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IMPLEMENTATION COMPLETION REPORT  
(SCL-45440 TF-25486)

ON A

LOAN

IN THE AMOUNT OF US\$5 MILLION

TO THE

DOMINICAN REPUBLIC

FOR A

WASTEWATER DISPOSAL IN TOURISM CENTERS (LIL)

December 15, 2005

**Finance, Private Sector and Infrastructure Department**  
**Caribbean Country Management Unit**  
**Latin America and the Caribbean Region**

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective November 7, 2005)

Currency Unit = Peso  
Peso 1.00 = US\$ 0.02937  
US\$ 1.00 = DOP\$ 34.05

## FISCAL YEAR

January 1 to December 31

## ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
CCC	Contract Control Committee
CORAAPPLATA	<i>Corporación de Acueductos y Alcantarillado de Puerto Plata</i> (Puerto Plata Water and Sewerage Corporation)
DR	Dominican Republic
EMP	Environmental Management Plan
FMS	Financial Management System
GDR	Government of the Dominican Republic
GDP	Gross Domestic Product
HDPE	High Density Polyethylene
INAPA	<i>Instituto Nacional de Agua Potable y Alcantarillado</i> (National Drinking Water and Sewerage Institute)
IOP	Initial Operating Stage
LIL	Learning and Innovation Loan
LMD	Liga Municipal Dominicana (Dominican League of Municipalities)
MTR	Mid Term Review
NGO	Non-governmental Organization
NOP	Normal Operating Stage
NPV	Net Present Value
PAD	Project Appraisal Document
PAHO	Pan American Health Organization
PCD	Project Concept Document
PCU	Project Coordination Unit
PHRD	Policy and Human Resources Development
PMR	Project Management Reports
PSP	Private Sector Participation
PSR	Project Status Report
SIL	Specific Investment Loan
UASB	Upflow Anaerobic Sludge Blanket Reactor

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**DOMINICAN REPUBLIC  
WASTEWATER DISPOSAL IN TOURISM CENTERS (LIL)**

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<i>Project ID:</i> P059510	<i>Project Name:</i> WASTEWATER DISPOSAL IN TOURISM CENTERS (LIL)
<i>Team Leader:</i> Ventura Bengoechea	<i>TL Unit:</i> LCSFW
<i>ICR Type:</i> Core ICR	<i>Report Date:</i> December 15, 2005

## 1. Project Data

*Name:* WASTEWATER DISPOSAL IN TOURISM CENTERS (LIL)      *L/C/TF Number:* SCL-45440; TF-25486

*Country/Department:* DOMINICAN REPUBLIC      *Region:* Latin America and the Caribbean Region

*Sector/subsector:* Sewerage (65%); Central government administration (35%)

*Theme:* Pollution management and environmental health (P); Technology diffusion (P); Water resource management (P); Other financial and private sector development (S)

### KEY DATES

	<i>Original</i>	<i>Revised/Actual</i>
<i>PCD:</i> 10/09/1998	<i>Effective:</i> 12/07/2001	12/07/2001
<i>Appraisal:</i> 08/23/1999	<i>MTR:</i>	11/27/2002
<i>Approval:</i> 04/19/2000	<i>Closing:</i> 06/30/2003	06/15/2005

*Borrower/Implementing Agency:* GOVERNMENT/THE DOMINICAN REPUBLIC

*Other Partners:* GDR

STAFF	Current	At Appraisal
<i>Vice President:</i>	Pamela Cox	David de Ferranti
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<i>Sector Manager:</i>	John Henry Stein	Abel Mejia
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## 2. Principal Performance Ratings

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

*Outcome:* S  
*Sustainability:* L  
*Institutional Development Impact:* SU  
*Bank Performance:* S  
*Borrower Performance:* S

*QAG (if available)*      *ICR*  
*Quality at Entry:* S      S  
*Project at Risk at Any Time:* Yes

### **3. Assessment of Development Objective and Design, and of Quality at Entry**

#### *3.1 Original Objective:*

The original objectives of this Learning and Innovation Loan (LIL) Project were to: (i) apply and test an innovative technology for environmentally sound disposal of treated wastewater of small and medium size coastal towns through small-diameter cost-effective submarine outfalls; and (ii) prepare and implement, for the first time in the Dominican Republic, an innovative model for incorporating the private sector in the provision of water supply and sewerage services in tourism centers. The outfall technology was to be piloted in Sosua. Private sector participation options were assessed in several tourism centers with a final focus on the Puerto Plata, Sosua and Cabarete region.

The intent was to use the technological and institutional lessons-learned from this LIL to design and implement a larger follow-up Specific Investment Loan (SIL) operation in this and other tourism centers.

#### *3.2 Revised Objective:*

The project objectives were not revised. In order to achieve the objectives, some changes were required to the end date of the project, the financing plan, and the strategy for accomplishing the institutional change.

#### *3.3 Original Components:*

The Project had six components: (1) construction of the wastewater conveyance system, treatment installations and submarine outfall for Sosua; (2) preparation and implementation of the Private Sector Participation (PSP) model for the provision of water supply and sewerage services in the Puerto Plata/Sosua/Cabarete region; (3) monitoring of the coastal environment before and after the construction of the outfall; (4) training and dissemination of the technology of small-diameter outfalls for wastewater disposal; (5) establishment and provision of technical and financial support to the mechanism or unit established to oversee any contracts with the private sector; (6) project management and design.

#### **Component (1): Construction of the wastewater conveyance system, treatment installations and submarine outfall for Sosua; Cost: US\$ 4.28 million.**

This component targeted at the northern coast included: (i) the connection of the existing sewage collection network to the treatment plant; (ii) addition of preliminary treatment installations upfront of the wastewater treatment plant which was under the final stage of construction by the National Drinking Water and Sewerage Institute (INAPA); and (iii) the construction of a submarine outfall, with a diffuser submerged at a water depth of 140 meters, for disposal of the effluent to the ocean.

#### **Component (2): Preparation and implementation of the PSP model for the provision of water supply and sewerage services in the Puerto Plata/Sosua/Cabarete region; Cost: US\$ 0.46 million.**

This component included: (i) the preparation of bidding documents and draft contract for the selection and contracting of private operators to manage the water and sewerage services in the pilot region; (ii) technical support to the Government during the proposal evaluation and the operator selection process, contract negotiation and signing; (iii) technical support during the design of control and auditing mechanisms to regulate the contracts; and (iv) monitoring and evaluation of the PSP preparation and implementation process to identify lessons that could be valuable in other tourism centers. This component was initiated during project preparation and was to be completed during implementation. To enable its completion, the

Government agreed to hire a consulting firm to assist in carrying out the pre-qualification and bidding processes for selecting the operator, evaluating the proposals and negotiating the contract.

**Component (3): Monitoring of the coastal environment before and after the construction of the outfall; Cost: US\$ 0.56 million.**

This component was to develop baseline data on the level of contaminants in the outfall area and to provide the tools with which to measure contamination after the outfall became operational. The component called for the measurement of key indicators (mixing, diffusion, dilution, bacteria decay, water quality, analysis of sea bottom sediments at the vicinity of the outfall) and the degree to which the outfall affected the baseline measurements.

**Component (4): Training and dissemination of the technology of small-diameter outfalls for wastewater disposal; Cost: US\$ 0.21 million.**

Under this component the lessons learned through this LIL project were to be disseminated. To be implemented in partnership with the Pan American Health Organization, the component was to use the pilot area as a case study for dissemination of the small-diameter outfalls as a viable technology for small and medium-size coastal tourism centers. The dissemination activities included preparation of a small-diameter outfall manual, under the sponsorship of Pan American Health Organization (PAHO) and The World Bank, for worldwide distribution and two workshops. The first workshop would present the outfall technology to government officials, local authorities, local consulting engineers, representatives of the hotel and tourism sector, environmental NGOs, and community organizations, especially from other tourism centers. The second workshop would take place during construction of the outfall in Sosua to illustrate construction techniques and transfer of technology to interested parties in the country and participants from other countries in the region interested in small-diameter outfalls. PAHO would participate in the coordination of the two workshops and the transfer of technology. PAHO would also be invited to participate in the review of the design of the outfall and to participate in the preparation and implementation of the monitoring program.

**Component (5): Establishment and provision of technical and financial support to the mechanism for control and supervision operation contract; Cost: US\$ 0.11 million.**

Since a regulatory entity did not exist in the Dominican Republic at the time of project appraisal, a specific mechanism for supervision and control of the operations PSP contract was required. During negotiations, it was agreed that the Government would submit a proposal for a control and supervision mechanism that would be the responsibility of INAPA. This component provided the technical and financial support to carry out the detailed design and to implement the control mechanism. This activity was also to include necessary control of the environmental aspects, i.e., environmental supervision and inspection of the operator, after taking over the operations.

**Component (6): Project management and design; Cost: US\$ 1.62 million.**

This component supported the Project Coordination Unit (PCU) in the Technical Secretariat of the Presidency with project management activities. These activities included: hiring of consultants for the studies required for preparation and design of the project; preparation of bidding documents for purchase of goods and equipment and implementation of works; coordination of works implementation with INAPA; and coordination with the Project Advisory Committee on the PSP model and financial management of the

project. Special studies under this component included oceanographic studies and detailed design of the submarine outfall and additional system components (collectors, pumping stations and preliminary treatment installations). To support the PCU in undertaking these tasks, the Government agreed to hire consultants to help manage and implement the project, including the procurement processes and project financial management.

### *3.4 Revised Components:*

The project components and objectives were not revised, but significant changes were made in the actual implementation arrangements for the project. Most significantly, an amendment was developed to respond to the impact of the serious financial crisis confronting the Government. Under this amendment (June 2004) to the Loan Agreement, the disbursement percentage for local expenditures under the Works Category was increased from 30% to 70%, relieving a burden on the Government. Concurrently, funds were shifted into the Works category from other disbursement categories, especially from consulting services (PSP implementation and oversight) under the TA component. These TA tasks were no longer required under the Loan, but were placed on a longer timeline by the Government.

One earlier (March 10, 2003) Amendment had been made to the original Loan Agreement to rectify an administrative error that had omitted Operations as a disbursement category.

Lastly, the Closing Date for the Loan was extended three times. The first extension was from June 30, 2003 to June 30, 2004; the second extension was from June 30, 2004 to April 30, 2005; the final extension brought the loan to the actual closing date of June 15, 2005.

### *3.5 Quality at Entry:*

The Quality at Entry was **Satisfactory**. The project objectives were squarely in line with the objectives and strategy for the Dominican Republic as set out in the Country Assistance Strategy (CAS) and the Government's own priorities. Both the Bank and the Government agreed that environmental improvements in the coastal areas were key strategic objectives, as reflected in the Project. The QAG also evaluated the project as Satisfactory at entry, assessing the project as appropriately designed to respond to challenges in the water and sanitation sector.

