

PUBLIC

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BAHAMAS

SOLID WASTE MANAGEMENT PROGRAM

(BH-0008)

PROJECT COMPLETION REPORT (PCR)

2006



Project Completion Report

PCR

Project Name: Solid Waste Management Program

Country: The Commonwealth of the Bahamas

Sector/Sub sector: PA

Original Project Team: Edward Farnworth (COF/CJA); Oscar Spencer (COF/CBH); Antonio Almagro (RE3/EN3); Hector Malarin (RE3/EN3); Javier Cayo (LEG/OPR); Gisella Barreda (RE3/EN3); and Eduardo Figueroa (RE3/EN3) as Project Team Leader

Project Number: BH-0008

Loan Number (s), TC(s): 1170/OC-BH

CRG Date:

Final Approval Date of PCR:

PCR Team: Principal Author and Members: Michael Baptiste (SPH/CBH); Camille Davis-Thompson (CCB/CBH); Cecil Pemberton (Consultant); and Evan Cayetano (Team Leader WSA/CJA)



Acronyms and Abbreviations

DEHS – Department of Environmental Health Services

GOBH – Government of the Commonwealth of the Bahamas

IDB - Inter-American Development Bank

PCR - Project Completion Report

PEU - Project Executing Unit

PPMR – Project Performance Management Report



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I. Basic Information

BASIC DATA (AMOUNTS IN US\$)								
PROJECT NO: BH-0008		TITLE: Solid Waste Management Program						
Borrower: The Commonwealth of Bahamas Executing Agency (EA): Department of Environmental Health Services of the Ministry of Consumer Welfare and Aviation (DEHS); Later the Ministry of Energy and the Environment		Date of Board Approval: 17 February 1999 Date of Loan Contract Effectiveness: 29 October 1999						
Loan(s): 1170/OC-BH \$23,500,000 Sector: PA		Date of Eligibility for First Disbursement: 10 December 1999						
Lending Instrument: Single Currency Facility of the Ordinary Capital Resources		<u>Months in Execution</u> * from Approval: 112 * from Contract Effectiveness: 104						
		<u>Disbursement Periods</u> Original Date of Final Disbursement: 29 April 2003 First Extension: 29 April 2005 Second Extension: 29 April 2006 Third Extension: 29 April 2007 Fourth Extension: 31 December 2007 Fifth Extension: 30 June 2008 Current Date of Final Disbursement: 30 June 2008 Cumulative Extension (Months): 62 Special Extensions (Months): 14						
		<u>Loan Amount(s)</u> * Original Amount: \$23,500,000.00 * Current Amount: \$21,810,254.07 * Pari Passu (if applicable): 30%						
Poverty Targeted Investment (PTI): Yes/No Social Equity (SEQ): Yes/No Environmental Classification: A, B, or C		<u>Disbursements</u> * Amount to date: 91 (%)						
		<u>Total Project Cost</u> (Original Estimate): \$33,500,000.00 <u>Current Total Project Cost</u> : \$42,853,415.21						
		<u>Redirectioning</u> Has this Project? Received funds from another Project [] Sent funds to another Project [] N/A [X]						
		<table border="1"> <thead> <tr> <th>To/From Project Number</th> <th>From Sub-Loan Number</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	To/From Project Number	From Sub-Loan Number	Amount			
To/From Project Number	From Sub-Loan Number	Amount						
		* Current amount (adjusted for redirectioning):						
		<u>On Alert Status</u> Is project currently designated "on alert" by PAIS: Yes If yes then why is the project on alert (DO , IP Ratings and/or relevant PAIS indicators): IP Ratings						
		Comments on relevance of "on alert" status for this project: As at the last disbursement date, the project was 62 months behind schedule, having experienced a series of delays due inadequacies in the project design; to delays in land acquisition, implementation of the institutional strengthening program, staffing of the PEU and procurement.						



Summary Performance Classifications				
DO	<input type="checkbox"/> Highly Probable (HP)	<input checked="" type="checkbox"/> Probable (P)	<input type="checkbox"/> Low Probability (LP)	<input type="checkbox"/> Improbable (I)
IP	<input type="checkbox"/> Highly Satisfactory (HS)	<input type="checkbox"/> Satisfactory (S)	<input checked="" type="checkbox"/> Unsatisfactory (US)	<input type="checkbox"/> Very Unsatisfactory (VU)
SU	<input type="checkbox"/> Highly Probable (HP)	<input type="checkbox"/> Probable (P)	<input checked="" type="checkbox"/> Low Probability (LP)	<input type="checkbox"/> Improbable (I)

II. The Project

a. Project Context

Despite two general elections which resulted in changes in Government on both occasions, the last being May 2007, there were no significant changes in the national or sectoral policies that could have affected the implementation, or development objectives of the project. Government has maintained a strong commitment to providing the general public of The Bahamas and the vital tourism sector with adequate solid waste management services.

The fundamentals of Bahamas economy remained virtually unchanged during the implementation of the project. For instance, GDP growth hovered around 3% throughout the life of the project except for a slight downturn in response to 9/11 events. Unemployment remained at a low 9%. Tourism remained as the leading sector in the economy. Consumer prices grew by under 1% per annum, however inflation in the Construction sector was estimated at 5% per annum from 2003. The cost of the construction elements of the project reflected this sharp increase.

b. Project Description

i. Development Objective(s)

The objective of the project is to support the GOB to improve solid waste management services for New Providence and the Family Islands through:

- Safe and efficient disposal of solid waste;
- Safe disposal of hazardous waste;
- Strengthening of institutions; and
- Minimization of waste and reduction of illegal dumping.

ii. Components

The project consists of the following components:

- (i) Priority investments for disposal facilities at New Providence and ten of the Family Islands: Abaco, Andros, Bimini, Cat Island, Eleuthera, Great Exuma, Grand Bahama, Inagua, Long Island and San Salvador (US\$21 million);
- (ii) Hazardous waste disposal facilities (US\$600,000);
- (iii) Institutional support of DEHS including the engagement of consultants for a number of studies (US\$800,000);
- (iv) An environmental health education and awareness program (US\$600,000); and
- (v) Recurrent Cost for Family Islands Inspectors

Investments for disposal facilities includes following components:

Component 1: a) The Harrold Road landfill; and a yard waste shredding facility. b) The Family Islands facilities include eighteen modified sanitary landfills and four transfer stations.



Component 2: A central hazardous waste disposal comprises a central facility constructed adjacent to the Harrold Road landfill site and small hazardous waste containment facilities built at each of the sanitary landfills at the Family Islands.

Component 3: Institutional support of DEHS and studies. DEHS is strengthened in supervisory and financial management.

Component 4: The environmental health education component Bahamians are educated, informed and awareness increased in waste generation, storage and containerization, collection, scheduling and procedures, litter, illegal dumping, bulky waste materials, backyard composting, waste materials exchange and derelict vehicles disposal.

c. Quality -At- Entry Review (if applicable)

Quality -At- Entry Review

☐ Highly Satisfactory (HS) - 1 ☐ Fully Satisfactory (S) - 2 ☐ Less than Satisfactory (LS) – 3 ☐ Unsatisfactory (U) – 4

III. Results

a. Outcomes



ACHIEVEMENT OF DEVELOPMENT OBJECTIVES (DO)

Development Objective(s) (Purpose)	Key Outcome Indicators
1. Safe and efficient disposal of solid waste In The Bahamas <i>Classification: P</i>	1.1 Scheduled garbage collected at least once per week in all beats by August 2005. 1.2 Loader productivity rate increased from 28 to 50 lbs/man minute by January 2006. 1.3 Compact Waste Density of 750 kgm/m ³ achieved by March 2005. 1.4 No increase in the base line groundwater contamination levels in the monitoring wells from December 2005. 1.5 Budgetary support for operation of landfills reduced to zero by December 2008. 1.6 Methane levels reduced to less than 5% at the landfill sites by December 2005.

