID
OTC	Oficina Técnica de Cooperación Española [Spanish Cooperation Technical Office], AECID
PLANSAB	Plano Nacional de Saneamento Básico [national basic sanitation plan]
PROSAMIM	Programa Social e Ambiental dos Igarapés de Manaus [Social and Environmental Program for the Igarapés in Manaus]
SEMINF	Secretaria Municipal de Infraestrutura [Municipal Infrastructure Department]
SEMMAS	Secretaria Municipal de Meio Ambiente e Sustentabilidade [Municipal Environment and Sustainability Department]
UGPI	Unidad de Gestión del Programa Igarapés de Manaus [PROSAMIM Management Unit]

PROJECT SUMMARY

BRAZIL PROGRAM FOR THE IGARAPÉS IN MANAUS (BR-X1017)

Financial Terms and Conditions*			
Beneficiary: Government of the State of Amazonas (GEA) Executing agency: The State of Amazonas (through the management unit of the Social and Environmental Program for the Igarapés in Manaus (UGPI), attached to the Office of the Governor of the State of Amazonas).		Source of financing:	FECASALC
		Amortization period:	N/A
Source	Amount	Grace period:	N/A
Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean (FECASALC)	US\$5,000,000	Disbursement period:	4 years
Counterpart	US\$54,450,000 (with US\$53,000,000 from PROSAMIM II).	Interest rate:	N/A
Total	US\$59,450,000	Inspection and supervision fee:	N/A
		Credit fee:	N/A
Project at a glance			
Project objective/description: To help attain the social and environmental objectives of the Social and Environmental Program for the Igarapés in Manaus (PROSAMIM) by providing the low-income population with access to the sanitary sewer system to be built by the program, improving the quality of life and health of this population and reducing the pollutant load dumped into the igarapés (streams). The purpose is to enable all the buildings envisaged in PROSAMIM to be connected to the sanitary sewer system being built, with the consequent benefits of adequate sewage disposal for the beneficiaries. Specifically, this operation is intended to complete 15,610 house connections for low-income families not covered by PROSAMIM financing.			
Special conditions precedent to the first disbursement: The presentation of a final version of the Operating Regulations with two new chapters—one describing the beneficiary selection criteria and the other defining the rules of contact with the Spanish Agency for International Development Cooperation (AECID)—is a condition precedent to the first disbursement (paragraph 3.10).			
Exceptions to Bank policies: None.			
Project consistent with country strategy:			
Project qualifies as:	Yes [X]	No []	
	SEQ [X]	PTI [X]	Sector [] Geographic [] Headcount [X]

* The technical framework document on FECASALC was signed by the Spanish government and the IDB on 24 July 2009. FECASALC's Executive Committee approved the allocation of funds for this program on 6 October 2009.

I. DESCRIPTION AND RESULTS MONITORING

- 1.1 **Growth-related problems.** Manaus, the capital of the state of Amazonas, presents a series of serious social, urban, and environmental problems, which are largely the result of the impact of the installation of the industrial park when the Free Zone was created in 1967. Today the park has about 500 factories that provide some 100,000 direct jobs and annual sales of close to US\$ 25.6 billion in 2007. A census taken in 1970 placed the total population of the city of Manaus at 311,622, while estimates by the Instituto Brasileiro de Geografia e Estatística [Brazilian Institute of Geography and Statistics] (IBGE) indicate that by 2009 the population had grown to 1,738,641, for annual geometric growth of 4.51%. This growth was not orderly or planned, despite the fact that the city has had an integrated local development plan since 1975 and a master urban and environmental development plan since 2002.
- 1.2 **Geographic location.** The Manaus area is crisscrossed by many igarapés (streams) that originate in the Amazon and are remnants of the Amazon forest. The city has been experiencing a long process of uncontrolled land occupation, destruction of plant cover, and contamination of the igarapés by untreated effluents, aggravated by the absence of basic sanitation. The population with higher purchasing power occupied the parts of the município that were properly established, but the low-income population had no choice but to settle into makeshift housing in unsuitable areas—lowland and the mouths of igarapés, ravines and former dumps, and have even built stilt houses over the igarapés themselves.
- 1.3 The water courses that run through the city end up flowing into the Negro River, the level of which ranges from 13.64 masl (meters above sea level) to 29.77 masl. The river flow has two periods: the high period from January to June and the low period from June to December. In the high period, the Negro River backs up and bottles up the igarapés. The water level rises as high as the stilt houses, also flooding the adjacent areas. Housing located below the 30-masl level Negro River is exposed to periodic flooding, with heavy human and economic damage.
- 1.4 **Environmental liabilities.** The flooding problems are aggravated by the absence or insufficiency of a macro and micro drainage system. Owing to the difficulties caused by the density of makeshift housing, the solid waste collection service is also deficient or nonexistent, precisely in the affected areas. Sanitary sewer service coverage is about 7.5%. As a result, a significant part of solid and liquid waste is dumped directly into the igarapés, increasing their pollution and creating conditions that favor the spread of diseases and deterioration of the quality of life of people living in those areas.
- 1.5 The environmental damage is not limited to water quality and public health concerns. The inappropriate occupation of the banks of the igarapés leads to erosion that places the physical safety of the inhabitants of these areas at risk and causes changes in the water runoff regime, creating flooded areas and aggravating local environmental conditions and social problems alike.