When the Project was designed and appraised (1998-1999), the DR was characterized by low water (41%) and sanitation (11%) connection rates; chronic weakness of the water and sewerage facilities; inadequate sector investment and maintenance; low levels of cost recovery in the sectors; low levels of sector investment; and extensive pollution of surface, ground and sea waters. The Government and the Bank concurred that water and wastewater services provided through INAPA (the national water service provider) and the regional water companies were inadequate. There was insufficient attention to the sustainability of the sector in terms of maintenance, cost recovery, and investments.

These issues had a negative impact on the country's tourism industry, a critical local economic activity contributing more than 13% to the GDP at the time. Puerto Plata, Sosua and Cabarete were the most important tourist destinations in the Dominican Republic with Sosua accounting for about 40% of the region's hotel capacity. At the time of project design, the wastewater disposal technologies in particular were obsolete and inadequate.

Consistent with the CAS emphasis on improved environmental management and use of the private sector for economic development, it was agreed to pilot the use of private sector management in the Puerto Plata/Sosua/Cabarete region, the ongoing ideology at that time. In fact, this area had a strong likelihood of

attracting private sector interest given the availability of water resources and the strong tourism market. This project was designed to address both the technical and institutional weaknesses in the wastewater sector, leading to increased sanitation coverage and corollary boost to the tourism sector and its beneficiaries.

Furthermore the project design built on lessons-learned from past water/projects in the DR. Specifically the design maximized stakeholder participation; focused on smaller, discrete investments that could be more readily implemented and supervised; and called for close oversight of the project and a flexible approach to implementation arrangements. The project also benefitted from extensive preparation work, which was financed by means of a Project Preparation Facility (PPF) and a Japanese PHRD Trust Fund, intended for a larger Specific Investment Loan (SIL) that did not materialize.

In assessing the original objectives and design, it must be noted that institutional reform proved to be more challenging than expected. The private sector participation could not be implemented within the life of the project, but the GDR plans to implement it now. PSP is a challenging exercise in most developing countries. In the Dominican Republic the PSP challenge was exacerbated by the macroeconomic crisis, the difficulties in the power sector and the changes in Government administration over the course of the Project, compounding the challenges of entrenched interests and legislative logjams.

The objectives and project concept were sound, but, in retrospect, the assumptions regarding the Government's ability to coordinate and mobilize stakeholder commitment for institutional change (and for those commitments to convey into a new Government) were overly optimistic.

#### **4. Achievement of Objective and Outputs**

##### *4.1 Outcome/achievement of objective:*

The project had two core objectives and six project components, each component being directly linked with a related output. The achievements against those objectives and outputs are described below.

**Objective (i): “Apply and test an innovative technology for environmentally sound disposal of treated wastewater of small and medium size coastal towns through small-diameter cost-effective submarine outfalls”.**

##### **Outcome: Satisfactory**

A key objective of this loan was to connect the Sosua community to the wastewater treatment system and construct a small diameter submarine outfall to discharge the wastewater into marine waters up to a depth of 140 meters. This discharge was designed to provide for ultimate disposal of Sosua wastewater in a safe and cost effective manner with minimum associated environmental impacts.

This project financed a small diameter outfall (of up to 30 inches in diameter) constructed of high density polyethylene (HDPE). The use of HDPE pipes for this purpose was relatively new at the time of project design, yet the HDPE small diameter outfall is a low cost, appropriate technology for small communities, requiring minimum operation and maintenance support.

The technological strategy for this project was to take advantage of the treatment capacity of the ocean for coastal cities of small and medium size in the Dominican Republic given the significant depths that can be found close to the shores in many locations, combined with the prevailing temperature-salinity profiles. Sosua was found to have these favorable conditions, leading to the construction of the outfall at this site.

Design and installation methods of small HDPE outfalls had not yet been documented. As part of the



innovative approach of this LIL, a design manual for the use of this type of outfalls in developing countries was prepared in cooperation with PAHO, and the experience of the design and implementation of the outfall under the LIL will be disseminated in the Dominican Republic, so as to facilitate the use of this technology in other tourism centers and in other coastal cities in the country, and in other countries in the Caribbean.

**Achievement of the Objective (ii): “Prepare and implement, for the first time in the Dominican Republic, an innovative model for incorporating the private sector in the provision of water supply and sewerage services in tourism centers”.**

**Outcome: Marginally Satisfactory**

This project represented the first attempt at mobilizing private sector management for water and wastewater services in tourist areas in the Dominican Republic or elsewhere in the Caribbean. The PSP strategy was a 20 year concession with specific targets for providing services at affordable rates to the poorest and most vulnerable segments of the population in the area.

The PSP advisors were hired under a two phase contract with the first phase covering the final design work and the prequalification of Bidders. This first phase built upon preparatory work done by individual consultants. The second phase was to be undertaken on a success fee basis. The advisors were able to draft bidding documents, a preliminary concession contract, and to complete the prequalification of four internationally reputable operators as potential bidders. The transaction advisors provided further guidance on procedures for monitoring and overseeing the PSP contract until the appropriate framework law could be passed, a realistic response to the slow pace of legislative change. At the time of project design, the political will for PSP was present and the business community in the Puerto Plata/Sosua/Cabarete was supportive of a solution that would improve services.

However this objective was not fully achieved since the implementation of the concession was postponed due to a combination of negative factors external to the project design. These included: the failure of PSP in the energy sector, the macroeconomic crisis in the country prompted in part by the failure of a major bank, the uncertainty in the investment environment including the drop in tourism after September 11th, and a declining international appetite for the investment opportunities in water and wastewater in general, although the prequalified operators were still indicating interest at the time of the postponement.

Additional hurdles to the implementation of the PSP related more directly to the project design. For instance, the project called for PSP with INAPA in the Puerto Plata/Sosua/Cabarete region. Yet after project commencement it transpired that the Government had already created a new local operating entity Puerto Plata Water and Sewerage Corporation (CORAAPPLATA) with an autonomous corporate structure and lesser interest in PSP. This necessitated changes in the PSP structure as developed by the advisors. The lack of a fully defined legal and regulatory framework also slowed implementation since it required the design of alternate mechanisms such as the creation of a contract control committee. There was also discussion of the use of a partial risk guarantee against tariff risks, but the ultimate strategy was to impose an initial tariff hike on the hotels to provide cross subsidization and to gradually increase the rates for domestic consumers. In addition, the PSP design itself called for the incorporation of low-income consumers within the service area and the design of appropriate subsidy mechanisms. Financing for this subsidy program was to be included in the intended follow up SIL and will be considered now under the proposed APL.

These combined external and design factors led to delays in the implementation of the PSP, like many other PSP projects around the world. The current Government (which was the one that requested the project in

1998 and it is now in the first half of its second non-consecutive term) has reinvigorated the reform process and is still pursuing institutional reform options, including PSP, in the tourist areas of Puerto Plata/Sosua/Cabarete, supported by the local Hotel and Development Associations. Government has been further encouraged by the success with the partial management contracts of the Water and Sanitation Corporation of Santo Domingo (CAASD).

#### *4.2 Outputs by components:*

##### **Component (1): Construction of the wastewater conveyance system, treatment installations and submarine outfall for Sosua.**

**Achievement: Satisfactory.** The installation of the submarine outfall was completed in May 2005 and the remaining works under the project were substantially completed by loan closing date of June 15, 2005, except for the interconnection works between the wastewater conveyance system and the outfall. These works, which also included the rehabilitation of part of an existing Wastewater Treatment Plant, were fully financed by the Government beyond the closing date and were inspected and tested on November 9, 2005.

The Bank-financed works included: a submarine outfall of 0.65 meters of internal diameter and length of 787 meters (247 meter on land and 540 meter in the ocean); gravity and pressure sewers; seven pumping stations with power generators and pre-treatment facilities, connection of the existing treatment plant to the submarine outfall and preliminary treatment facilities retrofitted into the existing plant that had never been completed.

These new works are expected to have a significant impact on the environmental quality of the region (to be confirmed through the baseline monitoring) and a ripple effect on the economic well-being of the tourism industry and the physical well-being of the general population in the region.

##### **Component (2): Preparation and implementation of the PSP model for the provision of water supply and sewerage services in the Puerto Plata/Sosua/Cabarete region.**

**Achievement: Marginally satisfactory.** The Project Appraisal Document anticipated that at the conclusion of the project the water supply and sewerage system would be under private management. While the preparation for PSP was largely achieved, the final bidding process and contractual arrangements were not implemented.

However, the PSP preparatory work included development of: financial and business models for the PSP; prequalification of bidders; recommendations on low income subsidies; assessment of the possible use of guarantees; oversight arrangements; and stakeholder workshops. The documentation still provides a valuable platform to move ahead with institutional change although updates would be required. Furthermore, the extensive discussions with stakeholders and the private sector (within and outside the country) provided valuable information for the ongoing strategy to reform the sector.

The current Administration remains committed to achieving improved institutional arrangements in the sector and will benefit from the PSP-related outputs and dialogue. In fact it has asked the Bank to consider the use of PSP arrangements as part of the preparation activities for the Proposed Water & Sanitation in Tourist Areas APL, building from the successful experience with the partial management contracts awarded to the private sector in Santo Domingo.

### **Component (3): Monitoring of the coastal environment before and after the construction of the outfall.**

**Achievement: Satisfactory.** The expected output for this component was the establishment of baseline data before the operation of the submarine outfall, a monitoring process to measure water quality impacts after the outfall was put into service, and monitoring results after a period of outfall operation. In October 2004 an international environmental consultant developed a baseline monitoring plan and definition of analytical protocols as guidance for contractors to undertake the collection and analysis of the water quality baseline samples from eight stations.

Four sampling regimes were developed for the Sosua submarine discharge: 1) Baseline/pre-discharge (2 to 3 samples typically over the year scheduled as cycles dictated); 2) wastewater characterization based on grease, pH, suspended solids, turbidity, nutrients, oil and grease, total coliforms, fecal coliforms, enterococci; 3) post discharge performance verification based on E-coli and probe parameters such as dissolved oxygen (DO), temperature, salinity at samplings depths; and 4) discharge monitoring based on E-coli and probe parameters such as DO and temperature.

Local contracts were awarded for the monitoring of the pre-discharge and the first monitoring activities showed that the area of the submarine outfall discharge presents low pollution levels. Responsibility for the ongoing water quality monitoring was given to CORAAPPLATA that received the necessary laboratory and sampling equipment and training. The delay in the completion of the outfall meant that it was not feasible to obtain discharge readings that reflected a significant period of operation, but the methodology and process is in place to accomplish this going forward.

### **Component (4): Training and dissemination of the technology of small-diameter outfalls for wastewater disposal.**

**Achievement: Satisfactory.** Given the innovative aspects to the technical solutions employed under this project, a manual was developed to guide other practitioners through the process of selecting, designing and implementing a small diameter outfall. It is expected that this manual will have wide application in other parts of the Dominican Republic and in the Caribbean.

A series of workshops and discussions were also conducted to present the outfall technology and to specifically transfer technology to government officials, local authorities, the local consulting engineers' community, representatives of the hotel and tourism sector, environmental NGOs, and community organizations, especially from other tourism centers.

