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**AN IEG COMPARATIVE REVIEW OF  
TWO RURAL WATER SUPPLY AND SANITATION PROJECTS IN  
LATIN AMERICA AND THE CARIBBEAN  
BASED ON PROJECT PERFORMANCE ASSESSMENTS OF:  
PARAGUAY  
4<sup>TH</sup> RURAL WATER SUPPLY AND SANITATION PROJECT  
(LOANS 42220 AND 42230)  
AND  
A RURAL AND SMALL TOWNS WATER SUPPLY AND SANITATION  
PROJECT IN ECUADOR**

**August 17, 2011**

*Public Sector Evaluations  
Independent Evaluation Group*

## Currency Equivalents (annual averages)

**ECUADOR:** *Currency Unit =Ecuador Sucre (ECS)*

1998	US\$ 1.00	ECU	5,448
1999	US\$ 1.00	ECU	11,773
2000*	US\$ 1.00	US\$	1
2001	US\$ 1.00	US\$	1
2002	US\$ 1.00	US\$	1
2003	US\$ 1.00	US\$	1
2004	US\$ 1.00	US\$	1
2005	US\$ 1.00	US\$	1
2006	US\$ 1.00	US\$	1
2007	US\$ 1.00	US\$	1
2008	US\$ 1.00	US\$	1
2009	US\$ 1.00	US\$	1
2010	US\$ 1.00	US\$	1

\* Since 2000, Ecuador has adopted the US dollar as its own currency.

**PARAGUAY:** *Currency Unit =Paraguayan Guarani (PYG)*

1998	US\$ 1.00	PYG	2,701
1999	US\$ 1.00	PYG	3,118
2000	US\$ 1.00	PYG	3,491
2001	US\$ 1.00	PYG	4,109
2002	US\$ 1.00	PYG	5,712
2003	US\$ 1.00	PYG	6,477
2004	US\$ 1.00	PYG	5,966
2005	US\$ 1.00	PYG	6,174
2006	US\$ 1.00	PYG	5,640
2007	US\$ 1.00	PYG	5,026
2008	US\$ 1.00	PYG	4,345
2009	US\$ 1.00	PYG	4,978
2010	US\$ 1.00	PYG	4,765

## Abbreviations and Acronyms

APL	Adaptable Program Loan
ERR	Economic rate of return
ERSSAN	Sanitary Services Regulation Agency (Ente Regulador de Servicios Sanitarios, Paraguay)
ESSAP	Sanitary Services Company of Paraguay (Empresa de Servicios Sanitarios del Paraguay S.A.)
IADB	Inter-American Development Bank
IBRD	International Bank of Reconstruction and Development
IEG	Independent Evaluation Group
IEOS	Ecuadorian Institute for Sanitation Works (Instituto Ecuatoriano de Obras Sanitarias)
M&E	Monitoring and Evaluation
MIDUVI	Ministry of Urban Development and Housing (Ministerio de Desarrollo Urbano y Vivienda)
NGO	Non-Governmental Organization
O&M	Operation & Maintenance
PAD	Project Appraisal Document
PMU	Project Management Unit
PPAR	Project Performance Assessment Report
PRAGUAS	Rural and Small Towns Water Supply and Sanitation Program (Programa Nacional de Agua y Saneamiento Rural)
PSO	Private Sector Operator
RWSS	Rural Water Supply and Sanitation
RWSS IV	Fourth Rural Water Supply and Sanitation Project (Paraguay)
SENASA	National Environmental Health Service (Servicio Nacional de Saneamiento Ambiental)
SSA	Subsecretariat of Environmental Sanitation (Sub-secretaría de Saneamiento Ambiental), (former name of the SAPSyRS)
WBA	Water Beneficiary Associations
WHO	World Health Organization
WSS	Water Supply and Sanitation

## Fiscal Year for Both Countries

Government: January 01 – December 31

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This report was prepared by Midori Makino and Sixto Requena, who assessed the projects during December 2010 and January 2011. The report was peer and panel reviewed by Keith Pitman and Roy Gilbert, respectively. Bill Hurlbut edited the report and Romayne Pereira provided administrative support.

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The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEG annually assesses 20-25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

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**Bank Performance:** The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Borrower Performance:** The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

## Preface

This comparative review consolidates findings and lessons from a set of recent Project Performance Assessment Reports (PPARs) prepared by the Independent Evaluation Group (IEG) on rural water supply and sanitation in Latin America.

The two projects that are the focus of the review are the Rural and Small Towns Water Supply and Sanitation Project (Loan 70350-EC) in Ecuador (PRAGUAS) and the 4th Rural Water Supply and Sanitation Project (Loans 42220-PA and 42230 -PA) in Paraguay (RWSS IV). The Ecuador PRAGUAS project (US\$45.57 million actual total cost) was approved by the Bank's Board of directors on October 17, 2000 and closed on October 31, 2006, two years later than planned. The Paraguay RWSS IV project (US\$49.43 million actual total cost) was approved by the Board on August 20, 1997 and closed June 30, 2007, three and a half years later than planned.

Both projects aimed to adopt similar sector reforms and community-based approaches in rural and small town water supply and sanitation services. The two projects were selected for assessment together because within the similar sector and regional context, several service delivery models were implemented, allowing a comparison of their likely financial and institutional sustainability. This review will also serve as an input to IEG's ongoing evaluation of infrastructure sustainability worldwide.

IEG prepared this report based on an examination of the relevant Project Appraisal Documents, Implementation Completion and Results Reports, Legal Agreements, project files and archives as well as other relevant reports, memoranda and working papers. Discussions were also held with Bank staff in Washington, DC and in the resident missions. An IEG field mission visited Ecuador in December 2010 and Paraguay in January 2011 to review the results on the ground and to hold discussions with relevant government officials, communities of beneficiaries, and other sector stakeholders. The mission appreciates all support and attention given by the borrowers and all concerned parties in both countries as well as in Washington, DC. The complete PPAR for the Paraguay project is presented in Annex A; the PPAR for the Ecuador project has been issued separately,<sup>1</sup> but is summarized in Annex C.

Following IEG procedures, a draft of the main report and the respective PPARs were sent to government officials and borrowing agencies in the two countries for their review. The comments received from the government of Paraguay are included as Annex B.

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<sup>1</sup> Independent Evaluation Group, Project Performance Assessment Report, Ecuador Rural and Small Towns Water Supply and Sanitation Project, June 28, 2011.



## Summary

This review compares the effectiveness, findings, and lessons of two rural water supply and sanitation (WSS) projects supported by the World Bank in Latin America – the Rural and Small Towns Water Supply and Sanitation Project (Loan 70350-EC) in Ecuador (PRAGUAS) and the Fourth Rural Water Supply and Sanitation Project (Loans 42220-PA and 42230\_A) in Paraguay (RWSS IV) – based on Project Performance Assessment Reports of these two projects.

### A COMMON APPROACH

The projects combined investment in water supply and sanitation infrastructure and technical assistance to improve the performance of key water sector institutions. At the time of project preparation, both countries had rural populations with low access to WSS services. Improving rural access to WSS was identified as a government priority for both countries.

Ecuador devolved the WSS service mandate for small towns and rural areas to municipal governments in the early 1990s. A pilot project under the Second Health and Nutrition Project, supported by the Water and Sanitation Program, had tested the use of water beneficiary associations (WBA) for the operation and maintenance of the water systems in rural areas, and this model was scaled up under the PRAGUAS project. WBAs are legally-registered non-profit community based organizations with a governing board whose members are democratically-elected. Paraguay had already delegated the operation and maintenance responsibility in the 1970s to WBAs through the National Environmental Health Service (Servicio Nacional de Saneamiento Ambiental, SENASA), a central government agency under the Ministry of Health. Both projects supported institutional models promoting WBAs to operate and maintain the WSS infrastructure, beneficiary contributions to investments, and cost recovery for operation and maintenance through user charges. Procurement and contracts were managed by municipal governments in Ecuador and by SENASA in Paraguay.

### RESULTS

**Ecuador:** The first project development objective of the PRAGUAS project was to increase WSS service coverage and quality for beneficiaries in small towns and rural municipalities with the focus on the poor. This was substantially achieved. The number of municipalities covered under the project (109), far exceeded the target (40), although only 82 percent of the target number of beneficiaries were reached. Many of the municipalities were in poor geographical areas. The effect on WSS service quality was difficult to assess, however, since there was no baseline data of service quality at start up.

The project's second objective was to improve water sector performance through the application of coherent policies and strengthening sector institutions at the central and local levels. Though a new sector organization was put in place in the central government to oversee investment sub-projects, limited progress was made in defining key policy areas that affect the sustainability of the investments. By the end of the project, allocation of responsibilities to undertake sector investments at the national and sub-national levels had

not been formalized, rules for asset ownership in the sector had not been defined, and there was no consistent financing policy. These institutional and financial arrangements were, and still are, set up on an ad hoc investment-by-investment basis.

The relevance of the project's objectives was substantial, but the relevance of the design was modest. While the pilot project had tested the demand-responsive approach, policies related to investment responsibilities were not defined by project appraisal, and the municipalities were given the mandate to implement the investment sub-projects using an overly complex project cycle that contributed to delays. With respect to the project's efficiency, while there were delays in project effectiveness and implementation, the benefits in relation to costs are likely to be substantial, given the high rate of return calculated at the end of the project. Putting together the above elements on relevance, efficiency, and achievement of objectives, the overall project outcome is rated moderately satisfactory. Risk to development outcome is rated as significant because of the risks associated with the communities' and municipalities' financial capacity to maintain their rural WSS systems over the longer term. In addition, the political and government ownership risk increased significantly when the new administration cancelled a large part of the follow-on second-phase Adaptable Program Loan. The Bank's Performance was rated moderately satisfactory because the design of the project was overly ambitious in a potentially politically sensitive time period, and monitoring and evaluation were of poor quality. Borrower performance was moderately satisfactory, with shortcomings on the government side due to the delays in sector policy formalization and implementation of sector reforms.

**Paraguay:** The first objective of RWSS IV was to rapidly increase water supply and sanitation coverage in the rural areas. The target coverage was substantially met for water supply, which the main focus of the project, although the targets for sanitation were not achieved. The second objective, modifying SENASA's role in the sector from an implementer of projects to an efficiently managed promoter, was also substantially achieved. SENASA successfully contracted out all its traditional activities to the private sector, NGOs, and association of WBAs. The government's plan to establish a regulator shifted the scope of SENASA's function to focus on planning and promotion of the sub-projects rather than on sector regulation.

Both the relevance of the objectives and the relevance of design were substantial. The objective have been in line with the country's and the Bank's strategies through the project implementation period until the present. Efficiency was modest because of the significant delays in project implementation. The project outcome was therefore rated as moderately satisfactory. The risk to development outcome was moderate, as the WBAs are likely to continue to finance, construct, and manage systems satisfactorily under SENASA's model. Revenues from the tariffs for most of the schemes are sufficient to cover their operation and maintenance costs. Borrower performance and the Bank's quality at entry performance were moderately satisfactory, primarily due to the poor quality of the project's M&E. Bank performance during supervision, on the other hand, was satisfactory because of its significant efforts to minimize the impact of the implementation delays and its highly satisfactory supervision of the pilot private sector participation program and institutional strengthening components.

## KEY LESSONS

- **Sector reform and the related shift in institutional culture require political support and time:** It is important to identify the potential risks up front, carry out proper stakeholder analysis, and make a realistic projection of the time it takes to change the roles of the Government agencies and to devolve the WSS investment and operation and maintenance responsibilities to the local government or the community level.
- **Formalization of consistent policies is critical for reform:** Sector policies and institutional responsibilities need to be formalized through legal decrees and approved by the Congress as a necessary, if not sufficient, condition for the enforcement of financial and investment policies, especially as the countries face political changes.
- **WBA models show good financial sustainability:** Long-term financial sustainability depends on whether the institutional arrangements for implementing cost recovery policies are sound and responsive to local conditions. Conventional WBA models in both Paraguay and Ecuador and the private sector operator models in Paraguay show stronger financial sustainability compared to the municipal models implemented in Ecuador where tariffs are approved by municipal authorities.
- **Sanitation requires more attention:** Because of the environmental and health externalities of the current low levels of sanitation coverage in both countries, it is important for the Government and the Bank teams to pay more attention to and effectively track the progress in the sanitation sub-sector both during project preparation and implementation.
- **Post-investment technical support and capacity building enhance the sustainability of community participatory water supply services:** For the water systems to be sustainable, there also needs to be an institutionalized arrangement for technical assistance and post-construction support for continuous capacity building of WBAs.

Daniela Gressani  
Acting Director-General  
Evaluation



## 1. Introduction

1.1 In the late 1990s, the population in the rural areas and small towns of Ecuador and Paraguay was suffering from limited access to water supply and sanitation (WSS) services. Both countries had identified improving WSS services in rural areas as a government priority. Table 1-1 illustrates the status of rural WSS coverage in the two countries at three points in time, 1990, 2000, and 2008. Paraguay started at a very low rural WSS coverage level of 25 percent in water supply and 15 percent in sanitation in 1990, but doubled these coverage levels in a decade to 51 percent in water supply and 31 percent in sanitation. Water supply coverage grew to 66 percent and sanitation coverage grew to 40 percent by 2008. Ecuador, on the other hand, started at a relatively high coverage level in 1990 of 62 percent and 48 percent for rural water supply and sanitation respectively. Ecuador achieved 88 percent rural water supply and 84 percent rural sanitation coverage by 2008.

