

**Progress Report to the Board of Executive Directors  
on the Implementation of the Management's Action Plan  
in Response to the Inspection Panel Investigation Report on  
the Cartagena Water Supply, Sewerage and Environmental  
Management Project**

**Introduction**

On June 24, 2005, the Inspection Panel submitted its Investigation Report No. 32034-CO on the Cartagena Water Supply, Sewerage and Environmental Management Project to the Board. On July 29, 2005, Management submitted its Report and Recommendations in response to the Inspection Panel's Investigation Report. Chapter V of the Management Report contained an Action Plan proposed to follow up on the Panel's findings, for further strengthening of the Project. This Action Plan is presented in Annex 1.

On November 8, 2005, the Board discussed the Inspection Panel Investigation Report and Management's Report and Recommendations in Response to the Investigation Report. The Board endorsed the Action Plan proposed by Management as an adequate response to the Inspection Panel's findings, requested to proceed with project implementation while implementing, in parallel, the proposed Action Plan, and asked that Management report back on the progress in implementing this Action Plan. The Board also asked that Management resolve with the Panel outstanding questions on the importance of and the carrying-out of three-dimensional modeling of the risk of contamination at the outfall site.

The present report is aimed at providing information to the Board regarding the progress in implementing the Action Plan proposed by Management, and the discussions with the Inspection Panel regarding three dimensional modeling.

**Progress Achieved on each Activity of the Action Plan**

The following table provides information on the implementation of the Action Plan.

**Progress in Implementing the Action Plan  
(as of September 4, 2006)**

ISSUE/FINDING	PROPOSED ACTION	IMPLEMENTATION PROGRESS
<b>OD 4.01 – Environmental Assessment</b>		
<b>Proposed Design of the Submarine Outfall</b>	<p>In view of the concerns expressed by the Panel, the Bank has requested the expert who prepared the second two-dimensional validation model to re-run the model and incorporate the influence of wind patterns</p> <p>The Bank will also request that the water authority of Cartagena (ACUACAR) hire an international expert to provide a third and independent opinion on the two-dimensional models contracted under the Project and the detailed review presented in Annex B of the Panel's report.</p>	<p>Management contracted the expert who prepared the second two dimensional model to run the model incorporating the influence of wind patterns. The model has been re-run accordingly and the results submitted to the Bank on July 29, 2005. The analysis showed that the wind had a minimal effect, i.e., that the original modelling results are valid.</p> <p>Management requested that ACUACAR hire an international expert to provide a third opinion on the two dimensional models and the detailed review in the Panel's report. Accordingly, a UCLA professor was hired to provide an independent opinion of the modelling under the project and of the review in the Panel's report. The Consultant's report was submitted to ACUACAR on November 4, 2005. The Consultant found the modelling work done under the project appropriately conceptualized and executed. The Consultant did not concur with the conclusions of Annex B of the Panel's report and its recommendations on the importance of a three dimensional model.</p>
<b>Risk of Diapirism (mud volcanism)</b>	<p>In response to the Panel's suggestion and given the utility and relatively low cost of such a survey, Management has recommended that ACUACAR undertake a side scan sonar survey. ACUACAR plans to carry out the survey by December 31, 2005.</p>	<p>Management recommended that ACUACAR carry out a side scan sonar survey. ACUACAR hired a consultant and carried out the side-scan sonar study. The study was completed by April 2006. As part of the study the consultant discussed the results with another marine geology expert. ACUACAR also discussed the report with the consultant that carried out the original diapirism analysis, to obtain his opinion and recommendations. As a result of the study and consultations, ACUACAR decided to change the route of the outfall so as to further reduce diapirism risks. The project consulting engineer, Hazen and Sawyer, has completed the corresponding adjustments to the outfall design.</p>

