

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

GUYANA

GEORGETOWN SOLID WASTE MANAGEMENT PROGRAM

—GSWMP—

(GY-0055)

LOAN AND GUARANTEE PROPOSAL

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ANNEXES: ANNEX I LOGICAL FRAMEWORK

APPENDIXES: PROJECT RESOLUTIONS

Electronic Links and References	
Basic socioeconomic data:	http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata
Status of loans in execution and loans approved:	http://ops/Approvals/PDFs/GYen.pdf
Tentative lending program:	http://opsgsl/ABSPRJ/tentativelending.ASP?S=GY&L=EN
Information available in the files of RE3/EN3:	http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=548625
Procurement plan/Mean of verification-Annex II-I	http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=605727
Partial Risk Guarantee Schema- Annex III-I	http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=707142
Agreements regarding procurement issues:	http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=605738

ABBREVIATIONS

CO-Contract	Contract between the CO-Operator and the EA
CO-OPERATOR	Firm that will construct and operate the HBSLF
CD	Cleansing Division
CECI	Institutional Capacity Assessment System
EA	Executing Agency
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ERM	Environmental Resource Management
ESMP	Environmental and Social Management Plan
EU	European Union
GDP	Gross Domestic Product
GM	Georgetown Municipality
GOG	Government of Guyana
HBSLF	Haags Bosch Sanitary Landfill
ISSC	Institutional Strengthening and Supervision Consultant
LCS	Living Conditions Survey
MF	Ministry of Finance
MH	Ministry of Health
MLGRD	Ministry of Local Governments and Regional Development
MSWMD	Municipal Solid Waste Management Department
NDC	Neighborhood Democratic Council
O&M	Operation and Maintenance
OP	Operation Manual
PAHO	Pan American Health Organization
PRG	Partial Risk Guarantee
PROPEF	Project Preparation Facility
PSP	Private Sector Participation
PT	Property Tax
PUC	Public Utilities Commission
SC	Steering Committee
TOR	Terms of Reference

Project Summary
GUYANA
Georgetown Solid Waste Management Program —GSWMP— (GY-0055)

Financial Terms and Conditions of the Loan:				
Borrower: Co-operative Republic of Guyana (GOG)			Amortization Period: 40 years	
Executing Agency: Georgetown Municipality			Grace Period: 10 years	
Disbursement Period: 5 years				
Source	Amount	%	Interest Rate: First 10 years 1%; subsequent 30 years 2%	
IDB (FSO)	US\$18.070 million	100	Supervision & Inspection Fee: 1%	
Total	US\$18.070 million	100	Credit Fee: 0.50%	
			Currency: US\$ Dollars equivalent	
Financial Terms and Conditions of the Guarantee:				
Guaranteed party: Co-operative Republic of Guyana			Counter Guarantee: Co-operative Republic of Guyana	
Amount: up to US\$2.5 million			Grace Period: N/A	
Tenor: up to 11 years			Interest Rate: First 10 years 1%. Eleventh year 2%	
Commission (Service fee): 25 basis points p.a.			Inspection and Supervision: N/A	
Currency: US Dollars			Source: FSO	
Project Outline:				
<p>Project objective: Contribute to the improvement of the environmental conditions and quality of life of the population in Georgetown and Environs and implement sustainable solutions to solid waste management in these areas. The program also aims to solve the solid waste disposal problem through the implementation of a sanitary landfill at Haags Bosch with private sector participation. The program supports the selection of a private sector operator (CO operator), which will construct and operate the landfill. In addition, to the financing of the investment project, the Bank will provide a partial risk guarantee, which will partially guarantee the payments to the CO operator in support of the GOG payment and early termination obligations included in the contract with the CO operator. This Guarantee will be supported by a counter-guarantee. If triggered, the amounts disbursed under the guarantee agreement will convert into term loans against the GOG.</p>				
<p>Special contractual conditions: Conditions for first disbursement: a) The Project Executing Unit be implemented in the MSWMD (4.1); b) The Executing Agency has to demonstrate to the satisfaction of the Bank that the Steering Committee has been established (¶ 4.2) and c) Subsidiary Agreement becomes effective (¶ 3.2).</p>				
<p>Special contractual clauses:</p> <p>a) <u>Partial eligibility:</u> Institutional Strengthening and Supervision Consultant (ISSC): disbursement for this contract will be authorized once the general conditions of the loan contract are fulfilled. The contract with the ISSC is expected to be signed prior to hiring the CO operator (¶ 3.14).</p> <p>b) <u>Partial risk guarantee:</u> will be eligible once: (i) The CO contract has been signed by the parties (¶ 2.16); and (ii) A trustee, appointed by the GOG, acceptable to the Bank has been named (¶ 2.19).</p> <p>c) <u>Execution:</u> Bilateral agreements between the Executing Agency and 10 of the participating NDCs will be signed by the end of the first year of project execution (¶ 3.6).</p>				
<p>Exceptions to Bank policies: The price of the facility fee for the guarantee has been established on the basis of OC Funding, described in document FN-568-5, in the absence of an express reference to FSO Funding.(¶2.19).</p>				
Project consistent with Country Strategy: Yes				
Project qualifies for:		SEQ [X]	PTI []	Sector [] Geographic [] Headcount []
Procurement: See Procurement Plan is included in Annex II-1 (¶3.19).				
Verified by CESI on: June 3, 2005.			Environmental and Social Evaluation: See (¶4.12).	

I. FRAME OF REFERENCE

A. Socioeconomic framework

- 1.1 The Co-operative Republic of Guyana covers an area of 214,970 km² with a total population of 742,000 (2002) of which 175,000 live in the capital Georgetown and approximately 177,000 within the Georgetown environs¹. During the last decade, the population has experienced mild fluctuation and currently grows at an annual average of 0.29% (estimate for 2002) due to declining birth rates, high migration, and an increased death rate. The population density is low at 3.4/km². The population of Guyana includes a multi-ethnic mixture composed of: 50% East Indians; 36% Africans; 7% indigenous Amerindians; and 8% others.
- 1.2 In 1999, approximately 35% of the population lived below the poverty line of which 21.3% lived in extreme poverty. By 2000, both poverty and unemployment declined. The minimum wage is currently US\$95/month and on average, the household size is 4 persons with one-salary earner. There is a large informal private sector in Guyana, which is primarily engaged in trading, although a significant proportion is occupied in manufacturing and craftsmanship (carpenters, masons etc).
- 1.3 Guyana's economy has slowed down and average GDP growth was 0.6% in the period of 1998-2004. For 2005, GDP growth is now forecast at -2.6%, due in large part to a weather-induced decline in rice production². The rate was already expected to slip back to less than 1% in 2005-2006 as the high price of oil persisted and major gold-mining operations wound down. In the wake of January's floods, growth is now expected to be slightly negative this year. Additional growth challenges are posed by the possibility of political unrest in the run-up to national elections and recent proposals for rapid liberalization of the European Union (EU) sugar market. This economic context has impacted the provision of basic services such as a sustainable solid waste collection and disposal. In this context, the clean up effort after the January 2005 flood revealed the shortcomings regarding appropriate solid waste disposal and raised the population awareness of the need for this important service. As a result, GOG is now committed to provide these services in response to population demand.

B. The solid waste sector

1. The situation pre-project

- 1.4 Pre-feasibility studies carried out as part of project preparation in 2002 highlighted many obstacles to deliver efficient waste management services. The bottlenecks included the overlapping of responsibilities, the lack of autonomy of the previous Cleansing Division (CD), lack of authority, absence of medium and long-term planning, and shortfall in manpower and training. Waste collection was

1 Georgetown Environs are the surrounding areas of the east and west banks of the Demerara River and the Demerara east coast, —along the Atlantic coast— These include 15 Neighborhood Democratic Council (NDC) participating in the project.

2 Main origins of GDP 2002 are: Agriculture, forestry and fishing (29.3%), Mining & quarrying (11.0%), Construction (8.0%), Transport and communications (9.6%), and Government (12.3%).

contracted out with six private operators and disposal was done at Mandela, a landfill operating under unsustainable environmental and social conditions. Collection contracts were badly structured and with no clear definition of responsibilities. Health care and abattoir wastes were burned in an obsolete incinerator that contaminated the adjacent neighborhood creating a public health hazard. The Georgetown Municipality (GM) treasury carried out solid waste budgeting and accounting.

2. The institutional and legal framework

- 1.5 Policy making: is a shared responsibility between the Ministry of Health (MH) and The Ministry of Local Governments and Regional Development (MLGRD). The MH and the Environmental Protection Agency (EPA) share the responsibility for environmental and public health aspects of solid waste management. The MH carries this responsibility through Environmental Health Units, responsible for approving the sanitary facilities and providing guidance to households, municipalities, industries and others regarding adequate solid waste collection and disposal. The MLGRD is responsible for formulating the national policy on solid waste management and for providing financial support to municipalities and Neighborhood Democratic Councils (NDCs). This institutional framework, however, is not coordinating properly and needs strengthening. The MLGRD has released a draft national solid waste policy but institutional weakness has been an impediment for a thorough discussion and implementation of a technically sound and public supported policy.
- 1.6 Regulation: is mainly carried out by the EPA, which is responsible for the environmental regulatory framework. The Environmental Protection Act of 1996 provides the enforcement mechanisms for environmental protection including littering, collection and disposal of solid waste. The Public Utilities Commission (PUC), established by the Public Utilities Commission Act in 1999, is the national regulatory institution for privatized industries. The Act lays out the types of utilities and public services the PUC should regulate and presently does not include waste management. Nevertheless, the PUC acts nationally as a reference for appointing mediators for any industrial sector, including those regulated by contract.
- 1.7 Waste management: The Public Health Ordinance of 1953, the Municipality and the Municipal and District Councils Act establish the national and local framework for solid waste management. Municipalities and NDCs are responsible for providing for solid waste collection, disposal and other sanitary services. They are also authorized to prescribe fees for special services such as: removal of carcasses and disposal of commercial wastes at any controlled landfill or incinerator operated by them. Presently, these fees represent less than 1% of the revenues collected for solid waste disposal in Georgetown. There is no legislation mandating citizens or commercial entities to use any specific waste collection and disposal enterprise. As a result, waste is deposited at open spaces, roadside and canals. Among the 15 NDCs, only BV Triumph is reported as having adequate provisions for collection and disposal of wastes.

3. Management

- 1.8 Generation: Based on a solid waste generation rate of 0.6-0.8 kilos/hab/day³, Georgetown generates 51,100 tons/year (population 175,000) and the 15 surrounding NDCs generate 51,800 tons/year (population 177,000). Therefore, it is estimated that 102,900 tons/year of solid waste will need adequate solid waste disposal if collection covers the entire population.
- 1.9 Collection: Presently, two major private contractors servicing 10 collection zones collect approximately 90% of the solid waste generated in Georgetown. These waste contractors also collect the majority of commercial waste within their designated zones, while small-scale unlicensed contractors collect the remainder for a fee paid by the waste generator. Although private contractors do collection, both activities are under the responsibility of the GM. In addition, the GM collects special wastes (e.g. healthcare waste, animal carcasses). Solid waste collection in Georgetown has proven to be working efficiently in the serviced zones.
- 1.10 Among the 15 NDCs, eight have some type of collection (using tractor, trailer, horse or cart); the remainder does not collect the waste from the residences. Within these communities householders have little option other than to burn or bury their waste within their own premises, or dump it at vacant lots, roadsides and drainage canals.
- 1.11 Disposal: Georgetown and Eccles NDC waste is disposed at the Mandela landfill, in the middle of Georgetown. Mandela started its operation in 1993 as a sanitary landfill demonstration project, but has been allowed to develop into a controlled disposal site that has exceeded its maximum capacity. Leachate and trash sliding from the waste mounds contribute to the pollution of the canals at the northern and western borders of the landfill.
- 1.12 The Bank is supporting the GOG with the LO-1052/SF-GY, which aims at rehabilitating of the Mandela landfill, expanding its capacity to receive wastes until the future Haags Bosch sanitary landfill (HBSLF) is operational, and then closing it. The landfill operation is presently contracted to a private company. Waste is compacted and daily covered with soil. This common practice has resulted very effective in terms of addressing previous ineffective operation and has diminished the occurrence of fires.
- 1.13 Approximately 63,700 tones of waste are deposited at Mandela's landfill every year. To this amount the GM contributes with 45,500 tones/year, which represents 89% of the estimated total amount generated by Georgetown. The remaining 18,200 tones/year that arrives at Mandela includes waste from NDCs households, commercial and industrial buildings from Georgetown. This represents 35% of the estimated total amount of solid waste generated by the 15 NDCs participating in the project. The waste not delivered at Mandela is burned, buried or disposed in empty lots, canals and in approximately seven community dumpsites.