**Table 1-1. Summary of Rural Water Supply and Sanitation Coverage in Ecuador and Paraguay (percent)**

<i>Country</i>	<i>Rural Water Supply Services Coverage</i>			<i>Rural Sanitation Services Coverage</i>		
	<i>1990</i>	<i>2000</i>	<i>2008</i>	<i>1990</i>	<i>2000</i>	<i>2008</i>
Ecuador	62	78	88	48	70	84
Paraguay	25	51	66	15	31	40

Source: WHO/UNICEF 2010

1.2 In the case of Ecuador, pending reforms initiated in the early to mid-1990s were identified. A three-phased Adaptable Program Loan (APL) was developed in the late-1990s to support the implementation of these reforms in Ecuador. The APL program objective was to increase the coverage and effective use of sustainable water and sanitation services in Ecuador, with a focus on the poorer populations in rural communities and small towns. An associated objective of the program was to support the Government of Ecuador in the implementation of an overall WSS sector reform program, covering both urban and rural areas. This Project Performance Assessment Report (PPAR) will assess the first phase of the APL, known as PRAGUAS. In the case of Paraguay, the Bank had previously financed three projects supporting improvements in access to WSS services in rural areas. The RWSS IV, which the PPAR will also assess, was expected to consolidate achievements in the former projects. The objectives of RWSS IV were the rapid increase of water supply and sanitation coverage in the rural areas. The secondary objective was to modify SENESA's role in the sector from an implementer of projects to an efficiently managed promoter of activities through the shifting of its current activities to the private sector and non-governmental organizations while still maintaining its regulatory functions.

1.3 Preparation of the two projects began during the period 1997-98, and the centerpiece of both was the establishment of water beneficiary associations (WBA), locally called 'Juntas' in Spanish, to operate and maintain the drinking water supply systems in the rural areas. WBAs in both countries are legally appointed non-profit organizations responsible for the operation and maintenance (O&M) of the RWSS schemes using the revenues collected from the beneficiaries. The governing body includes a President, a Treasurer, a Controller, and a Deputy Controller, all

elected democratically for two-year periods. It also includes a representative from the Municipality appointed by the Mayor. All members of the governing body work as volunteers with no rights to salaries or sitting allowances.

1.4 Both PRAGUAS and RWSS IV have objectives related to the improvements in coverage of water services in rural areas and small towns, as well as institutional strengthening and sector reforms. The Project Development Objective in the PRAGUAS loan agreement is to increase the coverage and effective use of sustainable water and sanitation services with a focus on the poorer populations in rural communities and small towns.

**Table 1-2. Summary of Development Objectives of the Two Projects**

<i>Focus of Objectives</i>	<i>PRAGUAS/Ecuador Objectives</i>	<i>RWSS IV/Paraguay Objectives</i>
Improvements in access to water and sanitation services	<ul style="list-style-type: none"> <li>• Increase the coverage of sustainable water and sanitation services, with a focus on poorer populations in rural communities and small towns.</li> </ul>	<ul style="list-style-type: none"> <li>• The rapid increase of water supply and sanitation coverage in rural areas</li> </ul>
Institutional strengthening and sector reforms	<ul style="list-style-type: none"> <li>• Effective use of sustainable water and sanitation services. Specifically, to improve sector performance through the application of coherent policies, and strengthen sector institutions at the central and local levels.</li> </ul>	<ul style="list-style-type: none"> <li>• Modification of SENASA's role in the sector from an implementer of projects to an efficiently managed promoter of activities through the shifting of its current activities to the private sector and non-governmental organizations while still maintaining its regulatory functions.</li> </ul>

Source: Project Appraisal Document (PAD) (Paraguay), Loan Agreement and PAD (Ecuador)

1.5 Financing of investments in both projects included a combination of central government finance, and cash and labor contributions from beneficiaries intended to generate lasting beneficiary ownership of projects. In the case of Ecuador, municipal governments were also expected to contribute with financing. Project implementation in both cases involved intensive outsourcing of all project activities, including contracts to identify the participating rural communities, carry out engineering designs, and construct and supervise the infrastructure sub-projects. To ensure financial sustainability of water supply service provision, both projects proposed policies to ensure that tariff revenues cover at least O&M costs.

1.6 In both projects start-up and implementation of the project activities ran into a series of delays due to political instability, and this ultimately led to the extension of the project closing dates by two years in the case of Ecuador and three-and-a-half years in the case of Paraguay.

1.7 In Ecuador the Ministry of Urban Development and Housing/Subsecretariat for Water Supply and Sanitation and Solid Waste (MIDUVI/SSA) and the municipal governments were the implementing agencies. In Paraguay, the RWSS IV project was implemented by National Environmental Health Service (Servicio Nacional de Saneamiento Ambiental) (SENASA) according its mandates defined civil service law.

## 2. Improvements in Rural Access to Water and Sanitation Services in Ecuador and Paraguay

2.1 **Ecuador:** PRAGUAS aimed at increasing the coverage of sustainable WSS services with a focus on the poorer populations within in rural communities and small towns. Specifically, it was to reach about 350,000 beneficiaries in about 40 rural municipalities as well as in about 6 municipal capitals. PRAGUAS's geographical target area was 152 rural municipalities, covering about 22 percent of the country's population. At the time of appraisal, only 48 percent of the urban and rural population of these small municipalities had access to adequate water supply and only 35 percent benefited from appropriate sanitation facilities. The project targeted the municipalities with low service coverage rates, high poverty indicators, and a high community demand for improved services.

2.2 The total number of beneficiaries was 288,000 people. Of these, 145,000 received water only, 129,000 received both water and sanitation, and 14,000 received sanitation only. As a result, PRAGUAS achieved 82 percent of its intended target. While the project area level coverage data at the end of the project could not be obtained, IEG estimates that the project's beneficiaries represented about 87 percent of the rural population that gained water supply access and 28 percent of those that gained access to sanitation over the period 2000-08.2

2.3 With regards to increasing the coverage of municipalities, PRAGUAS exceeded the target of 40 by reaching 109 municipalities, many located in the poorest provinces. The quality however is hard to assess as there were no baseline information and data were not systematically collected. According to MIDUVI, three years after project completion, it is estimated that 80 percent of systems provide continuous (24 hours/day, seven days/week) water supply with good pressure, but in the absence of baseline data it is unclear whether this shows an improvement or not. Twenty percent of the sample twenty water systems visited by IEG were not functioning at the time of the visit, but were reported to work on a limited schedule (some hours only during the day).

2.4 According to the ex-post review carried out in 2006, about 88 percent of the population with water connections supported by PRAGUAS had daily service except in Cotopaxi and Manabi, where the service was once a week for 23 percent and 44 percent of the population in the project areas, respectively. Based on the IEG mission in 2010, the situation had not changed since the ex-post review took place. A large majority of the PRAGUAS-supported water systems are still working five years after project closure, and this is due to the strong community participation, commitment by users, and capacity building of the WBAs and sector players in the key areas such as O&M.

2.5 **Paraguay:** RWSS IV aimed at rapidly increasing water supply coverage over a 5-year period from 20 percent to 30 percent of the rural population in the project areas. At project closure in 2007 – 9 years later – the coverage was 28 percent. In terms of population, about 293,750 people or 85 percent of the target gained access. Water supply systems were built for WBAs in small towns, rural areas, and for indigenous communities. IEG estimates that the

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<sup>2</sup> This assumes that all of the beneficiaries gained “new” access, however some may have gained “improved” access.

project's beneficiaries represented about 69 percent of the rural population that gained water supply access and 55 percent of those that gained access to sanitation over the period 2000-08

2.6 Based on the findings from the IEG mission, the systems being operated by the WBAs are more sustainable than those built for (and operated by) the indigenous communities. SENASA reported 100 percent functionality of WBA systems, and all WBAs visited by the IEG mission were in fact working although some of the schemes had interrupted services. In the case of systems built for indigenous communities, one of the three systems visited by IEG was not working and the other two were working only partially.<sup>3</sup>

2.7 As for access to sanitation services, 96 percent of the target was achieved through construction of sewerage and waste water treatment plants in small towns (serving 25,000 people) and deployment of latrines in rural areas (for 116,000 people). With regards to the target of making 10 sewerage systems operational, RWSS IV only achieved 30 percent of the target because of insufficient demand for this activity.

### **3. Strengthening of Rural and Small Towns Water Supply and Sanitation Institutional Framework and Sector Policies**

3.1 At project preparation and start up, the RWSS sector in Ecuador was in disarray because of weak institutions, institutional overlap at all levels, and a lack of sector policies, which resulted in unsustainable investments. In Paraguay, the RWSS sector policies had been in place for almost 30 years, and the rural water agency SENASA's role was being modernized. Table 3-1 summarizes the main RWSS policies and the key achievements to date in the two countries. Table 3-2 summarizes the sector policies and institutional framework supported under PRAGUAS and RWSS IV.

3.2 Under both PRAGUAS and RWSS IV, water tariffs were expected to be set to at least cover the O&M costs of the WSS services. In the small towns in Ecuador, the tariffs were expected to cover O&M costs plus at least 30 percent of new investment costs. The actual cost recovery performance for both countries is presented in the Chapter on Financial Sustainability.

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<sup>3</sup> The IEG mission visited 3 out of 71 systems built for indigenous communities. While the systems visited were chosen randomly, the sample size is not large enough to generalize the findings. Consolidated data on technical sustainability of all indigenous community schemes were not available.



**Table 3-1. Overview of Rural and Small Town Water and Sanitation Sector Institutional Responsibilities**

<i>Areas of responsibility</i>	<i>Ecuador</i>	<i>Paraguay</i>
<b>National strategic planning and policy making mandate</b>	<ul style="list-style-type: none"> <li>• Since 1992: Ministry of Urban Development and Housing, Sub-Secretariat of WSS (MIDUVI/SSA);</li> <li>• 1965 to 1992: Ecuadorian Institute of Sanitary Works (IEOS)</li> </ul>	<ul style="list-style-type: none"> <li>• Since 2009, Ministry of Public Works and Communications, Water and Sewerage Unit while the Ministry of Public Health is still responsible for promotion of RWSS;</li> <li>• 1972 to 2009, Ministry of Public Health, SENASA</li> </ul>
<b>Service provision mandate and appointing authority</b>	<ul style="list-style-type: none"> <li>• Since 1992: municipalities in their urban and rural areas (and WBAs appointed by MIDUVI in rural areas to carry out O&amp;M since the pilot prior to PRAGUAS);</li> <li>• Prior to 1992: IEOS</li> </ul>	<ul style="list-style-type: none"> <li>• Since 1972: WBAs appointed by SENASA for rural populations of less than 10,000, urban and rural;</li> <li>• Prior to 1972: Ministry of Health</li> </ul>
<b>Responsibility for Investment planning, budgeting, and implementation</b>	<ul style="list-style-type: none"> <li>• Currently: relevant policies being defined</li> <li>• During PRAGUAS: municipalities did participatory investment planning for rural WSS schemes</li> <li>• Prior to PRAGUAS: IEOS</li> </ul>	<ul style="list-style-type: none"> <li>• Currently: SENASA</li> <li>• During RWSS IV, SENASA hired private consultants to undertake participatory investment planning</li> <li>• Prior to RWSS IV: SENASA used its own staff.</li> </ul>
<b>Tariff setting</b>	<ul style="list-style-type: none"> <li>• Urban areas: Municipalities</li> <li>• Rural areas: WBAs with guidance from municipalities</li> </ul>	<ul style="list-style-type: none"> <li>• Until 2005, WBAs with guidance from SENASA</li> <li>• Since 2005, Regulator (ERSSAN)</li> </ul>

**Table 3-2. Sector Policies and Institutional Framework Supported by PRAGUAS and RWSS IV**

	<i>PRAGUAS</i>	<i>RWSS IV</i>
<b>Service Delivery Models</b>	<ul style="list-style-type: none"> <li>• Municipal water companies</li> <li>• Rural bulk water systems serving various rural communities</li> </ul>	<ul style="list-style-type: none"> <li>• WBAs hire salaried staff for O&amp;M of their water systems</li> <li>• WBAs recruited PSO for O&amp;M of their water systems, pilot basis</li> </ul>
<b>Financing of infrastructure investments in water supply and sanitation</b>	<ul style="list-style-type: none"> <li>• Central government grants:</li> <li>• Urban areas: to municipalities</li> <li>• Rural areas: not defined</li> <li>• Municipal budget contribution</li> <li>• Beneficiary contributions</li> </ul>	<ul style="list-style-type: none"> <li>• SENASA's budget:</li> <li>• Loans to WBAs</li> <li>• Grants to WBAs</li> <li>• Up front beneficiary contributions</li> </ul>
<b>Tariff Policy</b>	<ul style="list-style-type: none"> <li>• Small towns: O&amp;M plus 30% of new investment cost recovery</li> <li>• Rural areas: 100% O&amp;M cost recovery</li> </ul>	<ul style="list-style-type: none"> <li>• 100% O&amp;M cost recovery for rural areas</li> </ul>

3.3 **Ecuador:** The Ecuadorian Institute for Water and Sanitation (IEOS), an autonomous central government agency which had been in charge of all functions in the sector since 1965 had gone through a series of reforms to transfer its responsibilities to other institutions. In 1992, a few years before PRAGUAS, the Ecuadorian Ministry of Urban Development and Housing (MIDUVI) and its Sub-Secretariat of Water Supply, Sanitation and Solid Waste (SSA) were both created to take over the responsibility for strategic planning and policy making in the WSS sector. Water supply service responsibility was transferred to the municipalities as part of the decentralization reforms. Project implementation functions, had been left undefined, and de-facto inherited by MIDUVI/SSA.

3.4 Since its creation, MIDUVI/SSA had spent its resources primarily on its implementation functions at the expense of its strategic planning and policymaking mandates. At the same time, municipalities ended up without any well-defined paradigm on how to implement their mandate of water service provision in their urban and rural areas.