<u>Baseline</u>	<u>Planned Outcomes</u>		<u>Outcomes Achieved</u>
	<u>Intermediate</u>	<u>End of Project</u>	
1.1B Not Included Among Indicators until PPMR Retro.	1.1 August 2005	1.1 August 2005	1.1 August 2005 – achieved as stated
1.21B Not Included Among Indicators until PPMR Retro	1.2 January 2006	1.2 January 2006	1.2 June 2006 – achieved as stated
1.3 Indicator Included in Loan Proposal but time Limit set at PPMR Retro.	1.3 March 2005	1.3 March 2005	1.3 March 2005 – achieved as stated
1.4 Indicator Included in Loan Proposal but time Limit set at PPMR Retro.	1.4 March 2005	1.4 March 2005	1.4 March 2005 – Testing of groundwater was discontinued
1.5 Not Included Among Indicators until PPMR Retro	1.5 Dec 2008	1.5 Dec. 2008	1.5 Not achieved – (time period set Dec. 2008)
1.6 Not Included Among Indicators until PPMR Retro	1.6 Dec 2005	1.6 Dec 2005	1.6 Not achieved

Reformulation. The only reformulation of project objectives was in Dec 2004. The reformulation approved four new project objective indicators were added items 1.1, 1.2, 1.5 and 1.6. Indicators related to the closure of existing official and illegal dumps were removed as well as vague indicators related to the reduction of odors at the landfill sites.

[] N/A

PPMR Retrofitting. Indicate if and when the PPMR was retrofitted and explain any changes resulting from this exercise.

A retrofitting exercise took place on November 16 and 17, 2004. Indicators for the development objective were re-defined and a new timetable for the Implementation of the outstanding activities was agreed with the Executing Agency.

Summary Development Objective(s) Classification (DO):

[] Highly Probable (HP) [x] Probable (P) [] Low Probability (LP) [] Improbable (I)

Briefly justify DO classification, based on degree to which planned targets were met, explaining the differences between planned and achieved outcomes as well as any other relevant factors. Include references to evidence that can support these results.

At the time of preparation of the project proposal, no time limits for the achievement of verifiable indicators were set. It was not until the PPMR retrofitting in November 2004 that time base indicators were set. In addition, a reformulation of the project objectives resulted in the inclusion of four new indicators. Generally, existing and new indicators were achieved within the targeted time limits. Of the two outstanding indicators, one has a target date of December 2008 while the achievement of the other, that is the reduction in the level of methane emission, requires the design and installation of separate facilities which were not included in the original landfill design and could not be completed within the existing project's budget and implementation schedule. Several options are under review for achieving this indicator. The best option will be included in a master plan for the further development of the Harrold Road landfill. The budget, financing and implementation schedule for this master plan is unknown at this time.

The other outstanding indicator, the reduction to zero of budgetary support for operation of landfills, arguably should not have been included as an indicator since it is unachievable except through some indirect means, such as an earmarked tax. Approximately \$450,000 million in tipping fees is collected annually at the Harrold Road landfill, the largest of all the landfills, and this accounts for 11% of the cost of operating that facility currently estimated at \$4 mn. There has been a protracted delay in establishing an Environmental Levy on imported goods into Bahamas which GOB had proposed to support the tipping fees collected. GOB has given some indication of its intention to introduce the Levy and has already passed the necessary legislation in Parliament, although not yet enacted. An IDB team reviewing financial sustainability measures proposed by GOB in November, 2006 concluded that the Levy had to be viewed within the context of other fiscal measures currently in place, the competitiveness of the vital tourism economy and institutional measures needed for the efficient and effective operation and maintenance of the landfill facilities.

It might well be that GOB will propose other revenue generating measures to achieve financial sustainability of the landfill. There is still much uncertainty in the achievement of this indicator in the satisfaction of the development objective.



Generally, the infrastructure facilities installed under the project are leading to a more efficient and effective disposal of solid waste in New Providence and The Family Islands.

The training given to staff at DEHS would make that department more efficient in carrying out their responsibilities while the operations of that Department benefited from the efficiency studies undertaken. The general public of The Bahamas through the success of the Education and Public Awareness Program are now more aware of their own responsibility in the management of solid waste.

Country Strategy. Given the results described above, briefly discuss how the project contributed to the Bank's strategy in the country.

The Bank's strategy in The Bahamas is to support the Government's continuing efforts to improve sustained economic growth by improving competitiveness, and effectively managing the country's environment so that sustainable development could take place. The Project contributed to this strategy by providing for the safe and efficient disposal of solid waste through the construction of well designed and constructed disposal facilities, the implementation of efficient operational procedures and institutional, financial and regulatory measures.

By providing for the training and start up recurrent cost of employing regulatory inspectors in the Project, the Bank supported the introduction of a new regulatory framework for solid waste management. In addition, by exposing both operators and regulators to modern systems of solid waste management the Bank supported the overall development of the sector and the introduction policies that meet international standards but are nevertheless unique to The Bahamas. As determined in Section V(c) of this report there is much still to be done in providing an adequate regulatory regime for solid waste management sector.

The Project proposed the strengthening of the role of the public sector in solid waste management sector by the restructuring and institutional strengthening of DEHS. As will be elaborated in Section V(c), the restructuring proposed under the project will have to be further enhanced to allow for the sustainability of the sector.

b. Externalities

The major externality for the project arises from the possible pollution of the ground water by leachate from the landfills. The negative effects from this perturbation have been recognised and DEHS is required as a condition of the loan to monitor the quality of the groundwater in the vicinity of the landfills. Other technological externalities such as the increase in heavy vehicles on the roads in Bahamas are of little significance.

An Environmental Levy on imported goods has been proposed as a fiscal measure to provide funding for the operations of the landfills. The introduction of this levy could result in a general increase in prices which could in turn increase the cost of a visitor's holiday in the Bahamas and the competitiveness of the vital tourism industry. However, this could be recognized as including a cost for a clean destination.

Another externality is the possible reduction in property values in the vicinity of the landfills particularly if facilities provided under the project are not adequately operated and maintained.

c. Outputs

IMPLEMENTATION PROGRESS (IP)		
Components (Outputs):		
1. Component 1: (title only). Physical facilities built and in operation Total cost of Component 1:\$25,703,735.40 Counterpart:\$12,346,030.33 IDB:\$13,357,705.07 IDB Disbursement:91 %		
<u>Classification:</u> HS, S, U, VU		
Key Output Indicators:		
1.1 The first phase of the Harrold Road sanitary landfill (HRSF) built and in operation by Dec 2000. 1.2 Twenty-one modified sanitary landfills (MSF) (including transfer stations) will be built and in operation by the end of the project implementation period. 1.3 Hazardous waste disposal facilities (HWF) built and in operation by December 2001. 1.4 A compaction target of 750kg/m3 is achieved.		
<u>Planned Outputs</u>		<u>Outputs Achieved</u>
<u>Baseline*</u>	<u>Annual/Intermediate</u>	<u>End of Project</u>
1.1 No LF in Dec 1999	1.1 HRSL in Dec 2000	1.1 HRSF in Dec 2000
1.2 No MSF in July 2001	1.2 No MSF July 2002	1.2 11 MSF in Dec08
1.3 No HWF in Dec 2001	1.3 No HWF in 2003	1.3 HWF incomplete
1.4 No compaction Dec 2001	1.4 Compaction achieved in 2005	
		1.1 Nov. 2000 (one of two planned cells) 1.2 Not achieved 1.3 Not achieved 1.4 March 2005
* (if applicable)		



Briefly explain differences between planned and actual outputs (if applicable).