³ These are empirical estimates provided by Environmental Resource Management (2002) "Pre-Investment Studies for the Georgetown Solid Waste Management Program" and Arancibia (2004) "Development of a Cost Recovery Mechanism". These estimates are averages among commercial and residential waste.

- 1.14 Approximately 1 tone/day of healthcare and abattoir waste is collected by the GM and was routinely burnt at a 50-year old incinerator located in Central Georgetown. The use of such facility caused severe air pollution impacting local residents and schools and due to complaints, its operation was discontinued since November 2004. This waste is now disposed of at Mandela in dedicated cells.
- 1.15 Recycling: Informal recycling takes place at the Mandela landfill and involves 121 persons operating under risky and unhealthy conditions. Of these approximately 70% are males, 75% percent are African descendents, 7% are Indian and 2% Amerindian. The recycled material is sold on the site to local companies, which export it to processing plants in Trinidad Tobago and the United Kingdom.

4. Financing

- 1.16 Solid waste management in Georgetown is financed almost entirely through the Municipal General Budget (85%) funded through the Property Tax (PT) at an estimated collection rate of 70%. The total cost for solid waste management during the last three years represented US\$1.26 million/year of which collection captures 68%, disposal 24%, and administration 8%. .
- 1.17 At the NDCs, solid waste management is also financed almost entirely through the PT. However, PT collection in most NDCs is in the order of 55%, which represents approximately US\$545,600/year. Of this, 25%(US\$136,000/year) has been allocated for solid waste collection and disposal. Late payments of the PT by commercial enterprises are a particular cause of the weak finances at the NDC Administrations. The money collected from PT by all NDCs is placed in a Consolidated Fund from which each NDC is entitled to spend the amount that it has collected on its operations. Other expenses include maintenance of roads and bridges, cleaning of canals, and salaries. According to the Municipal and District Councils Act, the Central Government must ensure that enough revenues are available to all municipalities for executing statutory tasks defined by the legislation such as solid waste management services. In case a municipality or NDC falls short of revenues to cover all costs of such responsibilities, the Central Government would provide the missing funds.

C. The country's sector strategy

- 1.18 The Government of Guyana (GOG) has identified waste disposal in urban centers as a critical constraint to urban development. The National Development Strategy "Eradicating Poverty and Unifying Guyana" calls for the development of new landfill sites that avoid seepage into groundwater supplies and observe other environmental requisites. The proposed project fills this need and fits the criteria.

D. The Bank's strategy

- 1.19 The IDB Country Strategy with Guyana (GN-228-1) focuses on the promotion of sustainable growth, social development and poverty reduction. The proposed project for solid waste management will support the objective of contribute to

economic growth by contributing to sound environmental management that is required to sustain economic growth. Also, since inadequate waste disposal tends to affect poor people more significantly, the program will help to improve the quality of life of the communities affected by current conditions. The participation of the private sector in the construction and operation of the landfill is also aligned with the goal of enabling private sector participation (PSP) as a driver of economic growth.

E. The program strategy

- 1.20 The impacts of improper solid waste management have become the critical environmental problem in Georgetown and all over Guyana. This problem has become more and more acute over time, and besides creating unpleasant esthetics conditions, it is a serious health threat to the urban population. The negative impacts of improper waste disposal methods were heavily felt during the January 2005 flood when the waste filled canals did not drain as fast as expected. The clean up of the post flood event revealed an unexpected amount of solid waste that needed proper collection and disposal, posing a serious health threat.
- 1.21 The Bank's involvement in solid waste management in Guyana dates from December 1998, when GOG requested support to find a solution for the then acute solid waste disposal problem in Georgetown. The Bank's assessment at that time highlighted institutional weakness, under-funding and the lack of appropriate infrastructure as the sector's main problems. During the last six years the Bank and the GOG have adopted a series of measures in order to improve the conditions in the sector. These include:
- a. Technical aspects: (i) accomplish an expansion, with enough capacity until the future HBSLF is operational, and safe closure of the solid Mandela landfill, financed with LO-1052/SF-GY and PROPEF resources from this operation; (ii) problem characterization and assessment which identified sanitary landfill as the minimum cost solution compared to composting and incineration. Operation and maintenance (O&M) cost for incineration was US\$164/ton and for the HBSLF US\$8.6/ton; (iii) waste characterization and landfill siting⁴; (iv) workshop with representatives from the private sector to identify interest in the construction and operation of the HBSLF ; (v) studies to identify feasible institutional, cost recovery and private sector participation models for solid waste management in Georgetown; (vi) the preparation of the final designs for the HBSLF; (vii) the contracting of a private operator for the management of the Mandela landfill; and (viii) the development of standards for adequate solid waste management in Guyana.
 - b. Institutional strengthening: (i) the creation of the Municipal Solid Waste Management Department (MSWMD) replacing the CD within the GM at the

⁴ The Siting and Waste Characterization Study conducted by Brown, Vence and Associates (BVA) identified Eccles as the best site among five different alternatives. During the public consultations of the EIA, concerns were raised regarding odors, aesthetics and decreasing property values due to its proximity to the housing development of Eccles. For this reason, the sanitary landfill was relocated to Haags Bosch, adjacent to Eccles but 1.5 km away from any residence. Other than that, HBSLF has the same environmental and technical characterization of Eccles.

same level of other existing Departments with separate account for solid waste management; (ii) the development of a broad public awareness campaign within Georgetown and the NDCs ; and (iii) the review and improvement of the contracts for solid waste collection in Georgetown. The MSWMD is now able to prepare annual budgets for solid waste management, and the NDCs are prone to improve their capacity and willingness to pay for solid waste management services.

- 1.22 The above-mentioned actions provided the setting to structure a program with a comprehensive and sustainable solution to the solid waste management problem in Georgetown and environs. This program will provide: (i) adequate solid waste disposal at international standards of practices with the participation of the private sector through a Construction and Operation (CO) contract; (ii) the development of a cost recovery mechanism to ensure the long-term sustainability of the service; (iii) the improvement of the solid waste collection system at the NDCs through enhancing existing private sector participation in this area; and (iv) the enhancement of public awareness, institutional strengthening and capacity building through the assistance of a Institutional Strengthening and Supervision Consultant (ISSC) retained to support the MSWMD and the Project Execution Unit (PEU) with project execution and supervision of the landfill operator, know-how transfer in these areas and fostering ties with the local community. In furtherance of the project objectives and to provide for a realistic environment where potential CO operators would be attracted to bid and compete for the best possible offer to construct and operate the Haags Bosch sanitary landfill, a Partial Risk Guarantee (PRG) would be provided by the Bank to cover the minimum annual payment obligations of the GOG to the CO operator including early termination of the CO contract.

F. Lessons learned and interinstitutional coordination

- 1.23 Lessons learned: The Bank's experience with solid waste management in the Region includes the LO-1185/OC-JA, LO-1130/OC-BA, and LO-1170/OC-BH. In Jamaica, the implementation of tipping fees for project sustainability has been difficult due to political implications. Procurement difficulties delayed the execution of the Barbados Solid Waste Management Program for 12 months. In the Bahamas execution was delayed because: (i) land acquisition was not completed; (ii) lack of coordination between stakeholders; (iii) difficulties with the implementation of tipping fees; and (iv) government not committed to separate regulatory and operational functions of the Executing Agency (EA). These lessons have been incorporated to the present operation. It is also critical to have: an appropriate design, construction, and sustainable operation of the proposed sanitary landfill, a cost recovery mechanism accepted by the users, a clear and strengthened institutional framework, and the support of a public awareness campaign.
- 1.24 The need for an integrated long-term approach for solid waste disposal in Georgetown and Environs has been determined by the experience gained with the operation of the Mandela landfill under mandates and an institutional framework

characterized by: (i) overall technical and operational debility; (ii) deficient coordination among responsible institutions; and (iii) lack of incentives to charge and pay for the services delivered. Since the option of a sanitary landfill has been selected as the most cost effective acceptable alternative, to mitigate the inherent operational risks under such conditions, the project provides the means to select and contract a private firm that should Construct and Operate (CO operator) with recognized technical and operational capacity, which will guarantee a 10-year operation for the HBSLF. The competition for the CO contract assures a minimum cost market solution for the construction and also the technical and environmentally efficient operation of the HBSLF.

- 1.25 Inter-institutional coordination: The Pan American Health Organization (PAHO) is the main organization providing support to solid waste activities through training and capacity building. PAHO prepared a solid waste sector study defining the problems and an action plan to implement solutions, which include the present program. During the January 2005 flood, PAHO coordinated most of the efforts regarding solid waste collection and disposal, including the IDB.

II. THE PROGRAM

A. Objectives and description

- 2.1 The general objective of the program is to contribute to improving the quality of life of the population living in Georgetown and the participating NDCs. The purpose of the program is to implement sustainable solutions to solid waste management for Georgetown and participating NDCs. Specifically, the program aims to provide a sustainable solution to the solid waste collection and disposal problems in Georgetown and participating NDCs through: (i) strengthening the capacity of the MSWMD of the Municipality of Georgetown for the overseeing of solid waste management and disposal, and improve collection logistics and cost recovery at Georgetown and NDCs; (ii) raising public awareness within Georgetown and the NDCs for a better management of solid waste among households, industries, commerce, etc.; (iii) implementing the HBSLF, with the participation of a specialized operator from the private sector; (iv) providing resources to study and define technologies to treat health care and hazardous waste; (v) implementing a more efficient waste collection at the NDCs participating in the project; and (vi) providing additional resources to rehabilitate and close the Mandela landfill.

B. Components

1. **Institutional strengthening and capacity building for solid waste management (US\$2.46 million)**
- 2.2 The objective of this component is to ensure that the institutions responsible for the provision of solid waste services are adequately capable to implement the program and carry out future activities. To attain such objective this component will support a PEU, to be housed in the MSWMD, and an ISSC will be hired to

support the MSWMD and the PEU during the execution of this project. This will be a hands on institutional strengthening and capacity building. The ISSC will advise the MSWMD and the PEU on the following activities: (i) contract supervision and project monitoring; (ii) negotiation of the CO Contract and supervision of the works and operation of the landfill executed by the CO operator; (iii) project's accounting and budgeting; (iv) development and implementation of budgets and accounting procedures at the participating NDCs; (v) stakeholders consultation and involvement; (vi) updating the Landfill Operation and Management Manuals prepared by the design consultant; (vii) effective coordination with other local, national and international institutions; and (viii) assistance to the NDCs updating their cadastre, property valuation and PT collection system. Training will be delivered to no less than 20 professionals from the MSWMD and no less than 45 from the NDCs will be trained on their specific needs for solid waste management. Capacity building will be built on the efforts delivered during project preparation. Resources are also available to resettle the waste pickers from the Mandela to HBSF.

2. Community participation and public awareness program (US\$0.49 million)

- 2.3 This component will build on the related work of raising awareness and encouraging community participation that is being executed since 2004, which was financed with Project Preparation Facility (PROPEF) resources. The overall aim of the component is to plan and implement a comprehensive and targeted awareness-raising program that fully informs and involves citizens, householders and other key stakeholders of improvements in solid waste management in Georgetown and surrounding NDCs, and engages their participation in the improvements and on sustainable activities such as source separation of waste. Resources will be used to hire a consulting firm to implement the following activities: (i) plan and implement a strategy for raising awareness and encouraging participation in solid waste management in Georgetown and participating NDCs; (ii) build capacity within local counterparts so that community awareness activities are sustainable and ongoing after the completion of the project; and (iii) ensure strong links between the implementation of this community awareness component and the other components of the program, as well as with other relevant donor, national and local projects and carrying out stakeholder consultation throughout the project.

