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Report No: PAD1718

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$126.7 MILLION

TO THE

FONDO PARA EL DESARROLLO DEL PLAN TODOS SOMOS PAZCIFICO,
REPRESENTED BY ITS FIDUCIARY AGENT AND TRUSTEE FIDUCIARIA LA PREVISORA, S.A. (FIDUPREVISORA)

WITH THE GUARANTEE OF THE REPUBLIC OF COLOMBIA
FOR A

PLAN PAZCIFICO: WATER SUPPLY AND BASIC SANITATION INFRASTRUCTURE AND SERVICE DELIVERY PROJECT

September 20, 2016

Water Global Practice
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective August 31, 2016)

Currency Unit	=	Colombian Peso (COP)
COP3,091	=	US$1
US$1.38	=	SDR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CAR	*Corporación Autnónoma Regional* (Regional Environmental Authorities)
CMU	Country Management Unit
CONPES	*Consejo Nacional de Política Económica y Social* (National Economic and Social Policy Council)
CRA	*Comision de Regulacion de Agua Potable y Saneamiento Basico* (Commission for the Regulation of Water Supply and Sanitation)
DA	Designated Account
DANE	*Departamento Administrativo Nacional de Estadística* (National Administrative Department of Statistics)
DNP	*Departamento Nacional de Planeación* (National Planning Department)
EAAP	*Empresa de Acueducto y Alcantarillado de Popayán*
EIA	Environmental Impact Assessment
EMCASERVICIOS	*Empresa Caucana de Servicios Públicos*
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessments
FIDUPREVISORA	*Fiduciaria La Previsora, S.A.*
FM	Financial Management
GFDRR	Global Facility for Disaster Reduction and Recovery
GoC	Government of Colombia
GRM	Grievance and Redress Mechanism
GRS	Grievance Redress Service
ICR	Implementation Completion and Results Report
ICPP	*Plan de Información, Comunicación y Participación* (Information, Communication, and Participation Plan)

IDB	Inter-American Development Bank
IFR	Interim Financial Report
IRCA	*Índice de Riesgo de la Calidad del Agua para Consumo Humano* (Index of Water Quality Risk for Human Consumption)
ISMP	Integrated Solid Waste Management Plan
ISDS	Integrated Safeguard Data Sheet
KGGTF	Korean Green Growth Trust Fund
MADS	*Ministerio de Ambiente y Desarrollo Sostenible* (Ministry of Environment and Sustainable Development)
M&E	Monitoring and Evaluation
MHCP	*Ministerio de Hacienda y Crédito Público* (Ministry of Finance and Public Credit)
MVCT	*Ministerio de Vivienda, Ciudad y Territorio* (Ministry of Housing, City, and Territory)
MVP	*Mecanismo de Viabilización de Proyectos* (National Project Approval Mechanism)
MRF	Materials Recovery Facility
OM	Operational Manual
O&M	Operation and Maintenance
OP/BP	Operational Policy/Bank Procedures
PDA	*Planes Departamentales de Agua* (Departmental Water Plans)
PDO	Project Development Objective
PIU	Project Implementation Unit
PSMV	*Plan de Saneamiento Manejo de Vertimientos* (Sanitation and Discharge Management Plan)
PSU	Public Service Unit
PTSP	*Plan Todos Somos PAZcífico*
RAS	*Reglamento Técnico del Sector Agua y Saneamiento (*Technical Guidelines for Water Supply and Basic Sanitation)
RPF	Resettlement Policy Framework
SAT	Safeguards Advisory Team
SIL	Specific Investment Loan
SIP	Social Inclusion Plan
ToR	Terms of Reference
TSP Fund	*Fondo para el Desarrollo del Plan Todos Somos PAZcífico*
SCD	Systematic Country Diagnostic
SECOP	National Contracting Office (*Colombia Compra Eficiente*)
SEPA	System for the Execution of Procurement Plans (*Sistema de Ejecución de Planes de Adquisiciones*)

SGP	*Sistema General de Participaciones* (General Revenue Sharing System)
SOE	Statement of Expenditure
SSPD	*Superintendencia de Servicios Públicos Domiciliarios* (Superintendent of Residential Public Services)
TT	Task Team
UNGRD	*Unidad Nacional para la Gestión del Riesgo de Desastres* (National Unit for Disaster Risk Management)
WSBS	Water Supply and Basic Sanitation

Regional Vice President:	Jorge Familiar
Country Director:	Gerardo M. Corrochano
Senior Global Practice Director:	Jennifer J. Sara (Acting)
Practice Manager:	Rita E. Cestti
Task Team Leader:	Carmen Yee-Batista

