

PROFILE II

GUYANA

Project name: Georgetown Solid Waste Management Program

Project number: GY-0055

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Date of Profile I: April 24, 2002

Borrower: Government of Guyana through the Ministry of Local Government and Regional Development (MLGRD).

Executing agency: Georgetown Municipality

Financing plan:

IDB: (FSO)	US\$ 9.5 million
Local:	<u>US\$ 1.0 million</u>
Total:	US\$10.5 million

Tentative dates:

Next Mission:	October 2003
Loan Committee:	November 2003
Board:	December 2003

PTI: No

SEQ: No

I. BACKGROUND

A. General

- 1.1 The Cooperative Republic of Guyana is located on the northeastern coast of South America bordering Venezuela to the west, Suriname to the east and Brazil to the south. Guyana covers an area of 214,970 km² with a total population of 697,000 (2001) of which 170,000 live in the capital Georgetown. During the last two decades, the population has experienced mild fluctuation and currently grows at a 0.07% (estimate for 2001) due to declining birth rates, high migration and an increased death rate. The population density is low at 3.2 per km². The population

of Guyana includes a multi-ethnic mixture composed of: 49% East Indians; 32% Africans; 12% mixed; 6% indigenous Amerindians; and 1% others.

- 1.2 The surrounding areas of the east and west banks of the Demerara River and the Demerara east coast —along the Atlantic coast— are the "Georgetown Environs", an area for potential regional cooperation on solid waste management once collection services are introduced. The total population of the 13 Neighborhood Democratic Councils (NDC) that compose the Georgetown Environs is 123,000 habitants. Therefore, with the city of Georgetown, the total population of the Georgetown Environs is 293,000 habitants.

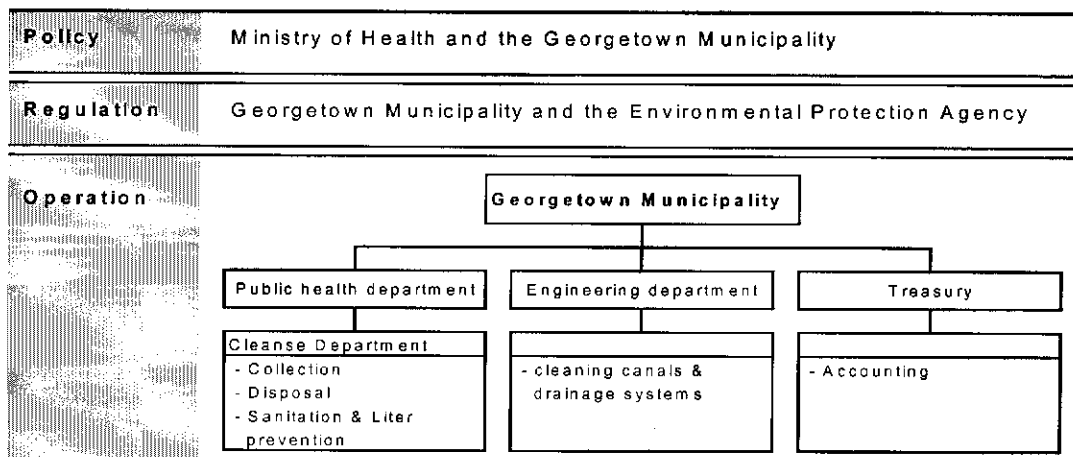
B. The Georgetown solid waste management problem

- 1.3 The city of Georgetown, with its 170,000 inhabitants, generates approximately 42,000 tonnes/year of solid wastes. Collection services reaches 90% of the city and final disposal occurs at the controlled landfill located at the Mandela Avenue surrounded by residential areas.
- 1.4 The refuse disposal site for Georgetown, located at Mandela Avenue, started out as a demonstration sanitary landfill in 1993. The site has outlived its effective life and is now in reality a controlled landfill, which is gradually expanding and encroaching into the Le Repentir Cemetery, the city's only burial site. The Mandela landfill accepts waste delivered by individual haulers, industries and neighboring NDCs such as: Eccles/Ramsburg, Industry/Plaisance, Better Hope/La Bonne Intentions, La Grange/Nimes and Magre Tout/Meer Zorgen. The site is unwholesome, is ridden with human and animal scavengers and poses a serious environmental and health hazard to the neighboring Lodge community, which is less than 100 meters adjacent.
- 1.5 The Mandela landfill has no bottom lining and the waste layers reach the upper vadose zone. Leachate seeps into the surroundings through the drainage canals. Seepage underground is expected to be negligible due to the low permeability of the subsoil. No soil cover is used, neither in the daily operation nor to cover completed sections of the landfill. Fires are frequent the latest being on May 2003 – in recent years a severe fire burned for several months. These conditions expose the neighboring population and specially the poor citizens living downwind from the site and children exploring the area, to physical and health hazards.
- 1.6 The landfill operation is contracted to a private operator and supervised by the Cleansing Department (CD). The Bank is financing the rehabilitation and closure of the site through the Georgetown Interim Disposal Site Environmental Improvement - Loan 1052/SF-GY. Rehabilitation includes the preparation of a small extension of the site to the west to provide storage capacity until the new sanitary landfill is operational. The loan was eligible for disbursement on November 2002 and the execution, initially planned for twenty-four months, has been delayed due to weak institutional capacity of the Project Execution Unit (PIU) and complex tendering procedures for hiring the necessary expertise.