3. Design, construction, operation of the Haags Bosch sanitary landfill (US\$9.92 million)

- 2.4 This component provides the resources to prepare the designs, search for a CO operator, construct and set the conditions to operate the HBSL for the first 10 of its 25-year lifetime. The engineering designs of the HBSLF have been completed (US\$568,000). The search for a CO operator involves hiring consulting services of a private sector structuring and promoter that will update the existing bidding documents and prepare a draft contract to discuss with potential CO candidates (CO promoter). The consulting services will advise and support the EA in all the

tender process, which in addition to preparing the required documents will include market research to promote the interest of potential CO operators, draft bidding documents, including the contract with the CO contractor, support the National Procurement Board on valuation of proposals, defining variable(s) to award the CO contract, and negotiation with the winner of the bidding, as well as briefings to the ISSC consulting firm that will monitor and supervise the CO Operator. The consulting services will include legal work to complete the bidding process and investment banking activities to provide for a successful selection of a CO operator⁵.

- 2.5 Construction includes the financing of all the necessary fixed structures of the project such as: administration buildings, scales, space for waste recyclers (separation area, place for bathing and eating, first aid equipment, etc.) internal roads, leachate and runoff collection and treatment facilities, gas collection and treatment, recycling and composting facilities and equipment. There are specific activities to be implemented during operation such as: landscaping the base for the first landfill cells preparation of filling areas, filling two to four unused navigation canals and construction of a perimeter fence. The HBSLF, located 4 Km south of the geographical centre of Georgetown, has been designed, and will be constructed and operated according to international technical, and environmental standards and good practices. The HBSLF will be equipped with the following main infrastructure items: all weather access roads, weighbridge and reception building, administration and social building and workshop facilities; energy and water supply facilities; and wheel washing facilities. It will also incorporate all the mitigation measures identified in the Environmental Impact Assessment (EIA) and included in the project's Environmental and Social Management Plan (ESMP). The construction of these facilities as described in the engineering designs will require financing of US\$8.75 million.
- 2.6 Operation will follow the engineering designs, the Landfill Operation and Management Manuals and technical specifications included in the bidding documents. The CO operator will also be responsible for: (i) closing and landscaping the site when its 10 year lifetime is reached; (ii) technical, environmental and social monitoring as included in the ESMP; and (iii) writing performance and monitoring reports to the MSWMD, PEU and the EPA. The CO contract will include technical specifications for the construction and operation of the HBSLF and the conditions under which the facility will be transferred , after 10 years of operation, to the executing agency.

4. Waste collection and disposal from participating NDC (US\$1.7 million)

- 2.7 This component provides the resources to finance the following activities: (i) conduct a search for potential candidates and tender process to hire the services of private entrepreneurs following local procedures to collect the waste and deliver it at HBSLF from the participating NDCs; (ii) finance the collection and disposal at the NDCs for three years until they strengthen their PT collection

⁵ The terms of references for the CO promoter have been drafted and agreed with the Bank. The final contract with the CO promoter requires the no objection from the Bank (project team, EN3, IF3 and COF)

capabilities with the support of this program; (iii) clean and close approximately 7 dumpsites (US\$177,500) identified during the EIA preparation; (iv) construct five small transfer stations (US\$55,000); and (v) buy equipment such as collection bins and small collection vehicles that will be operated by the NDCs to access difficult areas. The waste collected by NDCs will be delivered to transfer stations from where the contractor will transport it to HBSLF.

5. Rehabilitation, expansion and closure of the Mandela landfill (US\$0.5 million)

- 2.8 This component provides resources through the PROPEF (LO-1487/SF-GY) to complement the existing budget of LO-1052/SF-GY to: (i) rehabilitate the existing land filled area; (ii) prepare five additional acres that will include waste compaction, gas and leachate collection; (iii) construct ancillary areas such as parking spaces, office buildings, wash bays, and workers shed; (v) construct an artificial wetland to treat the collected leachate; and (vi) close and landscape the site when the HBSLF is operational. A private operator has been hired to execute these tasks with loan resources.

6. Treatment and disposal of health care and hazardous waste (US\$1.5 million)

- 2.9 The component will finance consulting services to assess the sources, quantities, and characteristics to define the most cost effective treatment technology for the health care and hazardous waste generated by Georgetown and participating NDCs. Additionally, the component will finance the acquisition of the selected healthcare waste treatment technology and a special collection truck. The MSWMD-PEU, in collaboration with the Ministry of Health, will have overall responsibility for supervising the study on hazardous and healthcare wastes. The MSWMD will be responsible for implementation of the recommendations of the study. The Terms of Reference (TOR) for these studies have been prepared and reviewed by the project team.

C. Partial risk guarantee

- 2.10 In furtherance of the project objectives and to provide for a realistic environment where potential CO operators would be attracted to bid and compete for the best possible offer to construct and operate the Haags Bosch sanitary landfill, a Partial Risk Guarantee (PRG) would be provided by the Bank to cover the minimum annual payment obligations of the GOG to the CO operator including early termination of the CO contract. In addition to providing funds for the construction and landscaping after completion of the landfill with the Bank's loan, the GOG would also commit to deliver a certain amount of waste to the landfill, which represents the minimum waste-output, or payment obligation of the GOG.
- 2.11 There are several technical challenges to design, construct and operate a sanitary landfill that meets international environmental standards around Georgetown. The lessons from the operation of the Mandela landfill shows that the country lacks expertise to safely conduct such operations, preserve the public health and

conserve the environment. The Mandela's landfill experienced frequent fires and leachate contaminated the city's drainage canals. The operator had difficulties following the simple engineering design and construction and operation was affected by short-term decisions and emergencies. This indicates that having a single contract optimizes the use of resources by allowing the operator to simultaneously construct and operate the landfill. It also mitigates the accountability risks related to the construction and operation done by different enterprises, as detected at Mandela and other Bank's similar projects. Therefore, GOG and the Bank has decided to have a single contract to construct and operate (CO) the landfill for a period of ten years. Hence, a PRG was designed to cover minimum payment and early contract termination obligations, enhancing the credit quality of the transaction, promoting the interest of better qualified CO operators, and thus minimizing the risk of bad environmental performance.

- 2.12 The delivery of approximately 29,070 ton/year at the landfill of HBSLF has been estimated as the minimum amount of waste that would cover the fixed cost of the CO operator considering a disposal cost of US\$8.60/ton⁶. The fixed cost of operating and properly maintaining the landfill has been estimated at US\$250,000/year. Therefore the GOG, through the MSWMD would be ensuring the CO operator the receiving of at least US\$250,000⁷ of gross annual revenue. Given that the amount of waste currently delivered at the Mandela landfill is 63,700 tons/year, it is unlikely that the PRG would have to be called on its commitment. Nevertheless, guaranteeing the minimum payment obligation would make the contract more attractive to the potential CO operators, since it assures the coverage of their estimated fixed cost.
- 2.13 To further improve the structure and to reduce the risk of calling the MF commitment or the Bank's guarantee, an account and a dedicated revolving line of credit would be provided to support the minimum payment obligations to the CO operator equivalent to payments for a period of three to five months⁸. Since the CO contract is for 10 years of operation, the maximum callable guarantee amount is US\$2.5 million estimated to be sufficient to cover both the annual minimum obligation as well as the early termination payment⁹. In the event the Bank guarantee is triggered, in accordance with the Banks Guarantee Policy the amount disbursed under the guarantee would be converted into a loan against the GOG and will have the same conditions as an FSO loan, with the exceptions of the grace period and tenor.

⁶ Estimated by ERM, the consulting firm that developed the feasibility studies of the project, as the cost to dispose waste at HBSLF.

⁷ The private sector promoter would corroborate this and other figures. The fixed cost will include salaries representing fixed costs and fixed cost payments to third parties not related to the CO-Operator. It will not include overhead cost.

⁸ This account and revolving line of credit will create a liquidity facility to the GM to make the payments on time, since the PT collection and availability of funds will take between two to three months. This account will belong to the GM and will be funded with the resources of the PT collected by the GM. At present, the GM already operates with a revolving line of credit to support its general payment obligations, including solid waste collection and disposal.

⁹ It has been estimated that the CO bids could bring resources to apply as capex towards the construction of the HBSLF of no more that US\$1.5 to US\$2.5 million. Under no circumstances will the guarantee exceed the sum of the remaining minimum annual obligation and early termination payments.

- 2.14 A private sector promoter or consulting firm (CO promoter) will be hired to advise and assist the GOG in the design and implementation of tender process and the definition of the final algorithm to select the CO operator. The criteria to select the CO Operator may include: (i) minimum present value of the resources provided by the Bank's loan used to build and landscape the landfill area and the annual minimum payment obligations; or (ii) minimum cost per ton of waste disposed at HBSLF, given an investment cost of US\$8.75 million to build and close the landfill and a minimum annual payment obligation of US\$250,000.
- 2.15 The benefits of using a PRG to the GOG are among others: (i) promote greater competition and participation by qualified private sector operators of landfills; (ii) promote private investment in the construction and equipment for the HBSLF; (iii) reduce the cost of disposal per ton to the benefit of the population of Georgetown and NDCs; and (iv) support the achievement of the purpose of the program.

1. Conditions of the guarantee

- 2.16 The financial conditions for the Bank's guarantee have been established in accordance with documents FN-508 and FN-568-3 for the instruments in the guarantee policies established in documents GN-1858, GN-1858-2, GN-2196-1 and GN-2311. The PRG will cover two risks: (i) the annual minimum payment obligation of the GOG; and (ii) payments to the CO operator resulting from an early termination of the contract. The obligation of the guarantee ends by year-11 starting with the signing of the Guarantee Agreement and signature of the CO contract by both parties. The guarantee will only become eligible once the Bank has reviewed and approved the terms and conditions of the CO contract. The draft CO contract will require a no-objection from the Bank represented by EN3, FI3 and COF/CGY. **The signature of the CO contract by the parties is a condition for guarantee eligibility.**
- 2.17 The HBSLF is expected to be operational 12 months after the selection of the CO operator. Nevertheless, the CO operator might decide to construct and operate the HBSLF simultaneously, optimizing the use of the project's resources, thus reducing this estimated construction period. The guarantee will be triggered if: (i) the minimum payment obligation to the CO operator is not made as agreed, which is due if sufficient waste volumes are not generated, delivered to the HBSLF and paid at the agreed price per ton to the CO operator; and/or (ii) payment upon early termination is not made by the GOG, in both cases in accordance with the CO contract. The amounts disbursed by the Bank under the guarantee will automatically convert into a term-loan against the GOG. The amount of the guarantee is the sum of the annual minimum payment obligations due by the GOG, to the CO operator for the period of the concession.
- 2.18 The Bank could reinstate the guarantee to its full amount during the validity period, once the MF has made the prepayment of outstanding disbursed loan balances under the terms and conditions of the guarantee contract. The option to reinstate the guarantee would only become effective, if exercised by the MF

during the immediate 30 days following the Bank's disbursements of the guarantee amount to the operator. However, if the guarantee is triggered and not reinstated in such 30-day period, the disbursed amounts would continue to convert to a loan to the GOG with a tenor equivalent to the remaining period of the guarantee contract, which is similar to the period of the concession. A Schema of the Partial Risk Guarantee is presented in Annex III-1.