- 1.6 **Actions under way.** To resolve these problems, the Government of the State of Amazonas (GEA) prepared a strategy that combines population resettlement, macro and micro drainage works, expansion of sanitary sewer systems, urban improvements, creation of green and recreational spaces, and roads and public lighting in areas lying below 30 masl. To ensure the social and institutional sustainability of these investments, they are combined with a series of actions to build the capacity of the institutions responsible for the different dimensions involved and to promote community participation and environmental education. The strategy prioritized the intervention areas based on the socioenvironmental cost/benefit ratio and taking into account population density and the seriousness of the social and environmental problems. Based on this criterion, the Educandos/Cuarenta Igarapés watershed was selected as the first priority and the São Raimundo Igarapés watershed was selected as the second.
- 1.7 The initial interventions are being carried out using own funds and financing from the Caixa Econômica Federal [Federal Savings Bank] (CEF),¹ which approved three loans for a total of US\$371 million, with US\$171 million in counterpart financing. This will make it possible to complete all the investments in the first of the two watersheds as well as the studies and initial works in the second.
- 1.8 **Water and sewer services.** In Manaus, water and sewer services are provided by the company Aguas do Amazonas (AdA), under a 30-year concession with the municipality signed in 2000, which maintains all the existing assets and investments of the concessionaire as property of the município. The contract establishes that the concessionaire will be subject to the regulation, control, and supervision of the Regulatory Agency for Public Services under Concession of the State of Amazonas (ARSAM),² charged with this function under an agreement between the município and the GEA signed on 23 March 2000 and subsequently ratified in a municipal law. Although final approval of rates is the responsibility of the agency awarding the concession, ARSAM is required to monitor the costs and prepare technically-grounded proposals for annual readjustments and for five-year reviews, or upon request. It is also responsible for supervising the quality of the service and compliance with investment goals and plans, levying fines, evaluating potential problems or risks for the service, and presenting the corresponding action proposals to the município.
- 1.9 Water service coverage is in the order of 76% while sewer service coverage is 7.5%³ and very little headway has been made during the 10 years of the concession. Substantial investments are needed to attain adequate coverage levels. Without investments in sanitary sewers in the watersheds where the Social and Environmental Program for the Igarapés in Manaus (PROSAMIM) is active, the igarapés will continue to receive and transport trash and sewerage. Given this

¹ Loan contracts 1692/OC-BR (PROSAMIM I), 2006/OC-BR (PROSAMIM II), and 2165/OC-BR (supplementary to 1692/OC-BR).

² ARSAM was created by State Law 2568 of 25/11/1999 and modified by State Law 2597 of 31/01/2000.

³ Source: ARSAM.

situation and the priority attached to these actions, the GEA shouldered responsibility for the investments in water and sewerage needed in the areas of intervention of PROSAMIM, which will increase sewer service coverage in the city to 20%.

- 1.10 The GEA signed agreements with the concessionaire AdA, with the intervention of the agency awarding the concession and ARSAM, whereby the GEA will make PROSAMIM investments and the company will receive and operate the water and sewer installations. The company will have the right to recover the direct operating and maintenance costs and a management fee from the incremental income generated by these investments. The remaining income from recovery of principal and return on capital will be transferred to a sanitation fund operated by the State. In August 2010 a study partially financed by the Bank will be completed on the details of implementing the agreements and the fund, and will propose mechanisms that include a discounted rate and/or demand-targeted subsidies for the low-income population.
- 1.11 The sanitary sewers being built with funds from PROSAMIM do not include house connections (except for housing built by the program), but are ready for hookup by the user, which reduces the cost. However, to make a connection, work needs to be performed inside the houses to drain sewage, which is currently piped into cesspits or septic tanks that are generally located at the back of the lots.
- 1.12 **Project and Bank participation rationale.** The effectiveness and impact of PROSAMIM's investments in sanitation are directly related to the number of users connected. The difficulties in obtaining a large number of house connections are mainly related to the cost of the connection and the increase in monthly outlays for sewer service, which are difficult to meet for many low-income families. The lessons learned from execution of PROSAMIM I and II show clearly that to succeed in connecting this segment of the population, it is necessary to subsidize the respective costs and to offer with a discounted rate compatible with its ability to pay.⁴ An estimated 53% of the inhabitants of the PROSAMIM areas are low-income families,⁵ most of whom receive assistance from social programs operated by the federal, state, and/or municipal governments. From implementation of PROSAMIM, the need to develop a specific communication program was identified, in order for the beneficiary population to understand the benefits of connecting to the sewage system.
- 1.13 When they are finished, the sanitary sewers that are part of PROSAMIM will make it possible to provide 100% coverage in the area if all existing buildings are connected to the system. Accordingly, the present injection of nonreimbursable resources from the Spanish Cooperation Fund for Water and Sanitation in Latin

⁴ Studies for setting a discounted rate (optional Annexes 5 and 7).

⁵ The poverty line is officially defined as below 0.5 minimum wages per person. Since the average family in the area has 4.8 members, families with incomes of below 2.4 minimum wages or the equivalent of R\$1,224 a month are classified as poor.

America and the Caribbean (FECASALC) will provide significant support to increase the number of connections for low-income families who are unable to pay for them, thereby helping to attain the environmental and social objectives of the GEA's investments under PROSAMIM.