ISSUE/FINDING	PROPOSED ACTION	IMPLEMENTATION PROGRESS
Overland Pipeline Design	Given the importance of an emergency plan and concerns expressed in the Request, Management will request ACUACAR to more fully articulate and communicate the emergency plan and related risk mitigation measures to concerned parties. Management will request that the updated plan be available for public consultation by March 2006. For information on other aspects of public consultation, see Item 14 in Annex 1 of the Management Report and Recommendations in response to the Inspection Panel's Investigation Report dated July 29, 2005.	Management asked ACUACAR to more fully articulate and communicate the emergency plan and related risk measures to concerned parties. Management also asked that ACUACAR make the updated plan available for public consultation. Accordingly, the emergency plan of the overland pipeline was adjusted and posted on the web site of ACUACAR ( <a href="http://www.acuacar.com">www.acuacar.com</a> ), in February of 2006. Announcements in the media informed the public that a hard copy of the plan is also now available for consultation at the office of ACUACAR. Public audiences and workshops were carried out in April and May of 2006 to communicate the plan to the public and to engineering associations. A consultant also prepared the document entitled "Guidelines for Monitoring, Investigation and Maintenance of 72" GRP Force Main", which will be used for maintaining and monitoring the pipeline. The document was submitted to ACUACAR on August 22, 2006. Another public meeting was held on August 28, 2006 with community members to present the updated contingency plan, which reflects the new guidelines.
Disposal of Solids	In response to the Panel's finding, ACUACAR will carry out an analysis of alternative disposal methods for the screened material. ACUACAR plans to submit the completed analysis to the Bank by December 31, 2005.	A comprehensive study of analysis of alternatives for disposal methods of the screened material was completed and submitted to the Bank in February 2006. The study concluded that the method selected under the project is the best alternative for disposal of the screened material.

ISSUE/FINDING	PROPOSED ACTION	IMPLEMENTATION PROGRESS
<b>Project Impacts on Locally Affected Communities – Fishing</b>	<p>To respond to the community's concerns, ACUACAR, as part of the original Project, has agreed to support a program to strengthen fishing activities, based on a study it is currently undertaking (planned completion date of September 2005), which draws on the 2003 Marine and Coastal Research Institute (<i>Instituto de Investigaciones Marinas y Costeras</i>, INVEMAR) study financed by the Project.</p> <p>ACUACAR is working with the communities to identify specific activities for optimized fishing opportunities in Punta Canoa. This work will be monitored during project supervision.</p>	<p>ACUACAR has supported a program to strengthen fishing activities. The study on fishing activities was completed in September 2005. It provided valuable background information used in subsequent training activities with the Punta Canoa fishermen regarding methods and technologies for improving fishing.</p> <p>As a follow up activity, a series of workshops was conducted by the National Training Service (<i>Servicio Nacional de Aprendizaje</i>, SENA) and The Colombian Institute of Rural Development (<i>Instituto Colombiano de Desarrollo Rural</i>, INCODER) in which a plan for improving fishing was formulated. An association of fishermen was established in Punta Canoa, with 38 members that continue to receive training from SENA. ACUACAR has purchased four fishing boats, five boat motors, GPS equipment, fishing nets and additional instruments for the Punta Canoa association of fisherman. The equipment is officially the asset of the District of Cartagena, but has been assigned for exclusive use of the fishermen of Punta Canoa. Most of the equipment has been delivered and the rest is being purchased using a bidding process and will be delivered by the end of the calendar year.</p>