3.5 PRAGUAS supported the transfer of water supply service provision mandate to the municipalities, as well as the Government's decentralized investment planning and implementation policies. In the former PRAGUAS made some progress: municipal water utilities in the form of corporations were established with some private sector participation and WBAs in rural areas were formed to implement their investments. In the latter, PRAGUAS experienced difficulties because during project implementation, amid political turmoil and frequent political changes, the Ministry of Finance, the State Bank of Ecuador, and the Presidential Planning Secretariat retained full authority to set priorities over investment and budget allocation in all sectors for all government levels. There was a 15 percent budget transfer to municipalities, but this was mostly used to cover their recurrent expenses.

3.6 As described above the new organizational structure MIDUVI/SSA was put in place to oversee the sector, but reforms related to the regulatory framework, investment responsibilities, asset ownership, and financing policies were not completed. There is still no consensus for approving a new WSS law defining sector policies and institutional arrangements supported by PRAGUAS. Therefore, the laws and norms that ruled the sector prior to decentralization (initiated in the early 1990s) are still used to run the sector at present. Since the sector policies are not formalized in the form of legal decrees or approvals by the congress, inconsistent investment and financial arrangements are adopted in the RWSS systems. Only one third of the investments had complied with PRAGUAS' financial policy at the end of the project. The absence of unified policy has resulted in poor sustainability of the WSS investments; for example the tariffs are set lower than the O&M costs in the case of small towns. Limited progress on the reforms is also resulting in higher than expected risks for sustainability.

3.7 Challenges were faced to transfer the project implementation functions and related financial resources from MIDUVI/SSA to participating municipalities as well. This is because the municipalities didn't have the capacity to implement the projects, and this shift was accepted only reluctantly by MIDUVI. According to the information collected during the IEG mission,

MIDUVI/SSA implemented parallel projects with softer financial conditions than PRAGUAS,<sup>4</sup> creating confusion among the beneficiaries.

3.8 The key factor contributing to Ecuador's low adoption of sector reforms is its lack of sector law and relevant regulations that legitimize the actions of all relevant water sector agencies, especially those related to investment implementation responsibilities in rural water and sanitation projects. Had the sector law been approved, municipal governments would have gained in terms of investment budgets to implement water and sanitation projects in rural areas; central government investment agencies would have correspondingly lost. Although decentralization was –and is still today– the general government policy, municipal governments continue to be regarded as institutionally weak investment implementing agencies and therefore do not receive the investment budgets.

3.9 **Paraguay:** From 1972 to 2002 national WSS strategic planning, policy making, infrastructure planning and investment implementation in small towns and rural areas with fewer than 10,000 people were the responsibility of SENASA, at the Ministry of Public Health and Social Services (Law 360/1972). WSS service provision has been the responsibility of the WBAs, appointed by SENASA, since 1974 (Law 360/1972 and Decree 8910/1974). In 2002, the Ministry of Public Works and Communications took over SENASA's national strategic planning and policy making functions in the water and sanitation sector (Law 1614/2000, Decree 18,880/2002).

3.10 SENASA has retained its WSS investment planning and budgeting and project implementation functions to the present time. During project implementation, in line with the RWSS IV design, SENASA hired private consulting firms to help in promotion activities and investment prioritization through participatory planning.

3.11 RWSS IV effectively consolidated the results achieved through the previous three RWSS projects supported by the Bank and outsourced SENASA's traditional activities to the private sector, NGOs, and association of WBAs. This has enabled scaling up of the RWSS investments using the WBA service delivery model in a wider geographical area in more remote and poorer regions. Specifically, SENASA contracted out 100 percent of the 591 final engineering designs, 588 promotion contracts, and 588 supervision contracts to the private sector. Construction of water and sewerage systems was also outsourced to private contractors, including ten-year design-build-operate contracts for eight systems. In addition, the technical assistance, capacity building, and post construction support to the WBAs have been transferred to the associations of WBAs. The project also developed SENASA's operational strategy, including a diagnosis of the sector, SENASA's organization and role, and a tentative investment plan through 2010.

3.12 SENASA has generated confidence from its financiers. By 2010 it had an approved investment portfolio in the amount of US\$ 59 million financed by the World Bank, Central American Monetary Stabilization Fund, Japan International Cooperation Agency and the Inter-American Development Bank (IADB), and it is being offered an additional US\$ 83 million from

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<sup>4</sup> While PRAGUAS required a 10 percent up-front contribution from beneficiaries and 20 percent from municipalities to finance investments in rural areas, alternative MIDUVI/SSA projects required no contributions from the beneficiaries.

IADB/Spain, the Fund for the Financial Development of the Plata Basin, and the Brazil-Paraguay Bilateral Yacyreta Agency (Entidad Bilateral Yacyreta, EBY). However, SENASA's parent Ministry and the Ministry of Finance are concerned about its capacity as it implemented only 14 percent of its approved budget during 2010. SENASA has traditionally been supporting 10 to 90 WBAs per year, but at present it faces new challenges, such as adoption of investment portfolio management skills and transformation of WBAs into sustainable and commercially governed structures.

3.13 The regulatory and policy making functions were no longer within SENASA at project closure because the Sanitary Services Regulation Agency (Ente Regulador de Servicios Sanitarios, Paraguay, ERSSAN) had been established, and policymaking functions had been transferred to the Ministry of Public Works. Within its mandate, SENASA has successfully modified the investment financing policy, and made sure that WBAs assume the commitment of 100 percent O&M cost recovery (now monitored by the regulator, ERSSAN).

3.14 At the time of the PPAR mission in December 2010, further progress had been made in Paraguay and the follow on project to RWSS IV, the Water and Sanitation Sector Modernization Project, approved in April 2009 was under implementation. In Ecuador the second phase of the RWSS program, PRAGUAS II had closed two years early in March 2009 with the cancellation of a majority of the project funds in response to the new government. With a new constitution approved in 2008, the National Secretary of Planning and Development (SENPLADES) along with the Ministry of Finance are currently redefining investment planning, implementation and budget allocation responsibilities, and the roles to be played by various sector ministries and at all government levels. MIDUVI/SSA has proposed to decentralize its core functions to eight regions.

## **WSS Service Delivery Models**

3.15 In PRAGUAS and RWSS IV three types of WSS service delivery models were implemented: (i) municipal company models in the small towns; (ii) WBAs in the rural areas; and (iii) contracts with private sector operators in the rural areas.

3.16 **Municipal company models in Ecuador** – PRAGUAS used incentive packages<sup>5</sup> to entice municipal governments to delegate the management of their water service provision to public or private companies. Out of the eight municipalities that received such incentive packages, six chose autonomous municipality-owned companies, one a cooperative owned by the beneficiaries and one a mixed shareholding company (49 percent of shares held by customers and 51 percent by the municipality). The autonomous municipal company delivers the services and carries out O&M using the combination of tariff revenues and recurrent transfers from municipal governments. The municipal companies work based on annual operating plans and report to their Boards of Directors who are appointed by the municipal councils. The mixed shareholding company and the cooperative models, on the other hand, operate more independently from the municipalities and follow commercial principles. They have 10-year

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<sup>5</sup> The incentive package included feasibility study grants plus a 50 percent grant for eligible investment costs. The other 50 percent of investment cost was expected to be financed 30 percent from tariff revenues and 20 percent from the municipal budgets.

performance contracts with the municipal companies and report to a Board of Directors appointed by the shareholders. Investments of all municipal company models are financed by a combination of central government grant funding and limited municipal government contribution.

**3.17 Water beneficiary associations in Ecuador and Paraguay** – Rural WBAs are established as non-profit organizations to participate in the planning, construction, financing and O&M of water supply infrastructure that is built for their communities. The articles of their constitution are a legal document under relevant laws in both countries, and include rules of governance and the WBA’s obligation to operate and maintain the water supply system using the tariff revenues collected from the beneficiaries. In both countries, the bulk of the financing for the investments were provided as grants by the government.

**3.18 Private Sector Operators in Paraguay** – The RWSS IV supported the formation of WBAs that procured private sector operators (PSOs) to build, operate, and maintain their water supply infrastructure. Construction companies partnered with “aguateros” (small private sector providers of WSS services and owners of very small piped systems) to get performance contracts with the WBAs to build, operate, and maintain their water supply systems. Contract clauses included, among others, specifications stating that the tariffs should cover O&M costs at all times, plus the recovery of PSOs’ investment costs. In all contracts, PSOs contributed a substantive share of the investment costs. The first output-based-approach scheme of private sector participation in rural water was tested in eight pilot communities. Under this approach, the entrepreneurs competed on the amount of subsidy they would request from the government.

**3.19** From a financial sustainability perspective, the IEG mission observed that the WBA model tends to work well because the WBAs are accountable to the beneficiaries who are closely monitoring the performance of the WBAs. The private sector operators often perform well because of the contractual obligations for them to ensure proper O&M and meet the needs of the consumers, but the fees paid to the private operators translate into higher operating costs that the consumers need to bear. The municipal models in small towns in Ecuador are not working as well because of the political influence on tariff and investment decisions faced by the municipalities. The financial assessment of the three models in the two countries is carried out in the next chapter under Financial Sustainability.

## **Financing Policies for Investments**

**3.20** The current RWSS financing policies in Ecuador and Paraguay are outlined in Table 3-3.

**3.21 Ecuador:** The WSS investments in the urban perimeter of the municipalities are funded by a combination of central government grants and municipalities’ recurrent budget contributions. In rural areas, WSS financing policies are defined on an investment by investment basis. PRAGUAS supported the government to establish a common financing policy which included 10 percent cash contribution of the total investment costs from beneficiaries. This was difficult to implement because affordability constraints.

**3.22** According to the Ex-Post Evaluation of the PRAGUAS Project conducted to assess the impact of the project in achieving its outcomes, the proportion of families that contributed cash

to the financing of rural water supply projects varied across provinces from 8 percent to 90 percent of the total investment costs (Quinteros-Rojas-Duenas 2006). The amount of cash contributed by family was also highly variable, from US\$12/family (about 1.7 percent of the US\$700 investment cost per connection) to US\$120/family. Based on sample information collected during the IEG mission, only 20 percent of the households in the project communities made any cash contributions to the investment, typically up to 5 percent of the total.

**3.23 Paraguay:** The RWSS IV financing arrangements became part of government policy as the project and its implementation rules were approved by the Congress. The project's rules therefore became the policy for wider adoption by all RWSS programs in the country. The policy was slightly modified to reflect the affordability concerns of the poor in October 2004 (by Presidential Decree 3617).

**Table 3-3. Investment Financing Policy in Ecuador and Paraguay: Share of total investments by financing source in percent**

<i>Sources of financing</i>	<i>Ecuador / PRAGUAS</i>		<i>Paraguay / RWSS IV<sup>a</sup></i>		
	<i>Rural Areas</i>	<i>Small Towns</i>	<i>Less than 150 connections</i>	<i>More than 150 connections</i>	<i>Indigenous communities</i>
In cash upfront by the beneficiaries	10		1	5	
In cash by the beneficiaries during construction	20		2	10	
Beneficiaries/through tariff revenues		30			
In labor by the beneficiaries during construction			15	15	15
By Municipal governments	20	20			
By Central Government/SENESA Grant	50	50	82	40	85
By SENASA loan to WBAs				30	
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Project Appraisal Document for Ecuador, Presidential Decree 3617, October 28, 2004 for Paraguay  
a. This represents the policy adopted in 2004, after the RWSS IV was already under implementation.

**3.24** According to ERSSAN, however, this financing policy promoted the proliferation of smaller systems that required paying a lower share of the costs, even in cases where larger systems were most suitable due to economies of scale, to satisfy beneficiaries' demand for water at lower unit investment and operating costs.

**3.25 Sanitation:** PRAGUAS investment financing policy for sanitation in rural areas in Ecuador was 70 percent contribution by the central government and the balance by beneficiaries, including 10 percent up-front cash. In Paraguay, the financing policy for rural sewerage and wastewater treatment plants was 60 percent contribution by the WBAs (i.e., beneficiaries), 30 percent by a long term loan from SENASA to WBAs, and 10 percent grant financing from

SENASA to WBAs, both funded by the World Bank loan. Because of the high level of beneficiary contribution required for the sewerage investments, the effective demand was lower than expected. Only three out of the ten sewerage systems were constructed under the project. This led to the reduced disbursements of this component for RWSS IV. Since lack of proper treatment of wastewater could have health and environmental implications, it is common to see significant subsidies allocated by the central government to this sub-sector, however in the case of Paraguay it was not the case. Latrines and indigenous water projects were fully financed by the World Bank loan in Paraguay. There was no special financing policy for indigenous populations in Ecuador.

## **Tariff Setting and Cost Recovery Policies**

3.26 Under both projects, water tariffs are expected to be set to at least cover the O&M costs of the WSS services. In the small towns in Ecuador, the tariffs are expected to cover O&M costs plus at least 30 percent of new investment costs. The actual cost recovery performance for both countries is presented in Chapter 4 on Financial Sustainability.

3.27 With regards to tariff setting, in Paraguay until 2000, WBAs themselves were setting their tariffs to cover O&M costs; from 2000 to the present under the guidance of SENASA, ERSSAN has had a mandate to approve such tariffs based on economic and financial criteria. ERSSAN is financed by a 1 percent fee on all water service providers, including WBAs. The latter have been expected to cover O&M plus financing costs due to SENASA, provided they have loans to finance their water supply infrastructure. ERSSAN regulates water companies that service large urban areas as well as WBAs in small towns and rural areas. The large number of WBAs (around 2,000) makes it difficult to monitor compliance. Under the PSO models piloted under RWSS IV, the contract clauses state that the tariffs should cover O&M costs at all times, plus the recovery of PSOs' investment costs. The tariff is therefore regulated by contract.

3.28 In Ecuador, there is no formal system in place to regulate the tariffs. The municipalities' tariffs are approved by their Board of Directors, and the RWSS tariffs are set by the WBAs themselves.