- 1.14 **Relationship to the IDB's strategy with Brazil.** The project reflects the first and second strategic lines of the Bank's country strategy (GN-2327-1), whose goals are: (i) promotion of conservation and sustainable use of natural resources, with emphasis on environmental education; and (ii) improvement of living conditions, efficiency, and environmental quality in cities. The program is also consistent with the objectives of the country strategy that is being prepared and with the goals of the national basic sanitation plan (PLANSAB), which calls for universal water and sanitation services in line with the Basic Sanitation Act.⁶
- 1.15 **The Spanish government's strategy.** In Brazil, the Spanish Agency for International Development Cooperation (AECID) is focusing its work on the North and Northeast regions, which have the lowest human development indexes in the whole country. AECID's objective is to strengthen the public administration and judicial system, improve the quality of primary education and vocational education, develop productive sectors such as tourism, fisheries, and cultural industries, achieve decent housing and living conditions, and reverse the loss of environmental resources. In particular, AECID is actively supporting Brazil in its compliance with the Millennium Development Goals, which have been incorporated into the country's political agenda. FECASALC has the specific objectives of increasing access to drinking water and basic sanitation services while ensuring the sustainable use of natural resources, promoting comprehensive management of water resources, and strengthening governance in the water sector by promoting transparent and participatory management of the resource.
- A. Objectives, components, and design**
- 1.16 **The general objective of the project** is to help attain the social and environmental objectives of PROSAMIM by providing the low-income population with access to the sanitary sewer system to be built under the program, improving the quality of life and health of this population, and reducing the pollutant load dumped into the igarapés. The purpose is to enable all the buildings envisaged in PROSAMIM to be connected to the sanitary sewer system being built, with the consequent benefits of adequate sewage disposal for the beneficiaries. Specifically, this operation is intended to complete 15,610 house connections for low-income families not covered by PROSAMIM financing.
- 1.17 **The specific objectives are to:** (i) install house sewer connections in the houses of 15,610 low-income families located in PROSAMIM's areas of intervention which are not covered by that program, and connect them to the sewer system; and (ii) carry out communication and environmental education activities about the

⁶ Federal Act 11,445 of 5 January 2007.

environmental and social importance of collecting and treating sewage for the entire population in the area, with a view to getting the maximum number of households to connect to the sewer system.

- 1.18 **Structure.** The program will be structured in two components that complement the components of PROSAMIM I and II: (i) sewer connections which complement the environmental, urban planning, and housing improvements component of those programs, under which sanitary sewer works are financed; and (ii) social viability, which complements the social and institutional sustainability component of the programs, and includes social, communication, and environmental education activities.
- 1.19 **Component I: Sewer connections (US\$58 million).** The objective of this component is to make all the investments in sanitary facility works and sewer connections needed to carry residential waste to the sewer system. The component includes US\$5 million from FECASALC, which will be used to finance sewer connections for low-income families, and a counterpart of US\$53 million,⁷ which represents the resources included in loan 2006/OC-BR (PROSAMIM II) for the construction of the sanitary sewer system to which the residences of the low-income families in question will be hooked up. Using three designs for house connections as the base, costs of R\$445, R\$978, and R\$1,497 were estimated per connection. Under this approach, FECASALC funds will be enough to hook up 15,610 low-income residences. However, the number could increase or decrease once the situation of each residence is known in detail. Four years remain to execute loan 2006/OC-BR (PROSAMIM II) counting from 1 April 2010. Out of the set of works included in that loan, those slated to begin after the operation proposed here is approved were selected.
- 1.20 **Component II: Social viability (US\$1 million).** The objective of this component is to make execution of the works viable through social action with the beneficiary families while simultaneously promoting house connections to the system by the remaining dwellings in the area served. To that end it will finance: (i) television, radio, and newspaper campaigns; (ii) a campaign targeted to the area's population through flyers and brochures included in the water bill, posters, and meetings; and (iii) a campaign targeted to the direct project beneficiaries through communications sent with the water bill, community meetings, and visits to each family by outreach workers.
- 1.21 The administration, supervision and auditing, and monitoring and evaluation costs of US\$450,000 will be financed by the counterpart.

⁷ The project proposal sent initially to the Office of the Spanish Water and Sanitation Cooperation Fund (OFCAS) had three components and included a US\$59.441 million counterpart in sanitary sewer works. When the works still to be built were selected for the purpose of obtaining approval for the present grant, the amount was reduced to US\$53 million. The structure of the components was changed to highlight the complementary role played by this operation to the two loans, PROSAMIM I and II.

B. Cost, currency, and financing

- 1.22 This program will cost a total of US\$59.45 million, of which US\$5 million will come from FECASALC and US\$54.5 million from the counterpart, of which US\$53 million comes from loan 2006/OC-BR (PROSAMIM II), and US\$1.45 million from additional GEA funds as a local contribution (Table 1.1).