ISSUE/FINDING	PROPOSED ACTION	IMPLEMENTATION PROGRESS
<b>Social Impact Assessment and Benefits for Afro-Colombian Communities in the North Zone</b>	<p>The piped water, under construction, is planned to be delivered to the North Zone communities prior to or during the last quarter of 2005. These investments were originally to be financed by the District, according to the Loan Agreement. Due to Project cost savings, these investments will now be financed by the Loan, freeing up municipal budget for other uses.</p> <p>Moreover, as part of the Project, in-house sanitation is under construction in La Boquilla and Manzanillo del Mar, and under bidding for Punta Canoa, where delivery is projected for April 2006.</p> <p>La Boquilla has already been connected to the sewer network. ACUACAR has committed to extend the network to Punta Canoa, Manzanillo del Mar and Arroyo de Piedra in the next 24 months, in parallel with the construction of the outfall.</p> <p>Punta Canoa has confirmed its interest in a Community Center, which is planned to be provided by April 2006.</p> <p>A plant nursery has been established in Punta Canoa, to be managed cooperatively by the community, to create jobs and supply trees to the Project.</p> <p>Supervision will focus on the early delivery of the benefits under the social program.</p>	<p>The water supply system to the north zone was completed and the north zone communities are receiving potable water of high quality, continuously 24 hours per day, 365 days per year as of August 2006. This refers not only to Punta Canoa, Manzanillo, Arroyo de Piedra and La Boquilla but also to other communities in the North Zone. The users in Punta Canoa have received in-house connections free of any infrastructure or connection charge.</p> <p>174 in-house sanitation units were installed in La Boquilla and 141 in Manzanillo del Mar. In Punta Canoa, in-house sanitation units were installed in 180 homes by August 2006. An additional 30 homes are to receive services, where the families originally did not want to participate in the program, but have since changed their minds after seeing the benefits provided to the other 180 homes.</p> <p>The in-house sanitation units have enabled in the households of Punta Canoa and Manzanillo del Mar to evacuate their wastewater to septic tanks as of September 2006. In Punta Canoa, all residents now have continuous water supply and are connected to septic tanks: they enjoy full water supply and sanitation services.</p> <p>The community center in Manzanillo del Mar was completed in June 2004. The community center of La Boquilla was completed in September 2006. ACUACAR ran into difficulties in identifying an appropriate lot with legal title for purchase for the site of the Punta Canoa community center. This problem was recently resolved and the lot was purchased. The design of the center has been completed and its construction will be added to the contract of construction of the wastewater treatment plant, which is already under execution. The Punta Canoa community center is projected to be completed by the first quarter of 2007.</p> <p>The plant nursery has been established in Punta Canoa. Ten interested women, residents of Punta Canoa, have established a cooperative which has received the plant nursery constructed by ACUACAR. They received training and are running the plant nursery as a business. This nursery will supply all the trees required by the project for reforestation, and will also function as a private business for activities not related to the project.</p> <p>Over the last year, the supervision has focused on early delivery of the benefits of the social program with important results for local residents, including delivery of water and sanitation services, community centers and the plant nursery as outlined above.</p>

ISSUE/FINDING	PROPOSED ACTION	IMPLEMENTATION PROGRESS
<p><b>Consultations and Communication Strategy</b></p>	<p>Management will review the quality of the outreach strategy and activities with ACUACAR, and work with it to support the maintenance of the outreach program through the end of the Project, and to extend the communications program to Arroyo de Piedra. The program will draw on the findings of the recently issued final report of Fundación Vida Caribe on the Social Impact Mitigation and Community Development Program, which identifies training and information proposals of interest to community residents.</p>	<p>Management and ACUACAR reviewed the quality of the outreach strategy and activities and worked together to support the maintenance of the outreach program. ACUACAR has extended the outreach program to Arroyo de Piedra and has drawn on the Fundación Vida Caribe report to help identify training and information proposals of interest to the communities. To further strengthen its outreach and integrate the work with communities into its regular business, ACUACAR hired two additional social workers rather than contracting with outside consultants. The ACUACAR social workers spend most of their time in the north zone working with the communities. They provide information to the communities on progress in project implementation and its benefit to the communities, carry out training courses, channel the concerns of the communities to the management of ACUACAR and try to resolve problems. The lines of activity include: (i) strengthening community organization (institutional strengthening, participation and health and environment); (ii) community participation and strengthening; and (iii) urban rehabilitation. The social workers promote additional economic activities, like training local artisans to improve their products, and promote hiring of Punta Canoa residents by contractors that work for the project. They also promote cultural activities and additional social activities, working with groups of older residents, youth, and single-parent families, among other activities. The District of Cartagena is providing strong support to the social program and plans to provide construction materials and technical support to residences of the northern zone.</p>
<p><b>OP 10.04 – Economic Evaluation of Investment Operations</b></p>		
<p><b>Economic Evaluation of Alternatives</b></p>	<p>Management will update the results of the economic analysis to take into account the additional investments required by the environmental license that would need to be operational in 2015, and adjust land values.</p>	<p>Management updated the study of economic evaluation of alternatives. It shows that after adding the additional investment required in 2015 by the environmental license and significantly decreasing the land values, the selected alternative is still the lowest cost alternative.</p>
<p><b>OD 4.15 Poverty Reduction</b></p>		
<p><b>Poverty Reduction</b></p>	<p>Pertinent actions are covered above under Project Impacts on Locally Affected Communities – Fishing and Social Impact Assessment and Benefits for Afro-Colombian Communities in the North Zone.</p>	<p>See information above under the headings Project Impacts on Locally Affected Communities – Fishing and Social Impact Assessment and Benefits for Afro-Colombian Communities in the North Zone.</p>