3.29 The projects did not have a component that paid for or installed water meters, but lack of metering often led to high consumption of water, including wastages and leakage. According to the IEG mission, the implementing agencies realized the importance of using the meters as the projects progressed, and adopted them in their sub-projects.

## **4. Financial Sustainability**

4.1 The financial sustainability of the two projects was assessed three years after project closure using the cost recovery indicator (tariff revenues as a percentage of O&M costs). Average tariff, liters of water consumed per capita per day (lpcd), revenue per connection, and collection efficiency were also reviewed to complement the assessment. The analysis is based on the information collected from MIDUVI in Ecuador and SENASA in Paraguay, and verified by IEG's visits to a sample of more than 20 project sites in each country.

**Table 4-1. Key Financial Information in RWSS in Ecuador and Paraguay, 2010**

	<i>Ecuador</i>		<i>Paraguay</i>	
	<i>WBAs</i>	<i>Municipalities</i>	<i>WBAs</i>	<i>Private Sector Operator</i>
Average tariff (US\$/m <sup>3</sup> )	0.15	0.12	0.19	0.40
Cost recovery (percent), (Revenues/O&M)	100	50	103	190
Consumption (Liters per capita/day)	70	217	130	87
Revenue per Connection per year (US\$)	21	47	45	63

Source: Ecuador: MIDUVI; Paraguay: SENASA.

4.2 In Ecuador the water supply systems in the rural communities operated by the WBAs are in general more financially sustainable than those in the small towns. In Paraguay, tariffs are set according to revenue requirement criteria for all WBAs in rural areas and small towns. For the PSOs, the tariff revenues are expected to cover their O&M costs plus some returns on their investments.

### **Water Systems run by Small towns in Ecuador**

4.3 Most municipalities regard water as a public/social service rather than as an economic good. As such, municipal authorities often offer their electorate water for free or at nominal tariffs. Even in the case where municipalities have created autonomous water utilities, the principles of commercial governance are often not applied. In the municipalities of Cayambe (Pichincha Province) and Pujili (Cotopaxi province) visited by the IEG mission, politically-motivated Boards of Directors rejected the tariff increases in the spirit of providing a public service that they still think should be free.

4.4 **Tariffs and cost recovery** – Average 1999 tariffs for residential customers were below US\$0.03/m<sup>3</sup>. In 2010, average tariff in small towns was about US\$0.12/m<sup>3</sup>. Even this rate was lower than what the WBAs were charging their rural communities. At this tariff level, an average water utility can only cover about half of its O&M costs. The utilities expect to receive operational subsidies to cover the deficit, but as this often does not happen, the utility managers are forced to cut some vital operational costs and all maintenance costs. As a result, rationing of service is very frequent and the system reliability is hampered.

4.5 **Water consumption and Revenue per Connection** – At a low average tariff of US\$0.12/m<sup>3</sup>, the estimated average water consumption is 217 lpcd. This is almost twice as much as what an average household in a European country consumes. There was no incentive to control the consumption because very few connections were metered, and as a result, there was a lot of wastage and leakage. Accordingly, average revenue per connection is US\$47 per year which is too low for an average utility to be financially viable. To ensure equitable distribution of water and to increase the revenue per connection, consumption started to be metered under PRAGUAS, but average consumption levels cannot be controlled if the tariffs continue to be low.



## Water Systems run by Water Beneficiary Associations in Ecuador

4.6 **Tariffs and cost recovery.** Tariffs were introduced into the formerly unserved rural areas only when the project constructed the water supply infrastructure and extended the services to these communities. Average tariff in the rural communities is about US\$0.15/m<sup>3</sup>. With this tariff, the average WBA can cover 100 percent of its O&M costs. Most communities visited by the IEG mission operated their water systems continuously (24 hours/day, seven day/week) and the beneficiaries were accustomed to pay for the water they consumed.

4.7 **Water consumption and Revenue per Connection.** At the above average tariff rate, average water consumption in the rural communities is about 70 lpcd, just above the 60 lpcd which is the minimum standard set by the World Health Organization (WHO). Accordingly, average revenue per connection is US\$21 per year or about US\$1.75/month per household. This is high enough to cover the O&M costs but too low for carrying out any future investments.

## Water Systems Run by Water Beneficiary Associations in Paraguay

4.8 **Tariffs and cost recovery.** As in the case for the unserved rural areas in Ecuador, tariffs were introduced when the project constructed the water supply infrastructure and extended the services to the communities. The average tariff for water systems run by WBAs is about US\$0.19/m<sup>3</sup>. At this tariff level, the average Junta can cover 100 percent of its O&M costs. As long as the communities have metering of their consumption, they are capable of running the systems continuously.

4.9 **Water consumption and Revenue per Connection.** At an average tariff of US\$0.19/m<sup>3</sup> the average consumption is about 130 lpcd. This is about the same level as the average per capita consumption in a European country. Accordingly, average revenue per connection is US\$45 per year which is high enough to achieve financial sustainability in Paraguay.

## Water Systems Run by Private Sector Operators in Paraguay

4.10 **Tariffs and cost recovery.** The PSO model was a pilot in Paraguay. In Caaguazu, run by a PSO, the water tariff was about US\$0.40/m<sup>3</sup>. At this tariff level, the PSO is likely to achieve 190 percent O&M cost recovery. The PSO in this case, however, was running the water supply systems with frequent interruptions and, as a result, people were paying a lot more for an inferior/unreliable service.

4.11 **Water consumption and Revenue per Connection.** At an average tariff of US\$0.40/m<sup>3</sup> the average consumption in Caaguazu is about 87 lpcd, equivalent to the minimum consumption of 13 m<sup>3</sup> per month. At an 87 lpcd consumption and a US\$0.40/m<sup>3</sup> tariff level, average revenue per connection is US\$63 per year, or just above US\$5/month. The PSO model has helped the WBAs to set the tariffs at the levels to recover their O&M costs, but the concerns remain over the affordability of these systems especially if they are serving poor rural communities.

4.12 **Financial sustainability beyond O&M cost recovery.** Some WBAs have generated a surplus for the replacement of the water system and/or for its expansion to serve new customers (see Annex B).

4.13 **Collection Efficiency.** According to ERSSAN, collection efficiency -defined as the ratio of collected revenues over water billed- has been reported to be very high, at an average of 95 percent for the WBAs and the PSOs. Such high collection efficiency has been achieved because disconnection policy has been included in the articles of constitution of WBAs and in the Contract with PSO in Paraguay. However, application of this policy in the case of PSOs seems to have resulted in an alarming high rate of disconnections (30 percent). The Collection efficiencies are around 80 percent in municipal companies and around 95 percent in the rural communities in Ecuador.

## 5. Lessons

### *Sector reform and the related shift in institutional culture require political support and time*

5.1 It is important to identify the potential risks up front, and carry out proper stakeholder analysis and to make a realistic projection of the time it takes to change the roles of the Government agencies and to devolve the WSS investment and O&M responsibilities to the local government or the community level.

5.2 Both Ecuador and Paraguay experienced delays in project effectiveness and implementation due to political instability and social unrest. They also faced difficulties in reforming the public sector agencies to be credible partners in facilitating the investments in the RWSS sector.

5.3 In the case of Paraguay the central agency, SENASA had already been in operation for 25 years at the time of project approval since its establishment in 1972. Prior to RWSS IV, the Bank had supported SENASA through three previous projects where practical rules for organizing and building the capacities of the WBAs to operate and maintain their RWSS systems were tested and mainstreamed. While the three preceding projects together created more than 400 WBAs providing services to more than 400,000 beneficiaries, even with this track record and three and a half years of project extension, RWSS IV struggled to reach its target number of beneficiaries, primarily due to political instability. RWSS IV was successful in enabling SENASA to fully transform its role from being an implementer to becoming a promoter of RWSS investments through contracting out its core implementation and technical assistance functions to the private sector, non-governmental organizations, and association of WBAs. Thirty years of continuous Bank support for phased reforms may be a factor in explaining these good results in Paraguay.

5.4 In contrast, Ecuador attempted to achieve the difficult reform objective of shifting investment responsibility from the central government level to the municipal government level during the five-year first phase of the APL. The reforms in Ecuador were particularly difficult because the institutional culture of the Ecuadorian Institute of Sanitary Works or Instituto Ecuatoriano de Obras Sanitarias in Spanish (IEOS), a central government agency that controlled the water sector for almost 30 years, was still dominant at the time of the project, although IEOS' responsibilities had been transferred to the Ministry of Urban Development and Housing (Ministerio de Desarrollo Urbano y Vivienda, MIDUVI)/ Subsecretariat of Environmental Sanitation (Sub-secretaría de Saneamiento Ambiental, SSA). The new organization under MIDUVI/SSA was established only eight years before the project was approved, and the WBA model under the jurisdiction of municipal governments was introduced by PRAGUAS for the

first time, during the first phase of its APL. While Paraguay created 48 WBAs in its first project implemented during 1978-83, and only achieved the creation of 594 WBAs in its fourth project, Ecuador aimed to establish 588 WBAs already in its first phase at the same time as building the capacity of the municipalities to implement the investments.

***Formalization of consistent policies is critical for reform***

5.5 The comparison of the WSS sector's institutional framework in Ecuador and Paraguay reveals the importance of formalizing sector policies through legal decrees and formal approvals by the Congress to ensure that the financial and investment policies are enforced. While they may not be sufficient, formalization of the policies and sector institutional responsibilities seem to be necessary for the implementation of reforms especially as the countries face political changes.

5.6 In Paraguay, rules for engaging various stakeholders were embedded in laws and decrees. This facilitated the implementation of coherent and consistent financial and investment policies across the sector regardless of who is funding the investments. In Ecuador, on the other hand, the main elements of the institutional and financial policies were not formalized prior to project initiation. Instead, arrangements were agreed on an investment by investment basis. While PRAGUAS would require community contribution to investment financing, other projects led by the government may provide new rural WSS systems for free. Lack of formal sector policies has caused the ad hoc approaches to community participation in WSS investments and undermined the importance of community ownership through beneficiary contributions. This has hampered the sustainability of WSS sector investments in Ecuador.

***WBA models show good financial sustainability***

5.7 While the physical sustainability does not only depend on the level of O&M cost recovery as there are other influencing factors such as the capacity and incentives of the service providers to carry out proper maintenance, long-term financial sustainability depends on whether the institutional arrangements for implementing cost recovery policies are sound and responsive to local conditions. This assessment of the two RWSS projects have enabled a comparison of; (i) independent regulation; (ii) regulation by contract, and (iii) social accountability as the means of enforcing the cost recovery policies in rural areas and small towns.

- *Independent Regulation:* In the case of Paraguay, there is a Regulator (ERSSAN) whose mandate is to ensure that tariffs are set according to the cost recovery rules and in accordance with the affordability to the consumers. While there is a remaining challenge for ERSSAN to regulate the increasing number of WBAs, results so far show that the tariff revenues cover the O&M costs and often even part of the capital costs in Paraguay.
- *Regulation by contract:* In the case of Ecuador's municipal company models, in which the private sector operators (PSOs) are paid for their services out of tariff revenues cost recovery is self-enforced provided tariffs are set according to the cost recovery rules. This is because the contractual obligations with the PSOs include clauses related to tariff adjustments to compensate for cost increases.

- *Social accountability*: In the rural areas where WBAs are accountable to their communities, they won't be able to operate and maintain their water supply schemes if they do not collect sufficient tariff revenues. Without other sources of funds to pay for operations and maintenance, the service would deteriorate. Knowing that cost recovery can help avoid service interruption, local rural communities in both countries seem to be disposed toward paying the necessary tariffs.

5.8 In contrast to the above three regulation models, the small towns of Ecuador have a municipal regulatory arrangement. Water utilities in these small towns are experiencing difficulties achieving their cost recovery as the tariffs are typically set below the O&M costs. The municipalities' Boards of Directors include local politicians who see water supply as a public service that ought to be free. They believe that general municipal revenues will be used to cover any deficits resulting from low tariff revenues. As a result, the conventional WBA models in both countries and the PSO models in Paraguay show stronger financial sustainability compared to the municipal models implemented in Ecuador where tariffs are approved by municipal authorities.

### ***Sanitation requires more attention***

5.9 Both projects included components to increase coverage of improved sanitation, but the real outcomes achieved through the project activities have been generally poor or difficult to assess due to lack of available data on outcomes. In the case of Ecuador, 14,000 people had received sanitation facilities only (mostly flush toilets, hand washer sink and shower facilities), and 129,000 people had received both water connections and sanitation facilities under PRAGUAS, but no evidence of the usage of these facilities or the outcomes in the form of health or environmental impacts were available. In the case of Paraguay, only three out of the planned ten sewerage system pilots were constructed under RWSS IV because there was lack of demand from the beneficiaries who already have other means of sanitation, and lack of experience in promoting and financing sewerage projects in the country.

5.10 Because of the environmental and health externalities of the current low levels of sanitation coverage in both countries, it is important for the Government and the Bank teams to pay more attention to and effectively track the progress in the sanitation sub-sector both during project preparation and implementation.

### ***Post construction technical support and capacity building enhance the sustainability of community participatory water supply services***

5.11 The importance of demand-responsive, community participatory approach has been identified to ensure successful implementation of the water supply and sanitation investments in rural areas and small towns. For the water systems to be sustainable, there also needs to be an institutionalized arrangement for technical assistance and post-construction support for continuous capacity building of WBAs. In the case of Paraguay, initially SENASA and later the Association of WBAs have provided such support in the form of training and seminars. As a result, even if there are no subsidies allocated for the purpose of O&M, most of the rural WSS systems managed by the WBAs in Paraguay are reported to be functioning three years after completion. In contrast, the indigenous communities systems in Paraguay and WBAs in Ecuador

that do not have such institutionalized systems for support, are experiencing sustainability issues as the systems built cannot be easily repaired or replaced by the WBAs and the communities by themselves.