Table 1.1: Program costs
(in millions of U.S. dollars)

CATEGORY/COMPONENTS	FECASALC	IDB	LOCAL	TOTAL	%
I Engineering and administration	0.00	0.00	0.20	0.20	0.34%
1 Works inspection and supervision	0.00	0.00	0.20	0.20	
II Direct Costs	5.00	37.10	16.90	59.00	99.24%
1 House connections	5.00	0.00	0.00	5.00	
2 Systems and collectors	0.00	37.10	15.90	53.00	
3 Social viability	0.00	0.00	1.00	1.00	
III Concurrent costs	0.00	0.00	0.25	0.25	0.42%
1 Auditing, evaluation, and monitoring	0.00	0.00	0.25	0.25	
IV Financial costs*	0.00	0.00	0.00	0.00	
1 interest	0.00	0.00	0.00	0.00	0.00%
TOTAL	5.00	37.10	17.35	59.45	100%

*The financial costs are not included in PROSAMIM II. They are paid by the State but are not considered counterpart.

C. Key indicators of the results matrix

- 1.23 The main specific results to be obtained from the project are summarized below and presented in greater detail in the results matrix in Annex II.

Table 1.2. Results matrix, key indicators

Expected result	Indicator				
	Baseline	Year 1	Year 2	Year 3	Year 4
Improvement in the quality of water in the Educandos igarapés	BOD ₅ from 240 mg/l to 20 mg/l COD from 152.3 mg/l to 75 mg/l Fecal coliforms from >=2400 MPN/100 ml to 1,000 MPN/100 ml	BOD ₅ 180 mg/l COD 130 mg/l Fecal coliforms >=2,000 MPN/100 ml	BOD ₅ 75 mg/l COD 115 mg/l Fecal coliforms >=1800 MPN/100 ml	BOD ₅ 45 mg/l COD 90 mg/l Fecal coliforms >=1200 MPN/100 ml	BOD ₅ 20 mg/l COD 75 mg/l Fecal coliforms = 1,000 MPN/100 ml

Expected result	Indicator				
	Baseline	Year 1	Year 2	Year 3	Year 4
Reduction of 3.9 tons of BOD ₅ discharged daily into the igarapés, t/day	0	0.50	1.37	1.50	0.53
Reduction in the incidence of acute diarrhea, No./10,000 inhabitants ⁸	53	50	42	35	21
Improvement in the comfort level of 15,610 families or 70,000 individuals ⁹	0	2,000	5,500	6,000	2,110

II. FINANCING STRUCTURE AND RISKS

A. Financing instrument and contractual conditions

- 2.1 The grant from FECALSAC will be US\$5 million, with a four-year disbursement period, in line with the sequence of building the systems. The construction of a portion of the works under loan 2006/OC-BR (PROSAMIM II) for US\$53 million, with execution slated to begin in April 2010, and the additional contribution by the GEA of US\$1.45 million from its budget will be considered counterpart for the purposes of this program.

B. Environmental and social risks and mitigation measures

- 2.2 The evaluation performed by the Bank's Environmental Safeguards Unit at its meeting 51-09 of 22 January 2010 confirmed the operation's C classification, since its environmental and social procedures had already been developed under PROSAMIM I and II and no additional control measures were identified as being necessary. This operation will not have environmental impacts but will inconvenience the beneficiaries because of the need for work inside their houses to connect them to the system. However, these inconveniences will be temporary and the families will benefit from a sewer connection that will improve their quality of life and personal comfort. The sewage collected by the system will undergo primary treatment and be piped to an underwater outfall in the Negro River. The outfall diffuser is located 1,484 meters away from the left bank of the river at a depth of 70 meters. The effluent contribution under critical flow volume conditions (7,200 m³/sec.) is estimated to represent an increase of 0.0028 mg/l in the river's BOD₅.¹⁰

⁸ In the context of this project, a methodology was developed to measure the impact of the program and actions related to reducing intestinal parasitic disease in the regions benefited by PROSAMIM. "Reference: Neglected Tropical Diseases in Manaus," 2010, prepared by María Rebollo. The application of that methodology will be financed by PROSAMIM.

⁹ The improvement in the beneficiary population's comfort level as a result of the connections will be evaluated through specific surveys to be conducted six months after the connections have been introduced. The procedure to be used and the variables selected will be incorporated into the PROSAMIM monitoring and tracking program.