### **Component (5): Establishment and provision of technical and financial support to the mechanism for control and supervision operation contract.**

**Achievement: Not rated.** The expected output was that the PSP Contract Control Committee (CCC) would be operative and performing. This Committee would serve as contract performance monitor, filling a role left vacant in the absence of a strong legal and regulatory framework. While a national Framework Law could be drafted and passed which would clearly define regulatory and service responsibilities, the Committee was to provide reassurance and clarity to potential operators. To support the establishment of the Committee, consultants provided details on the composition, powers, obligations and enforcement mechanisms of the CCC. This guidance will be useful when PSP is finalized (assuming the law is not yet

in place) or may help guide in the establishment of a regulator at the appropriate time.

It would have been premature to establish and operationalize the Committee when the PSP was delayed. Therefore, although a consulting team defined the structure and role of the Committee, the Committee has not yet been constituted.

### **Component (6): Project management and design.**

**Achievement: Satisfactory.** This component supported the project management activities carried out by the PCU in the Technical Secretariat of the Presidency. The Project Appraisal Document (PAD) did not specify component outputs apart from the employment of qualified and reliable staff in the PCU. However, the overall success of a project is clearly linked with the effectiveness of the PCU.

This project suffered from a lack of continuity in PCU staff as the Government changed in August 2000 and again in late 2004. In particular, during the period from 2000-2003 the project suffered from a lack of financial management expertise (and from non performing financial software). The result was a lack of audit report and unsatisfactory ratings for financial management. A further indication of the PCU capacity was the fact that in 2003 only 10% of the project funds had been disbursed. The macroeconomic crisis created a serious project constraint as counterpart funds became unavailable.

With the elections of 2004, however, the newly revamped PCU was able to recover much of the lost ground with a combination of political will, the loan restructuring that lowered the counterpart fund needs and the availability of these funds. The PCU made remarkable progress toward the project (and component) objectives within a short time. The result has been the completion of all works under the project and agreement on the next sector activities.

#### *4.3 Net Present Value/Economic rate of return:*

The recalculation of the Net Present Value (NPV) of the project investment adopted a similar approach as in Appraisal. In the PAD the NPV (US\$4.3 million) was estimated considering the net economic benefits generated by the wastewater disposal project on an incremental basis, comparing the costs and benefits of a “with project” scenario to the costs and benefits of a “without project” scenario. The main benefits of the project considered in the analysis include: (i) the provision of sewerage services in Sosua; (ii) an improvement in the local coastal environment, which should avoid losses in tourism revenues in the region and would increase tourists' satisfaction. The costs considered were the construction costs related to the wastewater system works. A discount rate of 12% was used to compute the NPV as a proxy of the Dominican Republic's opportunity cost of capital. The same assumptions were followed in the re-estimation. The recalculation of this value yielded US\$4.72 million.

#### *4.4 Financial rate of return:*

The Project Appraisal Document does not include a financial rate of return calculation. As a result, the ICR does not include this calculation.

#### *4.5 Institutional development impact:*

**Substantial:** While all project objectives could not be achieved during the period of this loan, the project has served as a forum to evaluate the sectoral roles and the effectiveness of institutions and to establish the groundwork for institutional reform. The groundwork accomplished during this project includes the stakeholder dialogue conducted at a local and national level, the discussion of regulatory and institutional roles in the context of the Contract Control Committee and the Water Sector Law still pending in Congress, and the rationalization of INAPA's role with that of local institutions.

Most significant was the agreement to revise the role of INAPA from the primary water and sewerage service provider to a more restricted role limited to rural and less viable areas. An agreement was reached that more viable towns and cities would seek a greater role for the private sector in their management and operations. Implementation of the PSP was delayed, but initial institutional changes were accomplished at a decentralized level and a balanced approach was devised for the allocation of risks and investment obligations between the public and private sectors.

## **5. Major Factors Affecting Implementation and Outcome**

### *5.1 Factors outside the control of government or implementing agency:*

The factors outside the control of the Government or implementing agency included changes in administration, macroeconomic crisis and its impacts, and the worldwide decline in operator interest in water and wastewater PSP arrangements. These factors affected the PSP component of the Project and slowed the construction of works. As some of these factors were resolved, however, the project momentum and direction were restored.

### *5.2 Factors generally subject to government control:*

From 2000-2004 there was low Government commitment to the project and its objectives. The project stalled (even in terms of its Effectiveness Date) due to longer than usual Congressional delays, lack of Government will to push forward with key commitments, and a lack of counterpart financing. The latter was relieved in part with the Bank's willingness to amend the co-financing obligations of the Government and especially with the commitment of the Administration that returned to power in 2004 for a second non-consecutive term.

### *5.3 Factors generally subject to implementing agency control:*

Project implementation was rocky at best, with a particularly difficult period from 2000-2004. Since the PCU was reflective of the Government's attitude toward the project, it is debatable whether it can be said that the poor performance during this period was within the control of the implementing agency.

The Project was rated as unsatisfactory during two periods: first, when the effectiveness date of the project had to be extended twice when preconditions were not met; and second, in June 2003 to get the attention of the Government when the disbursements had almost completely stalled. The project implementation returned to satisfactory status once the works resumed at the very high pace required to complete them before the loan closing date.

In both cases, the lack of progress related to the PCU's difficulty in meeting loan requirements, particularly those related to institutional change. This was indicative of the PCU's inability or unwillingness to adequately convey and justify the project objectives. Instead, the project was delayed by political wrangling on a variety of levels.

### *5.4 Costs and financing:*

Not applicable

## 6. Sustainability

### 6.1 Rationale for sustainability rating:

The technical achievements of the project are **Sustainable**. The works, operational capacity and water quality monitoring plan are in place to see the outfall properly maintained and operated, and even replicated elsewhere in the Dominican Republic. There is a concern in the short term with the current weak financial capacity of CORAAPPLATA, but this is expected to improve with the GDR plans to bring PS participation to the Puerto Plata/Sosua/Cabarete region, as it had planned during its first term.

Although the PSP objectives of the project could not be fully achieved due to externalities that precluded the completion of the concession contract, the process helped to instill commercial and operational awareness in CORAAPPLATA, the local service provider, that should translate into a more sustainable utility. Furthermore, through participation in the process and through extensive consultation, CORAAPPLATA shifted from being an adamant opponent of PSP to being a proponent. As this project developed, international operators and local private sector were successful in improving the commercial area of the Santo Domingo water company and remain interested in expanding their contracts and finding new opportunities in other utilities, thus increasing the potential for future improvements in other water and sanitation companies.

The Hotel Owners and Local Development Associations played a key role in supporting the project during its construction stage and are expected to continue supporting it now during its operation stage. These associations, notwithstanding their recurrent criticisms about the significant delays in launching the works, played a key role in keeping the Government accountable for what they had promised to deliver. In that sense, they were the Bank's main ally in making sure that the project was implemented and are now committed to supporting the proper operation of the facilities.

### 6.2 Transition arrangement to regular operations:

No special transitional arrangements are required.

## 7. Bank and Borrower Performance

### Bank

#### 7.1 Lending:

**Satisfactory.** The Bank appears to have adequately designed the project to be consistent with the Government's priorities and the environmental focus of the CAS. At the time of preparation and design there was no indication that Government commitment to the project would wane. The project was carefully designed to reflect lessons learned on previous projects and there were appropriate consultations with stakeholders. The PSP objective may have been overly aggressive in light of previous experience in Dominican Republic and the typical pace of change.

#### 7.2 Supervision:

**Satisfactory:** The Bank spent considerable resources in supervising the project. The Bank responded to a host of issues including poor financial management, lack of progress on legal reform, and political opposition. In each case the Bank implemented a response including increased financial monitoring capacity at the PCU, interim solutions to respond to project risk, and development of a communications strategy. The Bank did not hesitate to give unfavorable ratings to send a clear signal when, in fact,

progress was limited, but the Bank also demonstrated flexibility when warranted as shown in the extension of the effectiveness date and the closing date once the implementation had satisfactorily resumed. Key to the project success was the Bank's ability to restructure the co-financing obligation by shifting funds from the other components that had dropped in priority. An additional action that might have been taken by the Bank would have been to revisit the PSP Objective and component of the Project. As the delays continued and the PSP process lost momentum, it may have been prudent to aim for a more modest success in private sector participation than to continue the focus on implementation of a concession by project end. It should be noted that the Project had three different Task Managers, which probably compounded the continuity issues generated on the borrower side. Annex 4 (a) provides a schedule of the resources expended on supervisions.

### *7.3 Overall Bank performance:*

Overall Bank performance is rated as **Satisfactory**. Despite the slow progress in the project, the Bank continued to focus on the implementation of the outfall, correctly assessing that this component had a high chance of success and positive contributions. Despite the setbacks related to PSP, the Bank pursued the reforms and once again is in sync with the Government.

### **Borrower**

#### *7.4 Preparation:*

**Satisfactory.** During the preparation phase there was good cooperation from the Government and apparent commitment to the Project objectives and components.

#### *7.5 Government implementation performance:*

**Unsatisfactory from 2000-2003. Satisfactory from 2004-2005.** During the first years of the project the Government was unable or unwilling to satisfy key project commitments, obtain necessary financing, and demonstrate leadership in achieving the project goals. This situation changed in 2004 when the administration that had requested and prepared the project returned for a second term giving full support to the project implementation and assigning qualified staff charged with responsibility for the project outcomes.

#### *7.6 Implementing Agency:*

**Unsatisfactory from 2000-2003. Satisfactory from 2004-2005.** During the early years of the project the PCU was unable to satisfy the financial management requirements of the project, to meet procurement requirements or to maintain project momentum. After 2004 the PCU became more capable and succeeded in making great progress in a short time.

#### *7.7 Overall Borrower performance:*

The overall Borrower performance rating is **Satisfactory**. This rating largely reflects the commitment and action seen at the start and end of the project. The strongest indicator of Borrower Performance is the rapid pace at which the final disbursements were made to complete the works and accrue the entire loan proceeds by the closing date.

## 8. Lessons Learned

The investment component of the project was designed to be readily managed, funded and supervised. The institutional component of the project would have benefited from a comparable, less-aggressive approach. The project was designed as a LIL because there was recognition that stakeholder consultation, dissemination and collaboration would be key to project success in the Dominican Republic. Yet the institutional component of this Project encompassed (either directly or by necessity) legal reform, regulatory reform, private sector participation, and dramatic reform of existing institutions. This was an ambitious agenda to be accomplished within a project, much less a modest LIL.

The outcome of the project is totally consistent with the conclusions of the Quality at Entry Assessment performed in April 2001. In the opinion of the panel that performed the assessment, the LIL was adequate for piloting the ocean outfall technology. On the other hand the panel expressed that the preparation and implementation of a private concession contract were typically very extensive tasks unsuitable for a LIL. The panel further indicated that the LIL should have been restricted to the design stage of the PSP intervention, as it eventually happened.