- 1.1 The date of eligibility for first disbursement was Dec 10 1999 therefore it was not possible to meet the baseline date for completion of this component. A revised date of Dec 2000 was set and this date was easily achieved. In order to stay within allocated cost for this item, only one of the two cells planned for construction was constructed. The Administration Mission report of May 2003 informs that at the planning level of project implementation, it was decided to defer the construction of the leachate recirculation component until a few years after the opening of the first cell. According to the report this was deemed appropriate to allow for the build up of leachate with the solid waste media. Consequently, the site was constructed based on engineering drawings that did not provide the recirculation component of the leachate management system. In addition, many of the auxiliary facilities required for the efficient and effective operation of the landfill such as a storm water protection and methane venting systems were either inadequately designed or not included in the engineering designs altogether. Corrective measures undertaken by DEHS have resulted in substantial cost overrun on this component of the project. Although the construction of the facility is shown as being complete as per the scope outlined in the Loan Contract, improvement works are still in progress.
- 1.2 Fifteen of the 21 modified sanitary landfills in the Family islands were sited on lands not owned by the GOBH. This was not factored into the project budget, implementation schedule and staffing of the PEU. Acquisition of the land was delayed due to slow response from other Government Agencies such as the Lands and Survey Department and the Attorney General's Office. Acquisition was finally completed in April 2006 after the intervention of the Prime Minister's Office, the engagement of a private Land Surveyor and going the route of compulsory acquisition. As final designs for the modified sanitary landfills for the Family islands were not prepared during project preparation these had to be prepared prior to tender. There was a further delay of about 5 months as a result of the time taken to get a Cabinet decision for the award of contracts for the construction of the facilities. The Tenders Board had completed its evaluation sometime in April, 2006 and the Cabinet approval was not received until November of that year, allowing for the contracts to be awarded with a scheduled completion in April 2007. Not all the contracts were expeditiously executed so that a further extension of the loan to June 30, 2008, had to be made to allow for the completion of construction. There is still one site where work has had to be stopped due to further land acquisition issues. Given the legal action taken by the landowner, work at this site was not be completed before the closing of the loan. Faced with the problems of acquiring sites for the landfills in the Family Islands, GOB sought and received the Bank's approval to reduce the number of Landfill sites proposed by the Consultants (from 21 to 18) and to replace these sites with transfer stations and the utilization of clamshell trucks. This arrangement was also regarded as a cost savings measure.
- 1.3 Only a conceptual design for the hazardous waste storage facility was completed during project preparation. The construction designs for the hazardous waste storage facility were completed in Dec 2003 and this contributed to the delay in the construction of that facility. The facility has not been put into operation because the outfitting of the building remains outstanding, however, the key technical staff for this facility has been appointed.
- 1.4 The required compaction rate was achieved once the compactor, which was purchased in the last quarter of 2004 from proceeds of the loan, was put into operation.

[] N/A

Restructuring. Indicate if this component was restructured (date of approval by Manager). Briefly discuss the consequences of these changes.

[X] N/A

2. Component 2 (title only): Environmental Health Awareness program

Total cost of Component 2: \$375,962.64

Counterpart: \$207,460.16

IDB: \$168,502.48

IDB Disbursement: **28%**

Classification: HS, S, U, VU

Key Output Indicators:

2.1 Environmental health education and awareness program (EAP) is launched by October 2000

2.2 Promotions on TV, radio and newspapers by October 2000.

2.3 Communal depots in operation.

Planned Outputs

<u>Baseline*</u>	<u>Annual/Intermediate</u>	<u>End of Project</u>
2.1 No EAP in Jan 99	2.1 Oct 2000/July 2002	2.1 EAP in Feb 2003
2.2 No Promos May 99	2.2 Oct 2000	2.2 Promos Oct.2000
2.3 None	2.3 None	2.3 None

* (if applicable)

Outputs Achieved

- 2.1 February 2003
- 2.2 June 2005
- 2.3 Not Achieved



Briefly explain differences between planned and actual outputs (if applicable).

The intermediate target of Oct 2000 was not achieved because of initial delays in the appointment of staff to manage the programs and subsequent delays in the engagement of consultants to advise on the setting up and implementation of the program. In the case of the third item, : In light of the increased administrative and land acquisition costs of the communal depot system, the DEHS has completed a pilot testing of an alternative bulk waste collection system involving the use of clamshell trucks. Following a review of the budget for the program, a proposal for the implementation of this alternative system was submitted to and approved by the Bank in the first quarter of 2007. Construction is still in progress (even now after conclusion of the financing).

[] N/A

Restructuring. Indicate if this component was restructured (date of approval by Manager). Briefly discuss the consequences of these changes.

[X] N/A

3. Component 3 (title only): Institutional Strengthening

Total cost of Component 2:\$569,484.61

Counterpart:\$91,355.36

IDB:\$478,129.25

IDB Disbursement: 60%

Classification: HS, S, U, VU

3.1 New DEHS structure in place by December 2000.

3.2 Vehicles collecting refuse on new routing system by October 2000.

3.3 Plan of action for implementation of tipping fees and environmental levy approved.

<u>Planned Outputs</u>			<u>Outputs Achieved</u>
Baseline	Intermediate	End of Project	
3.1 None in Dec. 1999	3.1	3.1 None in Dec 2008	3.1 Not achieved
3.2 Oct 1999	3.2	3.2 New collecting route 2004	3.2 Dec 2004
3.3 None Set	3.3	3.3 None Set	3.3 Not achieved
* (if applicable)			

Briefly explain differences between planned and actual outputs (if applicable).

Those issues which were fully under the control of DEHS were implemented albeit late. For instance, the micro- routing study to determine the new routing system was undertaken during the period, May to August 2002. The executing agency did not fully agree with all the recommendations of this particular study and used its own resources to design a new system involving an increased number of "beats" operated from 22 to 71. This new system is now fully operational and the subject of continuous evaluation. On the other hand, those issues which required Cabinet approval such as the restructuring of DEHS and the introduction of the Environmental Levy have either been accomplished late or not at all. [] N/A

Restructuring. Indicate if this component was restructured (date of approval by Manager). Briefly discuss the consequences of these changes.

[x] N/A



d. Project Costs

Category	Total Project Cost – Planned (US\$000)	Total Project Cost - Actual (US\$000)	% Difference
01.01.00.00-ENGINEERING	1,800,000.00	764,989.87	57.5%
02.01.00.00-DISPOSAL FACILITIES	14,700,000.00	15,036,623.29	-2.28%
02.02.00.00-HAZARDOUS WASTE	600,000.00	1,690,201.94	-181%
02.03.00.00-INSTITUTIONAL STRENGT.	800,000.00	478,129.25	40%
02.04.00.00-ENVIRONMENTAL AWARENESS	600,000.00	183,337.48	69.5%
05.01.00.00-ESCALATION	450,000.00	0.00	100%
05.02.00.00-CONTINGENCIES	1,715,000.00	0.00	100%
4.3 FIV	235,000.00	158,500.00	32.5%
4.1 Interest	2,600,000.00	2,600,000.00	0%

Briefly explain any differences.