¹⁰ Link: Environmental and social strategy

- 2.3 **Social risk.** The greatest risk for the project comes from the difficulties that might arise in getting the beneficiaries to allow the work to be done in their houses and become connected to the sanitary sewer system. One of the main problems for achieving universal sewer service coverage is the resistance of potential beneficiaries to hooking up to the system. This is largely due to economic reasons, since the connection is viewed as an additional cost and the beneficiaries do not visualize the direct or indirect benefits. In this case, the cost of the connection would not be the impediment. But there is the inconvenience of the works and the prospects of an additional recurrent expenditure, with the increase of 80% in the water bill. The mitigation measures envisaged are: (i) the work planned under the social viability component (paragraph 1.20); and (ii) resources from the sanitation fund will be used to subsidize the initial months of the new sewer bill, with a gradual reduction until the discounted rate is applied (paragraph 1.10), which is currently in the final phase of being set through specific studies commissioned under loan 2165/OC-BR.
- 2.4 **Institutional and fiduciary risk.** The analyses performed for the earlier loans indicated that capacity exists to execute the programs, including procurements, and some mitigation measures for the risks identified were indicated and are being implemented. To execute the operation, engineering firms specializing in residential works, social welfare work, and communications campaigns will be contracted following national procedures owing to the small amounts involved in the bids, none of which should overload the executing unit.
- 2.5 **Financial risk.** The analyses of the financial capacity of the GEA up to 2008, performed for the supplementary financing (loan 2165/OC-BR) indicated good fiscal performance and financial capacity. The 2009 analyses show that the primary result continued to be positive and higher than the financial costs of the debt. Further, the limits established in the Fiscal Responsibility Act have been consistently complied with. In 1997, the GEA signed an agreement with the federal government whereby the latter assumed the debt and refinanced it, which includes a restructuring and fiscal adjustment program subject to annual reviews by the National Treasury Department. The GEA has been complying with the financial targets, according to the most recent reviews. The analysis indicates that the State has the financial capacity to make the local counterpart contributions. It should also be noted that the expenditure of US\$53 million which will be assigned as counterpart under Component 1, corresponds to works that have already been tendered and execution begun, largely with resources from the IDB loan. Therefore, the only additional outlay required is US\$1.45 million over four years, which is insignificant in the context of the costs of PROSAMIM and the GEA's budget.
- 2.6 **Socioeconomic feasibility.** First of all, the economic analysis verified the return on the marginal investments requested as part of FECASALC's support, assigning to them on completion all the benefits of the conveyance and final disposal works and of the house connections. The return on the investments for three standard connections was calculated, and the analysis was used to calculate the efficiency

cost (cut-off point) per connection, which would produce a social return on the investments equal to 12%. This value is equal to US\$823.50 (R\$1,506.98 in February 2010). An analysis was also performed for the set of projects as a whole, since an estimate is available of the number of standard projects. This exercise determined a net present value of US\$5.4 million, with an internal rate of return of 31.1%. The cost-benefit ratio is above 2, which indicates an ample safety margin for the results. In addition, an analysis was considered that includes all the costs already executed under PROSAMIM I and the cost of the works committed going forward under PROSAMIM II, updated to February 2010. The costs of the house connections to be made in the area of influence of each program would be added to the aforementioned costs. It was found that the projects continue to yield a return. A breakdown of this analysis and of the analysis described earlier is available in the electronic links.

- 2.7 **Ability to pay.** The ability to pay of the users of the water and sewer systems was calculated. It was verified that the monthly bill for water and sewer service is less than 5% of family income. The average basic payment for water and sewer service, according to the AdA and assuming average monthly residential water consumption of 15 m³, is R\$79 a month. Based on information on income distribution in the program's areas of influence, for 25% of the families the average basic value would amount to more than 5% of their monthly income, which could be a disincentive for getting connected and could lead to an increase in arrears in payment for water and sewer service. To ensure access to the service for the very poor, avoid a reduction in collection rates, and maintain investment levels, a study is being led by ARSAM funded by loan 2165/OC-BR, to review, among other things, the rate structure and to create a discounted rate (targeted and based on household size and income) to be covered by a State subsidy. This discounted rate applicable to average monthly residential consumption in the program's area of influence would mean that payment for water and sewer services would not exceed 5% of the income of the beneficiary families.
- 2.8 **PTI/SEQ.** The proposed program qualifies as a poverty-targeted investment. Fifty-three percent of the potential house connections are for low-income families and the program is targeted to financing connections for those households alone, i.e. households with incomes of under 2.4 minimum wages, with a minimum wage being R\$510/month at the time of the study. The program also qualifies as an equity enhancing operation.

III. IMPLEMENTATION AND ADMINISTRATION PLAN

A. Beneficiary and executing agencies

- 3.1 The project beneficiary is the GEA and the executing unit is the management unit of the Manaus Igarapés Program (UGPI), which reports to the governor and was created to manage PROSAMIM.

- 3.2 **Execution plan.** The UGPI is operationally independent and is composed of an executive coordinator and technical deputy coordinators in the planning, engineering, social, environmental, administrative, financial, institutional, and legal areas, in addition to advisors on information systems and social communications and a special bid committee that deals exclusively with program procurements. The UGPI will also be responsible for executing the proposed project and will use the same information and works management system introduced under PROSAMIM I and II.
- 3.3 The UGPI will be responsible for the functions related to technical, administrative, and financial procedures linked to project execution, and for monitoring and evaluation. Its specific functions include: (i) planning program execution and preparing the annual work plans (AWPs); (ii) preparing and updating the procurement plans; (iii) reviewing the bid documents for contracting consulting services, works, and goods, to ensure that they conform to the Bank's procurement and contracting policies and to the thresholds established for each type of contract; (iv) supporting and monitoring progress in the contracts for consulting services, works, and goods; (v) preparing and processing payments; (vi) preparing financial statements and disbursement requests; and (vii) monitoring and evaluating program execution. To perform the management and fiduciary tasks required for PROSAMIM and for works supervision, the UGPI is supported by two consulting firms, respectively, which will also support execution of the proposed program.
- 3.4 **Selection of beneficiaries.** The project is targeted exclusively to low-income families living in PROSAMIM's intervention area. The eligibility criteria by order of priority will be: (i) beneficiaries of the Bolsa Família cash transfer program;¹¹ (ii) in the event that the target is not reached, families that benefit from Amazonas Energia's discounted rate will be selected;¹² and (iii) in the event that the target is still not reached, families with monthly incomes below the average minimum wage per family member will be selected. The objective is to prevent water accounts, increased by 80% for sewer service, from amounting to more than 5% of family income. A distribution of 3,210 families in the areas of action of PROSAMIM I and 12,400 in the areas of action of PROSAMIM II is expected.
- 3.5 The information will be obtained from social welfare and municipal finance databases (Bolsa Família and municipal taxes) and from the electric power and

¹¹ The selection criteria for beneficiaries of the Bolsa Família program are: (i) families with income of up to R\$70 per person; (ii) families with income between R\$70.01 and R\$140 per person that include pregnant or breastfeeding women, children from birth to 12 years of age, and teenagers up to the age of 15; and (iii) families with incomes of between R\$0 and R\$140 per person that include adolescents between the ages of 16 and 17.