- 2.19 The details of the PRG are: (i) amount of the guarantee: up to US\$2.5 million; (ii) commission to have the guarantee available: 25 basis points p.a.¹⁰; (iii) commission becomes available: from the signature of the guarantee contract between the MF and the Bank; (iv) tenor: up to 11 years from the signature of the CO contract; (v) Counter guarantee: counter guarantee from the GOG. In addition, to avoid direct exposure of the Bank to any risk associated with non payments by the GOG, Bank payments will be made in a trust account, administered by a trustee; these payments will be documented as Bank loans to Guyana. This trust account will also receive the payment obligations of the MG and the NDCs, as well as the resources of the loan dedicated to the construction of the HBSLF. The trustee account will be subjected to external auditing that will be paid for with resources from the loan. **Naming a trustee acceptable to the Bank will be a condition to guarantee eligibility.**

2. Conditions of the counter guarantee

- 2.20 The proposed Bank's guarantee would be provided with a counter guarantee from the GOG, documenting each Bank guarantee disbursement as a loan to the GOG. Such loan could not exceed US\$2.5 million and would have the same conditions as the FSO with the exception of the tenor, which would have a maximum amortization period of eleven years and the last payment, will coincide with the eleven-year period that the guarantee is available.¹¹

D. Cost and financing

- 2.21 The total cost of the investment program is US\$18.070 million, funded with the FSO loan. Out of the loan US\$1.9 million would be paid to PROPEF. The break down of costs by program component is provided in Table 2. All expenses financed with FSO resources are incremental, including those of the PEU. The proposed financing of the project is in line with the financial parameters agreed between the GOG and the Bank¹² On the other hand, the commitment and ownership of the government of Guyana and other stakeholders with the Solid Waste Management Program has been clearly identified, both at the institutional and financial areas. The GOG, through Cabinet, has approved the legal documents

¹⁰ The price of the facility fee for this transaction has been established in accordance with the Guidelines for the Use of Bank Guarantees (GN-1858) on the basis of OC Funding, in absence of an express reference to FSO Funding. Specific pricing has been established as per the New Capital Adequacy Policy and Lending Methodology for OC Loans and Guarantees (FN-568-5). This pricing for this transaction is being established on an exceptional basis for this particular operation and should not be construed as a precedent for similar transactions.

¹¹ Given that Guyana is a HIPC country, FSO are the only conditions acceptable and a tenor of eleven years is required to meet the minimum level of concessionality agreed between the IMF and the GOG.

¹² Resolution AG/8/05 and document GN-2331-5.

that provide the institutional arrangements among the MLGRD, MG and NDC's. These legal documents, presented in Chapter III of this proposal, contain the commitments and obligations of each party towards the project, including those obligations with the private sector (CO operator). In addition, the MLGRD has provided the instructions, and the NDC's have accepted them, to implement a cost recovery mechanism devised for the project, as explain in Chapter IV section C.

Table 2
Costs of the Georgetown Solid Waste Management Program (In thousands of US\$)

Category	IDB/FSO	PROPEF	TOTAL	%
1. Management and supervision	500	0	500	2.8
1.1 Project Executing Unit (PEU)	500	0	500	2.8
2. Direct Cost	14,200	1,880	16,080	89.0
2.1 Institutional Strengthening and Capacity Building	1,800	165	1,965	10.9
a) ISSC	1,360	0	1,360	7.5
b) MSWMD	170	165	335	1.9
c) NDCs	170	0	170	0.9
d) Resettlement Plan	100	0	100	0.6
2.2 Community Participation and Public Awareness	450	47	497	2.8
2.3 Design, construction and operation	8,750	1,168	9,918	54.9
a) Design	0	568	568	3.1
b) CO Bidding Process	0	600	600	3.3
c) Construction and Operation	8,750	0	8,750	48.4
2.4 Waste collection from 15 NDCs	1,700	0	1,700	9.4
2.5 Rehab. Expa. & closing Mandela	0	500	500	2.8
2.6 Treatment & disposal healthcare & hazardous waste	1,500	0	1,500	8.3
3. Concurrent costs	100	20	120	0.7
3.1 Auditing (financial and environmental)	100	20	120	0.7
4. Unallocated costs	740	0	740	4.1
4.1 Contingencies and cost escalation	740	0	740	4.1
5. Financing Costs	630	0	630	3.5
5.1 Interest	450	0	450	2.5
5.2 Inspection & Supervision	180	0	180	1.0
TOTAL	16,170	1,900	18,070	100
%	100			

- 2.22 The users of the services in Georgetown and the NDCs are financing recurrent costs. It is estimated that for the five years of execution of the project, the served population will contribute, through property taxes and household fees, with US\$9.4 million (this figure excludes the US\$1.7 million finance with loan for collection and disposal of the NDC's while they build the capacity to pay for these services). Moreover, the GOG has the obligation to pay for these services if for any reason the revenues are not available from the NDC's. It is estimated that in the worse case scenario, the GOG will standby to pay between US\$2.0 million and US\$2.6 million during the five-year period of execution of the project, should the NDC's not generate the require funds. In addition, the GOG will pay the credit fee for about US\$225,000. None of this figures contributed either by the GOG, the MG or the NDC's are considered in the project cost.

III. PROGRAM EXECUTION

A. The borrower and executing agency (EA)

- 3.1 The GOG represented by the MF will be the Borrower of the loan. The MF will sign the loan agreement with IDB and will have overall responsibility for

repayment of the loan and the PRG. The GM through the MSWMD will be the EA of the program. To execute the project, the MSWMD will be supported by a PEU structured as defined in 3.7.

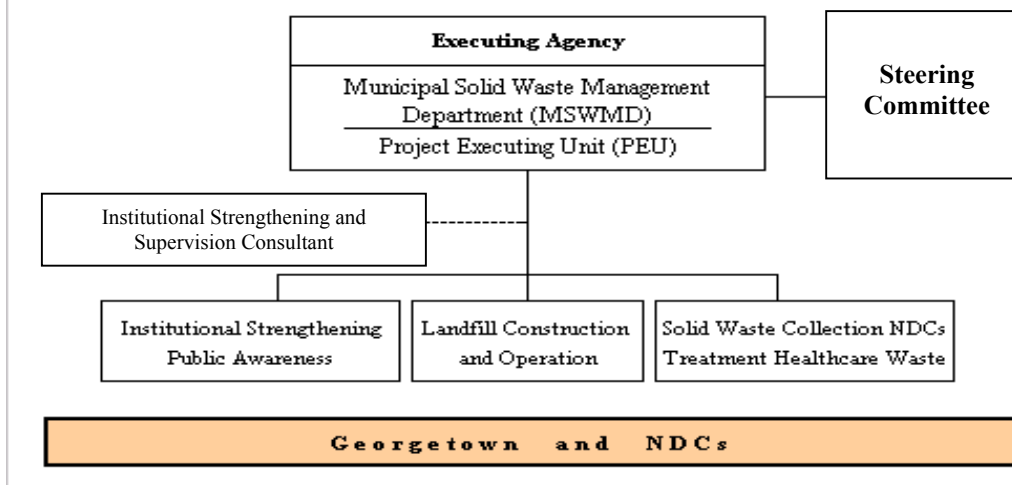
- 3.2 All key stakeholders, including the MF, MLGRD and GM have signed an Aide Memoire, which formalizes their commitment to the objectives of the program and agreement to their roles and responsibilities throughout the implementation of the program. Under this agreement the MLGRD will commit to transfer the proceeds of the loan to the PEU housed in the MSWMD, which is operating under delegated authority of the GM. The EA, with the support of a PEU, the Steering Committee (SC) and a ISSC, will have the overall responsibility of the day-to-day operations of the project including procurement, contract, management and supervision of privately operated contracts, such as collection and landfill construction and operation, as well as all other contracts required under program execution. The MLGRD, the MF and the GM have actively participated in the program preparation. The MLGRD, the MF and the GM will sign both a subsidiary agreement and the GM will sign a delegation instrument¹³ to the MSWMD before Board consideration of the Loan Proposal. A Subsidiary Agreement, reviewed and agreed with the project team, establishes the participating NDCs, the directive from cabinet to GM and NDCs to participate in the program, the roles and responsibilities towards the project by the MF, MLGRD and the GM, the delegation of authority from GM to MSWMD to execute the program, the “Deed of Gift” of the site by the Land and Survey Commission to the GM to use the land for the landfill, and the obligations of the NDCs to participate in the program. **This agreement will become effective as condition to first disbursement.**

B. Program execution and administration

- 3.3 The execution of the program will be the responsibility of the MSWMD and the PEU. However, the scope of the program exceeds the responsibilities of the MSWMD since: (i) the new sanitary landfill is located outside Georgetown’s boundaries and will be implemented under a CO type of contract with a private operator; and (ii) waste collected from 15 NDCs will be disposed at HBSLF, increasing the present waste loads to be disposed off by 40% in the next five years. Therefore, in order to provide for an adequate program execution, the GOG agreed to: (i) create an SC with the participation of all stakeholders including representatives from the NDCs in order to provide guidance to the EA and review working plans related to the program in matters beyond the GM jurisdiction and without imposing unnecessary restrictions on the EA’s decision making, and (ii) contract an ISSC to support the EA - PEU and provide additional strengthening and build new capacities within the MSWMD and NDCs, primarily in the area of control and supervision of the CO operator.

¹³ The terms and conditions of the draft agreement have been included in the Aide Memoire of March 14-25, 2005.

Figure 3
Institutional Arrangement for Project Execution



- 3.4 Cost recovery mechanism: Four cost recovery models were considered during project preparation: (i) a flat solid waste tax included in the PT; (ii) a solid waste tax based on the weight of the contribution of the property owner group in the costs of solid waste management; (iii) full cost recovery through direct tax according to the polluter-pay-principle; and (iv) partial direct recovery of O&M costs; combined with alternative methods for billing (individual and joint billing with water, electricity or other). Immediate implementation of Models 2, 3 or 4 would require major legal, institutional and accounting changes not compatible with the program's timetable and the sector immediate needs in Guyana. Full cost recovery is desired but it would represent a burden on the household budget since the expected charge would range from US\$3-US\$4/ household/month. Therefore, a more gradual evolution towards full cost recovery was found to be the most feasible solution, especially with regards to the NDCs, which have no track record of either adequate solid waste management neither of recovering the pertinent costs.¹⁴
- 3.5 The agreement reached includes: (i) the improvement of the existing GM's cost recovery mechanism through the PT with the creation of a special solid waste account; (ii) replicate the GM cost recovery mechanism at the NDC ; (iii) implement, when necessary, a solid waste surcharge to cover O&M costs for collection and disposal; (iv) better enforce the illegal dumping legislation; and (v) collect a gate fee equivalent to the disposal cost. The GM's cost recovery mechanisms rely mainly on an efficient and timely PT collection to cover O&M and capital costs for solid waste collection and the O&M cost for disposal¹⁵.
- 3.6 At the NDCs level it is necessary to:(i) review and update the NDCs property cadastre; (ii) computerize the PT collection system; (iii) enforce the collection of

¹⁴ The legal instruction from the MLGRD to the NDC's to implement the cost recovery mechanism will be submitted to the Bank before the presentation of the proposed loan to the Board.