- 1.7 Approximately 1.1 tonnes/day of wastes from hospitals and the abattoir are burned at an old incinerator at Princess Street. The incinerator is batch-fired and wood is used as fuel. A chimney of more than 30 meters has been reduced to only few meters due to the risk of collapse. The smoke from the incinerator is a severe nuisance to neighboring residents located less than 100 meters away and it must be assumed that the emissions affect all local residents. The incinerator is clearly outdated and there is no possibility for rehabilitation. The current site is not suitable for a new incinerator because of the proximity with residencies.
- 1.8 Informal recycling takes place at the Mandela landfill and to a minor extent also in streets, but only where commercial activity and markets are located. All waste separated for recycling is exported out of Guyana with the exception of paper and cardboard that is used by a newly established paper mill. Informal recyclers are given a short time to separate valuable material from the waste mound dumped by the garbage trucks before the bulldozers push the load up the site surface for compaction. The short time and space to perform these operations expose these individuals to high-risk situations and unsanitary conditions.

C. Institutional and legal framework

- 1.9 The Georgetown Municipality is involved in the policy making, the regulation, and the operation and management of solid wastes. The existing legal framework is deemed sufficient with respect to identification of offences and enforcement; however, responsibilities are dispersed and need to be centralized under the responsibility of one agency.
- 1.10 The project contributes to the separation of roles among the operator, the policy maker and the regulator. The participation of the private sector in the design, construction, and operation of the landfill will relieve the Municipality of the operation. The Municipality and the EPA will concentrate on regulation of operational and environmental aspects of solid waste management (SWM). The Ministry of Public Health will be responsible of the policy making. The EPA will prepare the national legislation for solid waste with the support of the Environmental Management Program Phase II (ATN/7678-GY).



1. Institutional framework

- 1.11 Nationwide, solid waste management is oriented by a Public Health Ordinance and enforced by the Ministry of Health through public health inspectors. However, the municipalities of Georgetown, New Amsterdam and Linden are responsible for supervising and monitoring the implementation of this ordinance in their jurisdiction.
- 1.12 Solid waste management in Georgetown is the responsibility of Georgetown's Municipal Council (MC). The MC has authority for all major decision making and the Town Clerk is the highest-ranking civil servant and chief administrative officer. The Clerk has overall responsibility to co-ordinate the work and implement the policies set by the Council. SWM responsibilities within the municipality of Georgetown are assigned to the Public Health Department, the Engineering Department, and the Treasury. The Public Health Department is responsible for solid waste collection, disposal, district sanitation, and litter prevention. The Engineering department is responsible for cleaning canals and drainage systems in the city. The Treasury is responsible for the entire accounting system based on simple cash revenue vs. expenditure basis. No accrual accounting or double bookkeeping is in operation.
- 1.13 The Public Health Department headed by the Medical Officer is placed below the Town Clerk at the same level as the City Engineer and City Treasurer. The present Medical Officer is seconded to the Municipality from the Ministry of Health. Within the Public Health Department the Cleansing Department (CD), headed by the Chief Cleansing Director, is directly responsible for solid waste management. The CD is divided into: collection, disposal and sanitation and litter prevention. Waste is collected on daily, bi-weekly and weekly basis according to the nature of the 11 collection districts that compose the municipal territory. The CD has contracted-out the collection in these 11 zones among six private haulage contractors. The area of Bourda is served by the CD and it is not included in the zoning system. Waste disposal and treatment, carried at the Mandela site and at the waste incinerator, is contracted to a private operator and also supervised by the CD. The CD staff carries district sanitation and litter prevention.

2. Legal framework

- 1.14 The Public Health Ordinance Cap 1945 defines that the Municipality and local Government, under the provisions of the Municipal and District Councils Act, are responsible for establishing, maintaining and carrying out sanitary services for the removal and destruction of, or otherwise dealing with all kinds of garbage and effluent. The Municipality is authorized to prescribe fees and charges, issue licenses or permits, and impose conditions with respect to sanitary services under The Municipal and District Councils Act Cap 28:01. Fees that may be charged are stipulated in the By-Laws No. 1 of 1981, e.g. the Cleansing Officer may charge a fee for removal and disposal of a carcass, and a fee may be charged for the disposal of commercial waste at any controlled landfill operated by the City

Council or incinerator. The City of Georgetown By-laws of 1981 have provisions for fixing waste generators with responsibilities. Enforcement is provided for in the By-Laws No. 1 of 1981 made under the provisions of the Cap 28:01 and the Environmental Protection Act No.11 of 1996.

D. Financial situation

1. Financing of solid waste management

- 1.15 The cost of solid waste management in Georgetown and the surrounding communities is financed almost entirely through the Municipal General Budget. The total cost for solid waste during the last five years on average represented US\$1.1 million/year. It includes administrative expenses, waste collection and disposal. The CD manages the disposal of approximately 68,000 tonnes/year and the collection of approximately 42,000 tonnes/year. The remainder (26,000 tonnes) is collected and delivered at the Mandela site by independent haulers and come from neighboring NDCs and commercial and industrial sources. Presently, NDCs do not pay to dispose their wastes at the Mandela site.