## Annex A. Project Performance Assessment Report for Paraguay 4th Rural Water Supply and Sanitation (Loans 42220-PA and 42230-PA)

### Principal Ratings

	<i>ICR*</i>	<i>ICR Review*</i>	<i>PPAR</i>
Outcome	Satisfactory	Satisfactory	Moderately Satisfactory
Risk to Development Outcome	Moderate	Moderate	Moderate
Bank Performance	Satisfactory	Satisfactory	Moderately Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Moderately Satisfactory

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEG product that seeks to independently verify the findings of the ICR.

### Key Staff Responsible

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Division Chief/ Sector Director</i>	<i>Country Director</i>
Appraisal	Luis V. Chang	Mamundi G. Sri-Ram Aiyer	Isabel Guerrero
Completion	Maria Angelica Sotomayor Araujo	Anna Wellenstein	Pedro Alba

### Background

1. The late 1990s was a period of democratization and decentralization in Paraguay. The country was politically stable, however there was a short period of political turmoil right as implementation of the 4<sup>th</sup> Rural Water Supply and Sanitation Project (RWSS IV) began, in 1998/1999. The situation stabilized by 2003-2004, with the election of a new president whose campaign emphasized social and fiscal responsibility.<sup>6</sup> In 1997, at the time of project preparation, Paraguay's population was estimated at 4.7 million, of which half lived in rural areas. Some 60 percent of the urban and 20 percent of the rural population had piped potable water supply services. Provision of sewerage services was lower: only about 27 percent of the urban population was connected to a sewerage service, compared to an average of 53 percent for the Latin America Region.

<sup>6</sup> Presidents during project preparation and implementation: 1993-98 Juan Carlos Wasmosy; 1998-99 Raul Cubas; 1999-2003 Gonzales Machi; 2003-08 Nicanor Duarte.

2. At the time of project start up, sweeping reforms took place in the water and sanitation sector in Paraguay. The project was timely because it could support the reforms that the Government had initiated. The public Corporation of Sanitary Works, CORPOSANA (Corporacion de Obras Sanitarias) was re-structured to work according to private company law, with equity shareholdings open to the private sector. The new re-structured company, Empresa de Servicios Sanitarios del Paraguay (ESSAP S.A.), started its functions in April 2002.<sup>7</sup> At the same time, the Water and Sanitation Sector Regulatory Agency (Ente Regulador de Servicios Sanitarios, ERSSAN)<sup>8</sup> was created to work as an independent regulatory agency with the members of its Board of Directors appointed by the National Congress for five year terms. ESSAP SA, had the mandate to provide water and sanitation services in all urban areas, with populations larger than 10,000 people. The creation of ERSSAN made one of the project development objectives of RWSS IV irrelevant; namely, the role of SENASA as a regulator in rural WSS could not be achieved as ERSSAN was allocated that role.

3. The National Service of Environmental Health, Servicio Nacional de Saneamiento Ambiental (SENASA), created in 1972,<sup>9</sup> was allocated the responsibility for implementing water and sanitation projects in small towns and rural areas with fewer than 4,000 people. For implementing such projects, SENASA was expected to create Water Beneficiary Associations (WBAs) that would be the asset holders of the water supply infrastructure and be responsible for the service provision. The concept of the WBAs was introduced in 1974 in Paraguay,<sup>10</sup> and the Bank had its first project to support them in 1978. WBAs are non-profit organizations with a legal charter of constitution including a governing board with democratically-elected members. They participate as main stakeholder during investment planning of their WBA water infrastructure and thereafter they operate and maintain it.

4. Prior to RWSS IV, the Bank had supported three previous projects where practical rules for organizing and building the capacities of the WBAs to participate in investment planning and operate their RWSS systems were tested and mainstreamed. The three preceding projects together created more than 400 WBAs providing services to more than 400,000 people. RWSS IV envisaged to scale up the WBA model in other rural areas not yet covered under the first three projects, test the private sector operator model, and to fully transform the role of SENASA from being an implementer to becoming a promoter of RWSS investments through contracting out its core implementation and technical assistance functions to the private sector, non-governmental organizations, and association of WBAs.

5. A development peculiar to Paraguay at the time of project preparation was the widespread existence of very small private sector providers of water services, who owned small private networks serving small number of households mostly in the peri-urban areas of the capital city, Asuncion. Based on this experience, the RWSS IV included a pilot to test contracts with them to operate and maintain water supply systems for WBAs.

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<sup>7</sup> Law 2015, October 2000, created ESSAP S.A. to be run according to commercial principles.

<sup>8</sup> Law 2014, November 200, created ERSSAN.

<sup>9</sup> Law 369, December 1972.

<sup>10</sup> Decree No 8910, 1974.

## Project Design

### DEVELOPMENT OBJECTIVES

6. The project development objective, as stated in the project appraisal document (PAD), was: “The rapid increase of water supply and sanitation coverage in the rural areas.” The secondary development objective was “to modify SENASA's role in the sector from an implementer of projects to an efficiently managed promoter of activities through the shifting of its current activities to the private sector and non-governmental organizations while still maintaining its regulatory functions.”

7. The objectives in the Loan Agreement were to “(a) increase the coverage of water supply and sanitation and sewerage services in the rural areas within the Borrower’s territory; and (b) strengthen SENASA’s institutional capacity to assist the Borrower in achieving the objective mentioned in (a) herein.” The two articulations are consistent, with the two main outcomes of increased WSS coverage in rural areas and institutional strengthening of SENASA. The PPAR will take the objectives as stated in the PAD because they are more detailed, specific and monitorable.

### COMPONENTS

8. The project had three components. (1) Water Supply, which consisted of three sub-components including new water systems, expansion of existing systems, and new systems in indigenous communities; (2) Wastewater Disposal, which consisted of two sub-components including sewerage systems and construction of on-site systems; (3) Technical Assistance, which consisted of four sub-components including institutional strengthening of SENASA and the newly formed WBAs, pilot program for private providers, promotion of association of WBAs and National Rural Water and Sanitation Program (Table A-1).

9. Water supply infrastructure facilities built for rural communities organized as WBAs were expected to be financed by SENASA grants (40 percent) and loans from SENASA to WBAs (30 percent), and the balance by cash contributions from WBAs’ beneficiaries (15 percent) and labor contributions (15 percent); in the case of water systems for indigenous communities, financing was expected to be 100 percent grants from SENASA. Waste water disposal infrastructure in small towns was expected to be financed by WBA beneficiaries (60 percent), a loan from SENASA to the WBA (30 percent) and a grant from SENASA in favor of WBA (10 percent); in the case of rural pit latrines, beneficiaries were expected to contribute cash and labor (30 percent) and the balance by a grant from SENASA. The Pilot testing participation of Private Sector Operators (PSOs) was expected to undertake competitive bidding for ten-year concession contracts to attract partial private finance (undetermined during project appraisal) and the balance was going to be financed by SENASA (undetermined) and beneficiaries (5 percent cash).

10. The Bank funded three previous sequential loans supporting the creation of WBAs. Such loans gradually built the capacity in SENASA to start up WBA financing in the first two projects at about 10 WBAs per year, then 60 per year in the third project, and 90 per year in the RWSS IV project (Table A-2).



**Table A-1. Project Components, Financing, and Subcomponents**

<b>Project Components</b>	<b>Subcomponents</b>
<p><b>1. Water Supply</b>  <i>Appraisal: US\$32.8million</i>  <i>Actual:</i>  <i>US\$27.77 million</i></p>	<ul style="list-style-type: none"> <li>• <i>New water systems</i> US\$29.5 million – Build 330 water systems to serve 310,000 people in the service area of new WBAs. The typical water system was expected to include a deep well (100 -150m), an elevated tank, and primary and secondary distribution networks. In smaller and dispersed communities, finance the primary network that distributes the bulk water supply only.</li> <li>• <i>Expand existing systems, US\$1.3 million</i> - Finance expansion of production, storage and distribution networks in 10 existing systems. Number of beneficiaries is about 14,000 inhabitants.</li> <li>• <i>Water Systems for indigenous communities, US\$2.0 million</i>- Aimed at constructing 35 new systems in the Department of Chaco to provide water supply to 19,000 indigenous people.</li> </ul>
<p><b>2. Wastewater disposal</b>  <i>Appraisal:</i>  <i>US\$10.8 million</i>  <i>Actual:</i>  <i>US\$5.75 million</i></p>	<ul style="list-style-type: none"> <li>• <i>Sewerage Systems, US\$6.2 million</i> – Finance construction - on a pilot basis - of 10 sewerage and wastewater treatment systems where communities face environmental problems from the lack of sanitation.</li> <li>• <i>On-site systems, US\$4.6 million</i> –Finance construction and distribution of concrete slabs for 21,500 latrines. SENASA carries out community mobilization and health education activities and supervise the construction of the latrines. Beneficiaries to provide the labor and materials for the construction of the latrines.</li> </ul>
<p><b>3. Technical Assistance</b>  <i>Appraisal:</i>  <i>US\$5 million</i>  <i>Actual:</i>  <i>US\$5.79 million</i></p>	<ul style="list-style-type: none"> <li>• <i>Institutional Strengthening</i> – Through provision of Technical Assistance (TA) and training of SENASA's and eligible WBAs to carry out the activities of components 1 and 2 of the project;</li> <li>• <i>Pilot Program for private providers</i> –(a) set criteria for private sector in water supply in rural areas; (b) assess incentives to promote private sector provision of water in rural areas, including use of Build-Operate-Own contracts; (c) about 5 Pilot Subprojects involving the private operators.</li> <li>• <i>Promote Association of WBAs</i> - TA and training to eligible WBAs to establish Associations of WBAs. Strengthening them through TA and training and acquisition and utilization equipment.</li> <li>• <i>National Rural Water and Sanitation Program</i> – Design and implementation of a five year national investment plan for RWSS.</li> </ul>
<p><b>4. Project administration</b>  <i>Appraisal:</i>  <i>US\$7.1 million</i>  <i>Actual:</i>  <i>US\$11.28 million</i></p>	<ul style="list-style-type: none"> <li>• Engineering designs, promotion, supervision and administration and monitoring. Unlike previous Bank projects, all engineering designs contracted out to private consulting firms, community mobilization and promotion work contracted out to private firms or NGOs. Finance supervision consultants for the various civil works, including drilling of wells, installation of the electro-mechanical equipment, testing of wells, construction of water tanks, etc. SENASA administer of all these contracts. Also financed environmental impact assessment for the wastewater systems.</li> </ul>

Source: Project Appraisal Document

**Table A-2. Evolution of the number of WBAs covered under the four RWSS projects in Paraguay**

<i>Indicator</i>	<i>Project and Dates</i>			
	<i>1<sup>st</sup> RWSS (1978-1983)</i>	<i>2<sup>nd</sup> RWSS (1983-1989)</i>	<i>3<sup>rd</sup> RWSS (1993-1998)</i>	<i>RWSS IV (2000-07)</i>
Loan amount (US\$ million)	6.0	11.8	23.0	40.0
WBAs funded (number)	48	52	180	594

Source: SENASA. The RWSS IV project includes water systems built for Indigenous communities

11. RWSS IV incorporated lessons learned from the previous Bank engagement in the RWSS sector and emphasized: (i) the importance of community participation prior to creating WBAs; (ii) the need to establish associations of "WBAs" to serve as institutionalized means for documenting and sharing lessons from experience and to provide technical assistance to newly establish WBAs at low costs; and (iii) importance of strengthening SENASA's capacities for project implementation.

12. Project design adopted a demand-driven approach tested in previous projects by SENASA. The RWSS IV introduced a new feature which was to implement all phases of the project cycle using the private consulting companies. Private consulting companies would handle the activities that were previously carried out by SENASA, including the promotion activities to organize WBAs, and preliminary and final designs of the water supply schemes. Infrastructure construction and supervision were also outsourced, but SENASA retained supervisory functions, to ensure that the outputs were produced according to the contractual specifications. Involving private consulting companies was appropriate, given that the number of projects per year was increasing as the SENESA model was scaled up.

#### **IMPLEMENTATION ARRANGEMENTS**

13. Project implementation was agreed to be under SENASA, using the existing capacities of its various departments who among other things were in charge of procurement of all civil works and consulting services. However, unlike previous Bank projects that allowed SENASA to do most of the studies and engineering designs internally with its own personnel, under RWSS IV all engineering designs and supervision of construction contracts were expected to be contracted out to private consulting firms; equally, community mobilization and promotion work for the formation of WBAs were expected to be contracted out to private firms or NGOs.

## Implementation Experience

### PLANNED VS ACTUAL COSTS

14. Project Costs are summarized in Table A-3: Table A-3. RWSS IV, Cost by Component and Financing, Planned and Actual (US\$ million)

<i>Components</i>	<i>Total project</i>			<i>Bank Financing</i>	
	<i>Planned</i>	<i>Actual</i>	<i>Actual as % of Planned</i>	<i>Planned</i>	<i>Actual</i>
1. Water Supply	32.8	27.77	85	24.9	22.49
2. Sanitation	10.8	5.14	48	5	4.16
3. Institutional Development	5	5.24	105	4	4.21
4. Project Management	7.1	11.28	159	6.1	9.14
<b>Total Project Costs</b>	<b>55.7</b>	<b>49.43</b>	<b>89</b>	<b>40</b>	<b>40</b>
<b>Total Financing Required</b>	<b>55.7</b>	<b>49.43</b>	<b>89</b>	<b>40</b>	<b>40</b>
<b>Sources of funds</b>					
Counterpart funding	15.7	9.43	60		
• Beneficiary cash contributions	11.6	0.49	4	-	-
• GoP (SENASA)	4.1	8.94	218	-	-
IBRD	40	40	100	-	-
<b>Total sources of funds</b>	<b>55.7</b>	<b>49.43</b>	<b>89</b>	<b>-</b>	<b>-</b>

Source: Audit Report October 2007 and figures provided by SENASA during IEG mission.