¹⁵ The GOG subsidizes the capital cost for design and construction of the sanitary landfill.

arrears; (iv) implement target public awareness campaigns; (v) implement an adequate solid waste collection system, and (vi) implement a surcharge fee for solid waste management to ensure that every NDC willing to participate in the program generates sufficient revenues to cover its O&M costs. The program will provide resources to buy software, hardware and hire technical assistance to improve PT collection. Additionally, one or two lawyers will be retained to assist the NDCs with their arrears, a cash reserve will be created during the first two years, and the ongoing public awareness program will be expanded to the participating NDCs.¹⁶ **A contractual clause has been included requiring the signature of bilateral agreements between at least 10 NDCs and the EA by the end of the first year of project execution. These agreements should state the NDCs' commitment to participate in the program and implement a cost recovery mechanism through better enforcement, timely collection of PT and if necessary an additional household charge.**

- 3.7 The EA: The MSWMD through the PEU, acting, as the EA in delegation of the GM, will be responsible for the program's implementation. The MSWMD staffing includes 65 employees total (seven managers and supervisors, five administrative and 53 operatives including waste-collectors). Additionally, there are 112 employees from private contractors including drivers, helpers and others. The PEU will be housed in the MSWMD to be responsible for project execution, with specific responsibility for procurement activities, financial management and reporting to the MSWMD and MLGRD. The PEU will include a project manager, a sanitary engineer, a procurement officer and an accountant. The profile of these professionals have been defined and they will be selected jointly by the MLGRD and MSWMD. The loan includes resources to pay for the PEU salaries.
- 3.8 The MSWMD through the PEU will be responsible for the following: (i) supervise the execution of open and transparent tender exercises for the various program components in compliance with the Bank's international competitive bidding procedures; (ii) prepare annual work plans; (iii) formulate requests for project funds; (iv) ensure compliance with the terms and conditions of the Memorandum of Understanding with key stakeholders; (v) undertake the technical monitoring, supervision and quality control of specialist consultants and contractors hired to execute particular components of the program; (vi) oversee the use, maintenance and repair of project equipment; (vii) prepare biannually progress reports for, and attend meetings with the SC; and (viii) assist the NDCs in the implementation of an efficient waste collection system and a cost recovery mechanism. The particular role of each key institution is discussed in the following paragraphs.
- 3.9 The Steering Committee (SC): The Cabinet, through the CP(2005)10:1:RR, announced the establishment of the SC and specifies its composition and functions. The EA and the PEU will receive guidance from the SC. The SC includes representatives from: the MF, MLGRD, GM, MH, participating NDCs, RDCs (District 4), Private Sector Commission, Tourism Association of Guyana and Eccles/Ramsburg Community. Since early 2004, a provisory Steering

¹⁶ Three NDC's should sign the bilateral agreement before the presentation of the project to the Board.

Committee has been functioning regularly and has proven to be effective in coordinating certain activities¹⁷. The mission of the SC will be to support and advise the MSWMD in the progressive implementation of appropriate and affordable waste management practices, procedures and technologies in line with the interests of all key stakeholders, and to provide the basis for open discussion and agreement between the stakeholders.

- 3.10 The SC will monitor the performance of the EA via reporting by the MSWMD Director at biannual Committee Meetings. Other specific roles of the SC include: supervision of the relationship of the MSWMD and the CO operator, advise on the need for arbitrators, revise the MSWMD annual strategy; providing advise related to budgeting, need for training and recruitment; and the implementation of cost recovery mechanisms.
- 3.11 The GM: will act as EA through its MSWMD. The GM will delegate the functions of EA to the MSWMD including the signature of the contract with the CO operator and other contracts for program execution. The GM and the participating NDCs will receive the temporary ownership of the HBSLF site according to Guyana's legislations needed for project execution and, through the PEU, supervise and make payments to the Private Operator. The PEU will also be responsible for loan disbursement request, prepare progress reports, and make certain decisions during project execution. The GM will play an important role within the program through participating in scheduled meetings of the SC.
- 3.12 The Institutional Strengthening and Supervision Consultant (ISSC): Since the creation of the MSWMD (late 2003) and with resources from the PROPEF the MSWMD has undergone institutional strengthening and capacity building in areas such as: (i) budgeting; (ii) contract preparation and negotiation with private enterprises; and (iii) public outreach. There has been a significant improvement in the way that the MSWMD conducts its operation. Today this department is able to carryout its own planning, budgeting, accounting, and collection and disposal of solid waste are being managed more efficiently. However, a successful implementation of this program will require further strengthening of the MSWMD and the PEU to effectively carry out the financial and administrative aspects of the project and acquire new capabilities that are not currently available within the EA including: contracting, management and supervision of a CO operator, the development of new collection systems within the NDCs as well as the implementation of an efficient cost recovery mechanism.
- 3.13 To fulfill these important needs, the GOG and the Bank agreed to further strengthen support and the MSWMD and PEU by retaining an ISSC during the first two years of project execution, with a phase-out period during the third year. The contract with the ISSC will have specific agreements and benchmarks for know-how and technology transfer in the following areas: (i) public outreach; (ii) control and supervision of CO contracts for landfill construction and operation; (iii) design and implementation of waste collection and efficient cost

¹⁷ During the flood of early 2005 the Steering Committee played an important role in coordinating activities and assisting the government to address solid waste management needs under the emergency.

recovery mechanism; and (iv) adequate execution of the project's components. Additionally, the ISSC will be responsible for implementing the results and recommendations of the Institutional Capacity Assessment System (SECI) and will also advise the MSWMD on the phase out of the Mandela landfill. During the first two years, the international staff of the ISSC will include one engineer, one financial specialist, and a public outreach specialist. After the second year of the ISSC contract it is expected that the MSWMD staff and the PEU will carry out most of the activities¹⁸ and the ISSC staff will be reduced to the engineer.

- 3.14 The Bank and the ISSC will review the CO contract, prepared with resources of the loan by a specialized firm with investment banking capabilities, in order to ensure that it is balanced and equitable, and that risks are adequately distributed between the parties. **The contract with the ISSC will be signed two months prior to the hiring of the CO operator.**
- 3.15 CO operator: A contract will be signed with a private partner to build, operate, and landscape the filled parcels of HBSLF after ten year of operation. The HBSLF is located 4 km south of the geographical centre of Georgetown, to serve the city of Georgetown and the 15 adjacent NDCs. The technical specifications and conditions to build, operate and close the landfill would be part of the obligations on the CO contract signed by the CO operator and the EA. The CO operator would receive and dispose the health care waste and hazardous material at the landfill following the results of the studies financed by the component 6. The CO contract among other important conditions would include the obligations of the EA to deliver the waste from Georgetown under certain conditions and the guarantee from the GOG that a minimum volume of waste will be delivered. In turn the CO operator would commit at disposing the waste according to technical specifications and deposit a performance bond, as counter guarantee to its obligations. The contract would specify certain conditions for the early terminations and the payments and penalties thereafter, force major situations and the insurance required to the CO operator. Furthermore, since the regulatory framework for solid waste is still evolving, building and operation the HBSLF would be regulated by contract.
- 3.16 The CO operator will be paid to operate the HBSLF by the Municipality of Georgetown and the NDCs for the disposal of its waste. While the NDCs build the tax base to finance the collection and disposal of their waste, the MF through the MLGRD would cover such gap. An agreement between the MF, the MLGRD and the NDCs should be signed prior to Board approval of the Loan Proposal.
- 3.17 The parties should do their best to resolve differences of interpretation of contract clauses. Should no agreement be reached, the parties would take the case to the Public Utilities Commission (PUC). The PUC will indicate an Arbitrator, then the parties would name a representative. This group of three individuals would make their recommendation to mediate the matter. Should the parties continue disagreeing on the decision, the decision would be taken to international arbitration. The results of the international arbitration would be binding to both

¹⁸ The TOR for the ISSC have been already drafted and agreed in principle with the GOG.

parties. The CO contract would include the exact procedure to resolve differences among the parties and establish the periods of time for each step of this process.

- 3.18 Timetable: The CO promoter will be hired with resources from the PROPEF before the end of 2005. The CO operator will be selected by mid 2006 to start construction during the second semester of 2006. The HBSLF is expected to be operational before the end of 2007 when Mandela is to reach its filling capacity. The ISSC will also be selected by mid 2006 to start working in the supervision of the CO operator. Resources from the PROPEF will also be used to start the work with the waste pickers and extend the public awareness campaign (PAC) under execution to the NDCs. This PAC will merge with the major effort of component 2 that will be contracted during 2006. The health care and hazardous waste study will be completed by July 2007, before the HBSLF is operational.

C. Procurement of goods and services

- 3.19 Bank procedures will be followed in the selection on the CO operator. The CO operator would purchase goods, civil works and services following principles of efficiency and competitiveness. The CO contract will specify the conditions under which the CO operator will transfer the HBSLF to the EA. The MSWMD is adequately staffed, has been strengthened with support from the PROPEF, and will continue to be strengthened during the execution of the project. (see Annex II-1: Procurement Plan and Annex II-2III: Agreements regarding procurement issues). Furthermore, for project execution, the MSWMD will be supported by a PEU that incorporates a procurement officer, an accountant, a sanitary engineer and a project manager.

D. Project preparation and execution facility

- 3.20 Upon GOG request the Bank approved a PROPEF for an amount of US\$1.5 million (LO-1487/SF-GY) to conduct preparatory activities of the program including engineering designs and preparation of the EIA of the new disposal site, strengthening of the EA and expansion of the public awareness campaign designed under LO-1052/SF-GY. In addition, the amount budgeted under Loan 1052/SF-GY for an environmentally safe closure of the Mandela Site resulted to be inadequate. Therefore the Bank agreed to include in the PROPEF the amount of US\$500,000 to complement the budget of Loan 1052/SF-GY, to complete the rehabilitation and closure of the Mandela landfill. Moreover, the Bank is expanding the PROPEF for an amount of US\$400,000 to hire the CO promoter, initiate the work with the waste pickers and start a target campaign at the NDCs to enhance the cost recovery possibilities. As per PROPEF regulations, the amount of US\$1.9 million will be recovered from the first disbursement under the loan.

E. Execution and disbursement schedule

- 3.21 The majority of disbursements will be during 2006-2007 when the construction of the landfill and the majority of the consultancy work are being carried out. From 2008 to 2011 disbursement are for partial closure and landscaping of the completed working fronts.

Table 3 Disbursement Schedule (in thousands of US\$)							
	2006	2007	2008	2009	2010	Total	%
Year	1	2	3	4	5		
IDB	5,200	6,200	2,400	1,860	2,410	18,070	100
Total	5,200	6,200	2,400	1,860	2,410	18,070	100
%	30	35	14	9	12	100	

F. Monitoring and evaluation

1. Monitoring

- 3.22 The Bank's Country Office in Guyana will monitor all major aspects of the project, in particular the financial management and procurement processes. The EA-PEU supported by the ISSC will report to the Bank every six months for the first three years. These reports will include (i) indication of the state of the program relative to the agreed completion and disbursement timetables; (ii) updated completion and disbursement timetables by reference to the remaining program; (iii) a work plan and detailed action plan for the following two six-month periods; (iv) report on progress and compliance with environmental and social performance indicators in the Environmental and Social Management Plan based on monitoring reports prepared by the CO operator; and (v) report on achievement of the technical performance indicators set out in the Logical Framework (see Annex II-1: Logical Framework).

2. Auditing

- 3.23 The program's annual financial statements will be submitted to the Bank within 120 days after each fiscal year ends. The audits will be performed in accordance with Terms of Reference approved by the Bank and with the Bank's external audit requirements (documents AF-100 and AF-300). The audits will review the fulfillment of all the program's objectives, contract clauses and will cover compliance with the environmental and social requirements in the Environmental and Social Management Plan (ESMP).
- 3.24 Yearly reviews: Due to the innovative design of the operation with a CO operator and a PRG attached to the contract, the EA has agreed to commission yearly reviews with program's resources for the first three years to assess progress toward the program's objective in accordance to the indicators stipulated in the Logical Framework for the achievement of main outputs. The results of these reviews will provide recommendations for improvements in program execution and any corrections to address issues that were not adequately anticipated during the program's preparation.
- 3.25 Final evaluation: A final evaluation will be undertaken with program's resources, when 80% of the disbursement of loan resources has taken place, which will look into the evolution of the main indicators of the Logical Framework.

- 3.26 Independent auditing for environmental and social performance: With program's resources, independent environmental and social auditing will be performed after half of the resources are disbursed and just prior to the final evaluation. The EA-PEU will hire an independent firm or NGO to perform the auditing and make the results available to the EA, EPA and the Bank to be used as input for the third year review and final evaluation.