2. Cost allocation

- 1.16 The total cost is allocated among three main activities: waste collection captures 70.9%, waste disposal 20.5% and the remaining 8.7% is for administrative expenses. The expenditure for 2002 was forecasted at an even more significant rise of nearly 25%, as waste collection was extended to a new service area (Sophia).
- 1.17 Contracts with private operators for collection and disposal at Mandela represent 60% and 14,6% of the total expenditure, respectively. Additional expenses include: (i) the payment of two municipal staff members assigned to the operation of the municipal incinerator; (ii) six municipal staff members assigned to monitor activities of the private contractor at the landfill; (iii) six cleansing officers assigned to oversee litter prevention wardens; (iv) three administrative staff; and (v) legal expenses related to the administration of contracts with private operators.

3. Sources of funding

- 1.18 The costs of solid waste are funded from the Municipal General Budget. The CD's expenses over the last five years on average represented US\$1.29 million, 14% of the total budget. Within the Municipal Budget, Property Tax (PT) represents 85%, other municipal taxes and fees represents 13.8% and the remainder 1.2% is statutory subvention from the Central Government. The Property tax is determined as a percentage of the rental value of the property. The rental values were established in 1997 and since then no amendments have been made¹. There are differentiated rates for residential properties and commercial

¹ The IDB Urban Development Program (LO-1021/SF-GY) is supporting the City Council in the actualization of the PT collection system.

properties/government institutions. The Municipality estimates that residential and land only represents respectively 45% and 20% of the total rental value of all the 26,000 properties. The average household property tax payment is US\$27.21 per year.

- 1.19 The collection rate of PT is only 70%. Shortfalls within the municipality are covered from an overdraft facility up to the limit of US\$270,000 from the National Bank of Industry and Commerce. If the limit is exhausted the City is forced to stop spending. Despite frequent payment delays to the private contractors the Georgetown Municipality is regarded as a good client. Delays occurs due to: (i) short term contract payment conditions which is always shorter than the internal bureaucratic payment approval process involving the CD and the Treasury; (ii) late submission of invoices; and (iii) delays in CD to complete certification of the submitted invoices.
- 1.20 Additional funding for the CD is very limited. All revenues collected are transferred to the Municipal General Fund (MGF) on a daily basis. Such revenues represent less than one percent of the total waste management costs. Own revenues cover fees for the collection and disposals/treatment of hospital and abattoir waste and a tipping fee paid by independent individual haulers dumping at the Mandela site. The cost of collection and disposal of hospital and chemical/industrial waste exceeds by far the fee charged for the services. The same stands for the tipping fee introduced in 2001. According to Municipal regulations, 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. In case a municipality falls short of revenue to cover statutory costs, the Central Government is to provide the missing funds (Chapter 28:01 of the Laws of Guyana).

E. Bank's experience with solid waste management in the region

- 1.21 The Bank experience with solid waste management in the Caribbean includes Jamaica (Solid Waste Management -Loan 1185/OC-JA), Barbados (Solid Waste Management Program - Loan 1130/OC-BA), and Bahamas (Solid Waste Management - Loan 1170/OC-BH). These projects are in execution and the lessons learned will be incorporated into the design of this operation.
- 1.22 The implementation of tipping fees in Jamaica, as cost recovery mechanism for project sustainability, has been delayed due to political implications. The execution of the Barbados Solid Waste Management Program was delayed 12 months due to procurement difficulties. In the Bahamas delays occurred due to: (i) land acquisition; (ii) coordination between stakeholders; (iii) implementation of tipping fees; and (iv) government commitment to separate regulatory and operational functions of the executing agency.
- 1.23 Since 1998 the Bank is supporting GOG with funds for: (i) accomplish a technically and environmentally safe closure of the solid waste disposal site at

Mandela Avenue - Loan 1052/SF-GY; (ii) problem characterization and assessment which identified sanitary landfill as the minimum cost solution; (iii) waste characterization and landfill siting which identified Eccles as the best site; (iv) workshop with representatives from the private sector to identify interest in the project; and (v) studies to identify feasible institutional, cost recovery and private sector participation models for solid waste management in Georgetown.

- 1.24 The institutional and cost recovery studies were financed through the technical cooperation ATN/SF-6858-GY and executed from February to June 2002. The consultant's final report was discussed with all the stakeholders during a workshop on May 08, 2003. Stakeholders preferences were: (i) an institutional model with an Executing Agency (ExA) commanded by a strengthened and upgraded subjected to an Advisory Board; (ii) the creation of a separate account for solid waste management; and (iii) private sector participation in the form of separate biddings for design, construction and operation of the new facility.
- 1.25 Two missions visited Guyana to further advance with the project preparation. However, due to delays in the execution of the Loan 1052/SFGY and the complexity of execution of this project, the Government and the Bank agreed on a revised time-table and an action plan to present this project to the Board in 2003.