ISSUE/FINDING	PROPOSED ACTION	IMPLEMENTATION PROGRESS
<b>OP/BP 10.02 – Financial Management</b>		
<b>Financial Management Assessment and Capacity of the District of Cartagena</b>	Noting that it is a common practice, when working with financial agents, to review audited financial information as part of supervision activities, and since the Trust Fund account is reviewed as part of the scope of work performed by the Trust Fund Manager's auditor, the Bank will obtain and put on file annual audit reports of La Previsora (the Trust Fund administrator).	On May 17, 2006 the Bank obtained the annual audit report of the Trust Fund La Previsora for the year 2005. The audit report was reviewed by the financial management specialist of the project and found to be satisfactory. The report was placed in the project files. The same procedure will be undertaken in the following years as part of normal Bank supervision procedures.
<b>OTHER</b>		
<b>International Agreements</b>	The regional environmental authority ( <i>Corporación Autónoma Regional del Canal del Dique, CARDIQUE</i> ), is responsible for monitoring the conditions and the obligations of the environmental license that it has granted to ACUACAR. As part of its routine supervision, the Bank will confirm that ACUACAR is fulfilling conditions of the license.	The supervision mission of January 2006 reviewed ACUACAR's compliance with the conditions of the environmental license granted to ACUACAR by the regional environmental authority. This practice will continue as part of normal Bank supervision.

### **Three Dimensional Modeling of the Impact of the Submarine Outfall on Sea Water Contamination**

At the Board discussion of the Panel's findings and Management Response, the Board requested that Management and the Panel propose to the President within four weeks a decision on use of a 2D or 3D model for assessing diffusion patterns and shoreline concentrations related to the submarine outfall. After the Board meeting on November 8, 2005, a meeting was held between the Inspection Panel, Panel consultants, the project team, and representatives of ACUACAR. It was agreed that ACUACAR would undertake three-dimensional modeling of the outfall discharge using the model developed by the Panel consultant, with an estimated time of one month to carry out the analysis. A team was hired to carry out the three-dimensional modeling. The team consisted of Prof. Philip Roberts, who carried out the earlier two-dimensional modeling of the discharge, and Beatriz Villegas, a graduate student of the Panel's consultant. These agreements were reported to Mr. Wolfowitz on December 6, 2005.

The three-dimensional modeling effort took five months longer than anticipated; however, it yielded results pertinent to the discussion. The results of the modeling were sent to the Inspection Panel on August 11, 2006. As an additional effort to assure the optimal design, the project team contracted additional modeling work by a researcher of the University of Karlsruhe, using an alternative three-dimensional model. Both three-dimensional modeling efforts confirmed that the 2.85 km long submarine outfall is adequate for the Cartagena project.