¹² The selection criteria for beneficiaries of the discounted energy rate are: (i) residences with consumption of under 80 kWh a month; and (ii) users with consumption between 80 kWh and 220 kWh, provided they are eligible for federal government social programs. The discounted rate was established in Law 10438/2002, with regulations issued by the National Electric Energy Agency (ANEEL) under Resolutions 246/2002, 485/2002, and 253/2007. The electricity rate discounts range from 10% to 65%.

- sanitation concessionaires of Manaus. The UGPI, with support from ARSAM and AdA, will cross-reference information to determine which families are in each situation and prepare a list by order of priority, based on the sequence indicated above, to select the 15,610 beneficiary families.
- 3.6 **Execution and payment of services.** Three alternative standard projects were prepared for house connections based on the quality of sanitary installations in the houses and the position of the septic tanks on the lots. These standard projects were used to prepare the budget for the operation, although different situations are expected to arise. Therefore, companies will be contracted through unit-cost bids, in accordance with document GN-2349-7. The UGPI, with support from the firm that supports supervision of the works, will verify the work performed in each house from the standpoints of quality and cost. Each month, the construction company will present certificates of house connections completed in that month.
- 3.7 **Promotion of house sewer connections.** Following a mass campaign, a specific campaign will be targeted to families residing in the area (paragraph 1.20). This will involve including information in the water bills; establishing a toll-free number to answer questions, and record complaints; and designing posters and brochures. The campaign will seek to explain the importance of getting a house connection, details on the systems (public and residential), and the wastewater treatment process; the form that the interventions by AdA, the município, and PROSAMIM will take; the service available and changes in water bills; environmental aspects; legal aspects; procedures for hooking up the connections for the selected residences and also for families that have not been included; and presentation of connection models and suggestions for adaptations, with cost estimates.
- 3.8 **Actions with the beneficiaries.** Alongside these promotional activities, specific work will be done centered on the beneficiary families. First, through the water bill, the families that were selected to receive the subsidy will be notified, and provided with information about the intervention by PROSAMIM and the grant from the Spanish fund and how the works will be carried out in their houses by the construction company to be contracted, after a visit by an outreach worker. An outreach worker will subsequently visit each family to explain the works, promote contact with the company that will visit the house to plan the works, and clear up any doubts. After the visit by the company, the family will be informed of the date on which the works will begin and how long they will take. The UGPI, through its engineering area and the company that will supervise the works, will be responsible for their control and for the deadlines and will deal with complaints by the beneficiaries.
- 3.9 **Cooperation agreement.** Although the works will be contracted by the UGPI and these are actions that the user is responsible for, the GEA has entered into an agreement with Águas do Amazonas (AdA), Fundação de Vigilância em Saúde do Amazonas (FVS), the Municipal Infrastructure Department (SEMINF), Instituto Municipal de Planejamento Urbano (IMPLURB), the Health Surveillance Section of the Municipal Health Department (DVISA/SEMSA), Instituto de Proteção

Ambiental do Amazonas (IPAAM), the Municipal Environment and Sustainability Department (SEMMAS), and Agência Reguladora dos Serviços Públicos Concedidos do Amazonas (ARSAM) to carry out public awareness campaigns on the need for and benefits of connecting to the sewer system. The agreement also defines the terms of cooperation for using the databases and for participation in the selection of beneficiaries.

- 3.10 **Operating Regulations.** The program already has excellent Operating Regulations that need to be expanded to include the beneficiary selection criteria and the rules of contact with AECID. **Presentation of a final version of the Operating Regulations with two new chapters—one describing the beneficiary selection criteria and the other defining the rules of contact with AECID—is a condition precedent to the first disbursement.**
- 3.11 **Disbursements and execution period.** Program funds will be committed within 48 months after the loan contract becomes effective. The disbursement period is four years after the same date. The estimated disbursement schedule is presented in Table 3.1.