F. Coordination with other donors

- 1.26 The CD does not expect funding or technical assistance from other donors for this year. The City Council, however, is entitled to benefit from a US\$5,000,000 grant from the Federation of Canadian Municipalities for institutional strengthening. The Pan-American Health organization upon request offers support on training and technology transfer. The CD will request support for capacity building on composting, recycling and others aspects of solid waste management. The project team will coordinate with other donors in these areas.

II. BANK STRATEGY

- 2.1 The Country Strategy Paper (CSP) approved by the Board on December 2002, seeks to reduce poverty by helping Guyana address its three major development challenges: (i) accelerating and sustaining economic growth; (ii) improving governance and modernizing the public sector; and (iii) strengthening social programs. One of the challenges is the strengthening of the social sector through improved education and health services and the enhancement of the capacity and efficiency of the national statistical system for monitoring living conditions and evaluating programs. The Bank is contributing to those goals strengthening the institutional capacity of the public agencies responsible for the provision of services and the rehabilitation of infrastructure.

- 2.2 An improved solid waste management is a prerequisite for sustainable development and one of the goals of the country's Poverty Reduction Strategy (PRS). The proposed operation is consistent with the IDB's Draft Environmental Strategy for Guyana and the policy to preserve and improve the environmental quality and it is also coherent with its health policies of protecting the health of the community through the reduction of disease prevalence by sanitation. This infrastructure project is listed as one of the priority programs in the CSP, and constitutes in an important effort to promote the private sector participation.

III. PROJECT DESCRIPTION

A. Objectives

- 3.1 The general objective of the program is to improve the environmental conditions and consequently the quality of life of the population living in Georgetown and Environs through better solid waste management.
- 3.2 Specifically, the program aims to solve the Georgetown's and Environs solid waste disposal problem through the implementation of a sanitary landfill at Eccles with the participation of the private sector. The new system will aim to be efficient, prevent pollution, and be accepted by the residents. The degree of waste compaction achieved, groundwater quality compared to a baseline to be obtained during the design of the new facility, and number of residents participating in the program are indicators to be better refined during project preparation.

B. Components

- 3.3 To attain the program's objectives, financial resources will be available to support the following components: (i) institution strengthening and capacity building for solid waste management; (ii) community participation and public awareness program; (iii) design, construction and operation of the sanitary landfill at Eccles and closing the Mandela site (additional resources to complete closure of the Mandela site in light of new EPA requirements not previously budgeted); and (iv) studies and investments in healthcare wastes treatment.
- 3.4 To expedite the preparation of the final designs and foster the institutional capacity of the Executing Agency (ExA), the GOG requested a PPEF (US\$1.5 million) and the Bank is currently completing the documentation for its approval. The GOG has already called for bids and expects to hire a consulting firm to prepare the final designs shortly. This PPEF will enhance the execution of the project and mitigate identified weakness within the ExA. Furthermore, the PPEF will provide additional funds to assist in the closing of the Mandela site, attending additional requirements from the EPA not previously budgeted. The project team expects that with these actions the ExA will be ready to execute the project efficiently and expeditiously once this loan is approved.

1. Institutional strengthening and capacity building for the solid waste management (US\$1.55 million)

- 3.5 Institutional strengthening will be initially financed with PPEF funds in order to establish a separate waste management department within the Georgetown Municipal Council, from now on Municipal Solid Waste Management Department (MSWMD) at the same level of the Public Health Department, with provisions to: (i) separate accounting for municipal solid waste management; (ii) separate different waste management functions and clarify the roles and responsibilities of the stakeholders involved; (iii) increase overall authority and autonomy in the provision of municipal solid waste services. This component will also assist in training the future department staff to perform as the project's ExA, effectively negotiate and monitor contract performance in waste disposal operations, and catalyze the establishment of an autonomous regional solid waste management organization. The component will also support the new MSWMD with equipment, capacity building, and transfer of technology to supervise the construction and operation of the new facility, including monitoring technical, social and environmental variables, and the preparation of the proper legal instruments for private sector participation.

2. Community participation and public awareness program (US\$0.45 million)

- 3.6 Support a wider public awareness and environmental education program headed by the EPA in close coordination with the Georgetown Municipality, the MLGRD, and NDC's to fully inform and involve the citizens, stakeholders, teachers, community groups and NGOs on the major decisions regarding solid waste management. The approach to be used involves the provision of information, and consultation and involvement. **Provision of information** involves: (i) environmental education; (ii) concepts of Integrated Solid Waste Management; (iii) SWM services, how they are provided and costs; (iv) the roles and responsibilities of the municipality, EPA and the public in achieving effective waste management services; and (v) what can be expected in terms of performance for the new system. Actions will be divided in short, medium and long term and includes the development of information material (flyers, posters, fact sheets, press kits etc), mass education campaigns (newspaper articles, EPA staff on TV etc), train of trainees, school poster Contest and Exhibition, introduction of fun materials at school, help line services etc. **Consultation and involvement** include ensuring that stakeholder priorities and concerns are taken into account in the design, construction and operation of solid waste management infrastructure for the city. Solid waste management strategies will be discussed with NGOs, and pilot activities will be developed with affected communities.