## **Status of Project Implementation**

The Project consists of eight components:

- Component A. Expansion of the Water Supply System;
- Component B. Expansion of the Sewer System in the Ciénaga Basin;
- Component C. Construction of the Main Conveyance System of the Wastewater to the Treatment Plant;
- Component D. Construction of Treatment Installations;
- Component E. Construction of the Submarine Outfall;
- Component F. Industrial Wastewater Discharge Control;
- Component G. Environmental and Social Component; and
- Component H. Project Management, Technical Assistance, Studies, Design and Supervision of Works.

The Project has been effective for approximately six and a half years. As of August 31, 2006, 56 percent of the Loan had been disbursed. The works of Component A (Expansion of the water supply system) and Component B (Expansion of the sewerage system in the Ciénaga basin) have been completed. All the respective contracts have been closed. Components F, G and H are well advanced, and will continue for the entire implementation period, as planned. The water supply works for the North Zone, originally the responsibility of the District of Cartagena, have been constructed and funded by the Project, due to savings achieved in the implementation of Component A. The North Zone now receives continuous water supply.

The implementation of Components C, D, and E, which constitute the wastewater management system, including the submarine outfall, has suffered delays due to the lengthy authorization of an environmental license for these works, an unsuccessful bidding process that has required rebidding, and delays in contracting pending the findings of the Panel and the subsequent three-dimensional modeling. The works under these three components have been divided into four contracts: (i) the Paraiso pumping station; (ii) the onshore pressure pipeline; (iii) the wastewater treatment plant; and (iv) the submarine outfall. Contracts (i), (ii) and (iii) have been awarded and are under construction. Contract (iv) is in the process of bid evaluation; four bids were received on September 20, 2006 and opened on the same day. Technical evaluation and validity of the received bids is underway and is expected to be sent to the Bank for no objection by early December 2006. It is expected that works will begin, as anticipated, in December 2006. The current Loan closing date is June 29, 2007. It is expected that the closing date will be extended by at least one year to complete project implementation.



Due to the delay in Project implementation and the continuous flow of poor immigrant families to Cartagena, thirty-seven families settled during 2000-2003 on District property on the planned route of the onshore pressure pipeline, near the Paraiso pumping station. Although resettlement activities were not expected during Project preparation, it is now necessary to resettle twenty-four of these families due to construction of works. A Resettlement Action Plan was prepared and disclosed in accordance with Bank policies. New homes are being constructed for these families and will be ready by mid December 2006, at which time the families will be resettled, in compliance with Bank policies.

### **Management Recommendations**

Management has taken action on all items in the action plan, and action plan follow up has been substantively completed.

As noted in the Action Plan Table, there are two pending activities: (i) the installation of 30 in-house sanitation units in Punta Canoa for those residents which changed their mind after seeing the benefits provided to other residents; and (ii) the completion of construction of the Punta Canoa community center in early 2007 as a result of delays in getting legal title for the lot purchased.

As part of routine Bank supervision, the Bank will continue: (i) oversight of the quality of ACUACAR's outreach activities; (ii) review and filing of La Previsora's (the Trust Fund Administrator) annual audit reports; and (iii) confirmation with CARDIQUE (the regional environmental authority) that ACUACAR is fulfilling the conditions of its environmental license.

Based on the implementation of the management action plan, the requested consultation with the Panel on modeling of the outfall discharge impacts, the positive results of additional actions taken, and the submission of this report, Management proposes taking no further action on this matter.