IV. VIABILITY AND RISKS

A. Institutional viability

- 4.1 The MSWMD was created in October 2003 with a clear mission and objective, financial and procurement autonomy, an organizational structure with clear lines of reporting and accountability, job description and personnel profiles for staff positions, and a well defined yearly action plan. Today, the MSWMD is managed in a transparent and accountable manner and it is responsible for solid waste management activities within Georgetown including: waste collection, disposal, district sanitation, and litter prevention. The MSWMD main responsibility in waste collection and disposal is the supervision of the contracts with the private contractors (two for collection and one for the operation of Mandela). District sanitation and litter prevention is carried in house. A PEU will be conformed jointly between the MSWMD and the MLGRD and housed in the MSWMD. The PEU will add additional capacity to the MSWMD for engineering and environmental supervision, accounting and procurement. As a result, MSWMD - PEU gather the necessary conditions to ensure an adequate implementation of this program. **The implementation of the PEU will be a condition prior to first disbursement.**
- 4.2 Given that the project scope goes beyond the perimeters of Georgetown and the hiring of a CO operator with its particularities, the GOG will strengthens the EA through the hiring of an ISSC and the establishment of an SC to support the program execution. The combination of the above three bodies (the EA, the support of the ISSC and the guidance of the SC) would provide the institutional arrangement for the adequate program execution. **The establishment of the SC is a condition prior to first disbursement.**

B. Socioeconomic viability

- 4.3 The main beneficiaries of the program will be the habitants of Georgetown and the 15 NDC's participating (six in the East Bank, seven in the East Coast and two in the West Bank). Adequate disposal of solid waste will improve the their livelihood, specially among health risk groups which are informal sector workers in the segregation and recycling of materials. Waste pickers peculiar to the Mandela Site are vulnerable to communicable diseases (vector borne, water borne, food borne and soil borne), non-communicable diseases and injuries. Another at health risk is children under five whose health is heavily dependent on the environment. In 1995 leading causes of morbidity for this group were acute respiratory infections, worm infestation, and diarrhea diseases, all conditions

related to lack of sanitary conditions because of the nature of communicable diseases spawned by dump sites or stagnant waterways, the dust, fumes and odor emanating from these sites¹⁹. Also beneficiaries of the program are the communities in close proximity to current locations for waste disposal by incineration.

- 4.4 Benefits: The benefits of the program are related to the avoided damage costs when the program is implemented. Without the project, the sanitary conditions for Georgetown and its environs would continue to affect society in significant damaging ways. These avoided costs are: (i) costs associated to nuisances derived from the inappropriate disposal of waste in Mandela and other non-suitable areas; (ii) health impacts of groundwater contamination and the risk of epidemic diseases caused by vermin and other vectors; (iii) value losses of property affected by the location and operation of Mandela. In synthesis, the main justification for the project comes from the unsatisfactory situation at Mandela and other dumpsites where no proper landfill procedures are followed.
- 4.5 Cost analysis: The investment activities in the new sanitary landfill are considered a standard procedure for a modern facility from a technical and environmental point of view. The competition for the CO contract should ensure the minimum cost solution. The results of the early studies undertaken to identify the appropriate technology for waste disposal lead to the conclusion that sanitary landfill was the lowest cost disposal technology and the only system that can handle all types of waste. This finding is in line with several studies done for multiples countries where in average cost of disposal by metric ton in sanitary landfill is 4-7 times less than incineration. A second study, adopting international accepted sitting criteria investigated potential sanitary landfill sites. The area around ECCLES was found to be the most suitable site though good mitigation practices would be required as proposed in this project. The proposed landfill site at Haags Bosch is contiguous to Eccles and has the same geological, and environmental conditions.
- 4.6 The technical design for the site considers a landfill that has a lifetime of 25 years, although the CO contract is for 10 years. The available information from the cost recovery analysis for solid waste disposal at HBSLF, the O&M cost per ton, and the per capita cost data provided by the engineering designs: US\$6.5 million for basic infrastructure for phase 1 out of four that makes the 25 years of operation, US\$1.59 million for the construction of each new phase²⁰, US\$0.25 million for each phase closure and US\$1 million for the final closure of the HBSL after 25 years of operation, leads to the Total Net Present Value of the waste disposal cost for 25 years of US\$14.78 million with a per ton NPV Cost of US\$6.42 (discount rate 12%). This cost is well within the standard range of waste disposal at sanitary landfills (for example, the estimated cost of waste disposal at a landfill in a recent Bank project in Jamaica was US\$9 per ton).

¹⁹ Sectoral Analysis of Solid Waste in Guyana. PAHO/WHO. 2004.

²⁰ It is assumed that each phase lasts 5 years therefore conditioning for new phases takes place in years 6, 11, 16 and 21. Closure of each phase takes happens in years 7, 12, 17, and 22. Year 1 is construction of the landfill and year 27 is closure of the landfill.

C. Financial viability

- 4.7 Present revenue flows are insufficient to ensure a full cost recovery (O&M and capital cost). Providing that the GOG subsidizes the capital costs (design and construction of the HBSLF), the GM solid waste operations show financial viability. GM revenues are sufficient to cover the O&M and capital cost for solid waste collection and O&M costs for disposal. However, the financial viability for the NDCs is different. As indicated before, the NDCs have no track record of adequate collection and disposal of solid waste and neither have a cost recovery mechanism in place.
- 4.8 To ensure the program's financial viability at the NDCs it is necessary adequate implementation of the following: (i) a formal mechanism for solid waste collection in at least three NDCs participating in the project will start taking place in 2006, solid waste collected from these NDCs will be initially disposed at the Mandela Landfill²¹; (ii) the GOG subsidizes the investment cost for the construction of the HBSLF, (iii) the MG and the NDCs participating in the program will agree to allocate a percentage of their PT to cover O&M expenses, (iv) the NDCs collect a solid waste surcharge equivalent to US\$1/ month/household to meet O&M costs under instruction from the MLGRD. A surcharge US\$2/household/month has been tested successfully at Eccles/Ramsburg. The expected \$1 fee represents less than 2.2% of income spent in solid waste management; (v) the GOG subsidizes the O&M cost for the NDCs collection during 2006 and 2007, this subsidy should promote the NDCs participation in the program, enhance the possibilities of contracting private operators, and enable the establishment of a cash reserve fund through the accumulation of PT resources and the household fee collected during this first two years, and (vi) all NDCs participating in the project and the EA will be required to sign a bilateral agreement committing to the above. Prior to Board consideration of the Loan, the bilateral agreements between at least three participating NDCs and the EA be signed.
- 4.9 A successful implementation of the actions described above would ensure the financial sustainability of the project (Table 4.1). However, failure to implement cost recovery at the NDCs could represent a financial burden to the GOG.

1. Operation and maintenance costs (O&M)

- 4.10 The total O&M expenses are projected to increase from US\$1.37 in 2004 to US\$1.98 million/yr in 2011 due to the incorporation of the waste generated by the 15 NDCs, over this period. The volume of solid waste that will be collected and disposed is expected to gradually increase from 197 tons/day in 2004 to 254 tons/day in 2011.
- a. Georgetown: The amount of solid waste disposed at HBSLF is expected to increase from 126 tons/day to 133 tons/day. This will represent an increase in O&M expenses from US\$0.99 to US\$1.08 million/yr. The largest portion of

²¹ Participation of the NDCs in the program during the first year is limited to three by the operational capacity at the Mandela landfill. By the end of 2006 it is expected that all 15 NDCs are engaged in the program.

the expenses is the collection cost which represents 65.4% of the total (US\$726,200/yr on average).

- b. The NDCs: The amount of solid waste delivered at the HBSLF is expected to increase from 71 tons/day to 121 tons/day. As indicated before, today a large portion of the NDCs pays a minimum solid waste disposal charge at Mandela site, and the cost of collection is in many cases privately paid. Therefore, the increase in volume will significantly impact the O&M costs, which are expected to increase from US\$136,000 in 2004 to US\$621,000 in 2010. Both collection and disposal costs account in similar proportions for expense growth.
- c. The administrative expenses increases by 13% during the first year as a result of the inclusion of the NDCs and remains unchanged thereafter.

Table 4.2
Expenses with Solid Waste Management

Expenses	Base Line 2004	Budget 2005	Projected 2006 0	2007 1	2008 2	2009 3	2010 4	2011 5
Solid Waste								
Disposed (Tonnes/day)	197	203	210	225	232	240	247	254
% out of total solid waste	69.9%	70.0%	75.0%	79.9%	82.4%	84.9%	87.4%	90.0%
Household	81.8%	81.8%	81.9%	82.0%	82.1%	82.2%	82.3%	82.4%
Commercial, Industrial	18.2%	18.2%	18.1%	18.0%	17.9%	17.8%	17.7%	17.6%
Tariffs/Cost								
Cost for Collection/Tonne	10.7	10.9	10.6	11.5	11.4	11.2	11.1	11.0
(Average) Cost for Disposal/Tonne	5.0	5.5	6.1	8.4	8.2	7.9	7.7	7.5
Cost for Administration/Tonne	3.4	3.4	3.4	3.4	3.3	3.2	3.1	3.0
Collection Cost	688.0	700.0	700.0	726.2	726.2	726.2	726.2	726.2
Disposal Cost	303.8	350.0	350.0	408.4	395.9	384.2	373.1	362.7
O&M Georgetown	991.8	1,050.0	1,050.0	1,134.6	1,122.1	1,110.3	1,099.3	1,088.8
Collection Cost	82.2	110.0	110.0	223.1	240.3	257.5	274.6	291.8
Disposal Cost	54.6	60.0	120.0	283.6	296.1	307.8	318.9	329.3
O&M NDCs	136.8	170.0	230.0	506.7	536.4	565.3	593.5	621.1
Administrative expenses	244.7	250.0	260.0	277.6	278.1	278.6	279.2	279.9
Operation & Maintenance Cost	1,373.3	1,470.0	1,540.0	1,918.9	1,936.5	1,954.2	1,972.0	1,989.8

2. Revenues

- 4.11 Combined sources of revenue during 2004 were sufficient to cover O&M including administrative expenses. The total revenue to cover solid waste expenses reached US\$1.46 million. This included US\$1.32 million from GM and US\$0.13 million/yr for the NDCs. The main source of revenue was PT (95.9%). Other sources of revenue include: gate fees, penalties, contributions, etc. Revenues are expected to grow from US\$1.46 in 2004 to US\$2.11 million in 2011. The bulk of revenue growth will come from the NDCs, which is expected to grow from US\$136,800 to US\$697,100 over the same period. The main drivers of revenue growth are: PT collection efficiency, PT allocation, and the implementation of US\$1/household fee at the NDC level (see ¶4.8).
- a. Georgetown: PT collection today at 70% is expected to increase by 5% to 75% and the PT allocation to solid waste management will remain unchanged (15%). The average revenue during the first five years is US\$1.42 million, sufficient to cover O&M (US\$1.11 million). After covering administrative expenses Georgetown would generate a cash surplus of US\$89,000 as a working capital.

- b. The NDCs: PT collection efficiency is expected to increase gradually during the first five years of operation from 55% to 75% and PT allocation to solid waste management is expected to grow from 25% to 35% starting the first year. This increase is expected to be the result of the implementation of the cost recovery mechanism as described in ¶3.5 and ¶4.8. The combined effect of the increase in PT collection and the target allocation should almost double the revenue for solid waste management (US\$136,800 to US\$260,400). However, this increase would be insufficient to cover O&M expenses. Hence the need for a household fee equivalent to US\$1/month/household to be collected similarly to the PT. This fee could be collected with the PT on a yearly basis or monthly basis. This revenue flow is expected to reach US\$436,700 by the end of the fifth year of operation. The sum of these two sources of revenue would generate on average US\$666,900/year. This would be sufficient to cover O&M expenses during the first five years, which on average total US\$564,600/year. After covering administrative expenses the NDCs would generate a cash surplus of US\$45,000 as a working capital.