3. Design, construction and operation of the new facility (US\$7.0 million), closing the Mandela site (US\$ 0.5million)

a) Subcomponent: Final designs and studies (US\$0.56 million)

- 3.7 This subcomponent will also be financed with PPF funds. Based on the existing design and studies, a consulting company will prepare the final sanitary landfill design for a ten year operation, which corresponds to Phases I and II of four for a total site life of 20 years, and conduct the following complementary studies: (i) topographic survey; (ii) geotechnical survey and soil testing; (iii) Environmental Impact Assessment and public consultation and submit for the EPA approval; (iv) prepare the bidding documents to hire the construction contractor; and (v) prepare the final bidding documents and Terms of Reference to invite the private sector to present proposals to operate the new sanitary landfill for a period of ten years.

b) Subcomponent: Construction of the new facility (US\$5.50 million)

- 3.8 A private contractor will be selected through international competitive bidding to construct a sanitary landfill at Eccles, located 4 km south of the geographical center of Georgetown, on a 300 acres parcel of land, selected based on technical and environmental evaluation, to serve the city of Georgetown and Environs. Construction and site preparation will guarantee a ten year operation. The proposed site will require the construction of (i) 15000m² of unpaved access and internal roads; (ii) site cleaning and preparation; (iii) administration, control and weighing buildings; (iv) equipment including computers and software; (v) weighbridge; (vi) water supply well; (vii) monitoring wells; (viii) landfill lining and leachate collection and treatment system; (ix) landfill gas collection system (LFG); (x) fences; (xi) and implementation of forested buffer area. On a separate space, facilities will be constructed for the recyclers, organized in associations of 24 members maximum, to separate valuable material and following the organic content will deposit in windrows for composting. Necessary installations are: (i) site preparation including unpaved access roads; (ii) stormwater drainage; (iii) storage area for compost; (iv) crushers, sieves and machines for windrows turnover; (v) staff facilities and accessories necessary for recycling including showers, kitchen, first aid facility and paved access road.

c) Subcomponent: Operation and closing (US\$1.44 million)

- 3.9 A private partner will be selected through an international competitive bidding to operate the new sanitary landfill for ten years according to internationally accepted technical, social and environmental standards. The City of Georgetown will deliver at the gate a minimum of 120 tonnes of solid waste per day to guarantee operation's sustainability. Gate fees will cover operation and maintenance and a percentage of the capital costs. This component will support the closure and urbanization of the areas filled during the first five years of operation.

d) Subcomponent: Closing the Mandela site (US\$ 0.5 million)

- 3.10 This subcomponent will be financed by the PPEF funds and it is aimed at complementing the existing budget to: (i) prepare a new 5 acre landfill cell at Mandela including lining, leachate and gas collection systems; (ii) stabilize and close the existing dump; and (iii) construct ancillary areas such as parking spaces, office buildings, wash bays, fences and workers shed.

4. Studies and investments in healthcare wastes treatment (US\$1 million)

- 3.11 Consulting services will be hired to identify and support the implementation of the most cost effective solution to treat the Georgetown and Environs' healthcare wastes.

C. Execution

1. Executing agency

- 3.12 The Cleansing Department will be strengthened and upgraded into a MSWMD at the same level of the Public Health Department within the Municipality of Georgetown. The new MSWMD main functions will be related to the supervision of the private contractors responsible for the collection and disposal of solid wastes. The tasks to be executed are related to the client role and involve drafting and negotiating contracts with clearly defined standards, supervise and monitor operations, ensure reliable and adequate cost recovery, and develop plans to improve the services. The MSWMD will retain responsibility for waste collection in one zone of the city and the role of regulation development and enforcement until the new National Solid Waste Act is passed. The new MSWMD will act as the main ExA for the implementation of the Eccles facility. An Officer from the host NDC will be seconded to this ExA. The MSWMD will be the main responsible for the supervision of the construction contractor and the signatory of the landfill operation contract with the private counterpart.

- 3.13 An Advisory Board including representatives from the MLGRD, EPA, Ministry of Finance, participating NDCs, RDC's, Georgetown Municipality, and local residents groups will be established above the Executing Agency with the following main functions: conduct periodic reviews of landfill operations, approve proposed financial decisions regarding the landfill operation on regular basis, and search for mediators when necessary to solve possible disagreements.

2. Institutional strengthening and capacity building

- 3.14 A consulting firm will be hired and housed in MSWMD with two contractual objectives: support the ExA and transfer technology related to the following tasks: (i) institutional strengthening and capacity building; (ii) project execution; and (iii) supervision of the construction and operation contracts with private operators. Performance standards related to the MSWMD's institutional strengthening and capacity building goals, project execution and supervision will be built into the

contract with the consulting firm. During project preparation and the period prior to the hiring of the mentioned consulting firm, the ExA will receive technical support through the ATN/SF-6858-GY, the PPEF, and subsequently by the company that will prepare the landfill final designs in critical aspects such as: (i) contract and procurement management; (ii) team building; (iii) financial management and cost recovery; and (iv) planning and strategic development.