The project was estimated in October 1999 to cost \$33,500,000 to be financed by the loan of \$23,500,000 (70%) from the Bank and counterpart financing of \$10,000,000 (30%) from GOB. As at June 30, 2008, the total expenditure on the project was \$42,853,415.21 financed by \$21,810,254.07 (50.9%) from the proceeds of the Loan and counterpart financing of \$21,043,161.14 (49.1%). GOB's contribution has increased from 30 to 49.1% of the project cost. This could be explained by a 284% increase in the cost of the buildings constructed to house the offices of DEHS; a 226% increase in the funds spent to finance the cost of environmental health inspectors for the Family Islands; a 106% increase in the funds spent in constructing additional facilities at the New Providence landfill as detailed in Section III (c) (1.1). In addition, because of the delay in completing the project Loan Finance charges paid by GOB rose by 875%.

There will be a modest 6% cost overrun in the construction of the Family Islands disposal facilities. Price increases due to inflation and increased land acquisition costs have been compensated for by reduction in the scope of the project as detailed in Section III (c) (1.2)

Notwithstanding the need to engage consultants to perform additional design work on the project, there was a 35% savings on this item. Also, there was a 37% savings on the Environmental Awareness Program (the latter being reflective of the inadequacy of the program that was implemented and the myriad of complaints as to its effectiveness).

IV. Project Implementation

a. Analysis of Critical Factors

➔ Issues:

Project Design



- The project was conceived as one to resolve the problems of the solid waste management sector in the country. As such, it involved both technical development and institutional strengthening measures. While the technical components were well thought out and implementation was planned in a logical and sequential manner, the same could not be said for the institutional strengthening measures. For instance, at the time the project was being designed, the funding of solid waste management operations was cause for concern and was highlighted as one of the main reasons for the poor performance of the sector. Paragraph 1.19 of the Loan Proposal indicated that DEHS was in the process of establishing a comprehensive accounting and financial management system. The Bank accepted GOB's proposal and included in the Loan only one specific financial condition, the introduction of a tipping fee and an obligation by GOB for 'financial measures taken to defray the costs of the disposal of imported goods' (Section 4.06 of the Loan Contract). The tipping fee was introduced in April 2004, 53 months late as the loan agreement required its introduction prior to the award of the contract to construct the Harrold Road landfill.
- The project design promoted the concept of "financial sustainability". This probably stemmed from an attempt to adhere to the Bank's guidelines on utilities, which do not distinguish between sectors producing market goods (like electricity) and those with considerable public good characteristics and externalities (like solid waste). In the case of solid waste in The Bahamas, it was useful to introduce tipping fees to offset some of the cost of operating the landfills and to create appropriate incentives to reduce the quantity of waste reaching the facilities. However, it was clear during project design that tipping fees alone would never cover the entire costs of the solid waste sector. This led to a push for an earmarked tax. The introduction of an Environmental levy was mentioned as one of the cost recovery strategies in the Loan Proposal and was included in the operational financial projections for the project. Thus in order to avoid a dependence on annual transfers from the government budget to the solid waste sector (which would be financed largely from taxes on imports at that time) – a situation regarded as financially unsustainable – a new tax on imports would be levied and the proceeds earmarked for the solid waste sector – a situation which could be still regarded as "financial sustainability". Not only was this distinction artificial, but "earmarking" is generally regarded as bad fiscal practice, because it generates rigidities in budgets. (This earmarked tax was promoted at the same time as the IDB was promoting sound fiscal management). Moreover, decisions about the optimal way to raise additional government revenues should be made on an economy-wide basis (rather than sector by sector) and by the Ministry of Finance.
- The Loan Proposal indicated that GOB had agreed that proposals for the introduction of an Environmental Levy would have been submitted expeditiously for the consideration of Cabinet. At the time of preparation of the said Loan Proposal, a draft had been circulated to relevant Government Agencies for comment. It was anticipated that the draft legislation would have been presented to Cabinet in early 1999 with possible introduction in the 1999/2000 budget. This proposal was not realistic in terms of the schedule for its implementation. Further the Loan Proposal stated that 'After the new operational structure is in place and real costs are known, a study will be contracted to review the effectiveness of the implemented financial mechanisms'. This proposal was not in keeping with the best practice for dealing with such an issue. Fiscal measures are generally regarded as 'sticky' in that once implemented they are difficult to change. The decision to introduce the levy in 1999/2000 would have been taken without any data on the real cost of operating the reconstructed landfills and most likely would have been insufficient to attain financial sustainability of the landfill operations. In this regard, the estimated cost of operating the Harrold Road landfill has risen from \$2mn in 1999/2000 to a current amount of \$4 mn. It is also noteworthy that GOB is currently considering a levy of 1% on imports whereas the loan proposal had proposed a level of 0.5%. Had GOB introduced the Levy at the time proposed in the Loan Proposal, changing the level of the levy from 0.5% to 1% would have been difficult to implement.
- Up to the time of writing this report, the Environmental levy has not been implemented.

Because of the late implementation of a number of project elements, the study proposed a review of the effectiveness of the implemented financial sustainability measures was only completed in November 2006. The study was reviewed by an IDB team in April 2007 and recommendations were made for further technical work. IDB staff was of the view that there was a very strong commitment at the political level to the development and implementation of financial measures for the sustainable operations of the solid waste management sector.

- The Loan Proposal contained a qualitative assessment of the economic costs and benefits of the project. It identified that the project will result in significant environmental and health benefits when compared with the "no project" alternative. The benefits identified were reductions in: (i) the risk of groundwater contamination because existing landfill practices did not utilize adequate leachate containment; (ii) current levels of dust, litter, pests, debris, odor and other nuisances that are negatively affecting natural ecosystems and surrounding human communities; and (iii) illegal dumping in along roadsides and open areas. These economic costs are still valid

The economic benefits of the Program were measured as foregone costs if the Program was not implemented. These are: (i) losses in tourist revenue; (ii) costs associated with increasing levels of nuisances associated with overall solid waste mis-management; (iii) costs associated with health problems; (iv) costs associated with environmental/ecosystem losses; and (v) replacement costs of contaminated groundwater resources. These economic benefits are still valid. The quantification of these foregone costs and benefits was not possible; however, the economic benefits outweigh the economic costs thus making the project viable.

The project included a least cost analysis to choose the final waste disposal and transportation method and location. A Least cost analysis was carried out for technically feasible options. Essentially, the discounted capital and operation and maintenance costs of a landfill were compared with the discounted costs of incineration. The loan document, however, did report that an analysis of the technical feasibility of operating incinerators in New Providence and the Family Islands as having been undertaken. Such an analysis would have determined that (i) given the nature of the waste arriving at the disposal facility with very limited sorting, and varying calorific value; (ii) the quantum leap in technology that would have overwhelmed the limited technical capacity of DEHS's staff; and (iii) even if private sector operating contractors were proposed the regulatory regime did not and still does not exist; incineration was not a technically feasible option.

The project design could have been improved by including realistic target dates for development and adoption of financial performance targets for DEHS. The reality is that DEHS, although structured as a Government Department, has to function like a Corporation to be efficient and effective, with the ability to employ personnel and pay salaries outside the Government's establishment; maintain reserves to respond to emergency and planned maintenance of high-priced equipment; make other financial decisions in a timely manner; and be able to properly account for income and expenditure. This issue will be further elaborated in Section V(c) of this Report.

- The Loan Proposal recognized that DEHS required reorganization and strengthening for it to be effective in solid waste management in the Bahamas. The institutional development component of the project proposed training and the introduction of a new organizational structure for DEHS. This new structure proposed a Deputy Director Operations and a separate Deputy Director with responsibility for the regulatory and inspectorate functions of DEHS. Both Directors fall under the responsibility of the Director of DEHS. This arrangement is not in keeping with good practice of a complete separation of operational and regulatory functions of a sector. The arrangement, while not yet fully implemented, is not meeting with much success prompting GOB to consider the creation of a separate Department of Environmental Planning and Protection with a mandate to, *inter alia*, undertake the regulatory functions currently carried out by DEHS.