Table 3.1. Disbursement schedule

SOURCE	YEAR 1		YEAR 2		YEAR 3		YEAR 4		TOTAL	
	MM US\$	%	MM US\$	%	MM US\$	%	MM US\$	%	MM US\$	%
FECASALC	0.6	12.8%	1.8	35.2%	1.9	38.4%	0.7	13.6%	5.0	100.0%
GEA - CP	12.6	23.2%	24.4	44.7%	16.3	29.9%	1.2	2.2%	54.4	100.0%
TOTAL	13.3	22.3%	26.1	43.9%	18.2	30.6%	1.9	3.1%	59.4	100.0%
CUMULATIVE	13.3		39.4		57.6		59.4			

MM = millions

- 3.12 **Procurement.** The Bank's policies will be followed, particularly GN-2349-7 (goods and works) and GN-2350-7 (consulting services), which are already being applied to procurements under PROSAMIM I and II. The UGPI has gained experience in this regard, including the use of e-procurement accepted by the Bank. The thresholds for the different types of contracts will be the same as for PROSAMIM II, as per contract 2006-OC/BR.¹³ The beneficiary agreed on a procurement plan with the Bank (Annex III) that includes the contracts for the first 12 months of program execution.
- 3.13 **Evaluation and monitoring.** The proposed monitoring and evaluation system will be based on the Bank's supervision mechanisms, in pursuit of fluid and efficient execution. The proposed system will include: (i) the procurement plan (Annex III);

¹³ National competitive bidding will be used for works with an estimated cost of US\$10 million per contract or less and for goods with an estimated cost of US\$500,000 per contract or less. Price comparison will be used for works with an estimated cost of US\$500,000 or less and for goods costing US\$100,000 per contract or less.

- (ii) the AWP; (iii) verification of compliance with the targets established in the results matrix (Annex II); and (iv) the executing agency's quarterly reports that describe progress in implementing the AWP, the results obtained in the execution of activities, and an action plan for the following quarter that includes any corrective actions needed to improve the program's performance. The progress evaluations will be based on the indicators in the results matrix (Annex II). The UGPI will compile data to evaluate compliance with the program's targets.
- 3.14 **External auditing.** At the end of the program the UGPI will present the financial statements for the program and the entity. The external audit will be performed by a firm of independent auditors, following the Bank's policies and requirements (AF-100 and AF-300). The firm will be contracted in accordance with the procedures established in the document on the selection of external auditors (AF-200) and terms of reference approved in advance by the Bank (AF-400 and AF-500). The total cost of these audits will be financed with program funds. The external audit will be financial and operational in nature, and a final report will be presented containing the audited financial statements of the program and the entity. The report will be presented within 120 days after the final disbursement.
- 3.15 **Coordination with the Spanish Cooperation Technical Office (OTC) of AECID.** The Bank will coordinate and consult with the OTC on aspects related to project implementation, as established in the technical framework document and Operating Regulations of the Fund (OP-207).

PROGRAM FOR THE IGARAPÉS IN MANAUS

BR-X1017

CERTIFICATION

I hereby certify that this nonreimbursable investment operation was approved for financing under the Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean (SFW) at the 6 October 2009 meeting of the Executive Committee of Spain's Cooperation Fund for Water and Sanitation (FCAS) through a letter dated on 15 April 2010 and signed by Ms. Carmen Fuente, Director of the FCAS Office of the Spanish Agency for International Development Cooperation (AECID) of the Ministry of Foreign Affairs and Cooperation.

Also, I certify that resources from the Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean (SFW) are available for up to US\$5,000,000 (five million United States dollars) in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of 12 (twelve) calendar months counted from the date of signature below. If the project is not approved by the IDB within that period, the reserve of resources will be regarded as cancelled, and signature of a new certification will be required to renew the reserve. The commitment and disbursement of these resources shall be made only by the Bank in United States dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country, who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified hereinabove for the implementation of this nonreimbursable investment operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

(original signed)

4/18/2010

Marguerite S. Berger
Chief

Date

Grants and Cofinancing Management Unit
VPC/GCM

Development Effectiveness Matrix Summary

Indicator	Score	Maximum Score
I. Strategic Relevance	Low-High	
Section 1. IDB Strategic Development Objectives	6.2	10
Country Diversification	1.7	2
Corporate Initiatives	2.5	2.5
Harmonization and Alignment	0.0	3.5
Beneficiary Target Population	2.0	2
Section 2. Country Strategy Development Objectives	0.4	10
Country Strategy Sector Diagnosis	0.0	6
Country Strategy sector objective & indicator	0.4	4
II. Development Outcomes - Evaluability	Satisfactory	
3. Evidence-based Assessment & Solution	7.3	10
4. Evaluation & Monitoring Plan	5.3	10
5. Cost-Benefit or Cost-Effectiveness	7.0	10
6. Risks & Mitigation Monitoring Matrix	7.5	10
III. IDB's Role - Additionality		
Section 7. Additionality	3.0	10
Technical Assistance provided prior to the project	0.0	3
Improvements in management of financial, procurement, monitoring or statistics internal controls	0.0	4
Improvements in environmental, health and labor performance	3.0	3

I. Strategic relevance: This is a nonreimbursable operation in Brazil, aimed at supporting two earlier operations, PROSAMIM I and PROSAMIM II. Its objective is linked to the Bank's water and sanitation initiative. There is no evidence that country systems will be used. The country strategy that would cover the project implementation period has not yet been approved.

II. Evaluability: The definition of the problem is clear and is based on empirical evidence. As to the proposed solutions, the project design is based on lessons learned from PROSAMIM, in terms of the need to subsidize sewerage connections for low-income populations. The results matrix includes output and outcome indicators that will make it possible to monitor project results, with quantifiable targets and baselines; in some cases, these indicators are not specific. The intervention logic is clear. The program includes a cost-benefit analysis of the investment component. The project will have a reflexive evaluation (before and after), but there is no specific evaluation plan. The risk rating is B. The main social and environmental risks have been identified as well as the respective mitigation measures, but no indicators have been established that would make it possible to follow up on implementation of such measures.