There should always be an institutional contingency plan for reform projects. It is not possible to anticipate the political shifts that will occur over a period and to design projects accordingly. However, a degree of political astuteness needs to be foremost in the design of projects as sensitive as this one. The risks were identified by Bank staff yet it does not appear that there was a fall-back plan in relation to PSP that might have been more acceptable to all interests.

## 9. Partner Comments

*(a) Borrower/implementing agency:*

### INTRODUCCIÓN

El 20 de Abril del año 2000, el GOBIERNO DOMINICANO suscribió el ACUERDO DE PRÉSTAMO NO.4544 - DO con el BANCO INTERNACIONAL PARA LA RECONSTRUCCIÓN Y EL DESARROLLO (BIRF) por un monto de US\$5 Millones para el desarrollo del proyecto del Alcantarillado Sanitario de la Ciudad de Sosúa. El gobierno dominicano ha aportado a la fecha US\$2.4 Millones.

Durante los años de 1996 a 1998, el INAPA construyó las redes del sistema de alcantarillado sanitario para la ciudad de Sosúa en el Batey Este y Oeste, en San Antonio (Charamicos) y en Sosúa Abajo, los colectores principales y las líneas de impulsión para algunas de las estaciones de bombeo, e inició la construcción de una planta de tratamiento en un terreno ubicado al norte del tanque de agua potable (stand pipe) de Sosúa. No fueron construidas las estaciones de bombeo y la planta de tratamiento quedó en obra gris, por lo que las obras no entraron en operación. Además en la zona ya estaba construida la red de recolección del Complejo Habitacional La Unión, con descarga en los cañaverales ubicados al norte del Complejo.

El gobierno dominicano y el Banco Mundial convinieron en desarrollar un préstamo LIL (Learning and Innovation Loan) de alcantarillado sanitario, dentro del marco del Proyecto Agua y Saneamiento en Centros Turísticos (PASCT), para desarrollar e introducir tecnologías innovadoras en el país de pretratamiento y disposición final de efluentes tratados en el mar, mediante emisarios submarinos, cuyos



resultados, obtenidos a través de un programa de monitoreo, puedan luego ser aplicados a otras localidades del proyecto y del país, y como una estrategia para lograr las metas del proyecto PASCT.

En el período de 1998/99 el Secretariado Técnico de la Presidencia, con recursos propios y de un préstamo PPF) del Banco Mundial, elaboró un estudio de factibilidad detallado para los sistemas de agua potable y alcantarillado sanitario para la región de Puerto Plata, Sosúa y Cabarete, dentro del marco del proyecto Agua y Saneamiento en Centros Turísticos, PASCT (plan maestro detallado para ambos sistemas, estudios de tratabilidad y de disposición final de aguas residuales mediante emisarios submarinos, estudios oceanográficos en Sosúa y Puerto Plata, estudios hidrológicos, costos de inversión, estudios de factibilidad financiera y económica, tarifas resultantes y factibilidad de la participación privada en el financiamiento y gestión de los servicios), y definió un conjunto de obras a construir para poner a funcionar el alcantarillado sanitario originalmente construido por el INAPA, readecuando algunos colectores para construirlos con capacidad para captar aguas de la cuenca definida para el emisario submarino.

La fecha de cierre debió realizarse el 30 de Junio del año 2003. La construcción de las obras se retrasó considerablemente, por lo que fue necesario que el Banco otorgara varias prórrogas para la terminación del proyecto, finalmente acordó que el cierre se realizara el 15 de Junio del 2005.

## **DESCRIPCION DEL PROYECTO**

El proyecto consiste en la construcción de siete estaciones de bombeo para aguas residuales con capacidades entre 6 y 224 litros por segundo y potencias entre 6 y 250 HP; las interconexiones de cada una de estas estaciones de bombeo con las tuberías de entrada (colectores) y salida (líneas de impulsión); y las interconexiones eléctricas de cada una de estas estaciones de bombeo con el sistema público; un sistema de pretratamiento de las aguas residuales y finalmente el emisario submarino.

### **Los objetivos del desarrollo del proyecto:**

1. Aplicar y probar una tecnología innovadora para la eliminación ambientalmente sana de aguas negras tratadas de pequeñas y medianas ciudades costeras a través de desagües submarinos de diámetro pequeño y rentables para:

- ✓ Asegurar la infraestructura y la calidad ambiental general necesarias para el mantenimiento e incremento de la industria turística.
- ✓ Asegurar playas limpias de contaminación visual (basura, grasas, flotantes, aguas turbias, etc.) que pueda disminuir el atractivo de las mismas.
- ✓ Asegurar playas limpias de contaminación bacteriana que pueda afectar la salud de los bañistas.
- ✓ Asegurar el mantenimiento de los corales.
- ✓ Proteger la salud pública tanto de las poblaciones locales que proveen la mano de obra a los hoteles como de los turistas que los visitan.

Se escogió la ciudad de Sosúa para desarrollar el proyecto, en razón de que las redes de recolección del alcantarillado se encontraban construidas, y de que faltaban pocas obras para concluir el sistema de tratamiento y disposición final de efluentes en el mar mediante un emisario submarino.

2. Preparar e implementar por primera vez en la República Dominicana, un modelo innovador para la incorporación del sector privado en la provisión de los servicios de abastecimiento de agua y alcantarillado en los centros turísticos.

## **a.1) EVALUACIÓN DEL DESARROLLO DE LOS OBJETIVOS DEL PROYECTO.**

Los objetivos del proyecto han sido obtenidos en vista de que se ha logrado aplicar y probar una tecnología innovadora para la eliminación de las aguas negras tratadas de Sosúa y el mejoramiento del medio ambiente costero local, a través del desagüe submarino, el cual deberá evitar las pérdidas en los ingresos del turismo que se generan en la región, por lo que la evaluación es satisfactoria.

Este proyecto proporcionará lecciones importantes necesarias para definir la infraestructura necesaria y las reformas institucionales adecuadas para apoyar las necesidades de la creciente industria turística y de las comunidades que están alrededor de los hoteles.

A pesar de que en su inicio la construcción de las obras se vio afectadas por problemas en la dirección y el poco apoyo recibido por parte de las autoridades anteriores, finalmente se concluyeron para la fecha acordada.

## **a.2) EVALUACIÓN DEL DISEÑO DEL PROYECTO**

### **Componentes del Proyecto:**

1. Sistema de Aguas Negras de Sosúa
2. Modelo de Implementación de la Participación del Sector Privado (PSP)
3. Monitoreo de las Aguas Costeras
4. Entrenamiento y Disseminación de Tecnología
5. Contrato de Control y Supervisión de la PSP
6. Manejo y Diseño Detallado del Proyecto

### **1.- Componente 1 del Proyecto: Construcción del sistema de transporte de Aguas Negras, Instalaciones de Tratamiento y Desagüe Submarino para Sosúa.**

El estudio de factibilidad modificó el proyecto de alcantarillado sanitario para Sosúa diseñado y construido parcialmente por el INAPA, redefiniendo las proyecciones de población y de caudales.

- a) La construcción de siete tramos de Líneas de Impulsión y de seis secciones de los principales colectores para: (a) conectar la red de alcantarillado existente en Sosúa con las estaciones de bombeo; (b) mejorar la capacidad de las secciones de los colectores existentes de capacidad insuficiente; (c) transportación de las aguas negras a la planta de tratamiento; y (d) para conectar la planta de tratamiento actual del Sistema para el Tratamiento Anaeróbico de Aguas residuales (UASB) al desagüe submarino.
- b) La construcción de siete estaciones de bombeo.
- c) La construcción del componente de tratamiento preliminar recomendado para la descarga del sistema de desagüe. Este componente es la planta de tratamiento que construyó INAPA transformada en un sistema de pretratamiento y tratamiento primario. Este componente de tratamiento preliminar tendría la capacidad de remover flotables y arena, así como también aceite y grasa. El funcionamiento del desagüe con el componente del tratamiento preliminar, lograría los estándares del diseño ambiental.
- d) La construcción del desagüe submarino para la descarga de las aguas negras pre-tratadas. La construcción del desagüe está realizada con una tubería de HDPE con un diámetro interno de 0.635 metros. La longitud del desagüe es de 247 metros en tierra y 540 metros dentro del mar, el punto de descarga (área del difusor) se sumergió 140 metros.

**Los componentes 2 y 4 cambiaron. Los componentes originales del proyecto fueron modificados debido a que no se incluyó la Participación del Sector Privado (PSP).**

## **2.- Componente 2 del proyecto: Preparación de un Diagnóstico Para Programa de Comunicación para CORAAPPLATA.**

Inicialmente se contempló preparar e implementar un modelo innovador para la incorporación del sector privado en la provisión del servicio de alcantarillado en centros turísticos; por diferentes situaciones originadas durante el desarrollo del proyecto, se determinó que éste servicio fuera administrado por la institución de CORAAPPLATA, empresa del estado encargada de proveer y administrar estos servicios en la provincia de Puerto Plata.

La firma SEGOCAR realizó un Diagnóstico Institucional para CORAAPPLATA para crear un programa de Comunicación para dicha institución, que comprenda las regiones de Puerto Plata, Sosúa y Cabarete.

Este Diagnóstico se realizó con tres objetivos específicos:

- ✓ Aplicación de encuestas en las comunidades referidas para determinar los componentes sociales, culturales, económicos, de salubridad, y recepción de los servicios básicos de la población.
- ✓ Aplicación de encuestas al sector hotelero y comercial para obtener información sobre los hábitos de consumo de los turistas, determinación de las fuentes de abastecimiento de agua y conocer sobre el sistema de aguas residuales y el manejo de desechos sólidos.
- ✓ Realización de un Diagnóstico Institucional de CORAAPPLATA para conocer sobre su manejo interno relacionado con los aspectos: Administrativo, Financiero y Operacional.
- ✓ La realización de estos estudios, el análisis correspondiente de los datos levantados, y la interpretación de los mismos, arrojaron los resultados finales de las recomendaciones para la aplicación de un Programa de Comunicación para CORAAPPLATA dirigido a las comunidades de Puerto Plata, Sosúa y Cabarete.

## **3.- Componente 3 del proyecto: Monitoreo del medio ambiente costero antes y después de la construcción del desagüe.**

Para la identificación de impactos ambientales y la determinación de la factibilidad del proyecto planteado, se determinó la necesidad de realizar investigaciones adicionales entre los que se incluyeron estudios oceanográficos, descritos en el documento elaborado por *Ocean Surveys* (1999abc) y la modelación matemática del transporte y disposición de las aguas residuales elaborada y descrita en el documento de *Roberts* (1999abc). En dichos estudios se determinó que debido a la profundidad y estratificación de la densidad de las aguas alrededor en la zona del emisario la pluma o difusor del emisario se habría de diluir rápidamente con pequeños impactos al ambiente y a las playas cercanas. Para verificar las informaciones obtenidas en los estudios anteriormente mencionados y determinar la necesidad de modificaciones en los niveles de tratamiento de las aguas residuales, se elaboró un *Programa de Monitoreo Ambiental Pre y Post descarga del Emisario Submarino* para verificar la efectividad del emisario submarino, establecer los niveles de línea base de contaminantes potenciales antes de la instalación del emisario, asegurar que las descargas del emisario cumplan con las normativas ambientales nacionales e internacionales, y vigilar la salud de los bañistas y usuarios de las playas cercanas.