15. Actual project cost was US\$49.43 million, or 89 percent of the planned US\$55.70 million. Bank financing (US\$40 million) was all disbursed. About US\$3 million, however, was reallocated, mainly from the water supply and sanitation components to the Project Management component and the Institutional Development component (Table B-3). Reasons for reallocation include:

- An increase in project administration costs by US\$3 million due to the implementation of a larger-than-expected number of water systems (496 actual compared with 330 at appraisal) and water for indigenous communities projects (71 actual compared with 35 at appraisal). As a result, a larger-than-anticipated allocation for project promotion, final designs, and supervision costs was required.
- Lower allocation to the water component due to smaller size sub-projects (108 connections per water system) than anticipated at appraisal (188 connections per water system) and the corresponding lower construction cost. The increased allocation to a larger-than-anticipated number of indigenous water supply projects was more than compensated by the lower allocation to other water supply projects.
- Less-than-expected spending in sewerage and wastewater treatment projects because of high expected contributions from beneficiaries which attracted lower demand from the WBAs.

## COUNTERPART FUNDING AND BENEFICIARY CONTRIBUTIONS

16. Counterpart funding was expected to be about US\$ 15.7 million contributed by the Government of Paraguay (US\$4.1 million) and beneficiaries of investment projects (US\$11.6 million). Actual counterpart contributions for project financing were US\$9.43 million (60 percent of planned) due to the following factors:

- Lower-than-expected financing was required for the investments in components one, which supported water supply systems (85 percent of planned) and two, which supported wastewater disposal systems (48 percent of planned);
- Beneficiaries contributed US\$0.49 million, much less than the planned US\$11.6 million, mainly due to change of project financing policy by a presidential decree (Decree 3617, 2004) issued in October 2004 mandating that beneficiaries of projects with fewer than 150 connections contribute only 3 percent cash contribution compared to the original 15 percent. Out of 496 investment projects, 427 had fewer than 150 connections and therefore had smaller cash contribution from beneficiaries. As a result, Government contribution increased (from US\$4.1 million to US\$8.94 million).

## PROJECT IMPLEMENTATION

17. RWSS IV was approved on August 28, 1997 and was effective on September 11, 1998. The project was delayed due to the 1998 presidential elections and the subsequent resignation of a newly-elected president in March 1999. The project's slow startup was also attributed to the beneficiaries' low willingness to contribute to subproject financing while projects financed by other donors (e.g., Inter American Development Bank) were offering financing to WBAs on softer conditions. By mid 2000, almost two years after effectiveness, the project had disbursed only US\$2.7 million (or 6.8 percent of the total project cost of US\$40 million) which is significantly less than the disbursement projection of US\$7.3 million by the end of the second year.

18. The project implementation delays were partly due to the suspension of Bank disbursements to Paraguay between December 2002 and April 2003. The project implementation finally picked up in 2003 and the reforms were implemented according to project design. Although the original closing date was December 31, 2003, the actual closing date became June 30, 2007, due to three extensions. By June 2003, six months before the original closing date, disbursements reached about 25 percent of the US\$40 million and a two-year extension was requested setting a new closing date to December 2005. The second one-year extension was granted at the end of 2005 and the third extension was done subsequently, moving the closing date to June 2007. The total length of the project was almost nine years.

## SAFEGUARDS

19. Although no negative impact was expected from the water supply systems built under the project, the project was rated as category B because of the potential limited impact that the discharge of treated wastewater may have in some cases. No adverse impacts on the environment were reported during project implementation. A new environmental agency was created in the early 2000s, and SENASA had to comply with stricter than anticipated environmental standards.

The regional safeguards adviser commended the Bank's supervision team for its incorporation of social and indigenous issues into project design and implementation.

20. The social aspects of the project were handled well as well, as the project focused on community participation in its rural WSS investments, inclusion of a sub-component covering the indigenous communities, and encouraging the participation of women, who are the main users and suppliers of water in rural Paraguay.

## **FIDUCIARY**

21. There were no significant deviations or waivers from Bank fiduciary policies and procedures. Financial management and procurement were handled using government structures and procedures, and financial auditing of project implementation were done by international auditors.

## **M&E Design, Implementation, and Utilization**

### **M&E DESIGN**

22. The first objective has two dimensions, which are the rapid increase in (i) water and in (ii) sanitation coverage. However, the PAD proposed to track achievement of the first objective with only one, namely "water coverage in rural areas indicator;" the national baseline for this indicator was 20 percent, and the project aimed at a 30 percent target. Sanitation coverage or other appropriate indicators should also have been used to track achievement of the objective's second dimension. No specific M&E arrangements to evaluate outcome of pilot activities were proposed in the PAD.

23. The PAD proposed to track achievement of the second objective using the "number of staff per system constructed per year" indicator. This indicator is clear and can be monitored with independent criteria, yet it is not always appropriate because number of systems can grow quicker by each system having fewer connections as was the case during project implementation. The indicator does not provide sufficient basis to assess SENASA's efficiency. Number of connection per staff member, for example could have been a more appropriate indicator for monitoring the efficiency.

24. At appraisal, it was agreed that the M&E system would be established by qualified consultants while the relevant data would be collected by the planning department at SENASA, as part of its normal activities.

### **IMPLEMENTATION OF M&E**

25. An M&E system to produce information for monitoring and evaluation of project outcomes was not developed as proposed. Data collection during project implementation was limited to the indicators for project outputs and was done by the planning department at SENASA. The surveys required for establishing the baseline and to follow up on service coverage levels and the incidence of water-related diseases were not carried out. The information on outputs was used as evidence of achievement of the objectives in the absence of adequate indicators to measure the development outcomes.

## UTILIZATION OF M&E

26. The Planning Department did not develop the M&E as expected at project design, and therefore its utilization cannot be assessed.
27. The quality of M&E is therefore rated Negligible.

## Relevance

28. **Relevance of project objectives was substantial.** The main development objective of the project, “to increase water supply and sanitation coverage in rural areas”, was in line with both the 1997 CAS (time of the appraisal) and the 2004-2007 CAS (most recent) priority to deliver basic social services and reduce poverty. It is also in line with the priority of the government to promote social development. The secondary project objective, “to convert SENASA from implementer to promoter while keeping its regulatory functions by extensively using the private sector and NGOs for project implementation,” was also in line with both the government’s sector strategy and the CAS regarding private sector participation in project implementation. Continued relevance of both objectives is evidenced by the approval of the follow-on Water and Sanitation Sector Modernization Project I in 2009, with an objective to increase the efficiency, coverage, and sustainability of water supply and sanitation (WSS) services in Paraguay. SENASA’s regulatory functions for small towns and rural areas have been transferred to ERSSAN.

29. **Relevance of project design was substantial.** The components and activities were well chosen for achieving the project objectives. The project’s implementation arrangements were appropriate as it had been tested and mainstreamed in the previous projects. In addition to scaling up the investments in the RWSS sector, the project created associations of the WBAs to follow up with post-construction support to the WBAs to ensure sustainability of the investments. In order for SENASA to become a promoter rather than an implementer of investments, appropriate capacity building activities were carried out under the project to strengthen the private sector, NGOs, and the WBAs. Project outputs were appropriately chosen to produce intended outcomes. However, “the number of systems built per SENASA’s staff” to measure the achievement of the first objective related to improving SENESA’s performance was not the most appropriate indicator, as it could induce a perverse incentive for the SENASA staff to build smaller systems in cases where larger systems would be optimal

## Efficacy

30. The key indicators along with the original target values and actual values at project closure are shown in Table A-4. Information collected during the IEG mission is also discussed in the following sections. Table A-4. RWSS IV Key Indicators, Original Targets and Values at Completion.

<i>Project Development Objectives</i>	<i>Indicators</i>	<i>Target value</i>	<i>Value 2007</i>	<i>Percent of Target achieved (Target /actual 2007)</i>
<b># 1: Rapid increase of water supply and sanitation coverage in the rural areas</b>	Rural water supply coverage (percent) <sup>a</sup>	30	28	93
	People benefiting from water services built by the project	343,000	294,149	85
	New water systems	310,000	264,299	86
	Expanded systems	14,000	7,600	54
	Indigenous population	19,000	22,250	117
	People benefiting from sanitation services built by the project <sup>c</sup>	147,500	141,450	96
	Sewerage	40,000	25,200	63
	Latrines	107,500	116,250	108
<b># 2: SENASA .. an efficiently managed promoter of activities</b>	Staff/system built	3.1	2.9	96
	# PSO Pilots	5	8	160
	# Association of WBAs	10	10 <sup>b</sup>	100

Sources: Information provided by SENASA and Household Survey 2008 for water coverage estimates.

a. Baseline was 20 percent.. b. This number includes three fully equipped associations and seven partially equipped.

c. Baseline and final data on sanitation coverage level was not available.

31. Table A-5 summarizes the efficacy ratings by objective. Assessment of the achievement of the objectives is discussed below.

**Table A-5. Summary of Efficacy Ratings**

	<i>Rating</i>	<i>Overall Rating</i>
<b>Objective 1: Increase in WSS coverage in rural areas</b>		<b>Substantial</b>
Water supply service coverage	Substantial	
Sanitation service coverage	Modest	
<b>Objective 2: To modify SENASA's role in the sector from an implementer of projects to an efficiently managed promoter</b>	Substantial	<b>Substantial</b>

### **INCREASE IN WATER SUPPLY AND SANITATION COVERAGE IN RURAL AREAS**

32. The project aimed at increasing water supply coverage in the project areas which include about 340 communities, WSS in 35 indigenous communities, and sewerage service in ten communities. While the objective related to sanitation service coverage was not achieved, the objective related to water supply coverage was substantially achieved. Since the project design and activities focused more on the water component than on sanitation, IEG assesses that this objective has substantially been met. The key achievements are summarized below.

- Coverage of water supply services attributable to the implementation of the RWSS IV rose from 20 percent in 1998 to 28 percent by the year 2007 against the target set at 30 percent. During the RWSS IV implementation period (1998-2007) the total number of new water systems built with the assistance of all donors<sup>11</sup> was about 1,200, of which RWSS IV contributed 496. With the number of systems built during the last years, water supply coverage through piped water connection in rural areas and small towns increased to about 50 percent by 2010.<sup>12</sup>
- In absolute terms, the RWSS IV project increased the water supply access to an additional 294,000 people in rural areas, small towns, and areas populated by indigenous communities. This corresponds to an achievement of 85 percent of the 343,000 target set at appraisal. While SENASA reported 100 percent functionality of the WSS systems constructed under RWSS IV, the IEG mission observed that some systems, especially in the indigenous communities, were not functioning (Box A1).
- Quality of water was not selected as a project performance indicator, and the data on quality was not available. Assuming that the coverage level was low at the beginning of the project (20 percent), it is implied that the beneficiaries that gained new access through the project have improved water supply service through access to the distribution networks of treated water. However, intermittent water supply may force the beneficiaries to resort back to the old untreated water.
- The project contributed to providing sanitation access to about 141,000 people, which represents 96 percent of the 147,000-person target set at appraisal. However, only three out of the ten planned sewerage and wastewater treatment subprojects were implemented due to the low demand from the beneficiaries. These beneficiaries were reluctant to provide cash contributions because they were used to receiving government investment subsidies. Also, beneficiaries in the service area had septic tanks and saw no reason to switch to sewerage services.

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<sup>11</sup> The active donors include: Interamerican Development Bank, European Union, Spain Development Agency, and JICA.

<sup>12</sup> SENASA: "Avance de la Ingeniería Sanitaria en el Paraguay hasta nuestros días," August 2010.



### **Box A-1. IEG Field Visits in Paraguay**

#### **Indigenous Communities, illustrating the importance of O&M Capacity Building**

The IEG mission randomly selected and visited three (of 71) water systems built for the indigenous communities, and found that the “Tajamares” (windmills equipped with slow sand filters systems) had stopped functioning. It is likely that this technology was new to the indigenous communities and that there was limited capacity to carry out proper maintenance. In two of the visited sites the Italian Cooperation had financed replacement of windmills for water treatment facilities to produce potable water using manual processes of flocculation and chlorination. The system was therefore working again and the indigenous people were operating the system well.

#### **Rural Communities, illustrating the importance of metering consumption**

The IEG mission visited 20 WBAs whose water systems were built by the RWSS IV project. In 5 of these systems, the beneficiaries located in lower parts of the distribution area overused the water while the beneficiaries in the upper parts experienced water shortages during extended hours of the day. The people in the lowland had no incentives to conserve the water and fed their cattle using the water from the WBA’s system because they were charged a flat fee regardless of their consumption. Beneficiaries in WBAs with water flow meters reported no complaints.

#### **Rural Communities with ventilated latrines**

The IEG mission visited rural communities benefiting from improved ventilated latrines financed by the RWSS IV project in Caaguazu. Some of the beneficiaries have been replacing their latrines with flush toilets financed either by themselves or by projects of other donors (e.g., Plan International). SENASA was not aware of this and had no information about the functionality of the latrines.