3. Design, construction and operation of the sanitary landfill

- 3.15 It was agreed that the private contractors be hired under three different contracts: (i) a design contract to be executed with resources from a PPEF; (ii) a construction contract; and (iii) an operation contract approximately one year from construction has started. The design contract will include: (i) topographic survey; (ii) geotechnical survey and soil testing; and (iii) development and approval of an EIA following the EPA requirements and procedures.

4. Public awareness campaign

- 3.16 The EPA in coordination with the MSWMD and MLGRD will execute the public awareness campaign and harmonize the different experiences being undertaken in Guyana in this area.

5. Studies and investments for health care wastes treatment

- 3.17 A consulting company will be hired by the Executing Agency to study alternatives, select, and implement the least cost solution to treat the healthcare wastes generated by Georgetown and Environs.

6. Contract regulation

- 3.18 The future sanitary landfill private operator will be regulated by contract. When needed, the private operator and the Municipality of Georgetown will agree on an arbitrator. Upon written request, the Public Utility Commission (PUC) appoints an arbitrator. The PUC was 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 do not include waste management.

7. Land tenure

- 3.19 Presently, the Demerara Sugar Company (DSC) is the owner of the property at Eccles under transport #555/1905. Following the Guyana's procedures; DSC under the instructions of the Central Government will transport and transfer a total of 300 acres (121 hectares) at Eccles to the Land and Survey Commission (L&SC) who will be the owner of the lands as State Property. This property will be then transported and transferred through a Deed of Gift to the MSWMD for the purpose of landfill operations. The MSWMD will then sign the service contract with the private operator. Upon completion of the sanitary landfill, the MSWMD

will transport and transfer the land back to the L&SC. The DSC has signed a Deed of Gift for the Eccles site favoring the L&SC on August 27 2002. The L&SC will then transfer the site ownership to the MSWMD as a condition for the Analysis Mission.

8. Cost recovery mechanism

- 3.20 The estimated Cost for the Design, Construction and closure of the first phase of the landfill is approximately US\$7.5 million. This cost will be funded by the GOG with this loan. The estimated cost for operation and maintenance is US\$682.5/year. It is expected that the new disposal site will receive approximately 217 tons/day (79,360 tons/year) and will charge a fee of US\$8.6/tonne.
- 3.21 The Municipality of Georgetown will guarantee the payment of approximately 120 tons/day through a take of pay contract with the private operator. This represents approximately US\$376,700/year. The remainder US\$305,800 will be secured through contracts with the surrounding NDC's, industries, businesses and others. Payments to the private operator will be made on a quarterly basis. The first three months of operation will be secured upfront for payment through a sinking fund. The share of the PT collection allocated for the private operator's payment will be managed through a separate account. The City Council will establish a Special Solid Waste Fund (SSWF) with its own bank account earmarked exclusively for the revenues and expenditures of SWM. This SSWF will receive resources from the MGF or directly from users, and should finance solely expenditures approved by the MSWMD.

9. Monitoring and supervision

- 3.22 The design constructor will prepare the baseline of environmental and social parameters to be monitored. Monitoring will include groundwater quality parameters upstream and downstream from the site, degree of waste compaction achieved, and social parameters such as residents opinions, number of complaints and participation in program related activities. Project supervision will include a mid- term evaluation and external independent environmental and social auditing will be considered.

IV. SPECIAL CONSIDERATIONS

A. Environmental and social impact and mitigation measures

- 4.1 From the environmental, social and public health perspective the project will have a major positive impact since its execution allows for the closure of the Mandela landfill, which is operating under unacceptable environmental, social and public health conditions. In the new facility, solid waste will be compacted in daily cells underlined by a HDPE membrane and a clay layer. Leachate will be collected treated and recycled and the gas produced collected and burned. Waste pickers will be organized in Cooperatives and will have safe access to the waste for sorting and adequate facilities for cleaning and attendance in case of accidents.
- 4.2 Potential sites were submitted to a sitting criteria involving technical, environmental and social variables and Eccles was selected as the best alternative. An Environmental Assessment (EA) was conducted at the 300-acre site at Eccles on March 2000. The EA considered land use issues, vegetation, wildlife habitats, socioeconomic conditions and public opinion, and other areas of possible environmental concern. Mitigation measures focused on potential impact to: air quality, aquifers and surface water, soils, ecosystems, land use, cultural resources, socioeconomic resources, aesthetics, traffic, health and safety and the generation of noise and odors.
- 4.3 The EA identified no fatal flaws for development of a landfill at Eccles. Concerns were raised regarding the compatibility of the project with nearby residents and industrial park business owners; the need for good management practices to control odors and litter; routing traffic south of the Eccles housing development; planning for storm water management; and protecting groundwater. These issues can be managed through good landfill design and operating practices. Educating the residents and industrial park constituents early in the planning and development phase will minimize the opposition that may arise to implement the facility at Eccles. Starting the construction and operation from the back of the 300 acre plot will minimize aesthetic impact and negative public opinion.
- 4.4 The recommendations from the environmental assessment has been incorporated to the landfill design at pre-feasibility level and include: (i) an HDPE liner on top of a base 0.3m clay layer with permeability of 10^{-9} m/s; (ii) leachate collection and treatment by volume reduction and re-circulation; (iii) LFG collection and monitoring system; (iv) surface water collection and retention system; and (v) groundwater monitoring.
- 4.5 Public consultation for project preparation has been executed using focus groups and covered: (i) willingness to pay for improved services; (ii) inputs for project design; and (iii) need for information regarding solid waste management. On May 08, 2003, attending the demand of the stakeholders, a workshop was conducted to elicit preferences regarding the project's institutional arrangements and models

for private sector engagement. The respective conclusions have been incorporated to this profile. The results of the public consultations and willingness to pay surveys include gender and ethnic origin of the participants.