Como parte del cumplimiento de las normativas estipuladas en la Ley 64-00, el proyecto recibió la Licencia Ambiental del Proyecto No. 0030-02 el día 21 de junio del año 2002. Esta licencia incluía un Plan de Manejo y Adecuación Ambiental (PMAA) en el cual se especifica las acciones de prevención, control y

mitigación de los posibles vectores ambientales que podrían verse impactados como consecuencia de la ejecución de las obras del proyecto. Para el 28 de agosto se firma el contrato con el consorcio IMPRESUB-CHH ganadores de la licitación No. STP/PASCT 04-2003 para la Construcción del Emisario Submarino para el Alcantarillado Sanitario de la ciudad de Sosua. Dicho consorcio plantea en la construcción del Emisario Submarino la excavación de la trinchera submarina mediante la utilización de explosivos. A raíz de la ejecución de estas labores, se hizo necesario valorar los posibles impactos ambientales y las medidas de prevención, control y mitigación requeridas para minimizar dichos impactos y realizar las labores de excavación en consistencia con las normativas ambientales nacionales impuestas por la Secretaría de Estado de Medio Ambiente.

Se realizaron las gestiones de solicitud de servicio para la realización del Monitoreo Físico-Químico y Biológico del Emisario Submarino, la elaboración de contratos y Términos de Referencia para los contratistas.

Se elaboraron, y entregaron y firmaron los contratos para la ejecución del Monitoreo de la Pre-descarga a las instituciones que se seleccionaron para participar en la realización de dicho muestreo. Las instituciones seleccionadas para los fines son el Instituto Dominicano de Tecnología (INDOTEC), y el Centro de Investigación de Biología Marina de la Universidad Autónoma de Santo Domingo (CIBIMA-UASD). Los representantes de cada institución encarnados en el Dr. Frank Richardson por INDOTEC y el Lic. Francisco Gerales por CIBIMA-UASD PASCT revisaron los términos de referencia para la ejecución del Monitoreo de la Pre-descarga, de la Post-descarga y Monitoreo de las Playas Costa Norte.

Se ejecutaron los Monitoreos Biológicos y Físico-Químicos y se hizo entrega de los Reportes de Resultados de dichos monitoreos. Estos monitoreos fueron realizados bajo la supervisión de la Asesora Ambiental de la Unidad Ejecutora PASCT que a su vez reportaba sus observaciones al consultor asignado al proyecto por el Banco Mundial el Sr. Gerard Meier.

El Reporte de Resultados obtenido demostró que la zona del emisario submarino posee una masa de agua de poco nivel de contaminación científicamente comprobado con la lectura de los indicadores muestreados durante los monitoreos realizados. (Ver Informe Técnico Viajes del INDOTEC/IBII 1 y 2, Reporte Resultados Monitoreo Biológico realizado por consultor Francisco Gerales, y Ayudas de Memoria de los Monitoreos elaboradas por la Asesora Ambiental del Proyecto)

#### **4.- Componente 4 y 5 del Proyecto: Entrenamiento y Diseminación de Tecnología.**

En el inicio del proyecto se hicieron varios seminarios con los fines de edificar al personal sobre la nueva tecnología. Dado al atraso considerable que presentaba el proyecto al ser asumido por las nuevas autoridades, a la prórroga otorgada por el banco se atendió exclusivamente a la construcción de las obras y adquisición de los equipos para poder concluir en la fecha acordada.

#### **5.- Componente 6 del proyecto: Diseño y Manejo del Proyecto.**

Fueron llevadas a cabo todas las actividades de manejo y diseño del proyecto, tales como la contratación de todos los servicios de consultoría para llevar a cabo los estudios necesarios para la preparación y diseño del proyecto; la preparación de los documentos de licitación incluyendo los requisitos para la adquisición de bienes y equipos e implementación de los trabajos.

Se incluyeron una serie de estudios tales como estudios oceanográficos, diseño detallado del desagüe submarino y los componentes adicionales del sistema (colectores, estaciones de bombeo, instalaciones de

tratamiento preliminar), trabajos de supervisión, etc.

### **a.3) EVALUACION DE LA IMPLEMENTACIÓN DEL PROYECTO**

En la implementación del proyecto se presentaron diversos problemas donde las actividades necesarias para su desarrollo no fueron realizadas en el momento y con la eficiencia debida.

El Factor principal que afectó al proyecto se originó por el cambio de gobierno, ocurrido en Agosto del año 2000, meses después de realizarse el Acuerdo de préstamo. Las nuevas autoridades no le dieron el seguimiento ni el apoyo debido para que fuese implementado en el tiempo estimado.

Calificación del proyecto por componente:

1. Sistema de Aguas Negras de Sosúa: *altamente satisfactorio*
2. Modelo de Implementación de la Participación del Sector Privado (PSP): *satisfactorio*
3. Monitoreo de las Aguas Costeras: *altamente satisfactorio*
4. Entrenamiento y Disseminación de Tecnología: *satisfactorio*
5. Contrato de Control y Supervisión de la PSP: *cambiado*
6. Manejo y Diseño Detallado del Proyecto: *satisfactorio*

### **Ejecución Financiera**

Los mecanismos de traspaso de fondos funcionaron adecuadamente, tanto en lo que se refiere a desembolsos del Banco al Prestatario, mediante el procedimiento SOE desembolsos (Cuenta – Préstamo – Cuenta Especial – SOE), como los desembolsos correspondientes a la contrapartida de Gobierno, considerando para estos últimos un tiempo promedio de 15 a 20 días para ser liberados.

Para el período 2004 el proyecto no recibió recursos de contrapartida, lo que implicó cambios en la forma de trabajo, específicamente en lo que respecta al manejo del sistema contable y de desembolsos.

Las auditorías realizadas fueron contratadas a firmas privadas, las mismas siempre tuvieron dictámenes favorables.

### **De las Adquisiciones**

Los procesos de adquisiciones llevados a cabo se ajustaron a las Normas de Adquisiciones con Préstamo del BIRF y Créditos de la AIF, y a las normas contempladas en el Manual Operativo del Proyecto. No obstante se tuvieron que hacer excepciones debido a que el tiempo contado a partir de la penúltima prórroga era menor al que se necesitaba para todo el proceso de adquisición, fabricación, instalación y puesta en operación de algunos de los equipos.

### **a.4) EVALUACIÓN DE LA OPERACIÓN DEL PROYECTO (si existiese).**

La etapa de operación del proyecto, aún no está en ejecución.

## **b.- EVALUACIÓN DEL DESEMPEÑO DEL PRESTATARIO DURANTE LA EVOLUCIÓN E IMPLEMENTACIÓN DEL PROYECTO.**

El Prestatario, el Estado Dominicano, a través del Secretariado Técnico de la Presidencia y éste a su vez a través de la Unidad Ejecutora del proyecto, su desempeño fue diferente durante el desarrollo del proyecto en los dos períodos de gobierno por el que transitó.

Los primeros dos años transcurridos después de la firma del Acuerdo de Préstamo, se utilizaron en la preparación de las documentaciones para las licitaciones de las obras, seminarios, contactos con los hoteleros, etc.; no es hasta Julio del 2003 que se realizan las licitaciones y se le dan inicio a los trabajos, otorgando el Banco la primera prórroga a Junio de 2004 y, una segunda a Abril de 2005.

En el período comprendido de ésta última prórroga, en la UEP surge un cambio de dirección, la cual le da un giro y es orientada con otra visión, donde el seguimiento y la gestión fueron constantes, de manera que los trabajos se ejecutaran, que se cumplieran con las normas y procedimientos establecidos para el proyecto en materia de adquisiciones, desembolsos de recursos, control y supervisión del proyecto y reportes de avance del proyecto.

Debido al inconveniente en la adquisición de algunos equipos, fue necesario que el Banco otorgara una última prórroga a Junio de 2005.

Para la UEP el resultado de la implementación del proyecto fue satisfactorio desde el punto de vista técnico aunque en sus inicios existieran sus inconvenientes en el aspecto financiero. En el aspecto técnico se ha logrado cumplir con los objetivos del proyecto, además de implementar una tecnología innovadora en el país, como es el emisario submarino.

En los aspectos financieros se cumplieron todas las condiciones establecidas en el contrato de préstamo.

### **Lecciones Aprendidas**

Los principales beneficios directos de este proyecto es que podemos: (i) aprender y demostrar que los proyectos técnicamente factibles e institucionales se pueden definir para reducir la contaminación urbana causada por la eliminación inadecuada de los servicios de alcantarillado, y para revertir la degradación ambiental en el medio ambiente costero; (ii) la reducción de las amenazas de salud pública a los residentes y turistas; (iii) que el gobierno está dando al sector privado una señal de compromiso para proporcionar la infraestructura necesaria para apoyar el crecimiento de la industria turística, mientras que al mismo tiempo protege los recursos naturales que sostienen esta industria.

Las lecciones aprendidas también nos indican que la implementación exitosa del proyecto está estrechamente asociada con: (i) obtener un fuerte compromiso del gobierno; (ii) proyectos de diseños simples con objetivos enfocados y modestos; (iii) evaluación estrecha y periódica del proyecto para permitir hacer arreglos al diseño del proyecto y sus arreglos de implementación; (iv) debido a los retrasos usuales de tiempo para obtener la aprobación del Congreso es importante tener la propiedad y el compromiso de diferentes personas interesadas en el tema en el gobierno, el sector hotelero y las comunidades; (v) mantener un diálogo abierto y productivo con el prestatario para asegurar una colaboración estrecha con la agencia ejecutora del proyecto e incorporar las lecciones en el diseño del programa de seguimiento y; (vi) mantener una supervisión intensiva técnica, adquisición y gerencial del banco durante la implementación del proyecto.

### **c.- EVALUACIÓN DEL DESEMPEÑO DEL BANCO DURANTE LA IMPLEMENTACIÓN Y SUPERVISIÓN DEL PROYECTO.**

La participación del Banco fue muy activa teniendo una supervisión constante del proyecto. Aunque en sus inicios fue difícil la instrumentación del proyecto, la intervención de los expertos del Banco a mediados y al final del proyecto contribuyó a incrementar la calidad y eficacia de gestión, permitiendo al *Task Manager* tomar las decisiones pertinentes que contribuyeron al funcionamiento del Programa y a los desembolsos en el tiempo requerido.

Con el fin de facilitar el cumplimiento de ejecución de las obras, el Banco fue flexible en modificar algunos criterios del proyecto, como fue en la adquisición de las bombas tornillos, por el tiempo con que contábamos para poder adquirirlas.

Los cambios que se realizaron en los responsables del proyecto por parte del Banco, no fue obstáculo para la continuidad del mismo, todo lo contrario, mejoró la cooperación y el intercambio entre el Banco y la UEP.