Disbursement Period.



- The disbursement period of 42 months from the effective date of the loan was unrealistic. On the physical construction side, the flagship component of the project was the construction of Harrold Road landfill on New Providence Island. By the time the Project Document was prepared, there were construction designs. The other components of the project were less prepared. For instance, the design of the landfills for the Family Islands had only reached the stage of a prototype design without consideration for the sites on which the landfills were to be placed. In addition, once sites have been identified on lands not owned by Government, issues such as claimants not having proper title to property; shortage of land surveyors in the responsible Government Agency; and the politicizing of the acquisition process arose making the acquisition of the sites a long protracted affair. The end result was that land acquisition proved to be a major issue and resulting in a delay of 57 months in the construction of the majority of the landfill facilities in the Family Islands. In addition, issues such as the construction of communal depots system was only resolved with the DEHS completing a pilot testing of an alternative bulk waste collection system involving the use of clamshell trucks. Following a review of the program's budget, a proposal for the implementation of this alternative system was developed in 2007.

The Project design also included a number of studies, including the Micro Routing study and the Financial Mechanism Study. The measures to be adopted from these studies were by and large to be the results of a process which involved the hiring of consultants, undertaking of the studies, acceptance of recommendations by DEHS, and in the case of the Financial Mechanisms study, the formulation of the recommendations into Cabinet notes, Cabinet approval and the drafting, passage and enactment of enabling legislation. Clearly this process could not be achieved in 42 months.

Factors affecting project implementation (according to PPMR)

The factors that affected project implementation were:

Positive

- (i) DEHS's managerial and technical commitment to the project;
- (ii) Performance of the consultants supervising the construction contracts, contractor and project management team;

Negative

- (i) Lack of leverage or exercise thereof by the Bank in obtaining compliance with the limited financial conditions of the loan contract;
- (ii) Inadequacy of Project Management at the start of the project and lack of coordination between Government Ministries; and
- (iii) DEHS's constraint in influencing other Government Agencies to undertake project related activities and decision making on policy issues vital to the proper implementation of the project and the general functioning of the Department, resulting in its inability to comply with the clauses of the loan contract and the implementation schedule of the project.

Analysis of critical factors affecting project success

Critical factors affecting output delivery



The three main factors affecting output delivery were: delays in introducing the cost recovery measures; the part time status of the project team in the initial stages and weak inter agency coordination.

➔Factor 1: Section 4.06 of the Loan Agreement obligated DEHS to 'approve the tipping fees, at an adequate amount, to initiate the cost recovery of the operation maintenance and depreciation expenses of the new disposal facilities prior to the award of the contract to construct the Harrold Road Sanitary Landfill'. After a modest delay, construction of the Harrold Road Sanitary Landfill commenced in November 1999 and was completed in May 2000. In June 2001 the PPMR reported the DEHS as being in non-compliance with the Loan Agreement with respect to the tipping fee. The June 2002 Mid Term Review Report in commenting on the operations of the HR Landfill stated that 'at present, the New Providence Sanitary landfill is not being operated in accordance with the operational guidelines recommended by Stantec Consultant International Ltd, as it relates to waste compaction, covering, leachate control, litter control and site security. And the June 2003 PPMR reported that early implementation of the cost recovery measures as being necessary for the efficient and effective maintenance of the facility.

The tipping fee was finally introduced in April 2004 or some 52 months after the commencement of construction of the Harrold Road Landfill. The tipping fee was finally introduced in April 2004 or some 52 months after the commencement of construction of the Harrold Road Landfill. The Bank proceeded initially with the disbursement of funds on the basis of assurances from the GOB that the tipping fee would be implemented. The Project files show that the Bank's non-objection to the award of the landfill construction contract was conveyed by letter dated August 3, 1999 and there is no evidence that a waiver of the Loan Condition was obtained. In retrospect, the Bank's insistence on strict adherence to the introduction of tipping fee as a condition precedent to disbursement of funds for the landfill construction works ran the risk of delaying the project since the implementation of the tipping fee would have required legislative action. Such delay would have resulted in cost escalations. In addition, there are considerations relating to the political costs of Government taking legislation to parliament before actually building the facility. Finally, in reality, the implementation of the tipping fee was not critical to the construction of the facility although it was supposed to contribute to its financial sustainability. Notwithstanding this justification, the required amendment to the Loan Contract should have been formally negotiated between the Bank and the Borrower, documented and processed through the appropriate Bank channels.

The inadequacy of the tipping fees was highlighted in an April 13, 2007 Back-to-Office report from IDB staff; which stated:

-at the New Providence sanitary landfill, the fee is only being applied to private collection contractors who are responsible for the collection and disposal of waste generated by commercial and industrial enterprises. It is not applied to household waste for which the collection and disposal is handled by the Department of Environmental Health (DEHS).
- The GOB plans to implement the tipping fee system in selected islands based on perceived ability to pay. Tipping fees are planned for three richer islands (Abaco, Exuma, and Grand Bahama) upon completion of the infrastructure development projects in those islands, but will not be implemented on four Family Islands.
- Approximately \$450,000 in tipping fees are collected annually and this accounts for 11% of the cost of operating the landfill in New Providence (Depreciation excluded), which handles an estimated 400,000 tons of solid waste per year.

Factor 2: SECTION 3.02 of the Loan Agreement made the establishment and proper staffing of the Project Executing Unit with a Project Director as the head of the PEU, an Engineer, a Financial Officer, and an Administrative Assistant Officer as a Special Conditions Prior to First Disbursement. In addition DEHS had to assign two additional staff to coordinate the training and educational and community awareness components. The responsibility of the PEU was the administration of the loan which included coordination with other Agencies of GOB that had to



undertake project related activities.

Although the PEU was established in a timely manner, the Unit was not adequately staffed. For instance, given the scope of the project, it was expected that the Project Director would have been a full time position. This was not so in the early stages of the project as the Project Director was only part-time in the PEU. The PEU also did not have the required capacity to adequately provide technical oversight of the Engineering Consultants during the design phase of the construction components of the project. In addition, the two staff to coordinate the training and educational and community awareness components were all late in being appointed. This prompted IDB staff to report in June 2002 that while the project design and concepts were sound and the development objectives remain achievable, a major challenge facing the project was the effectiveness of the Project Execution Unit in managing the varied components under the program. As a result, although key stake holders remain committed to the project, the Country Office did not have much confidence that the discrete set of actions required for the efficient execution of the project would have been taken in a timely manner.

The Bank, using its own resources, had to contract a short-term Consultant to provide the PEU with technical assistance and in response to issues raised in the Mid-Term Review of the project, a Project Director was assigned full-time to the project. However by the time the PEU became fully functional in December 2002, the project had suffered some significant delays:

- (i) The acquisition of land for landfills in five of the family islands had not been accomplished;
- (ii) The routing study was not initiated;
- (iii) The Environmental Health Education Program was not launched;
- (iv) The compaction target of 750kg/m³ was not achieved due to non purchase of the required equipment; and
- (v) The hazardous waste facility was not built.

Later in 2004, the PEU had to be further strengthened with: (i) an Administrative Management Consultant, and (ii) surveying services to support the acquisition of land in the Family Islands.