- 4.6 An Environmental and Social Management Plan (ESMP) will be prepared and incorporated to the project report. The ESMP will include: (i) the results of the pre-feasibility studies; (ii) the technical recommendations from the final designs; and (iii) the environmental and social mitigation measures and monitoring program emanated from the EIA that will be prepared and made available for public consultation according to the Bank and EPA requirements.

B. Special issues and risks

- 4.7 The CD record of solid waste disposal at Mandela landfill is not positive. A comprehensive institutional strengthening and capacity building program was designed to support the new MSWMD starting during project preparation through the ATN/SF-6858-GY and the design contractor, to minimize critical deficiencies.
- 4.8 Low private sector interest in the project and reduced capacity for landfill operation among local companies. The separation of contracts favors specialized firms participation in the design and local or regional contractors in the construction and operation. Additionally, the development of a comprehensive contract clearly defining: (i) rights and responsibilities; (ii) performance standards; (iii) regulatory standards; and (iv) an attractive financial arrangement, will reduce this risk.
- 4.9 Operator's revenues are insufficient to meet aimed operational performance and NDCs might not deliver wastes to Eccles if a fee is charged. Georgetown Municipality will provide 120 tonnes/day of garbage and sign contracts with the NDCs to have the additional expected 100tonnes/day delivered at Eccles. Furthermore, a separate budget and escrow account will be created for the new MSWMD.
- 4.10 Property taxes are not timely paid by contributors and the SSWF is not replenished as needed to perform payments. A sinking fund will be established to account for at least three months of service payment delay. Additionally, an agreement with the Central Government will be signed to guarantee the payment of its share of the PT timely. The Urban Development Program (1021/SF-GY) is supporting a revaluation of the properties which is expected to raise PT collection.
- 4.11 Eccles community is uncertain about the Government commitment to adequately operate the new sanitary landfill following agreed technical, environmental and social standards. A public awareness campaign emphasizing the technical and environmental standards built in the landfill design, construction and operation and the urbanization aspects of the site after closure will minimize the negative impression created by the operation of the Mandela landfill. The early

involvement of the community and NGOs will enhance participation and foster the community role as monitors of the operator and ExA performances.

- 4.12 Considering that the actual situation of the Mandela landfill represents a public health risk for the citizens of Georgetown and the need to have the site safely closed before starting the operations at Eccles, the present operation should not be submitted for Board approval before the additional infrastructure of the Mandela avenue landfill (Loan 1052/SF-GY) is built and ready for operation.

V. STATE OF PREPARATION AND ACTION PLAN

- 5.1 When finalized the ATN/SF-6858-GY will generate: (i) bidding documents for the design contractor by July 31 2003; (ii) pre-selection documents for the construction contractor; and (iii) complete tender documents for the operator contractor. Items (ii) and (iii) will be ready by September 30, 2003.
- 5.2 The design contractor will execute the topographic and geo-technical surveys, perform the soil testing studies, finish the final sanitary landfill designs, and prepare and submit for EPA approval. The EIA will be available for public consultation, and the GOG will also start the process to select the construction contractor. A workshop with representatives of all stakeholders will be conducted to prepare the final logical framework.

Georgetown Solid Waste Management Program (GY-0055)

Logical Framework

Narrative Summary	Performance Indicators	Means of Verification	Assumptions
A. Goal Statement Contribute to the improvement of the quality of life of the Georgetown and environs population through better solid waste management.	<p>1.1 Eccles sanitary landfill operating according to internationally accepted technical and environmental standards.</p> <p>1.2 Georgetown population benefited from the urbanization of the closed Mandela site.</p>	<p>1.1 Supervision reports.</p> <p>1.2 Final evaluation of the Loan 1052/SF-GY and site visit.</p>	
B. Purpose Georgetown's and Environs solid waste efficiently and safely disposed at Eccles sanitary landfill with public acceptance and support.	<p>1.1 After one year of operation the Eccles sanitary Landfill receives 200 tonnes/day of wastes from Georgetown and NDCs. In subsequent years these amount does not decline.</p> <p>1.2 No aquifer contamination and fires reported during the landfill operation.</p> <p>1.3 Sanitary landfill operated by a private company four months after construction is finished.</p> <p>1.4 After one year of operation residents participating in pilot studies and awareness campaign continue to increase.</p> <p>1.5 Illegal dumping decrease by xx% in the first year of operation.</p>	<p>1.1 Reports from the weighing scales at the site entrance and reports from the supervision.</p> <p>1.2 Report from the environmental monitoring system.</p> <p>1.3 Report from the supervision.</p> <p>1.4 Reports of Public awareness campaign.</p> <p>1.5 Report from the ExA.</p>	<p>1.1 Georgetown Municipality, Central Government, EPA and NDC's maintain commitment to solve the City's and Environs solid waste management problem.</p> <p>1.2 Population pays the established fee for collection and disposal of wastes reflected in an increase in property taxes.</p> <p>1.3 Mandela site closed according to design standards.</p>