Table 4.3
Revenues for Solid Waste Management

Revenues	Base Line 2004	Budget 2005	Projected 2006 0	2007 1	2008 2	2009 3	2010 4	2011 5
<i>PT Cost Recovery</i>	69%	70%	72%	74%	74%	75%	75%	75%
<i>Budget allocation</i>	16%	17%	17%	18%	18%	18%	18%	18%
<i>PT allocation</i>	1,273.6	1,300.0	1,330.0	1,364.5	1,364.5	1,364.5	1,364.5	1,364.5
<i>Fees and others</i>	53.1	55.0	60.0	61.3	59.4	57.6	56.0	54.4
Georgetown	1,326.6	1,355.0	1,390.0	1,425.8	1,423.9	1,422.2	1,420.5	1,418.9
<i>PT allocation</i>	136.8	155.0	175.0	225.7	243.1	260.4	260.4	260.4
<i>Fees and others</i>	-	20.0	60.0	374.0	404.1	434.3	435.5	436.7
NDCs	136.8	175.0	235.0	599.7	647.1	694.7	695.9	697.1
Revenues	1,463.4	1,530.0	1,625.0	2,025.5	2,071.1	2,116.8	2,116.4	2,116.0

D. Environmental and social impact

- 4.12 An EIA and an ESMR were prepared for the operation following EPA's procedures and guidelines and IDB's requirements. The ESMR is an annex to this report. Public consultation was integrated to all stages of project and EIA preparation. From December 2003 to February 2004 the EPA conducted a public consultation to prepare the Terms of Reference of the EIA. The completed EIA was put for public consultation for two months and submitted to two public hearings, the last and official one held on October 9, 2004. Concerns were raised regarding traffic, waste pickers around their residences at Eccles NDC, noise, odors and diminishing property values due to the perceived proximity of the landfill. The GOG then relocated the sanitary landfill from Eccles to Haags Bosch, an extension of the Eccles area with the same geological and environmental conditions, two kilometers from the nearest residence. On March 16, 2005 the EPA approved the EIA and granted a permit for the HBSLF; and on April 22, 2005, the EIA was put in the IDB's web page.

- 4.13 The project will have, overall, a major positive environmental, social and public health impact, particularly as a result of the closure and rehabilitation of the existing landfill at Mandela Avenue in the center of Georgetown. Other positive impacts include: (i) provision of a sustainable waste disposal solution for Georgetown and NDCs; (ii) major improvement in the working conditions of 121 waste pickers; (iii) generation of 1 megawatt of energy and carbon credits from the Mandela's landfill gas and with a potential to generate two megawatts and carbon credits from the HGSL after 2012; and (iv) awareness raising regarding solid waste disposal and health risks building from previous campaigns and specially the lessons learned from the January 2005 flood.
- 4.14 The landfill design includes waste compaction to approximately 850 kg/m^3 and daily cover to ratio of 6:1 (waste/soil) and elements to collect and treat surface runoff within the site through a system of three sedimentation ponds that provides storage and sediment removal, collect and treat the leachate through an equalization pond followed by a secondary treatment plant prior to discharge into the surrounding GUYSUCO navigation canals. Both surface waters and the treated leachate will meet EPA's discharge standards to the navigation canal. Treated leachate will show $\text{DBO}_5 = 25 \text{ mg/l}$, $\text{NH}_3\text{-N} = 2 \text{ mg/l}$ and total phosphorus of 1 mg/l . Groundwater aquifers of the vadose zone will not be contaminated since all the leachate generated will be collected and treated. Furthermore, the area of the Haags Bosch sanitary landfill is underlined by an almost impermeable clay barrier (permeability in the range of 10^{-7} to 10^{-6} cm/sec). Groundwater for human consumption is extracted from artisan aquifers confined at depths of 160m being the nearest well located 1.5 km from the landfill site.
- 4.15 Compared to the positive, the project's negative impacts are minor. The EIA identified the following negative impacts: (i) traffic adjacent to the Eccles residential area will increase in 25 trips of a 10 ton compactor truck per day; (ii) noise, exhaust and dust generated during construction and operation; and (iii) odors from the leachate treatment system. The engineering designs incorporate technical specifications for equipment performance and include an operations manual with the necessary measures to mitigate these impacts. Furthermore, the EIA environmental and social management plan (ESMP) includes contingency plans for site operation and health and safety and a detailed monitoring plan for surface and groundwater, site operation and community satisfaction. Contingency plans include trigger criteria for taking action during emergency situations. The CO operator will be responsible for implementing the majority of the mitigation and monitoring activities, whose costs are included in the site operational costs.
- 4.16 The MSWMD, supported by a ISSC, will follow closely the actions of the waste pickers, conduct the public awareness campaigns and community pilot studies and supervise the work of the CO operator. The ESMR provides a table with the responsibilities of the operator and the MSWMD. The EPA will supervise the overall environmental performance of the operation and an independent environmental and social auditor will provide further information for adequate project supervision. Surface and groundwater samples were obtained in the site as

baseline for project design. Before construction, other samples will be collected to compose a more consistent baseline.

- 4.17 A cadastre of waste pickers by gender, ethnic background, age, and income perceived was prepared on December 2003. This exercise was repeated during the preparation of the EIA culminating with a final list of 121 individuals that will be transferred to Haags Bosch. In these occasions, they were instructed in the particularities of the new project and had their inputs incorporated into the final designs. It was agreed that nobody, after the cutting date of June 24, 2004, would be allowed in the new site. The waste pickers will be organized in cooperative of 24 individuals, provided with transportation, uniforms, place to safely recycle the wastes, place to eat and clean and first aid facilities. They will be trained on how to operate under the new conditions and on emergency procedures. The cost of the resettlement of the waste pickers including training and a microbus represents US\$70,000. The cooperative will collect a fee from its members to cover O&M costs after project intervention.

E. Risks

- 4.18 Institutional risk: The lack of adequate coordination among key stakeholders to address some of the sector's main challenges created inefficiencies and hindered the sector modernization. During project preparation a new institutional setting has been implemented with a clear definition of roles and responsibilities among key stakeholders (MLGRD, MF and GM). The sustainability and consolidation of these cultural and organization change will depend on the parties' willingness to comply with the agreements as reflected in this document. Failure to achieve this objective represents an important risk. To mitigate this risk the delegation of authority from the GM to the MSWMD will facilitate coordination among the stakeholders, speed execution of pertinent tasks, and promote better and more informed decision making. In addition, the mechanism of close supervision to the program from the Bank will support the programs' execution and continuity. Finally the incorporation of a CO operator will align the interests of the different key stakeholders to a common objective. A M.O.U has been signed between these institutions in 2003 and subsidiary agreements will be signed by the EA and NDCs to define roles and responsibilities for project execution. The content of these agreements has been discussed among all the stakeholders.
- 4.19 CO operator, construction and operational risk: This project's success rests on selecting a financially solid and technically qualified CO operator for the HBSLF. Bidding documents would require that those two conditions be met for bidders to present acceptable proposals. A suitable performance bond would be required from the CO operator, which would demonstrate its commitment to the program. The Bank's partial risk guarantee in support of the minimum payment obligation and early termination payments of the GOG should foster suitable proposals and CO operators. Should the CO contract attract no candidate, construction and operation will be conducted separately. Construction risks will be mitigated through adequate supervision (ISSC) that extends three years into operation to be included in the Institutional Strengthening Component. Operation risks will be

mitigated by adequate training of winner of the bidding by the ISSC, which also could be built in the Institutional Strengthening Component.

- 4.20 Guarantee risk: The risk of calling the Bank's guarantee is minimized because the amount of waste generated by Georgetown and the 15 participating NDC exceeds the minimum to be delivered to the landfill. The payment obligations of the GOG are the equivalent of approximately 29,070 tons/year. Georgetown generates approximately 51,100 tons/year and the NDC's 51,000 tons/year.
- 4.21 Early termination of the contract risk: The CO contract would have conditions for early termination and procedures to determine obligations and responsibilities of the parties. Both payments (penalties, fees, interest charges for late payments) by the GOG to the CO operator and payments to be paid by the CO operator to the GOG are part of the early termination clauses, creating conditions to the parties not to reach an early termination of the contract. In addition, the arbitration procedures should also create a buffer towards early termination. Since there the program looks to increase private capital investments to enhance the private public partnership in the project, the Bank guarantee can be use to guarantee payment obligations due to the CO operator for early termination, if any.
- 4.22 Payment risk: The long-term sustainability of the program depends on the adequate servicing and incorporation of the NDCs to the program as they might not have the capacity to generate sufficient revenues to cover their O&M expenses. The NDCs rely during the first two years on assistance from the GOG via subsidies as well as the implementation of a household fee. Ensuring a constant revenue stream flow on both sides represents a risk that could affect the financial viability of the GM servicing area as: (i) the GOG is frequently confronted with the need to permanently allocate its resources to other priorities, and (ii) despite the population desire to have appropriate solid waste management, the current economic situation might hinder the population willingness to pay. In order to mitigate this problem, first the existing subsidy to the O&M for the collection system has been structured for the first two years. It is expected that during this period the EA will collect from households as if there would be no subsidy and create a contingency fund to cover eventual shortfalls. Second, the household fee has been set at the lowest level possible and it has been conservatively projected at an increasing collection efficiency that gradually increases from 55% to 75% during the first five years of CO operation. Third, it is a condition to the inclusion of NDCs that they can function as a stand-alone business. Additionally, through the Loan 1021-SF/GY (Urban Development Program) the 15 NDCs are being provided with training, tariff and citizens awareness campaign.

Georgetown Solid Waste Management Program –GSWMP– (GY-0055) - Logical Framework

Narrative Summary	Performance Indicators	Means of Verification	Important Assumptions¹
Project Goals			Goal to Supergoal
Better solid waste management contributes to an improved quality of life of the population of Georgetown and participating NDCs.	<p>1.1 70% of citizens complaints regarding fires, obnoxious fumes, aquifer contamination and the disposal of healthcare and toxic wastes attended and resolved by year 3.</p> <p>1.2 90% of citizens complaints regarding fires, obnoxious fumes, aquifer contamination and the disposal of healthcare and toxic wastes attended and resolved by year 5.</p>	<p>1.1.1 EPA's monitoring reports NDC and MSWMD records, and population survey through public awareness campaigns from component 2.</p> <p>1.2.1 Idem 1.1.1</p>	<p>1. Haags Bosch sanitary landfill (HBSLF) is technically evaluated prior to closure (lessons learned).</p> <p>2. New landfills are planned and put into operation prior to closure of HBSLF.</p>
Project Purpose			Purpose to Goal
Sustainable solutions to solid waste disposal implemented in Georgetown and participating NDCs.	<p>1.1 No change in ground and surface water quality reported and no fires detected at HBSLF (Ground and surface water quality water quality baseline in the ESMR).</p> <p>1.2 Mandela landfill closed following the engineering designs and does not receive additional waste by December 2007.</p> <p>1.3 Four hospitals (1 public and 3 private) report that healthcare waste is appropriately collected, treated and disposed of by the end of 2007.</p> <p>1.4 In NDCs waste collection and disposal rises from 26% at project's start to 50% at year 2 and 90% at year 5.</p>	<p>1.1.1 MSWMD and operator records and site inspections.</p> <p>1.2.1 MSWMD and EPA records and site inspections.</p> <p>1.3.1 MOH and EPA records and MOH site inspections.</p> <p>1.4.1 MSWMD and, NDCs records and site inspections.</p>	<p>1. All previous levels' assumptions are still valid.</p>

¹ The numbering of assumptions is not meant to correlate with narrative summary descriptions as the assumptions cover more than one of these at any given log frame level.

Narrative Summary	Performance Indicators	Means of Verification	Important Assumptions ¹
	1.5 Revenues for solid waste management (collection and disposal) increase from US\$1.463 million (2004 baseline) to US\$2.116 million by 2011 and expenditures with solid waste management (collection and disposal) increase from US\$1.373 million (2004 baseline) to US\$1.990 million by 2011 (See Tables 4.1 and 4.2 of Project report for intermediate indicators).	1.5.1 MSWMD and NDCs records and site inspections.	
Project Outputs			Output to Purpose
1. MSWMD and NDCs operating efficiently and effectively together with other waste management related institutions (MOH, EPA, MLG).	1.1 All solid waste management functions including: collection, disposal, enforcement and healthcare wastes, are completely operational and appropriately regulated by year 3. 1.2 20 trained MSWMD staff members are actively employed by year 2. 1.3 15 installed computer systems are adequately updated and maintained at the NDCs by the end of 2006. 1.4 Government subsidy for NDCs deposited on a escrow account on a yearly basis for years 1 to 3 of project execution. 1.5 All documentation relating to the Waste Management Project is made available to NDC project partners. 1.6 121 waste pickers operate safely at HBSLF.	1.1.1 MSWMD records and Ministry of Health records. 1.2.1 MSWMD records. 1.3.1 MSWMD records. 1.3.2 MSWMD records show that the output of computer system is a valid support to decision making and made accessible to public. 1.4.1 Bank and MSWMD records. 1.5.1 MSWMD and NDCs records. 1.6.1 MSWMD records.	1. Georgetown Municipality, Central Government, EPA and NDC's maintain commitment to solve the City's and Environs solid waste management problem. 2. Population pays the established fee for collection and disposal of wastes reflected in an increase in property tax collection. 3. Funding and support for the MSWMD continue. 4. Community effectively participates in future landfill and waste management issues. 5. All activity level assumptions are applicable.