### **MODIFYING SENASA’S ROLE IN THE SECTOR FROM AN IMPLEMENTER OF PROJECTS TO AN EFFICIENTLY MANAGED PROMOTER OF ACTIVITIES**

33. RWSS IV effectively consolidated the results achieved through the previous three RWSS projects supported by the Bank and outsourced SENASA’s traditional activities to the private sector, NGOs, and association of WBAs. This has enabled scaling up of the RWSS investments using the WBA service delivery model in a wider geographical area. The second objective, “to modify SENASA's role in the sector from an implementer of projects to an efficiently managed promoter of activities through the shifting of its current activities to the private sector and non-governmental organizations while still maintaining its regulatory functions” has therefore been substantially achieved:

- SENASA contracted out 100 percent of the 591 final engineering designs, 588 promotion contracts, and 588 supervision contracts to the private sector. Construction of water and sewerage systems was also outsourced to private contractors, including ten-year design-build-operate contracts for eight systems. In addition, the technical assistance, capacity building, and post construction support to the WBAs have been transferred to the associations of WBAs (see below).
- The project accomplished to define and implement an institutional arrangement to provide technical support to WBAs through the establishment of the associations of WBAs. In total ten regional associations of WBAs have been established with participation of municipalities and regional governments to provide technical assistance to the new WBAs with weak

capacities. Three of the ten associations of WBAs received office equipment, including computers, photocopiers, telephone, and fax, along with seed funding from the project, and the remaining seven are developing their capacities. This model has been instrumental in ensuring that continuous technical support is provided to the WBAs after construction of the water supply schemes without SENASA's involvement, and in reaching more remote and poorer regions.

- The number of employees per water system built was used by the project to monitor the achievement of this objective. This number went down from 6 in 1997 to 2.9 in 2007. Hence, the 2003 target of 3.1 has been exceeded. To attain this result SENESA reduced its staff from 568 in 1997 to 445 by 2007. IEG assesses that this indicator does not represent the efficiency of the sector well as explained earlier in the relevance section.
- The project implemented the first output-based-approach scheme of private sector participation in rural water services in eight pilot communities. These eight communities piloted design-build-operate contracts to improve service provision at the WBA level. This exceeded the original target of five. IEG's observations of some schemes built under this pilot are summarized in Box A-2.
- SENASA improved its financial management using a unified information system and revision of managerial and administrative structure.
- According to ERSSAN, the current financing policy for RWSS systems, which was revised in 2004, gives perverse incentive to communities to favor the formation of small water supply systems (Table A6). Decree 3617, issued in 2004, ruled that systems with fewer than 150 connections can be built with only 3 percent beneficiary cash contribution (as opposed to 15 percent for systems with 150 or more connections). While many of the small and remote villages that had no technical means of joining larger schemes benefited from this change in the financing policy, it has also promoted the proliferation of WBAs with fewer connections. This trend is uneconomical, especially in areas where conveyance pipes from water source to reservoirs overlap, because the WBA could have enjoyed the economies of scale that can in turn reduce the construction, operation, and maintenance costs. At present there are about 2,067 water systems administered by WBAs, of which 1,189 were built during the last ten years; 496 of these systems were financed by the RWSS IV, of which only 70 are systems have more than 150 connections. SENASA is exploring the possibility of changing its financing policy and promote the consolidation of WBAs without necessarily increasing their obligation to finance capital expenditures.

#### **Box A-2. IEG Visits to Design-Build-Operate<sup>a</sup> Systems**

The IEG mission visited four WBAs that have awarded the design-build-operate/maintain contracts to private sector operators (PSO) and found that the schemes had low pressures and in need of frequent rationing. It is likely that WBAs need to strengthen their capacity to carry out proper supervision of the PSOs so that they comply with the contractual obligations.

a. In a design-build-operate contract, the public sector owns and finances the construction of new assets. The private sector designs, builds and operates the assets to meet certain agreed outputs.

**Table A-6. 2004 Revised Investment Financing Policy in Paraguay: Share of total investments by financing source in percent**

<i>Sources of financing</i>	<i>Number of connections</i>		<i>Indigenous communities</i>
	<i>Less than 150</i>	<i>More than 150</i>	
In cash upfront by the beneficiaries	1	5	0
In cash by the beneficiaries during construction	2	10	0
In labor by the beneficiaries during construction	15	15	15
By SENASA grant	82	40	85
By SENASA loan to WBAs	0	30	0
Total	100	100	100

Source: Presidential Decree 3617, October 28, 2004

34. ERSSAN is working on a revenue requirement methodology to set tariffs for WBAs. SENASA plans to encourage each WBA to set its tariff according to the O&M cost recovery principles (and in the case of loans, financial obligations would be included in the costs), with the technical assistance from SENASA.

## Efficiency

35. The *ex-ante* economic rate of return (ERR) was calculated at appraisal based on a survey of 8,000 households, in 30 communities. It was estimated for cash benefits and costs from sub-project investments plus institutional benefits to be 18 percent. The *ex-post* ERR reported in the ICR was calculated based on a random sample of 18 sub-projects in the original 30 communities at appraisal and was estimated at 34 percent for cash and institutional benefits. Based on this estimate, the ICR concludes that the efficiency is substantial.

36. However, the efficiency of the project seems to have been hampered by the current financing policy (described under Efficacy above) for RWSS systems, as it has promoted the proliferation of smaller WBAs, resulting in higher unit costs per beneficiary. In addition, the project took three and a half years longer to be completed as the closing date was extended three times from December 31, 2003 to December 31, 2007. The lower-than-expected functionality rates of indigenous community systems and those under the pilot with private operators are likely to have adversely affected the benefits accruing to beneficiaries. Taking into account these factors, IEG assesses that efficiency is lower than what was expected at appraisal and therefore it is rated as Modest.

## Outcome

37. **Outcome is rated Moderately Satisfactory.** The project objective and design have remained substantially relevant to the Bank and Government's priorities throughout the life of the project, and remain relevant at the time of this evaluation. Efficiency is rated as Modest. Both the first objective that relates to the increase of WSS coverage and the second objective which relates to the sector reform activities were achieved substantially.

## Risk to Development Outcome

38. **The risk to development outcome is Moderate.** Critical risks were identified and associated risk mitigating measures were proposed in the PAD. In this PPAR, financial, technical, political, and social risks were identified as the main risks to development outcomes.

39. *Financial risk* – There is a tendency for the WBAs to charge minimum tariffs to the customers without meters. Accordingly, there are some concerns over the funding needs for future repair and replacement of system parts. However, this is minimized because the project beneficiaries are realizing the importance of metering and taking initiatives to install the meters, and the Sanitary Services Regulation Agency (Ente Regulador de Servicios Sanitarios, Paraguay) (ERSSAN) has been established, with the mandate to approve the water tariffs for WBAs according to their cost recovery and consumers’ affordability principles. Rather than automatically charging minimum tariffs, they have a mechanism to charge according to the estimated consumption. Therefore the financial risk is rated as moderate. ERSSAN is, however, facing the challenge to regulate the increasing number of WBAs.

40. *Risk related to low capacity* – WBAs that received financing for sewerage and wastewater treatment plants face the challenge to learn the O&M for new technologies. This challenge also applies to indigenous communities as they need to enhance their capacities to operate and maintain their windmills and rain harvesting water systems. Since the capacity was built through the project, this risk is rated moderate.

41. *Political risks* – SENASA has been able to withstand political and economic shocks over the last several decades, contributing to a low likelihood of risk events negatively impacting its portfolio of WSS projects.

42. *Social risks related to indigenous populations* – There are risks associated with sustainability of the systems built for indigenous communities since they are in isolated location where it is hard for SENESA to provide support. Their institutional arrangements (suitable to their culture) are not yet proven to generate resources to operate and maintain the systems. This risk is therefore rated substantial.

43. *Technical sustainability risk* – The project proposed the formation of ten associations of WBA to provide post construction support to their members in case of difficulties operating and maintaining their water supply infrastructure. The RWSS IV set up only three functional associations (and seven partially functional), but SENASA is expected to supplement activities of the associations. Technical sustainability risk is therefore rated moderate for WBAs, but high for indigenous communities systems where there are no such post construction support arrangements.

## Bank Performance

44. The overall Bank Performance is rated as Moderately Satisfactory.

45. **Quality at entry: Moderately Satisfactory.** The project design took into account the lessons learned from three previous Bank funded projects and the project objectives were

consistent with the country priorities in the water sector and with those in the 1997 CAS. The design also took into account the potential challenges involved in recruiting private sector operators, especially for small towns, and introduced this activity as a pilot. A pilot approach was also proposed for introducing sewerage and waste water treatment technologies in small towns. The project design assumed that monitoring and evaluation of project outcomes would be done using SENASA's internal capabilities, but the Bank did not ensure that an appropriate M&E system design was put in place, with indicators adequate to demonstrate achievement of the two objectives and with baseline values for the key indicators.

46. **Supervision: Satisfactory.** Supervision teams included the members with relevant skills and missions were carried out in a timely manner. The Bank's task team leadership was changed three times during the period of significant political instability but this did not adversely affect the project's implementation performance. During the difficult time period with the interim presidency in Paraguay (1999-2003), the Bank team put extra effort in scrutinizing the procurement reviews. With the new government that took over in 2003, communications between the Bank and SENASA improved markedly, with trust and a highly cooperative approach to project implementation. This lasted for the remainder of the project implementation period.

47. Supervision of the pilot program for the private provision of water services was highly satisfactory, as the Bank allocated substantial supervision resources to assist SENASA in the learning process. The Bank was also highly satisfactory in supervising SENASA's institutional strengthening component, which substantially achieved its objectives. The Bank recognized the limited capacity of SENASA in promoting, contracting out, and financing sewerage systems, and therefore helped bring in experts to help supervise the sub-projects and to provide advice to SENASA. The Bank was exemplary at promoting knowledge management through sharing Paraguay's experience and lessons with practitioners in other countries through presentations in international conferences and learning events. However, it failed to ensure that the project was adequately monitored and evaluated.

## **Borrower Performance**

48. **Borrower performance is rated as Moderately Satisfactory.** Government performance and implementation performance have been assessed below.

49. **Government performance was Moderately Satisfactory** in maintaining its commitment to implement new institutional approaches for water supply service provision in rural areas. The Government passed the legislation needed to expedite project implementation, and approved the budget in a timely manner to support project implementation. However, its decision to replace SENASA's management team shortly after loan approval had a serious negative impact on project implementation. Because of this and the significant delays in project implementation which delayed the benefits for the rural population contributes the Government's performance being rated as Moderately Satisfactory.

50. **Implementing Agency Performance was Moderately Satisfactory.** Working as part of the government structure under public service law, SENASA has faced serious challenges during the period of political instability. It was particularly difficult during the 1998/1999 crisis and the

subsequent years, leading up to 2003 thus compromising SENASA's performance. Once the newly elected government took over in 2003, SENASA was able to make the project its top priority again, and implemented project activities successfully during the remaining time period. However, SENASA failed to collect adequate information to monitor the effective implementation and the outcomes of the new investments, or to use that information to improve performance. While SENASA data indicated that all systems were functional, IEG found evidence in its field visits that this was not the case.

## **Epilogue**

51. Two years after the RWSS IV project closed, a new loan in the amount of US\$64 million was approved by the Bank on April 14, 2009 to finance the US\$83.5 million Water and Sanitation Sector Modernization Project. This project includes a component to strengthen SENESA's institutional capacity and to fund water supply services in indigenous communities. The key elements of the project objectives were thus still relevant at the time of this PPAR.

## Appendix 1: Basic Data Sheet Loans 4222-PA and 4223-PA

### PARAGUAY-FOURTH RURAL WATER SUPPLY & SANITATION PROJECT (LOAN 4222-PR) AND LOAN 4223-PR)

#### Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
Total project costs	55.7	54.2	97.3
Loan amount	40.0	40.0	100.0
Cofinancing	-	-	-
Cancellation	-	-	-

#### Cumulative Estimated and Actual Disbursements

	<i>FY98</i>	<i>FY99</i>	<i>FY00</i>	<i>FY01</i>	<i>FY02</i>	<i>FY03</i>	<i>FY04</i>	<i>FY05</i>	<i>FY06</i>	<i>FY07</i>	<i>FY08</i>
Appraisal estimate (US\$M)	2.2	9.5	18.3	27.1	35.0	40.0	40.0	40.0	40.0	40.0	40.0
Actual (US\$M)	0.0	0.5	2.8	5.2	8.1	11.1	17.3	25.9	34.8	40.0	40.0
Actual as % of appraisal	-	5.3	15.3	19.2	23.1	27.8	43.3	64.8	87.0	100.0	100.0
Date of final disbursement 03/31/07											

#### Project Dates

	<i>Original</i>	<i>Actual</i>
Negotiations	07/21/1997	07/21/1997
Board approval	08/28/1997	08/28/1997
Signing	10/27/1997	10/27/1997
Effectiveness	01/26/1998	09/11/1998
Closing date	12/31/2003	06/30/2007

**Staff Inputs (staff weeks)**

<i>No. of staff weeks Staff Time and Cost (Bank Budget Only)</i>		
	<i>No. of staff weeks</i>	<i>USD Thousand (including travel and consultant costs)</i>
<b>Lending</b>		
FY97/FY98	32.00	146.4
<b>Supervision</b>		
FY99		41.2
FY00	24.6	88.5
FY01	23.8	99.1
FY02	17.2	74.3
FY03	17.2	87.4
FY04	17.2	127.7
FY05	20.5	155.3
FY06	19.9	107.2
FY07	25.6	108.9
FY08	7.6	57.8
<b>Total</b>	173.7	947.45