Factor 3

DEHS was the Executing Agency for the Project. However, the input of several other Agencies of GOB was required for the implementation. For instance, Cabinet decisions were required for a number of policy issues including:

- (i) adoption of financial sustainability measures for the operations of solid waste management in The Bahamas;
- (ii) reorganization of DEHS
- (iii) private sector involvement in the operation of the Harrold Road Landfill
- (iv) Construction of the hazardous waste handling facility at the Harrold Road Landfill

The introduction of tipping fees at land fills, in compliance with the Loan Agreement, was delayed by 3 years and the Environmental Levy is still to be introduced. As regards the reorganization of DEHS, the new organizational structure has not yet been fully implemented. Key positions at the Deputy Director level were late in being filled. There are still measures to be put in place for greater separation between the regulatory and operational arms of the DEHS. This separation was to be achieved, *inter alia*, by legislation establishing the Department of Environmental Planning and Protection. Although it is reported in the December 2005 PPMR that Legislation has been prepared and submitted to Cabinet for approval in June of that year, at the time of writing this report Cabinet's decision is not known.

As regards the undertaking of project related activities by other Government Agencies, delays were encountered from the Attorney General's Office as it relates to reviewing and approving the Contract documents for the construction of various project facilities and several

contracts for consultancies encountered similar delays. The June 2002 Mid-Term Report reported the construction of the landfill facilities on New Providence and the Family Islands as being 17% complete and two years behind schedule on account of, *inter alia*, the length of time required to get various Government approvals of sites for the proposed Family Island facilities approved for construction.

Critical factors for achieving project outcomes

Positive



Notwithstanding some delays in engaging the contractor for the infrastructure works, once engaged, the contractor performed reasonably well in completing the project close to the contract scheduled time and budget. In addition, DEHS made a number of incisive decisions:

(i) to finance enhancements of the sanitary landfill and hazardous waste facility out of counterpart funds; (ii) to expand the number of collection beats and the working hours of the collection staff, (decisions taken outside of the recommendations of the Consultants for the Routing Study); (iii) in the face of land acquisition and cost overrun issues to use a bulk waste collection system involving the use of clamshell trucks and (iv) to apply appropriate design modifications to the inadequate prototype designs provided by the Engineering Consultants.

Negative

Both the designers of the project and the Executing Agency underestimated the cost and complexity of acquiring land in The Bahamas. For those landfills that were sited on lands not owned by the Government there was an extended delay in the construction of those landfills. In some cases contracts were awarded and work stopped while land ownership issues were sorted out. In another instance, as stated in the December 2006 PPMR, because of the increased administrative and land acquisition costs of the proposed communal depot system, the DEHS completed a pilot testing of an alternative bulk waste collection system involving the use of clamshell trucks. Following a review of the programs budget, a proposal for the implementation of this alternative system was submitted to the Bank in the first quarter of 2007

At the start of the project, DEHS did not have the staff with the necessary expertise to provide effective oversight of the Engineering Consultants. DEHS, using its own resources had to undertake extensive revisions and additions to the Specifications recommendations provided by the Consultants resulting in extensive cost overruns and delays in project implementation.

b. Borrower/Executing Agency Performance



Borrower/Executing Agency☐ Highly Satisfactory (HS)☐ Satisfactory (S)☒ Unsatisfactory (U)☐ Very Unsatisfactory (VU)**Positive Performance Issues**

1. Notwithstanding the difficulties DEHS encountered in influencing decisions by government on critical issues pertaining to the project, the project management team performed well in highlighting and tracking all unresolved issues and in referring such issues to others for decisions.
2. Once the contracts for the infrastructure works were signed, DEHS project management team closely supervised the contractor and ensured that the contracts were completed close to or within the completion time and budget. This process involved monthly site meetings with the consultants, contractors and the Bank and close reporting on the implementation of the project.
3. The project management team ensured that the Applications for Payment from the contractors were settled expeditiously.
4. DEHS provided timely comprehensive semester reports which reviewed the progress on the implementation of the project.
5. In the later stages of the project, DEHS took on a very proactive approach towards the success of the project. For instance, when faced with the problem of deficiencies in the designs provided by the Engineering Consultants, DEHS took the decision to finance design enhancements out of its own resources.

Negative Performance Issues

In the initial stages of the project, the Executing Agency underestimated the scope and complexity of the project and chose to assign a Project Manager on a part-time basis. This was exacerbated by the assignment of the Project Management functions to the Engineering Consultants. Because the preparation of the Harrold Road Landfill component was well advanced by the time implementation of the project commenced the construction of that facility was completed expeditiously. However, other Components which were less prepared and which required a greater project management effort were not expeditiously implemented. Once, the 'flagship' Harrold Road landfill was completed the PEU adopted the posture of 'mission accomplished' paying little regard to the fact that there were a number of critical elements of the project still outstanding. As such, for the critical period 2000 to 2002 little progress was made in the implementation of the project. The PPMR of June 2002 concluded that.....'a major challenge facing the project relates to the effectiveness of the PEU in managing the varied components under the program ... the Country Office does not have much confidence that the discrete set of actions required for the efficient execution of the project will be undertaken in a timely manner'. Arising from the mid-term review in June of that year, at which the Minister of Health participated, a project manager and support staff were appointed on a full time basis and in April 2003 the PEU made good on a promise to prepare an action plan for the completion of the outstanding activities of the project. Thereafter, the PEU functioned satisfactorily.

Throughout the project Government Agencies were late in responding to requests to undertake project related activities and requests for decisions on critical issues. The most critical issue in this regard was the adoption of measures for the Financial and Institutional Sustainability of solid waste management services in The Bahamas. Up to the time of writing this report, there was no agreement for the adoption of such measures. As a result, DEHS has lost the opportunity to use the un-disbursed portion of the loan to assist in the engagement of consultants to assess measures suggested by GOB officials. In addition, with the closing of the Loan, the Bank has reduced leverage in influencing the adoption of sustainability measures that would ensure the most efficient and effective operation and maintenance of facilities financed from the proceeds of the Loan.



c. Bank Performance

Bank Performance			
<input type="checkbox"/> Highly Satisfactory (HS)	<input type="checkbox"/> Satisfactory (S)	<input checked="" type="checkbox"/> Unsatisfactory (U)	<input type="checkbox"/> Very Unsatisfactory (VU)

Positive Performance Issues

One positive aspect of the Bank's performance was its flexibility in allowing funds spent in the development of the Bimini and North Eleuthera landfills and transfer station, to be recognized, as part of the local counterpart contribution, even though these funds were spent up to 18 months prior to approval of the loan.

The procurement plan in the Loan Proposal and its subsequent revisions allowed DEHS and the Bank to keep track of the nature of contracts, the financing of such contracts and the type of bidding undertaken. The schedule of public bidding established a baseline from which DEHS and the Bank tracked the awarding of contracts for the supply of goods and services.

The project provided for financial project information certified by independent auditors. This ensured that information used in monitoring the financial performance of the project could be trusted.

Negative Performance Issues

Both the Bank and the PEU failed to follow through on the recommendation taken at the Project Initiation Workshop for the establishment of a Project Steering Committee comprising representatives of other Government Agencies with inputs in the project implementation. Had the Project Steering Committee been established, land acquisition matters, and the vetting of construction drawings by the Ministry of Works and the Attorney General's Office, the drafting of legislation by the same Attorney General's office might have been more expeditiously handled. The Bank did not apply conventional thinking on the issue of separating Utility operation and regulation functions by recommending in the Loan Proposal that the operation and regulation functions of solid waste management in the Bahamas be housed in the same department. The Bank and Executing Agency did not conduct an effective analysis of the institutional capacity of DEHS and the level of strengthening that would have been required in order for the staff of DEHS to provide an acceptable level of maintenance of the sophisticated equipment that was purchased under the project.