Las misiones de supervisión periódicas le dieron seguimiento y evaluaron constantemente el desarrollo de las obras, contribuyendo a solucionar problemas existentes de manera eficiente, permitiendo que los trabajos se desarrollaran de forma continua. Estas misiones de supervisión consistieron en reuniones en la UEP, visitas a las obras y reuniones con El Secretario Técnico de la Presidencia, el Sub-Secretario Administrativo y otros ejecutivos, consultores y contratistas.

Finalmente los *Task Managers* asignados a este proyecto han demostrado tener la capacidad técnica y gerencial necesaria que permitieron su desarrollo y terminación logrando los objetivos esperados.

El desempeño general del Banco fue altamente satisfactorio.

### **2.- SOSTENIBILIDAD DEL PROYECTO.**

La sostenibilidad de los beneficios del proyecto se alcanzarán a través de: el compromiso de CORAAPPLATA de mantener y operar adecuadamente todo el sistema del alcantarillado de manera de lograr el buen funcionamiento de los objetivos del proyecto y que se conformen las guías adecuadas para la estructura de la tarifa. Los arreglos previstos para la sostenibilidad del proyecto en el futuro estará además en la mejora en las tasas de cobro, para ello deben aumentarse las tarifas. Sin embargo, la nueva tarifa tendrá que definirse con mucha cautela debido a la baja tasa de cobro actual y el bajo ingreso de la población local.

### **Translation Part.**

On April 20, 2000, the Dominican Government signed Loan Agreement No. 4544-DO with the International Bank for Reconstruction and Development (IBRD), in the amount of US\$5 million, for a sanitary sewerage project in Sosua. To date, the contribution of the Dominican Government has amounted to US\$2.4 million.

Between 1996 and 1998, INAPA built the networks for the sanitary sewerage systems of Sosua in East and West Batey, in San Antonio (Charamicos), and in Sousa Abajo, the main collectors and conveyance lines for a number of the pumping stations, and started construction of a treatment plant on land located to the north of the Sosua drinking water point (standpipe). The pumping stations were not constructed and the treatment plant remained unfinished, never becoming operational. In addition, the collection network for the La Unión residential complex had already been constructed in that area, with discharge taking place in the sugar cane plantations located to the north of the complex.

The Dominican Government and the World Bank reached an agreement on a Learning and Innovation Loan (LIL) for sanitary sewerage work as part of the Wastewater Disposal in Tourism Centers Project [PASCT], in order to develop and introduce innovative technologies in the country for the pre-treatment and final disposal of treated wastewater into the ocean via submarine outfalls, the results of which, obtained through a monitoring program, could be replicated at other project locations and places in the Dominican Republic and used as a strategy for achieving the goals of the PASCT project.

During the 1998-1999 period, the Technical Secretariat of the Presidency, using its own funds as well as funds obtained from a World Bank loan, prepared a detailed feasibility study on drinking water and sanitation sewerage systems for the Puerto Plata, Sosua, and Cabarete regions, as part of the Wastewater Disposal in Tourism Centers Project (detailed master plan for both systems, treatability studies and final disposal of wastewater via submarine outfalls, oceanographic studies in Sosua and Puerto Plata, hydrological studies, investment cost studies, financial and economic feasibility studies, associated fees, and the feasibility of private participation in financing and managing services), and outlined a series of works to be constructed in order to make the sanitary sewerage treatment plant originally constructed by INAPA operational, remodeling a number of collectors to ensure that they were able to catch water from the basin identified for the submarine outfall.

The scheduled closing date was June 30, 2003. Construction was considerably delayed, making it necessary for the World Bank to grant several extensions for completion of the project. It was finally agreed that the closing date would be June 15, 2005.

## **DESCRIPTION OF THE PROJECT**

The project consisted of the construction of seven wastewater pumping stations with capacities ranging from 6 to 224 liters per second, and pressure, from 6 to 250 HP; interconnections of each pumping station to entry pipes (collectors) and exit pipes (conveyance lines); electrical interconnections of each pumping station to the public system; a wastewater pre-treatment system, and lastly, a submarine outfall.

## **OBJECTIVES OF THE PROJECT**

1. Apply and test an innovative technology for environmentally sound disposal of treated wastewater from small and medium sized coastal towns, through small-diameter, cost-effective



submarine outfalls in order to:

- ✓ Preserve the infrastructure and general quality of the environment necessary for maintaining and expanding the tourist industry.
- ✓ Ensure that beaches remain free of visual contamination (garbage, grass, floating objects, murky waters, etc.), which can make them less attractive.
- ✓ Ensure that beaches remain free of bacterial contamination, which can affect the health of swimmers.
- ✓ Ensure the preservation of coral reefs.
- ✓ Protect the health of the local population providing labor at hotels as well as the health of tourists.

Sosua was chosen for the project because of the sewerage collection networks that had been built there, and the fact that little work was required to complete the treatment and final disposal system for effluents into the ocean via a submarine outfall.

2. Prepare and implement, for the first time in the Dominican Republic, an innovative model for incorporating the private sector in the provision of water supply and sewerage services in tourism centers.

#### **a.1 EVALUATION OF THE ACHIEVEMENT OF PROJECT OBJECTIVES**

The objectives of the project have been achieved in view of the fact that an innovative technology for the disposal of treated wastewater in Sosua has been applied and tested, and the local coast environment has been improved as a result of the submarine outfall; factors that should avoid losses in the tourism revenue generated by the region. Consequently, the evaluation is satisfactory.

This project will provide important lessons necessary to determine the infrastructure required, as well as the appropriate institutional reforms to meet the needs of the growing tourism industry and the communities in the areas close to the hotels.

Despite the fact that initially, construction was plagued by management problems and a lack of support from the previous government, in the end, work was completed on the date agreed upon.

#### **a.2 EVALUATION OF PROJECT DESIGN**

##### **Project Components:**

1. Sosua wastewater system
2. Implementation of the private sector participation (PSP) model
3. Monitoring of coastal waters
4. Training and dissemination of technology
5. PSP oversight and monitoring contract
6. Project management and detailed design

## **1. Component 1 of the project: Construction of a wastewater conveyance system, treatment installations, and submarine outfall for Sosua**

This feasibility study modified the sewerage project for Sosua that was designed and partially constructed by INAPA, redefining the population and volume projections.

- a) Construction of seven conveyance line segments and six sections of the main collectors in order to: (a) connect the existing sewerage network in Sosua to pumping stations; (b) improve the capacity of the existing collection sections with insufficient capacity; (c) transport wastewater to the treatment plant; and (d) connect the system's existing treatment plant for the Upflow Anaerobic Sludge Blanket Reactor (UASB) to the submarine outfall.
- b) Construction of seven pumping stations.
- c) Construction of the preliminary treatment component recommended for the outfall. This component is the treatment plant constructed by INAPA, which was converted into a pre-treatment and primary treatment system. This preliminary component should have the capacity to remove floating objects, sand, and oil slicks. The functioning of the outfall, along with the preliminary treatment component, will meet environmental design standards.
- d) Construction of the submarine outfall for the disposal of pre-treated wastewater. An HDPE pipe with an internal diameter of 0.635 meters is being used to construct the outfall. It is 247 meters long on land and extends 540 meters into the ocean. The outfall point (diffuser) was submerged at a depth of 140 meters.

**Components 2 and 4 were changed. The original project components were modified owing to the fact that Private Section Participation (PSP) was not included.**

## **2. Component 2 of the project: Preparation of an assessment for the CORAAPLATA communications program**

Initially, the plan was to prepare and implement an innovative model for incorporating the private sector in the provision of sewerage services in tourism centers. Owing to a variety of situations that arose during the course of the project, it was determined that this service should be administered by CORAAPLATA, the company responsible for providing and managing these services in Puerto Plata province.

The SEGOCAR company did an institutional assessment of CORAAPLATA with a view to designing a communications program for the latter, which included the regions of Puerto Plata, Sosua, and Cabarete.

The assessment focused on three specific objectives:

- ✓ Conducting surveys in the communities in question in order to assess the following components: social, cultural, economic, health, and delivery of basic services to the population;

- ✓ Conducting surveys in the hotel and commercial sectors in order to obtain information on the consumption patterns of tourists, to determine water supply sources, and to obtain information on wastewater and solid waste management.
- ✓ Conducting an institutional assessment of CORAAPLATA in order to obtain information on its internal administrative, financial, and operational management practices.

These studies, analysis of the data gathered, and the interpretation of these data, led to final recommendations for the implementation of a communications program for CORAAPLATA, targeting the communities of Puerto Plata, Sosua, and Cabarete.

### **3. Component 3 of the project: Monitoring of the coastal environment before and after construction of the outfall**

In order to identify the environmental impacts and determine the feasibility of the project planned, it was considered necessary to conduct additional research on those studies that included in oceanographic studies, outlined in the document prepared by the Ocean Surveys (1999abs), the mathematical conveyance system modeling, and wastewater disposal described in the Roberts document (1999abc). These studies determined that owing to the depth and stratification of the waters around the outfall zone, the plume or diffuser should be rapidly diluted, with little impact on the environment and nearby beaches. In order to verify the information obtained from the aforementioned studies and determine the need for adjustments in the treatment levels of wastewater, a pre- and post-environmental monitoring program of discharge from the submarine outfall was prepared in order to ascertain the effectiveness of submarine outfall, establish the baseline levels of potential contaminants prior to installation of the outfall, ensure that discharge from the outfall was in compliance with national and environmental standards, and safeguard the health of swimmers and persons using nearby beaches.

In accordance with the provisions of law 64-00, environmental license number 0030-02 was assigned to the project on June 21, 2002. This license included an Environmental Management and Adjustment Plan (PMAA) specifying the prevention, control, and mitigation of possible environmental vectors that could be impacted as a result of the performance of work associated with the project. On August 28, a contract was signed with the IMPRESUB-CHH consortium, the successful bidder of contract number STP/PASCT 04-2003 for the construction of a submarine outfall for Sosua's sewerage system. Included in the construction work of this consortium was the excavation of the submarine trench using explosives. Because of this work, the need arose to assess the possible environmental impacts and the prevention, control, and mitigation measures required to minimize these impacts and conduct the excavation in accordance with the national environmental standards stipulated by the Secretariat of State for the Environment.

Procedures related to the request for services to conduct the physical/chemical and biological monitoring of the submarine outfall were carried out, as well as the drafting of contracts and terms of reference for contractors.

Contracts were prepared, delivered, and signed for pre-discharge monitoring by the institutions

selected to participate in this sample. The institutions selected for this purpose were the Dominican Technology Institute [*Instituto Dominicano de Tecnología* (INDOTEC)] and the Marine Biology Research Center of the *Universidad Autónoma de Santo Domingo* (CIBIMA-UASD). The representatives of each institution, namely Dr. Frank Richardson for INDOTEC, and Francisco Gerales for CIBIMA-UASD PASCT, reviewed the terms of reference for pre-discharge and post-discharge monitoring, and monitoring of the beaches on the north coast.