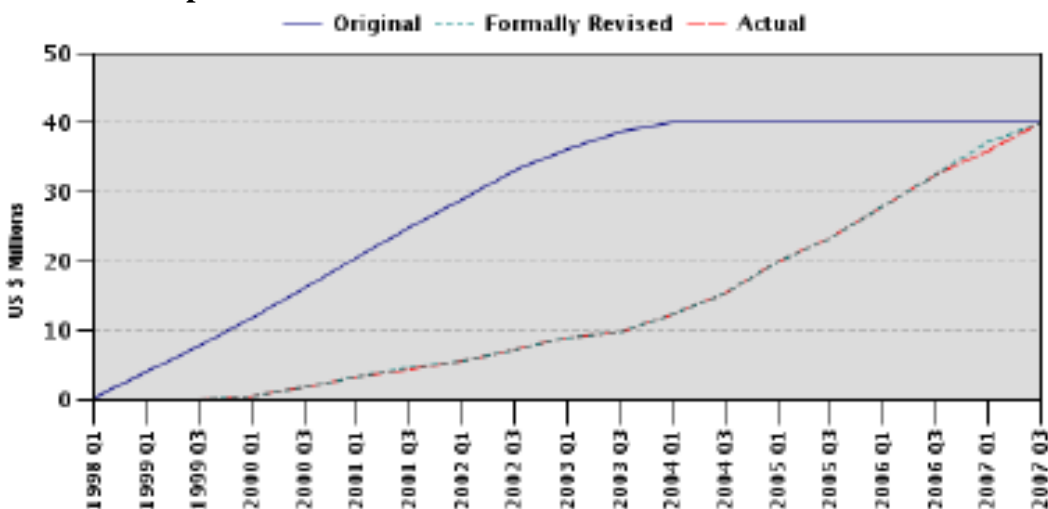
**Task Team Members**

<b>Names</b>	<b>Title</b>	<b>Unit</b>	<b>Responsibility/Specialist</b>
Lending and Supervision/ICR			
Luis V. Chang	TTL (Lending)		TTL 1995 – 1997
Alex Bakalian	Lead Water Resource Spec.	AFTUW	TTL 1997 – 2001
Franz R. Drees-Gross	Sector Manager	EASIS	TTL 2001 – 2004
Maria Angelica Sotomayor	Senior Economist	ECSS6	TTL 2004-present
Veronica salatino	Country Officer	LCC7C	
Reynaldo Pastor	Chief Counsel	LEGLA	Lawyer
Cidalia Brocca	Finance Analyst	LOADM	
Efraim Jimenez	Consultant	LCSPT	
Miguel Vargas-Ramirez	Sr. Water & Sanitation Spec.	LCSUW	
Andres Mac Gaul	Sr. Procurement Specialist	LCSPT	
Mariana Montiel	Sr. Counsel	LEGLA	Lawyer
Karla Chaman	Communications Officer		
Alejandro R. Solanot	Sr. Financial Management Spec.	LCSFM	
Lene Odum	Operations Analyst	ETWWP	



Graciela S. Martinez	Social Dev. And Civil Society Specialist	LCSSO	
Luciano Gonzalez	Consultant		
Michele Bruni	E.T. Consultant	EXTCD	
Ignacio M. Urrutia	Temporary	LCCPY	
Emilio Rodriguez	Consultant		Procurement Specialist
Guido Duarte	Consultant	LCSTR	Local Engineer
Antonio L. Blasco	Sr. Financial Management Specialist		
Juan Camilo Montoya	Consultant	LCSUW	SME Specialist
Luis Andres	Infrastructure Economist	LCSSD	M&E Specialist
Luz Maria Gonzalez	Consultant		Financial Specialist
Teresa Lampoglia	Consultant		Engineer
Juan Quintero	Sr. Environment Specialist		Environmental Specialist

### Cumulative Estimated and Actual Disbursements Disbursement profile



### Other Project Data

Borrower/Executing Agency:

### Follow-on Operations

<i>Operation</i>	<i>Credit no.</i>	<i>Amount (US\$ million)</i>	<i>Board date</i>
Water and Sanitation Sector Modernization Project	42220	64	April 14, 2009

## Appendix 2: List of Persons Met

<b>Name Of Person</b>	<b>Title</b>	<b>Institution</b>
Martha Peña Kieninger	Director	Dirección de Política de Endeudamiento, Sub Secretaria de Estado de Economía Ministry of Economy and Finance
Ada B. Verna Acosta	Director	Servicio Nacional de Saneamiento Ambiental (SENASA), Ministry of Health
Juan Pereira	Project Coordinator	Technical Support Unit, SENASA, Ministry of Health
Livorio Benitez	Social Coordinator	Statistics Section SENASA, Ministry of Health
Benito Lopez	Unit Chief	SENASA Ministry of Health
Fidencio Baez	Indigenous Communities Unit	SENASA Ministry of Health
Osmar Ludovico Sarubbi	President	Water Regulatory Agency
Eduardo Neri Gonzalez	Executive Director	Water Regulatory Agency
<b>Water Beneficiary Associations</b>		
Reinaldo Riquelme	President	Campina Verde, Alto Parana
Dionicio Chavez	Treasurer	Campina Verde, Alto Parana
Roque Christ	Treasurer	Esquina Gaucha, Alto Parana
Ricardo Lopez Benitez	President	San Antonio, Arroyos y Esteros
Roberto Maldonado	Treasurer	San Antonio, Arroyos y Esteros
Cletio Torres	President	Acevedo, Arroyos y Esteros
Antonio Martinez	Auditor	Acevedo, Arroyos y Esteros
Teodora Mirta Portillo	President	Villeta
Eladio Centurion	General Manager	Villeta
<b>World Bank Staff</b>		
Rossana Polastri	Country Manager	
Maria Angelica Sotomayor	Senior Economist (Former Task Team Leader)	
Miguel Vargas-Ramirez	Senior Water and Sanitation Specialist (current Task Team Leader)	

## Annex B. Borrower Comments from the Government of Paraguay



*"Bicentenario de la Independencia Nacional 1811 - 2011"*

Asunción, 27 de julio de 2011

M.H. N° 1723.-

SEÑORA  
**MÓNICA HUPPI**, JEFA DE DIVISIÓN DE EVALUACIÓN SECTORIAL  
 GRUPO DE EVALUACIÓN INDEPENDIENTE  
 BANCO INTERNACIONAL DE RECONSTRUCCIÓN Y FOMENTO  
 WASHINGTON D.C., USA

Tengo el agrado de dirigirme a usted con referencia a los Convenios de Préstamo N°s. 4222-PA y 4223-PA *Cuarto Proyecto Rural de Abastecimiento de Agua Potable y Saneamiento*, por Dólares de los Estados Unidos de América Cuarenta Millones (USD. 40.000.000.-), suscritos con el Banco Internacional de Reconstrucción y Fomento (BIRF) el 27 de octubre de 1997 y aprobados por Ley N° 1280/98, modificados por la Carta Enmienda N° 1 del 7 de junio de 2004, a cargo del Ministerio de Salud Pública y Bienestar Social, a través del Servicio Nacional de Saneamiento Ambiental (SENASA) (Exps. M.H. N°s. 21.295, 26.963 y 27.395/2011).

Al respecto, se sirva encontrar adjunto con la presente fotocopia de la Nota MSPyBS/S.G. N° 1652 del 22 de julio del corriente año, a través de la cual la mencionada Cartera de Estado se expide en relación a la versión preliminar del Reporte de Evaluación del Proyecto en cuestión.

Hago propicia esta oportunidad para saludarle con mi distinguida consideración.



*D. Borda*  
**DIONISIO BORDA**  
 MINISTRO DE HACIENDA  
 GOBERNADOR POR PARAGUAY

C.c.: Señora Esperanza Martínez, Ministra de Salud Pública y Bienestar Social.  
 Señora Ada Beatriz Verna Acosta, Directora General del SENASA.  
 Señora Penelope J. Brook, Directora de País para Paraguay BIRF Buenos Aires Argentina.  
 Señor Félix Camarasa, Director Ejecutivo del BIRF para Paraguay - Washington D.C.  
 Señor Pedro Espínola, Representante por Paraguay ante el BIRF - Washington D.C.

SSEEI/SG/age.



Secretaría General Atención al Público
N°: _____
Letra: <i>(Firma)</i>

"Bicentenario de la Independencia Nacional: 1811 - 2011"



Pacto por la Salud  
"Petei rie' éme Jaikopa ha'gua"



95 (noventa y cinco)

Asunción, 22 de julio de 2011

MSPyBS/S.G. N° 1652 / 111

**SEÑOR MINISTRO:**

Nos es honoroso dirigirnos a Vuestra Excelencia, en atención a la Nota M.H. N° 1552, por la que solicita la opinión de este Ministerio con relación a la versión preliminar del Reporte de Evaluación de la ejecución los Convenios de Préstamo Nros. 4222-PA y 4223-PA "Cuarto Proyecto Rural de Suministro de Agua y Saneamiento", por Dólares de los Estados Unidos de América Cuarenta Millones (USD. 40.000.000).

Al respecto, entendemos que el trabajo de evaluación llevado a cabo por el Sr. Sixto Requena, del sector evaluador de implementación de Proyectos del Banco Mundial, en coordinación con Directivos y funcionarios del SENASA, mediante la visita a los estamentos involucrados de los niveles de gobierno y a varios puntos del país, para evaluar in situ las obras construidas en el marco del Proyecto, refleja las informaciones que fueron recibidas en su oportunidad.

La evaluación de cumplimiento de los objetivos del Proyecto, de *medianamente satisfactoria*, está directamente relacionada con la debilidad local en la post inversión, que se traduce en la falta de desarrollo de capacidades por parte de las organizaciones comunitarias en resolver algunos problemas que surgen a través de los años en la operación y el mantenimiento de los sistemas de abastecimiento de agua.

Dichas capacidades necesarias, resultaron y siguen siendo aún débiles, por lo que los esfuerzos del SENASA están actualmente orientados a satisfacer tales necesidades, y en consecuencia, este organismo técnico de Salud Pública, a través de la Dirección de Asuntos Sociales y Organización Comunitaria, ha concentrado todos sus afanes hacia un mayor control y participación en los trabajos realizados por las empresas contratadas para el antes, durante y después de la construcción de los sistemas de agua potable.

En contrapartida, se ha logrado un sustancial aumento de la cobertura en la franja poblacional que no contaba con servicio de suministro de agua antes del Proyecto.

Hallamos propicia la oportunidad para renovar a Vuestra Excelencia el testimonio de nuestra más alta consideración y estima.

*(Firma)*  
**DRA. ESPERANZA MARTÍNEZ**  
**MINISTRA**

**SU EXCELENCIA**  
**DR. DIONISIO BORDA, MINISTRO**  
**MINISTERIO DE HACIENDA**  
**ASUNCION**

## **Annex C. Summary of Ecuador Rural and Small Towns Water Supply and Sanitation Project Performance Assessment<sup>13</sup>**

1. Rural and Small Towns Water Supply and Sanitation Project (Loan 70350-EC) in Ecuador (PRAGUAS) was the first phase of a three-phase Adaptable Program Loan (APL). PRAGUAS was approved in 2001 and closed in 2006. The total project costs of PRAGUAS were estimated to be US\$45 million and the project combined investment in water supply and sanitation infrastructure and technical assistance to improve the performance of key water sector institutions. At the time of project preparation, Ecuador had rural populations with low access to WSS services. Improving rural access to WSS was identified as a government priority for the country.

2. Ecuador devolved the WSS service mandate for small towns and rural areas to municipal governments in the early 1990s. Prior to PRAGUAS, the pilot project under Second Health and Nutrition Project, supported by WSP tested the use of water beneficiary associations (WBA) for the operation and maintenance of the water systems in rural areas, and this model was scaled up under PRAGUAS. WBAs are non-profit organizations with a legal charter of constitution including a governing board with democratically-elected members. PRAGUAS supported the institutional models promoting WBAs to operate and maintain the WSS infrastructure, and the policies of beneficiary contribution to investments and achievement of operation and maintenance cost recovery through user charges. Procurement of the investment contracts were managed by municipal governments.

3. The project development objective for PRAGUAS was increased WSS service coverage and quality for beneficiaries in small towns and rural municipalities with the focus on the poor. In addition, PRAGUAS aimed to improve water sector performance through the application of coherent policies and the strengthening of sector institutions at the central and local levels. The first objective of increasing WSS service coverage and quality for beneficiaries with focus on the poor was substantially achieved. The number of municipalities covered under the project was 109, far exceeding the target of 40 although only 82 percent of the target set for the number of beneficiaries was achieved. Many of the municipalities were in poor geographical areas. The achievement on WSS service quality was difficult to assess since there was no baseline data of service quality at startup. PRAGUAS's second objective of reforming the sector through overhauling the sector institutions achieved limited results. Though a new sector organization was put in place in the central government to oversee the sub-projects, limited progress has been made in defining key policy areas that affect the sustainability of the investments. By the end of the project allocation of responsibilities to undertake sector investments at the national and sub-national levels had not been formalized, rules for asset ownership in the sector had not been

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<sup>13</sup> Project Performance Assessment Report, Ecuador Rural and Small Towns Water Supply and Sanitation Project, June 28, 2011, Independent Evaluation Group

defined, and there was no consistent financing policy. They were, and still are at the present time, set up on an ad hoc project-by-project basis.

4. Relevance of objectives was substantial, but the relevance of design was modest. While a pilot project tested the demand-responsive approach, policies related to investment responsibilities were not defined by appraisal, and the municipalities were given the mandate to implement the investment sub-projects using an overly complex project cycle that contributed to delays in project implementation. The project development objective related to increasing WSS access was achieved, while the key objective relating to the sector reform was achieved only modestly. While there were delays in project effectiveness and implementation, the benefits in relation to cost are likely to be substantial, given the high rate of return calculated at the end of the project. Putting together the above elements on relevance, efficiency, and achievement of objectives, the overall outcome is rated moderately satisfactory. Risk to development outcome is rated as significant because the risks associated with the communities and municipalities' financial capacity to maintain their RWSS systems over the longer term is not certain. In addition, the political and government ownership risk increased significantly when the new administration cancelled a large part of the follow-on second-phase APL. As for the Bank Performance, the overall rating is moderately satisfactory because the project design was over-ambitious given the potentially politically sensitive time period in which the project was being prepared, and poor quality of the M&E. Borrower performance' overall rating was moderately satisfactory with shortcoming on government side due to the delays in sector policy formalization and implementation of sector reforms.

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