Recognizing that the DEHS did not possess the required expertise to provide an effective oversight of the Engineering Consultants in the early stages of project implementation, in retrospect, the capacity gaps in the executing unit could have been addressed by the engagement of a dedicated in-house technical adviser to manage the activities of the design consultants, but such a request was never presented,. Had this action been taken in a timely manner, substantial cost overruns and time delays could have been avoided.

V. Sustainability

The project is analysed under 4 levels of sustainability:

- (a) Technical sustainability: balance between solid waste production and the capacity of the collection and disposal facilities
- (b) Financial sustainability: achievement of funding requirements for the solid waste management operation and development.



- (c) Institutional sustainability: ability of the institution's management to provide the solid waste management system with planning, implementation and operational capacity.
- (d) Environmental sustainability: reduce the negative environmental impacts of solid waste management in the Bahamas.

a. Analysis of Critical Factors

Technical

The Life expectancy of the landfill constructed in New Providence was 4 years as of November 2000. Already more than seven years have gone by and the landfill is still in use. The situation is further exacerbated by the fact that in the first two years of operation, the waste was not being compacted to the recommended density of 750 kg/m³. It is estimated that only 70% of the waste currently being generated is being collected. DEHS has initiated plans to deal with this situation by commissioning a study to develop a Master Plan for the New Providence site. The recommendations of this study will inform the expansion works at the landfill. A decision on the expansion of this facility has to be taken expeditiously. In addition, DEHS will have to undertake further studies to determine the reasons for the collection shortfall and to make recommendations for its improvement.

Operation and maintenance of equipment purchased from the proceeds of the loan represent a vast upgrade in technology over that which previously existed in the Bahamas. Although operation and maintenance training sessions were conducted under the project and training materials were left with DEHS for subsequent follow-up, training reports indicate that the equipment is not being adequately operated and maintained. DEHS should itself pursue the formal training and re-training of its operators. Furthermore, in keeping with its current policy of outsourcing services, DEHS has outsourced the maintenance and repair of its equipment with only moderate success. If DEHS is to continue providing collection and disposal services then the Bank must enforce a condition of the Loan which requires DEHS to provide reporting on the condition of the equipment purchased under the Loan. The Loan condition could be reinforced by requiring DEHS to prepare and regularly update a budget for scheduled preventive maintenance measures.

Financial

The New Providence sanitary landfill was the first landfill where a tipping fee was introduced. However, the fee is only being applied to private collection contractors who are responsible for the collection and disposal of waste generated by commercial and industrial enterprises. It is not applied to household waste for which the collection and disposal is handled by the Department of Environmental Health (DEHS). An IDB mission undertaken in response to a request from DEHS on November 27, 2006 for technical feedback on a proposal for financial and institutional sustainability of the Solid Waste Management Program was informed that GOB plans to implement the tipping fee system in selected islands based on perceived ability to pay. Tipping fees are planned for three richer islands (Abaco, Exuma, and Grand Bahama) upon completion of the infrastructure development projects in those islands, but will not be implemented on four Family Islands. Approximately \$450,000 in tipping fees is collected per annum at the New Providence landfill. Whereas the operating cost of that facility alone has escalated to \$4mn. The tipping fees would therefore have a moderate effect on the generation of revenues for the operations of the Solid Waste Management Sector. Therefore, continued provision of solid waste sector services, like other government provided services, will remain dependent on adequate budgetary allocations from the government. These should be forthcoming if: (i) The Bahamas continues its prudent fiscal management and is not affected by undue macroeconomic shocks; and (ii) governments and parliaments continue to view solid waste collection and disposal as worthy of budgetary allocations..

Institutional

The Solid Waste Management Sector in The Bahamas is organized under Government control with limited private sector involvement. In New Providence, DEHS is responsible for the collection of domestic solid waste and the operation of the landfill, while private contractors collect commercial waste. In the Family Islands, a mixture of Local Government bodies and, to a lesser extent, private contractors are responsible for collection and the operation of the landfills. This fragmented arrangement does not auger well for the development of an efficient and effective sector. A new corporate structure and financing mechanism must be developed for solid waste management in the Bahamas (New operation?).

Generally, apart from tipping fees paid by private contractors at the landfills, the burden for financing the collection and disposal of solid waste in The Bahamas falls on the Government. To-date, GOB has, by and large, met its financial obligations. However, in meeting its financial obligations GOB has given and will continue to give DEHS and the Local Government bodies little incentive to improve efficiency and effectiveness of their operations. However, as stated in Section IV (a) of this report, the reality is that DEHS, although structured as a Government Department, to be efficient and effective, has to function like a Corporation with a high level of autonomy.

In developing a new financing mechanism for solid waste management in the Bahamas, it must be recognized that direct revenues (tipping fees) will hardly be sufficient to meet the operating expenditure and additional sources of revenue must be applied. Commercial enterprises must meet the full cost of the service provided to them. GOB might wish to continue to apply a subsidy for domestic users out of the Consolidated Fund or to apply indirect revenue generation such as the proposed Environmental Levy.

The undesirability of having the operation and regulation of solid waste management housed in the same Government Department has already been raised. Currently, the focus of the regulatory function is to monitor the performance of DEHS's operations in New Providence and the Local Government Bodies and the Private Contractors in the Family Islands. However, a properly functioning regulatory body should operate under a regulatory regime comprising a procurement policy, rate setting, licensing of operators and safety and management efficiency monitoring of operators in the sector.

In the absence of an adequate regulatory regime, Government is pursuing greater private sector involvement in the solid waste management sector and at the time of writing this report has issued tenders for a contract to operate the Harrold Road Landfill. GOB is running the risk of having the sector organized under a confused mix of public and private enterprises, concessions and competition, and protectionism and openness. The failure of this system could result in the non-performance of both DEHS and private contractors in the collection and disposal of solid waste.

One option open to Government is the separation of the regulatory and operating functions through the establishment of the proposed Department of Environmental Planning and Protection. However, this would leave DEHS as an operations body operating as part of the Government departmental structure with all of its inherent efficiencies. Another option is to have the DEHS revert to its functions as intended under the Environmental Health Services Act (Section 5) (Annex 2). In which case, GOB might then want to consider the setting up of a separate Corporation with responsibility for the collection and disposal functions. Greater private sector involvement could then be considered with the new Corporation maintaining a capacity to deal with emergencies. In particular, there is a good opportunity for the development of small enterprises to take over the collection of solid waste in New Providence and to replace the Local Government bodies in the Family Islands. The development of such an industry would require initial training of entrepreneurs in business management, equipment maintenance (particularly preventive maintenance) and the provision of seed money for equipment purchase, performance



guarantees and other start up expenses. The Bank might want to consider such a project for its financing.

Environmental

Solid waste management should have as its highest priority the minimization of waste reaching the disposal facilities, as embodied in the widely accepted, so called, 3R Principle of **Reduction, Reuse and Recycle**, with only those items which cannot be dealt with by reduction, reuse or recycling sent for environmentally sound disposal. The project, as designed and implemented, included only minimal aspects of the 3R Principle. As such, there is still much to be done and further invention in this regard is required.

The Way Forward

Whereas the project dealt somewhat effectively with the development of physical infrastructure and to a lesser extent the institutional development of the DEHS, other sector development issues were less effective. Further intervention in the sector is necessary to deal with issues of:

- (a) an appropriate corporate structure for the sector including the identification of the best roles to be played by DEHS and the Private Sector in the sector;
- (b) a regulatory regime needed to support the operations of the sector;
- (c) appropriate mechanisms to finance sector operations and development;
- (d) further development of physical infrastructure including the expansion of the Harrold Road land fill, operations training and public awareness; and
- (e) pursuing a new policy for solid waste management placing greater emphasis on the minimization of waste arriving at the disposal facilities.

b. Project Risks

The biggest risk facing the project is a possible downturn in the tourism economy of The Bahamas due to an external event such as the 9/11 crisis in the USA. This could result in GOB not having sufficient funds to finance the operations of the solid waste management system and its future development. Notwithstanding, Bahamas is relatively wealthy and the GOB has a good track record of both sound macroeconomic management and in the provision of adequate funding for needed services.