Biological and physical/chemical monitoring was conducted and reports on the findings of this monitoring were submitted. Monitoring took place under the supervision of the environmental adviser for the PASCT execution unit, who in turn reported his findings to consultant Mr. Gerard Meier, assigned by the World Bank to the project.

According to the findings reported, the submarine outfall zone contains a body of water with a low level of contamination, which was scientifically tested through the reading of samples obtained during the monitoring process. (See the technical travel report for INDOTEC/IBII 1 and 2, the report on the findings of biological monitoring prepared by Francisco Gerales, and the monitoring memoranda prepared by the environmental adviser for the project).

#### **4. Components 4 and 5 of the project: Training and dissemination of technology**

The organization of a number of seminars marked the launching of the project. These seminars were aimed at providing staff with training related to the use of the new technology. Given the significant delay in the project, when the new authorities assumed responsibility for it and the Bank granted an extension, the focus was placed exclusively on construction and the purchase of equipment in order to complete the project by the date agreed upon.

#### **5. Component 6 of the project: Project management and design**

All project management and design activities were carried out, such as the contracting of all consulting services needed to carry out the studies required for project preparation and design and the preparation of bidding documents, including the requirements for the procurement of goods and services and the performance of work.

Activities included a series of studies such as oceanographic studies, detailed design of the submarine outfall and the additional components of the system (collectors, pumping stations, preliminary treatment installations), supervision work, etc.

#### **a.3 EVALUATION OF PROJECT IMPLEMENTATION**

A number of problems arose during project implementation, as a result of which the activities necessary to move the project forward were not carried out on time or with efficiency required.

The main factor that affected the project was a change in government in August 2000, a few months following conclusion of the loan agreement. The new authorities did not do follow up

work, nor did they provide the support needed for implementation in the time period projected.

Rating of the project by component:

1. Sosua wastewater system: *highly satisfactory*
2. Implementation of the Private Sector Participation (PSP) model : *satisfactory*
3. Coastal water monitoring: *highly satisfactory*
4. Training and dissemination of technology: *satisfactory*
5. PSP oversight and supervision: *changed*
6. Project management and detailed design: *satisfactory*

### **Financial execution**

The mechanisms for the transfer of funds functioned satisfactorily, both with regard to the disbursement by the Bank to the borrower through the SOE disbursement procedure (Account-Loan-Special Account – SOE), and counterpart disbursements by the government (15 to 20 days for disbursement in the case of the latter).

In 2004, counterpart funds for the project were not disbursed, as a result of which changes had to be made to the way in which the work was done, especially management of the accounting and disbursement system.

Auditing was done by private firms hired. The findings issued by these firms were consistently favorable.

### **Procurement**

Procurement processes were in keeping with IBRD Loan Procurement Guidelines and IDA credits, as well as the guidelines set forth in the operating manual for the project. However, exceptions had to be made due to the fact that the time period from the next-to-last extension was shorter than the time period needed for the entire process of procurement, manufacture, installation, and entry into operation of some equipment.

#### **a.4 EVALAUTION OF PROJECT OPERATION (if applicable)**

The project operation phase has not yet started.

#### **b. EVALUATION OF BORROWER PERFORMANCE DURING PROJECT DEVELOPMENT AND IMPLEMENTATION**

The conduct of the borrower, namely, the Dominican Government, represented by the Technical Secretariat of the Presidency, and the latter, by the project execution unit, was different in terms of project development during the period of the two different administrations which spanned the project.

The first two years following the signing of the loan agreement were used to prepare the documentation related to bidding on works, seminars, establish contact with the hotel industry, etc. It was not until July 2003 that invitations to tender were issued and work was started. The Bank granted the first extension to June 2004, and the second, to April 2005.

During the period covered by the last extension, the project execution unit changed management, which result in a shift and a different vision, manifested in regular follow up and management, as a result of which the work was executed and the standards and procedures established for the project were met in the areas of procurement, disbursement of funds, monitoring, and oversight of the project and the provision of progress reports.

Owing to problems with the purchase of some equipment, the Bank had to grant a final extension to June 2005.

Project implementation by the project execution unit was satisfactory from a technical standpoint, although initially, a number of financial problems were encountered. From a technical point of view, the objectives of the project were met. In addition, an innovative technology was implemented in the Dominican Republic, namely, the submarine outfall.

From a financial standpoint, all the conditions stipulated in the loan contract were met.

### **Lessons learned**

The main direct benefits of this project are that we were able to: (i) learn and demonstrate that technically and institutionally feasible projects can be designed with a view to reducing urban contamination caused by the improper disposal of sewerage as well as reversing environmental degradation to the coastal environment; (ii) reduce public health threats for residents and tourists; (iii) observe signs of the adoption of a compromising stance by the government with respect to the private sector by providing the infrastructure necessary to support growth of the tourist industry, while at the same time protecting the natural resources that sustain the industry.

Another lesson learned is that successful implementation of the project is closely linked to: (i) obtaining a firm commitment from the government; (ii) having projects with a simple design and focused and modest objectives; (iii) close and ongoing evaluation of the project in order to make adjustments to project design and implementation; (iv) ownership and commitment by various interested parties within the government, hotel sector, and communities, given the usual delays in obtaining the approval of Congress; (v) maintaining open and productive dialogue with the borrower in order to ensure close cooperation with the project execution agency and to apply the lessons learned when designing the follow up process; and (vi) an intense level of technical, procurement, and managerial supervision by the Bank during project implementation.

### **c. EVALUATION OF BANK PERFORMANCE DURING RPROJECT IMPLEMENTATION AND SUPERVISION**

The Bank provided active and ongoing supervision of the project. Although implementation of

the project was difficult initially, the intervention of Bank experts in the middle and at the end of the project helped to enhance the quality and effectiveness of management, thereby enabling the Task Manager to make the decisions necessary to contribute to the functioning of the program and disbursement in a timely manner.

In order to facilitate compliance with the execution of works, the Bank was flexible and modified a number of project criteria, such as those pertaining to the purchase of screw pumps, given the time needed to obtain them.

The changes in project officials by the Bank did not affect the continuity of the project; to the contrary, these changes enhanced cooperation and exchanges between the Bank and the project execution unit.

Periodic supervision missions resulted in ongoing monitoring and evaluation of the progress of works, thereby contributing to resolving problems in an efficient manner and permitting work to proceed without interruption. These supervision missions took the form of meetings with the project execution unit, visits to work sites, and meetings with the Technical Secretary of the Presidency, the Administrative Under-Secretary and other executives, consultants, and contractors.

Lastly, the Task Managers assigned to this project have demonstrated the technical and managerial expertise needed for the development and completion of the project, and thus achievement of the expected outcomes.

The overall performance of the Bank was highly satisfactory.

### **3. SUSTAINABILITY OF THE PROJECT**

The sustainability of the benefits of the project will be achieved through the commitment of CORAAPLATA to maintain and operate the sewerage system satisfactorily, so that the project objectives can be met and the appropriate guidelines for the rate structure can be prepared. The arrangements expected for the sustainability of the project in the future will also be linked to improved coverage rates. To that end, rates must be increased. However, the new rates will have to be determined very carefully, given the current low rate of coverage and low participation of the local population.

*(b) Cofinanciers:*

Not applicable

*(c) Other partners (NGOs/private sector):*

Not applicable

## **10. Additional Information**

## Annex 1. Key Performance Indicators/Log Frame Matrix

Indicator/Matrix	Projected in last PSR	Actual/Latest Estimate
<b>OUTCOME INDICATORS</b>		
<b>1. Increase in quality and coverage of water supply and sanitation services</b>	✓	✓
<b>2. Creation of mechanisms to facilitate private sector participation in the provision of urban public services</b>	✓	✓
<b>3. Control of coastal environment degradation</b>	✓	✓
<b>OUTPUT INDICATORS</b>		
<b>1. Sosua's main wastewater collection, treatment and disposal system is operational</b>		
1.1 Sosua's main wastewater collection, treatment and disposal system is completed	✓	✓
1.2 Small-diameter cost-effective submarine outfalls	✓	✓
<b>2. Water supply and sewerage services in Puerto Plata/Sosua/Cabarete are managed by a private operator</b>		
2.1 Model bidding documents, and draft contracts for the PSP process are completed	✓	✓
2.2 Water/ sewerage bidding process is completed	✓*	✓*
2.3 The contract with the private water and sewerage operator is signed	✗	✗
<b>3. Monitoring of coastal environment is implemented before and after the outfall construction</b>		
3.1 A background monitoring program is completed	✓	✓
3.2 A first annual monitoring program is completed	✗	✗
<b>4. Training workshops are completed</b>		
4.1 Training workshops are completed	✓	✓
<b>5. PSP contracts control and supervision committee operative and performing</b>		
5.1 The committee conducts regular meeting at least twice a month and produces quarterly reports and an annual performance evaluation report	✗	✗

- ✓ Achieved
- ✓\* Partially achieved
- ✗ Not achieved



## Annex 2. Project Costs and Financing

### Project Cost by Component (US\$ Million)

Component	Appraisal Estimate US\$ million	Actual/Latest Estimate US\$ million	Percentage of Appraisal
Sosua wastewater system	4.28	6.07	142%
PSP model implementation	0.46	0.23	50%
Coastal water monitoring	0.56	0.03	5%
Training and technology dissemination	0.21	0.04	19%
PSP contract control and supervision	0.11	0.02	18%
Project management and detailed design	1.62	0.96	59%
<b>Sub/Total</b>	<b>7.24</b>	<b>7.35</b>	<b>102%</b>
<b>PPF Refinancing</b>			
Physical contingencies*			
Price Contingencies*			
Taxes	0.26	-	
Front-end fee	0.05	0.05	100%
<b>Total Project Costs</b>	<b>7.55</b>	<b>7.40</b>	<b>98%</b>

\* Contingencies included within the components

### Project Costs by Procurement Arrangements: Appraisal Estimate

Expenditure Category	Procurement Method			N.B.F.	Total Cost
	ICB	NCB	Other		
Works	2.58				2.58
	(1.56)				(1.56)
Goods	1.93				1.93
	(.47)				(.47)
Services			2.53		2.53
			(2.53)		(2.53)
Miscellaneous			0.46		0.46
			(.44)		(.44)
Misc. (PPF-Refinancing)					
<b>Total</b>	<b>4.51</b>	<b>0.00</b>	<b>2.99</b>		7.50
	(2.03)	(.00)	(2.97)		(5.00)

Note: figures in parenthesis indicate the amounts to be finance by the Bank loan.

### Project Costs by Procurement Arrangements (Actual)

Expenditure Category	Procurement Method			N.B.F.	Total Cost
	ICB	NCB	Other		
Works	2.53	2.52	0.93		5.98
	(2.53)	(1.58)			(4.11)
Goods		0.08			0.08
		(.01)			(.01)
Services			0.53		0.53
			(.48)		(.48)
Miscellaneous			0.81		0.81
			(.40)		(.40)
Misc. (PPF-Refinancing)					
<b>Total</b>	<b>2.53</b>	<b>2.60</b>	<b>2.27</b>		7.40
	(2.53)	(1.59)	(.88)		(5.00)

Note: figures in parenthesis indicate the amounts to be finance by the Bank loan.