Narrative Summary	Performance Indicators	Means of Verification	Assumptions
C. COMPONENTS/RESULTS			
1. Institutional strengthening and capacity building program implemented and MSWMD established and operating efficiently			
1a. Special Solid waste Fund (SSWF) with separate account.	1a. SSWF created with a separate bank account before project approval and completely operational before the selection of the private operator.	1a. Resolution from the Georgetown Municipality and [XXX] amount of money deposited in the Fund's account.	1a. Biddings for consultancy, works and equipment do not delay and Center Tender Board operates timely.
1b. Separate different waste management functions	1b. Municipal Solid Waste Management Department (MSWMD) created at the same level of the Public Health Department (PHD) absorbing all solid waste management functions including: collection, disposal, enforcement and healthcare wastes before project approval and completely operational one year after eligibility for first disbursement.	1b. Resolution from the Georgetown Municipality creating the MSWMD.	1b. (i) See item 1a; and (ii) MSWMD is able to maintain trained personnel.
1c. Increase of overall authority and autonomy in the provision of solid wastes management services.	1c. MSWMD created at the same level of the PHD prior to project approval and completely operational one year after eligibility for first disbursement.	1c. Resolution of the Georgetown Municipality creating the MSWMD.	1c. See item 1a.
1d. Staff training, capacity building with transfer of technology.	1d. 14 staff members trained in solid waste management in different functions related to collection, disposal, healthcare wastes, community outreach, and contract supervision one year after eligibility for first disbursement.	1d. Training delivered. Performance evaluation of trainers by trainees and of the staff executing their functions.	1d. See item 1a.
1e. Equipment computers and solid waste management software.	1e. [XXX] number of computers and software installed and in use by trained staff one year after eligibility for first disbursement.	1e. Computers installed and operating.	1e. See item 1a.

Narrative Summary	Performance Indicators	Means of Verification	Assumptions
<p>2. Community participation and public awareness program executed with positive response from the neighboring population.</p>			
<p>2a. Provision of information on integrated solid waste management, roles of municipal and central government and expected performance from institutions. Mass education campaigns using TV and Newspaper.</p>	<p>2a. [XXX] courses and workshops delivered to the community and NGOs during project execution. [XXX] campaigns using TV and newspapers during project execution.</p>	<p>2a. Courses and workshop evaluation and records of TV and newspaper campaigns.</p>	<p>2a. Community open to discuss solid waste management issues and accept proposed program.</p>
<p>2b. Consultation and involvement including the creation of space for public and stakeholders' participation, and pilot activities involving the community and NGOs.</p>	<p>2b. Three months after eligibility for disbursement mechanism to attend concerns from NGOs and the community is implemented and operational in the MSWMD.</p>	<p>2b. Number of consultations or complaints and number of pilot experiments executed and evaluated by the community.</p>	<p>2b. See item 2a.</p>
<p>3. Sanitary landfill designed, constructed and operating in a sustainable manner</p>			
<p>3a. Preparation of: Topographic survey, geotechnical survey, soil testing, EIA and bidding documents for the operator.</p>	<p>3a. Surveys, tests, EIA and bidding documents prepared and approved before March 2004.</p>	<p>3a. Final reports from the design contractor.</p>	<p>3a. Biddings for consultancy, works and equipment do not delay and Center Tender Board operates timely.</p>
<p>3b. Construction of sanitary landfill at Eccles with facilities for recycling, low level composting and mechanism for leachate collection and treatment and LFG collection and burning.</p>	<p>3b. Sanitary landfill implemented and operational 16 months year after construction starts.</p>	<p>3b. Local inspection and reports from the supervision.</p>	<p>3b. See item 3a.</p>
<p>3c. Sanitary landfill operation and closure.</p>	<p>3c. Bidding documents completed and private operator selected four months after construction is finished.</p>	<p>3c. Contract signed with private operator and equipment in place.</p>	<p>3c. Local contractors able to operate the landfill according to technical, environmental, and social standards established in the contract.</p>

Narrative Summary	Performance Indicators	Means of Verification	Assumptions
<p>4. Studies completed and solution to treat healthcare waste selected and approved by stakeholders</p> <p>4a. Studies to identify the least cost solution for treatment and disposal of healthcare waste.</p> <p>4b. Investments in treatment and disposal of healthcare waste.</p>	<p>4a. Studies completed one year after eligibility for disbursement and least cost solution defined.</p> <p>4b. Least cost solution to treat and dispose healthcare waste implemented and operational one year after studies are finalized.</p>	<p>4a. Consultant final report.</p> <p>4b. Site visit and report from the project supervision.</p>	<p>4a. Healthcare wastes generators are willing to pay for treatment and disposal of their wastes.</p> <p>4b. See item 4a.</p>