There is the likelihood of failure of the Project due to public apathy to solid waste management if GOB fails to follow through with a continuous program of public education. This could result in the collapse of the vital tourism economy as tourists might prefer to spend their vacations in more environmentally pleasing surroundings which could be found in many other Caribbean destinations. In which event, GOB, would be hard pressed to allocate the funds necessary to operate and maintain the solid waste collection and disposal facilities throughout New Providence and the Family Islands. A downward spiral of inefficiencies could result in a complete breakdown in solid waste management in the country.

Sustainability Classification **SU**:

<input type="checkbox"/> Highly Probable (HP)	<input type="checkbox"/> Probable (P)	<input checked="" type="checkbox"/> Low Probability (LP)	<input type="checkbox"/> Improbable (I)
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VI. Monitoring and Evaluation (Project Not Recorded as one for Evaluation)

VII. Lessons Learned



1. Although it might be regarded as imposing another level of oversight, in projects where inter-departmental coordination is required, a project steering committee including members representing the interests of the relevant Ministries of Government might be useful in presenting the project issues to the decision makers in the relevant Ministries.
2. The Executing Agency and the Bank should follow the established practice of acquiring lands, on which facilities financed from the proceeds of the loan are to be cited, prior to the award of contracts for the construction of the facilities. It should also be considered and scheduled during project preparation.
3. From the start of a project, project outputs should be supported by time bound activities with a clear scope and the allocation of measurable resources;
4. Performance Indicators for the assessment of the results (outputs, outcomes and goals) of a project should be measurable and where possible supported by baseline data and a project financed process of data collection, so that the true achievement of the component of the project can be assessed;
5. Institutional development should be planned within the context of: (i) the capacity of the targeted institution; and (ii) the social and political environment in which the institution operates, to ensure that over ambitious development targets are not set.
6. Process mapping techniques should inform the setting of policy and institutional reform targets.
7. As part of the project design an assessment of the capacity of the Executing Agency to perform oversight functions of Consultants must be made and where deficiencies exist such oversight must be provided by independent Consultants.
8. Wherever possible, full use of technical expertise existing within the project country must be utilized so as to maximize the benefit of the experience of working in local conditions could be factored into the project design.
9. Requirements for solid waste projects to achieve “financial sustainability” should be dropped from future projects. The goal is unrealistic except by artificial means. The introduction of tipping fees can make a useful contribution to cost recovery and the pricing can be helpful for microeconomic reasons of correcting for externalities and promoting incentives for good solid waste management practice.

Annexes:

1. Minutes from the Exit Workshop
2. Borrower Evaluation



Bahamas - Solid Waste Management Program
Loan: 1170/OC-BH
Project Completion Report
Quality and Risk Review (QRR) – Report on Proceedings and Results

A. QRR Process

The Project Completion Report was distributed by INE-WSA on October 15, 2008. The comments received and subsequent actions are documented in the Report on Proceedings and Results. An actual meeting was not convened.

B. Unresolved Issues

None

C. Comments

Name/Dept.	Subject	Comments	Responses
Laura Profeta, CAN/CCB/RTC	Design failures	<ul style="list-style-type: none"> The report notes in several places the various project design failures, e.g. that the disbursement deadline was unrealistic, the institutional strengthening component was not comprehensive enough, the facilities design did not include important auxiliary facilities like leachate pond and storm water management system, the goal of financial sustainability was unrealistic, etc. The lessons learned section reflects these failures. From reading the document, we had the impression that some of the failures of the project were foreseeable or expected; however, it is not clear to us from our reading that the report justifies why such problems could not have been overcome in a better way. Another similar example is on page 17, second paragraph, under “Negative Performance Issues”, where it is stated that “the Bank should have taken steps to engage Consultants to provide such oversight”, however, no explanation is provided as to why that had not been considered or done. 	<p>Each design failure was addressed as they surfaced, and not in a comprehensive manner.</p> <p>The sentence on page 17 may be misleading because it could be interpreted that the Bank could have hired consulting services to oversee the Engineering Consultants. This sentence is therefore re-phrased as follows: “In retrospect, the capacity gaps in the executing unit could have been addressed by the engagement of a dedicated in-house technical adviser to manage the activities of the design consultants, but such a request was never presented”.</p>

Name/Dept.	Subject	Comments	Responses
			Additionally the subjectivity conveyed by the use of the phrase “It is not surprising...” on pages 11 and 12 have been cleaned up.
	Clarification of Outputs of Component 3	<ul style="list-style-type: none"> On page 8, at the bottom of the page, in the explanation of the differences between planned and actual outputs, it is explained in the second line that less than one third of the Consultant’s recommendations were accepted. It would be useful to have more insight as to what the recommendations were or what were the reasons of the Executing Agency not to accept them. 	The statement in the PCR refers only to the micro-routing consultancy. The sentence is re-phrased as follows: “The executing agency did not fully agree with all the recommendations of this particular study and used its own resources to design a new system involving an increased number of “beats” operated from 22 to 71.”
	Disbursement linked to Loan condition	<ul style="list-style-type: none"> In the section on Critical factors affecting output delivery the PCR states that the Bank proceeded initially with the disbursement of funds on the basis of assurances from the Government without a waiver of the loan condition under Clause 4.06(i), losing therefore the Bank’s influence in having the Government approve tipping fees at an adequate level. It would be important to know why the waiver of the loan condition was not obtained at that time. The authorization of one or more loan disbursements without compliance with or an approved waiver of the respective contractual conditions is disconcerting at best, and may have implications in terms of the responsibility of the individuals involved in this decision. 	The Projects files were reviewed to ascertain the reason for proceeding with the contract for works without a waiver of the Loan condition. The paragraph is revised to read as follows: The tipping fee was finally introduced in April 2004 or some 52 months after the commencement of construction of the Harrold Road Landfill. The Bank proceeded initially with the disbursement of funds on the basis of assurances from the GOB that the tipping fee would be implemented. The Project files show that the Bank’s non-objection to the award of the landfill construction contract was conveyed by letter dated August 3, 1999 and there is no evidence that a waiver of the Loan Condition was obtained. In retrospect, the Bank’s insistence on strict adherence to the introduction of tipping fee as a condition precedent to disbursement of funds for the landfill construction works ran the risk of

Name/Dept.	Subject	Comments	Responses
			<p>delaying the project since the implementation of the tipping fee would have required legislative action. Such delay would have resulted in cost escalations. In addition, there are considerations relating to the political costs of Government taking legislation to parliament before actually building the facility. Finally, in reality, the implementation of the tipping fee was not critical to the construction of the facility although it was supposed to contribute to its financial sustainability. Notwithstanding this justification, the required amendment to the Loan Contract should have been formally negotiated between the Bank and the Borrower, documented and processed through the appropriate Bank channels.</p>
	Clarification of Project Sustainability rating	<ul style="list-style-type: none"> Finally, a comment as to form rather than substance is that on page 2, at the top, the summary of performance classifications indicates that sustainability (SU) is “probable” and “low probability.” Reading the document further, one could extrapolate that it should only indicate “low probability”. This point should be clarified. 	<p>The SU classification is indeed to read as Low Probability.</p>