## Annex 1

### Proposed Management Action Plan as Presented in the Management Report and Recommendations in Response to the Inspection Panel's Investigation Report

#### Management Action Plan

ISSUE/FINDING	PROPOSED ACTION
<b>OD 4.01 – Environmental Assessment</b>	
<b>Proposed Design of the Submarine Outfall</b>	In view of the concerns expressed by the Panel, the Bank has requested the expert who prepared the second two-dimensional validation model to re-run the model and incorporate the influence of wind patterns. The Bank will also request that ACUACAR hire an international expert to provide a third and independent opinion on the two-dimensional models contracted under the Project and the detailed review presented in Annex B of the Panel's report.
<b>Risk of Diapirism (mud volcanism)</b>	In response to the Panel's suggestion and given the utility and relatively low cost of such a survey, Management has recommended that ACUACAR undertake a side scan sonar survey. ACUACAR plans to carry out the survey by December 31, 2005.
<b>Overland Pipeline Design</b>	Given the importance of an emergency plan and concerns expressed in the Request, Management will request ACUACAR to more fully articulate and communicate the emergency plan and related risk mitigation measures to concerned parties. Management will request that the updated plan be available for public consultation by March 2006. For information on other aspects of public consultation, see Item 14 in Annex 1 of this response.
<b>Disposal of Solids</b>	In response to the Panel's finding, ACUACAR will carry out an analysis of alternative disposal methods for the screened material. ACUACAR plans to submit the completed analysis to the Bank by December 31, 2005.
<b>Project Impacts on Locally Affected Communities – Fishing</b>	To respond to the community's concerns, ACUACAR, as part of the original Project, has agreed to support a program to strengthen fishing activities, based on a study it is currently undertaking (planned completion date of September 2005), which draws on the 2003 INVEMAR study financed by the Project. ACUACAR is working with the communities to identify specific activities for optimized fishing opportunities in Punta Canoa. This work will be monitored during Project supervision.
<b>Social Impact Assessment and Benefits for Afro-Colombian Communities in the North Zone</b>	The piped water, under construction, is planned to be delivered to the North Zone communities prior to or during the last quarter of 2005. These investments were originally to be financed by the District, according to the Loan Agreement. Due to Project cost savings, these investments will now be financed by the Loan, freeing up municipal budget for other uses. Moreover, as part of the Project, in-house sanitation is under construction in La Boquilla and Manzanillo del Mar, and under bidding for Punta Canoa, where delivery is projected for April 2006. La Boquilla has already been connected to the sewer network. ACUACAR has committed to extend the network to Punta Canoa, Manzanillo del Mar and Arroyo de Piedra in the next 24 months, in parallel with the construction of the outfall. Punta Canoa has confirmed its interest in a Community Center, which is planned to be provided by April 2006. A plant nursery has been established in Punta Canoa, to be managed cooperatively by the community, to create jobs and supply trees to the Project. Supervision will focus on the early delivery of the benefits under the social program.

**Consultations and Communication Strategy** Management will review the quality of the outreach strategy and activities with ACUACAR, and work with it to support the maintenance of the outreach program to the end of the Project, and to extend the communications program to Arroyo de Piedra. The program will draw on the findings of the recently issued final report of Fundación Vida Caribe on the Social Impact Mitigation and Community Development Program, which identifies training and information proposals of interest to community residents.

**OP 10.04 – Economic Evaluation of Investment Operations**

**Economic Evaluation of Alternatives** Management will update the results of the economic analysis to take into account the additional investments required by the environmental license that would need to be operational in 2015, and adjust land values.

**OD 4.15 Poverty Reduction**

**Poverty Reduction** Pertinent actions are covered above under Project Impacts on Locally Affected Communities – Fishing and Social Impact Assessment and Benefits for Afro-Colombian Communities in the North Zone.

**OP/BP 10.02 – Financial Management**

**Financial Management Assessment and Capacity of the District of Cartagena** Noting that it is a common practice, when working with financial agents, to review audited financial information as part of supervision activities, and since the Trust Fund account is reviewed as part of the scope of work performed by the Trust Fund Manager's auditor, the Bank will obtain and put on file annual audit reports of La Previsora (the Trust Fund administrator).

**OTIER**

**International Agreements** CARDIQUE, the regional environmental authority, is responsible to monitor the conditions and the obligations of the environmental license that it has granted to ACUACAR. As part of its routine supervision, the Bank will confirm that ACUACAR is fulfilling conditions of the license.