**Project Financing by Component (In US\$ million equivalent)**

Component	Appraisal Estimate US\$ million			Actual/Latest Estimate US\$ million			Percentage of Appraisal		
	IBRD	GDR	Total	IBRD	GRD	Total	IBRD	GRD	Total
Sosua wastewater system	1.99	2.29	4.28	4.11	1.96	6.07	207%	86%	142%
PSP model implementation	0.46	-	0.46	0.23	-	0.23	50%		50%
Coastal water monitoring	0.56	-	0.56	0.01	0.02	0.03	2%		5%
Training and technology dissemination	0.21	-	0.21	0.04	0.0011	0.04	19%		19%
PSP contract control and supervision	0.11	-	0.11	-	0.02	0.02			18%
Project management and detailed design	1.62	-	1.62	0.56	0.40	0.96	35%		59%
<i>Taxes</i>		0.26	0.26						
<i>Front-end Fee</i>	0.05		0.05	0.05		0.05	100%		100%
<b>Total</b>	5.00	2.55	7.55	5.00	2.40	7.40	100%	94%	98%

**Project Financing by Expenditure Category and Financing Source (US\$ Million)**

Component	Appraisal Estimate US\$ million			Actual/Latest Estimate US\$ million			Percentage of Appraisal		
	IBRD	GRD	Total	IBRD	GRD	Total	IBRD	GRD	Total
Works	1.80	0.78	2.58	4.11	1.87	5.98	228%	240%	232%
Goods	0.50	1.43	1.93	0.01	0.07	0.08	2%	5%	4%
Services	2.44	0.09	2.53	0.48	0.05	0.53	20%	56%	21%
Miscellaneous	0.26	0.20	0.46	0.40	0.41	0.81	154%	205%	176%
<i>Front-end Fee</i>									
<b>Total</b>	<b>5.00</b>	<b>2.50</b>	<b>7.50</b>	<b>5.00</b>	<b>2.40</b>	<b>7.40</b>	<b>100%</b>	<b>96%</b>	<b>99%</b>

### **Annex 3. Economic Costs and Benefits**

Not Applicable

## Annex 4. Bank Inputs

(a) Missions:

Stage of Project Cycle	No. of Persons and Specialty (e.g. 2 Economists, 1 FMS, etc.)		Performance Rating		
	Month/Year	Count	Specialty	Implementation Progress	Development Objective
<b>Identification/Preparation</b>					
	01/05/1998	5	TTL (1); ENVIRONMENTAL SPEC (1); WATER & SEWERAGE SPECIALIST (1); WASTEWATER TREATMENT SPECIALIST (1); SOLID WASTE SPECIALIST (1)		
	07/09/1998	3	MISSION LEADER (1); WATER SPECIALIST (1); SOLID WASTE SPECIALIST (1)		
	10/14/1998	4	MISSION LEADER (1); FINANCIAL DISBURSEMENT AND PSP EXPERT (1); PRIVATE SECTOR DEVELOPMENT EXPERT (1); WATER SPECIALIST		
	12/09/1998	4	SECTOR LEADER FOR THE CARIBBEAN (1); TTL (1); CO-TTL (1); PRIVATE SECTOR DEV. SPECIALIST.		
<b>Appraisal/Negotiation</b>					
	08/23/1999	5	TTL (1); TTL (2); COUNSEL; LEAD SPECIALIST; FINANCIAL ANALYST		
	11/10/1999	4	TTL (1); LEAD SPECIALIST; COUNSEL; FINANCIAL ANALYST; CONSULTANT		
<b>Supervision</b>					
	06/16/2000	1	TTL	S	S
	10/09/2000	4	TTL; ECONOMIST; ENGINEER; CONSULTANT; RES. REP. DR	S	S
	11/13/2000	4	TTL; ENVIRONMENTAL SPECIALIST; PRIVATIZATION SPECIALIST; SOLID WASTE SPECIALIST	S	S
	12/21/2000	1	TTL	S	S
	06/29/2001	3	TTL; SECTOR MANAGER; RES. REP. DR	S	S
	09/10/2001	1	TTL	S	S
	10/16/2001	2	TTL; INFRASTRUCTURE SPECIALIST	S	S

	11/13/2001	4	TTL; ENVIRONMENTAL SPECIALIST; PRIVATIZATION SPECIALIST; SOLID WATER SPECIALIST	U	S
	12/21/2001	1	TTL	S	S
	02/11/2002	3	TTL; PRIVATIZATION SPECIALIST; FINANCIAL ANALYST	S	S
	05/31/2002	1	TTL	S	S
	07/04/2002	1	TTL	S	S
	11/27/2002	3	TTL (1); TTL (2); ECONOMIST	S	S
	03/15/2003	2	TTL	S	S
	05/30/2003	2	TTL (1); TTL (2)	S	S
	06/06/2003	1	TTL	U	S
	12/05/2003	2	TTL; PUBLIC INFORMATION	U	S
	06/04/2004	5	TTL; PUBLIC INFORMATION; FINANCIAL ANALYST; SPN OF WORKS; FINANCIAL MANAGEMENT	U	S
	06/28/2004	3	TTL; SR. ENVIRONMENTAL SPECIALIST; FM SPECIALIST	U	S
	07/11/2004	1	TTL	U	S
	10/20/2004	2	TTL; WASTEWATER AND SOLID WASTE SPECIALIST	U	S
	11/30/2004	3	TTL; ENVIRONMENTAL SPECIALIST; ENVIRONMENTAL CONSULTANT	U	S
	12/13/2004	2	TTL; ENVIRONMENTAL CONSULTANT	U	S
	04/29/2005	5	TTL; SR. ENVIRONMENTAL SPECIALIST; CONSULTANT; SR FINANCIAL MANAGEMENT SPECIALIST; SR. PROCUREMENT SPECIALIST	S	S
	06/15/2005	1	TTL	S	S
<b>ICR</b>	12/10/2001	2	TTL; INFRASTRUCTURE CONSULTANT		
	10/10/2005	1	CONSULTANT		

(b) Staff:

Stage of Project Cycle	Actual/Latest Estimate	
	No. Staff weeks	US\$ ('000)
Identification/Preparation	45.5	143,352.95
Appraisal/Negotiation	37.6	118,526.11
Supervision	90.1	283,870.35
ICR	11.5	55,285.00
Total	184.7	601,034.42



## Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

	<u>Rating</u>				
<input type="checkbox"/> <i>Macro policies</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Sector Policies</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Physical</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Financial</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Institutional Development</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Environmental</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<i>Social</i>					
<input type="checkbox"/> <i>Poverty Reduction</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Gender</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Other (Please specify)</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input checked="" type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Private sector development</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Public sector management</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Other (Please specify)</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA

## Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

### 6.1 Bank performance

#### Rating

- |                                      |                          |                                    |                         |                          |
|--------------------------------------|--------------------------|------------------------------------|-------------------------|--------------------------|
| <input type="checkbox"/> Lending     | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Supervision | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Overall     | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

### 6.2 Borrower performance

#### Rating

- |  |                          |                                    |                         |                          |
|--|--------------------------|------------------------------------|-------------------------|--------------------------|
| <input type="checkbox"/> Preparation                           | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Government implementation performance | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Implementation agency performance     | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Overall                               | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

## **Annex 7. List of Supporting Documents**

1. Project Appraisal Document (18987-DO), dated April 18, 2000
2. Development Loan Agreement (4544-DO), dated April 21, 2000
3. Amendments of the Development Loan Agreement dated March 10, 2003 and June 23, 2004
4. Aide Memoirs & Back-to-office-reports
5. Project Status Reports 2001-2005
6. Audit Reports
7. Various documents from the series *Proyecto de Agua y Saneamiento en Centros Turísticos Evaluación Económica y Financiera* (González y Faria 1999)
8. Project general correspondence

## **Additional Annex 8. Beneficiary Survey Results**

Not applicable

## Additional Annex 9. Appendix 1. Historical Rating from Project Status Reports

Project Status Report/Implementati on Status and Reports, Date	Project Performance Ratings					Project Component Ratings						Critical Risk Taking (from outputs to objective)		
	Development Objective	Implementation Progress	Project Management	Financial Management	Financial Performance	Sosua wastewater system	PSP model implementation	Coastal water monitoring	Training and technology dissemination	PSP contract control and supervision	Project management and detailed design	If delays occur signing the contract with the operator, INAP does not operate the system constructed under the LIL	An agreement is not reached with the Government regarding the mechanism for control and supervision of the PSP contract	The water modernization law under consideration does not include transitory clauses regarding existing and ongoing concession processes
June 16, 2000	S	S				S	S	NR	NR	NR	NR	M	S	NA
December 21, 2000	S	S	S			S	S	NR	NR	NR	NR	M	S	NA
June 12, 2001	S	S	S			S	S	NR	NR	NR	NR	M	S	NA
June 29, 2001	S	U	U			U	U	NR	NR	NR	NR	M	S	NA
December 10, 2001	S	U	U			U	U	NR	U	NR	NR	M	S	NA
December 21, 2001	S	S	S			S	S	NR	S	NR	NR	M	S	NA
May 30, 2002	S	S	S			S	S	NR	S	NR	NR	M	S	NA
May 31, 2002	S	S	S			S	S	NR	S	NR	NR	M	S	S
November 27, 2002	S	S	S	U	S	S	S	NR	S	NR	NR	M	S	M

Project Status Report/Implementation Status and Reports, Date	Project Performance Ratings					Project Component Ratings						Critical Risk Taking (from outputs to objective)		
	Development Objective	Implementation Progress	Project Management	Financial Management	Financial Performance	Sosua wastewater system	PSP model implementation	Coastal water monitoring	Training and technology dissemination	PSP contract control and supervision	Project management and detailed design	If delays occur signing the contract with the operator, INAP does not operate the system constructed under the LIL	An agreement is not reached with the Government regarding the mechanism for control and supervision of the PSP contract	The water modernization law under consideration does not include transitory clauses regarding existing and ongoing concession processes
May 30, 2003	S	S	S	U	S	S	S	NR	S	NR	NR	M	S	S
June 6, 2003	S	U	S	S	S	U	S	NR	S	NR	NR	M	S	S
December 5, 2003	S	U	S	S	S	S	S	NR	S	NR	NR	M	S	S
June 4, 2004	S	U	S	S	S	S	U	S	S	NR	S	M	S	S
June 28, 2004	S	U	S	S	S	S	U	S	S	NR	S	M	S	S
November 30, 2004	S	U	S	S	S	S	U	S	S	NR	S	M	S	S
April 29, 2005	S	S	S	S	S	S	MS	S	S	NR	S	NA	NA	NA
June 15, 2005	S	S	S	S	S	S	MS	S	S	NR	S	NA	NA	NA