Narrative Summary	Performance Indicators	Means of Verification	Important Assumptions ¹
	1.7 At least 45 waste management personnel trained and on activity in NDCs by year 2.	1.7.1 MSWMD and NDCs records.	
2. Community actively participates in the consideration and resolution of landfill and other waste management issues that affect their interests.	2.1 By December 2006 a former system to receive and attend complaints established and implemented in the MSWMD. 2.2 The Advisory Board (AB) meets every six months. 2.3 At least 60% of citizens surveyed know of waste management activities taking place in the NDCs by year 2.	2.1.1 MSWMD and Stakeholder records. 2.2.1 MSWMD and Stakeholder records. 2.3.1 MSWMD and Stakeholder records.	
3. HBSLF constructed and operated in a sustainable manner.	3.1 Construction of sanitary landfill at HBSLF implemented and operational 12 months after construction starts. 3.2 After one year of operation the HBSLF receives 200 tonnes/day of waste and in subsequent years this amount does not decline.	3.1.1 MSWMD technical certification records. 3.2.1 MSWMD technical certification records.	
4. Waste collected and delivered to HBSLF from 15 pre-established NDC's.	4.1 All NDCs generate and or receive additional funds to finance the collection process in their areas by year 2. 4.2 At least 41,000 tonnes/year of solid waste from 15 NDCs delivered to the HBSLF by year 4. 4.3 Seven dumpsites adequately closed by year 5. 4.4 Five small transfer stations constructed by year 5.	4.1.1 MSWMD and NDCs records. 4.2.1 MSWMD and NDCs records. 4.3.1 MSWMD and NDCs records. 4.4.1 MSWMD and NDCs records.	

Narrative Summary	Performance Indicators	Means of Verification	Important Assumptions ¹
5. Mandela landfill appropriately closed.	5.1 Mandela site closed following international accepted technical and environmental standards eliminating the correspondent health and fire hazards it represented by December 2007.	5.1.1 MSWMD technical certification records.	
	5.2 Landfill gas generated at Mandela sold on the Carbon Market by year 5.	5.2.1 MSWMD technical certification records.	
6. Healthcare and hazardous waste adequately collected and treated.	6.1 At least 365 tonnes of healthcare waste (biological) adequately collected, treated and disposed of per year by the end of 2007.	6.1.1 MSWMD and EPA records and site inspections.	
	6.2 At least 700 tones of hazardous waste (industrial) adequately collected and disposed of by the end of 2007.	6.2.1 MSWMD and EPA records and site inspections.	
Project Activities	Inputs		Activity to Output
1.1 Hiring of a Project Management Firm to support MSWMD, and other related waste management institutions in the improved performance and supervision of day-to-day activities. 1.2 Supervision of contracts. 1.3 Supervision of the works and operation of the landfill executed by the BOT operator. 1.4 Project's accounting, budgeting and reporting.	1.1 Total budget for all Component 1 activities (US\$2.04 million).	1.1.1 MSWMD records.	1. Government subsidy for NDCs delivered on time. 2. MSWMD and NDCs are able to maintain trained personnel. 3. Community open to discuss solid waste management issues and accept proposed program. 4. Biddings for consultancy, works and equipment do not delay and Center Tender Board operates in a timely manner.
	1.2 Budget (see 1.1 above).	1.2.1 MSWMD records.	
	1.3 Budget (see 1.1 above).	1.3.1 MSWMD records.	
	1.4 Budget (see 1.1 above).	1.4.1 MSWMD records.	

Narrative Summary		Performance Indicators		Means of Verification		Important Assumptions ¹
1.5	Development of the NDC's budgeting and accounting procedures for solid waste management.	1.5	Budget (see 1.1 above).	1.5.1	MSWMD records.	5. Healthcare waste generators are willing to pay for treatment and disposal of their wastes.
1.6	Stakeholder consultation and involvement.	1.6	Budget (see 1.1 above).	1.6.1	MSWMD records.	6. Population pays the established fee for collection and disposal of wastes reflected in an increase in property taxes.
1.7	Development and/or updating of Operations and Management Manuals.	1.7	Budget (see 1.1 above).	1.7.1	MSWMD records.	7. Georgetown Municipality, Central Government, EPA and NDC's maintain commitment to solve the City's and Environs solid waste management problem. 8. The Municipality and the EPA are capable of ensuring their regulatory and environmental responsibilities of the landfill operation and operator.
1.8	Effective coordination with other local national and international institutions participating within the sector.	1.8	Budget (see 1.1 above).	1.8.1	MSWMD records.	
1.9	Assistance to the NDCs updating their cadastre, property valuation and property tax collection systems.	1.9	Budget (see 1.1 above).	1.9.1	MSWMD records.	
1.10	Training of 20 professionals from the MSWMD.	1.10	Budget (see 1.1 above).	1.10.1	MSWMD records.	
1.11	Training of 45 NDC wastes management personnel.	1.11	Budget (see 1.1 above).	1.11.1	MSWMD and NDC records.	
1.12	Installation of 15 computers, one at each NDC.	1.12	Budget (see 1.1 above).	1.12.1	MSWMD and NDC records.	
1.13	Training and organization of 121 waste-pickers.	1.13	Budget (see 1.1 above).	1.13.1	MSWMD records.	
2.1	Hiring of a consulting firm to implement a series of community related activities.	2.1	Total budget for all Component 2 activities (US\$0.45 million).	2.1.1	MSWMD records.	

Narrative Summary	Performance Indicators	Means of Verification	Important Assumptions ¹
<p>2.2 Consulting firm plans and implements a strategy for raising awareness and encouraging participation in solid waste management in Georgetown and surrounding NDCs.</p> <p>2.3 Consulting firm builds capacity with local counterparts so that community awareness activities are sustainable and ongoing after the completion of the project.</p> <p>2.4 Consulting firm ensures strong links between the implementation of the community awareness component and the other components of the project, as well as with other relevant donor, national and local projects and that stakeholder consultation is carried out throughout the project.</p> <p>2.5 Survey to evaluate community's understanding of waste management issues.</p>	<p>2.2 Budget (see 2.1 above).</p> <p>2.3 Budget (see 2.1 above).</p> <p>2.4 Budget (see 2.1 above).</p> <p>2.5 Budget (see 2.1 above).</p>	<p>2.2.1 MSWMD and NDC records.</p> <p>2.3.1 Courses and workshop evaluation and records of TV and newspaper campaigns in MSWMD and NDC records.</p> <p>2.4.1 MSWMD and NDC records.</p> <p>2.5.1 MSWMD records.</p>	
<p>3.1 Execution of the topographic survey.</p> <p>3.2 Execution of the geotechnical survey.</p> <p>3.3 Execution of the soil testing study.</p> <p>3.4 Execution of the EIA.</p>	<p>3.1 Total budget for all Component 3 activities (US\$9.7 million).</p> <p>3.2 Budget (see 3.1 above).</p> <p>3.3 Budget (see 3.1 above).</p> <p>3.4 Budget (see 3.1 above).</p>	<p>3.1.1 MSWMD certification of reception and quality.</p> <p>3.2.1 MSWMD certification of reception and quality.</p> <p>3.3.1 MSWMD certification of reception and quality.</p> <p>3.4.1 IADB records.</p>	

Narrative Summary		Performance Indicators	Means of Verification	Important Assumptions ¹
3.5	Preparation of the Landfill Project.	3.5 Budget (see 3.1 above).	3.5.1 MSWMD records and certification of reception of execution blueprints.	
3.6	Preparation of the bidding documents for the operator.	3.6 Budget (see 3.1 above).	3.6.1 MSWMD records.	
3.7	Bidding and selection of operator.	3.7 Budget (see 3.1 above).	3.7.1 MSWMD records.	
3.8	Construction and delivery of HBSLF with facilities for recycling, low level composting and mechanism for leachate collection and treatment and LFG collection and burning.	3.8 Budget (see 3.1 above).	3.8.1 MSWMD records.	
3.9	Operation of the landfill for a period of 10 years in accordance with the technical specifications of the bidding documents.	3.9 Budget (see 3.1 above).	3.9.1 MSWMD records.	
3.10	Mechanisms for delivery of waste from NDCs to Georgetown developed and implemented.	3.10 Budget (see 3.1 above).	3.10.1 MSWMD records.	
4.1	Contract prepared and bid with the private sector.	4.1 Total budget for all Component 4 activities (US\$0.7 million).	4.1.1 MSWMD records.	
4.2	Cleaning and closing of approximately 7 NDC dumpsites.	4.2 Budget (see 4.1 above).	4.2.1 MSWMD records.	
4.3	Construction of 5 small transfer stations.	4.3 Budget (see 4.1 above).	4.3.1 MSWMD records.	
4.4	Purchasing of equipment such as collection bins and small collection vehicles.	4.4 Budget (see 4.1 above).	4.4.1 MSWMD records.	

Narrative Summary		Performance Indicators		Means of Verification		Important Assumptions ¹
5.1	Rehabilitation of the existing landfill area.	5.1	Total budget for all Component 5 activities (US\$0.5 million).	5.1.1	MSWMD records.	
5.2	Preparation of five additional acres including waste compaction, gas, and leachate collection.	5.2	Budget (see 5.1 above).	5.2.1	MSWMD records.	
5.3	Construction of ancillary areas such as parking spaces, office buildings, wash bays and worker's shed.	5.3	Budget (see 5.1 above).	5.3.1	MSWMD records.	
5.4	Construction of an artificial wetland for treatment of the collected leachate.	5.4	Budget (see 5.1 above).	5.4.1	MSWMD records.	
5.5	Closing and landscaping of the site when the HBSLF is operational.	5.5	Budget (see 5.1 above).	5.5.1	MSWMD records.	
6.1	Health and hazardous waste characterized.	6.1	Total budget for all Component 6 activities (US\$1.0 million).	6.1.1	MOH and EPA records.	
6.2	Technical and financial designs prepared.	6.2	Budget (see 6.1 above).	6.2.1	MOH and EPA records.	
6.3	Operation and management systems proposed.	6.3	Budget (see 6.1 above).	6.3.1	MOH and EPA records.	
6.4	Designs presented to authorities.	6.4	Budget (see 6.1 above).	6.4.1	MOH and EPA records.	
6.5	Acquisition of appropriate equipment, including a collection vehicle.	6.5	Budget (see 6.1 above).	6.5.1	MOH and EPA records.	

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/06

Guyana. Loan ____/SF-GY to the Co-operative Republic of Guyana
Georgetown Solid Waste Management Program
- GSWMP -

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 Co-operative Republic of Guyana, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Georgetown solid waste management program – GSWMP –. Such financing will be for an amount of up to US\$18,070,000, or its equivalent in other currencies, except that of Guyana, which are part of the resources of the Bank's Fund for Special Operations, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

LEGIII/GY-601586-05
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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/06

Guyana. Guarantee ____/SF-GY to the Co-operative Republic of Guyana
Guarantee for the Georgetown Solid Waste Management Program
- GSWMP -

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 Co-operative Republic of Guyana, for the purpose of granting it a guarantee for the execution of the Georgetown solid waste management program – GSWMP –. Such guarantee will be for an amount of up to US\$2,500,000 or its equivalent in other currencies, except that of Guyana, which are part of the resources of the Bank's Fund for Special Operations, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

LEGIII/GY-601584-05
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