THE REPUBLIC OF COLOMBIA
Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239)

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PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND THE CARIBBEAN

GWA04

Report No.: PAD1718

Basic Information			
Project ID	EA Category		Team Leader(s)
P156239	A - Full Assessment		Carmen Yee-Batista
Lending Instrument	Fragile and/or Capacity Constraints [ ]		
Investment Project Financing	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date	Project Implementation End Date		
12-Oct-2016	15-Dec-2022		
Expected Effectiveness Date	Expected Closing Date		
15-Dec-2016	15-Dec-2022		
Joint IFC			
No			
Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Rita E. Cestti	Jennifer J. Sara (Acting)	Gerardo M. Corrochano	Jorge Familiar

Borrower: Fondo para el Desarrollo del Plan Todos Somos PAZcifico, represented by its Fiduciary Agent and Trustee FIDUCIARIA LA PREVISORA, S.A.

Responsible Agency: *Unidad Nacional para la Gestión del Riesgo de Desastres* (National Unit for Disaster Risk Management)

Contact:	Luz Amanda Pulido	Title:	Project Coordinator
Telephone No.:	+ 57 311 205-0804	Email:	luz.pulido@gestiondelriesgo.gov.co

Project Financing Data(in USD Million)							
[X]	Loan	[ ]	IDA Grant	[ ]	Guarantee		
[ ]	Credit	[ ]	Grant	[ ]	Other		
Total Project Cost:		133.51		Total Bank Financing:		126.7	
Financing Gap:		0.00					

Financing Source	Amount
Local Funds (National and Municipal Funds)	6.8
International Bank for Reconstruction and Development	126.7
Total	133.5

Expected Disbursements (in USD Million)

Fiscal Year	2017	2018	2019	2020	2021	2022	2023			
Annual	2.5	11.2	24.4	36.4	30.8	17.1	4.3			
Cumulative	2.5	13.7	38.1	74.5	105.3	122.4	126.7			

Institutional Data

Practice Area (Lead)

Water

Contributing Practice Areas

Social, Urban, Rural and Resilience Global Practice

Cross Cutting Topics

[ ] Climate Change
[X] Fragile, Conflict & Violence
[X] Gender
[ ] Jobs
[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Water, sanitation and flood protection	General water, sanitation and flood protection sector	100		10
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes		
Theme (Maximum 5 and total % must equal 100)		
Major theme	Theme	%
Environment and natural resources management	Pollution management and environmental health	25
Urban development	City-wide Infrastructure and Service Delivery	75
Total		100

Proposed Development Objective(s)

The Proposed Development Objectives are to improve: (i) coverage and service quality of water supply and basic sanitation in urban areas in the Municipality of *Tumaco* and the Municipality of *Guapi*; and (ii) operational efficiency of the service providers in said municipalities.

Components

Component Name	**Cost (USD Millions)**
Component 1. Water Supply and Basic Sanitation Improvements in the Municipality of Guapi	$30.87
Component 2. Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco	$90.21
Component 3. Capacity Building and Institutional Strengthening of Service Providers in the Municipalities of Guapi and Tumaco	$5.43
Component 4. Project Management and Environmental and Social Management	$7.01

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	High
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	High
9. Other	Substantial
OVERALL	High

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04	**X**	
Forests OP/BP 4.36	**X**	
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10		**X**
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50	**X**	
Projects in Disputed Areas OP/BP 7.60		**X**

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Project Operational Manual (Schedule 2. Section I.A.3)		15-Jan-2017	

Description of Covenant.
Not later than thirty (30) days after the Effective Date, the Borrower, through UNGRD, shall ensure that the PIU is staffed with the professionals set forth in the Project Operational Manual, including at least one social specialist and one engineer in each municipality, and a lead environmental specialist.

Name	**Recurrent**	**Due Date**	**Frequency**
Technical Committee (Schedule 2. Section I.A.5)		15-Feb-2017	

Description of Covenant.
Not later than sixty (60) days after the Effective Date, the Borrower, through UNGRD, shall establish a committee (Technical Committee).

Conditions

Source Of Fund	Name	Type
IBRD (Article V, Section 01.a)	Condition of effectiveness	Effectiveness

Description of Condition

The Project Operational Manual has been adopted by the Borrower in a manner satisfactory to the Bank.