III. Additionality: The project will bring additional benefits inasmuch as it will develop a methodology to measure neglected tropical diseases in Manaus that A30 will be applied to the PROSAMIM I and PROSAMIM II project.

RESULTS MATRIX PROGRAM FOR THE IGARAPÉS IN MANAUS TABLE OF INDICATORS							
Objective	To help attain the social and environmental objectives of PROSAMIM by providing the low-income population with access to the sanitary sewer system to be built by the program, improving the quality of life and health of this population, and reducing the pollutant load dumped into the igarapés.						
Purpose	To enable all buildings included in PROSAMIM to be connected to the sanitary sewer system being built, with the consequent benefits of adequate sewage disposal for the beneficiaries.						
	Indicator						
	Baseline	Year 1		Year 2		Year 3	Year 4
Improvement in water quality in the Educandos Igarapés	BOD ₅ from 240 mg/l to 20mg/l COD 152.3 mg/l to 75 mg/l Fecal coliforms from >=2400 MPN/100ml to 1000 MPN/100ml	BOD ₅ 180 mg/l COD 130 mg/l Fecal coliforms >=2000 MPN/100ml		BOD ₅ 75 mg/l COD 115 mg/l Fecal coliforms >=1800 MPN/100ml		BOD ₅ 45 mg/l COD 90 mg/l Fecal coliforms >=1200 MPN/100ml	BOD ₅ = 20 mg/l COD = 75 mg/l Fecal coliforms = 1000 MPN/100 ml
Reduction of 3.9 tons of BOD ₅ discharged daily into the igarapés, t/day	0.0	0.50		1.37		1.50	0.53
Reduction in the incidence of acute diarrhea, No./10,000 pop.	53	50		42		35	21
Improvement in the comfort level of 15,610 families	0	2,000		5,500		6,000	2,110
Component 1. Connections to the system							
	Baseline	Year 1	Year 2	Year 3	Year 4	Target	Comments/means of verification
Outputs							
Beneficiary selection process	0	1				1	A selection exercise will be carried out at the start of execution. Report by the social subcoordination section of the Management Unit of the program for the Igarapés in Manaus (UGPI).
New house connections in the PROSAMIM area	0	2,000	5,500	6,000	2,110	15,610	Certification of works by the engineering subcoordination section of the UGPI.

Outcomes							
New households connected to sewers in the PROSAMIM area	0	2,000	5,500	6,000	2,110	15,610	Report by the Regulatory Agency for Public Services under Concession of the State of Amazonas (ARSAM)
Component 2. Social viability							
	Baseline	Year 1	Year 2	Year 3	Year 4	Target	Comments/means of verification
Outputs							
Distribution of brochures and flyers	0					90,000	Report by the communications advisor of the UGPI
Billboards in the beneficiary neighborhoods	0	7	7	7	7	28	Report by the communications advisor of the UGPI
Brochures and flyers sent to the beneficiaries of the grant	0	12,000	33,000	36,000	12,000	93,000	Report by the social subcoordination section of the UGPI
Meetings held with neighborhood leaders	0	12	12	12	6	42	Report by the social subcoordination section of the UGPI
Visits performed by outreach workers	0	2,000	5,500	6,000	2,110	15,610	Report by the social subcoordination section of the UGPI
Outcomes							
Authorizations obtained to begin the works	0	2,000	5,500	6,000	2,110	15,610	Service order by the engineering subcoordination section of the UGPI

PROCUREMENT AND CONTRACTING PLAN

Ref. No.	Description of the contract and estimated cost	Procurement method	Review (ex ante or ex post)	Source of financing and percentage		Prequalification (Yes/No)	Estimated dates		Status (pending/under way/awarded/cancelled/)	Comments
				FECASALC (%)	Local (%)		Publication specific procurement notice	Contract completion		
1	1. Works UGPI: Service to install the house connections to the sewer system. Estimated cost: US\$5,000,000	NCB	Ex ante	100	0	No	2nd quarter 2010	2nd quarter 2014	Pending	
2	2. Services other than consulting services UGPI: Support for mobilization and information activities for the affected population. Estimated cost: US\$874,000	NCB	Ex ante	0	100	No	2nd quarter 2010	2nd quarter 2014	Pending	
3	UGPI: Production and placement of graphic materials. Estimated cost: US\$25,000	PC	Ex ante	0	100	No	4th quarter 2010	2nd quarter 2014	Pending	
4	UGPI: Production and placement of media campaigns. Estimated cost: US\$100,000	PC	Ex ante	0	100	No	3rd quarter 2010	2nd quarter 2014	Pending	

NCB: national competitive bidding; PC: price comparison

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/10

Brazil. Nonreimbursable Financing to the State of Amazonas
Program for the Igarapés in Manaus

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, as administrator of the Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean, hereinafter referred to as the “Fund”, to enter into such contract or contracts as may be necessary with the State of Amazonas, as Beneficiary, for the purpose of granting it a nonreimbursable financing to cooperate in the execution of the Program for the Igarapés in Manaus. Such nonreimbursable financing will be for an amount of up to US\$5,000,000 from the resources of the Fund, and will be subject to the Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Non Reimbursable Financing Proposal.

(Adopted on __ _____ 2010)