Source Of Fund	Name	Type
IBRD (Article V, Section 01.b)	Condition of effectiveness	Effectiveness

Description of Condition

The Operating Regulations have been agreed by FIDUPREVISORA and UNGRD and jointly issued by the same on terms and in a manner satisfactory to the Bank.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Carmen Rosa Yee-Batista	Team Leader (ADM Responsible)	Sr. Water & Sanitation Spec.		GWA01
Santiago Rene Torres	Procurement Specialist	Procurement Specialist		GGO04
Luz A. Zeron	Financial Management Specialist	Sr. Financial Management Specialist		GGO22
Antonio Cristian D'Amelj	Counsel	Senior Counsel		LEGLE
Antonio Rodriguez	Team Member	Sr. Water & Sanitation Spec.		GWASL
Carlos Alberto Molina Prieto	Safeguards Specialist	Social Development Specialist		GSU04
Carlos Vargas Bejarano	Safeguards Specialist	Sr. Environmental Specialist		GEN04
Luis Pinzon	Team Member	Sr. WSS Specialist, Consultant		GSU10
David Nathan Sobel	Team Member	Consultant		GSU10
Elvira Cusiqoyllor Broeks Motta	Team Member	Program Analyst		GWA04
Victor Ordonez	Finance Officer	Sr. Finance Officer		WFALN
Alejandro Neira Zavala	Team Member	Support Staff		GWA04

Extended Team			
Name	**Title**	**Office Phone**	**Location**
Juan Camilo Gil	Water Engineer (operational efficiency water supply)		Colombia
Luz Maria Gonzalez	Economist and Financial Specialist		USA
Claudia Lorena Trejos Gomez	Disaster Risk Management		Colombia
Pery Nazareth	Sanitation Specialist		Brazil
Wilson Casas	Environmental and Solid Waste Specialist		Colombia
Leandro Sandoval	Solid Waste Specialist		Peru

Locations					
Country	**First Administrative Division**	**Location**	**Planned**	**Actual**	**Comments**
Colombia	Nariño	Tumaco		**X**	
Colombia	Cauca	Guapi		**X**	

I. STRATEGIC CONTEXT

A. Country Context

1. **Despite Colombia's strong economic performance, the sharing of that prosperity across its residents remains a challenge.** With a population of 48.6 million, Colombia represents Latin America's fourth-largest economy. It is home to a large and stable domestic market and a rich natural resources base. From 2006 to 2015, the country posted robust annualized growth rate of real per capita gross domestic product (GDP) averaging 4.6 percent. Extreme poverty fell from 17.7 percent in 2002 to 7.9 percent in 2015, while total poverty (including both extreme and moderate poverty) fell from 49.7 percent to 27.8 percent. Nevertheless, Colombia continues to have the region's highest income inequality, with a Gini coefficient of 0.54, compared to 0.52 for Latin America on the whole.[1] Uneven territorial development—worsened by underinvestment, weak local governance and service delivery, and inadequate rural-urban linkages—led to persistent gaps in living standards between rural and urban areas, across geographic regions, such as the Atlantic and Pacific regions, and across departments and municipalities.[2] The resulting spatial inequities have fueled the longest-running armed conflict in the Western Hemisphere, which in turn compounds development challenges.

2. **Peace accords are poised to bring Colombia's decades-long armed conflict to an end and create important opportunities to expand public service provision to vulnerable populations.** The Government seeks to bolster the peace process by reasserting its presence and ensuring public service provision in regions that have been particularly affected by violence. Within this context the 2014–2018 National Development Plan (NDP) '*Todos por un Nuevo País*' identifies the Pacific region for priority attention as it exhibits the greatest economic inequality and intra-regional (Pacific coast vs Andean Pacific) gaps in the country, as seen in **Table 1**, as well as high levels of violence and forced displacement.[3] The Government of Colombia (GoC) created the *Gerencia Pacífico*, housed in the Presidency of the Republic of Colombia, which developed the US$1.2 billion *Plan Todos Somos PAZcífico* (PTSP) to address these challenges.[4] Based on a gap analysis developed by the National Planning Department (*Departamento Nacional de Planeación*, DNP) and extensive consultations with key stakeholders, the PTSP has prioritized geographic and sectoral areas of intervention. Investments during the initial phase of the PTSP will target urban areas of Buenaventura, Guapi, Quibdó, and Tumaco, which are of strategic value in the peace-building process, and which, taken together, concentrate 47.8 percent of the population in the Pacific region. To promote poverty reduction, public health, economic growth, and competitiveness, the overall PTSP envisages interventions to increase and improve water supply and basic sanitation (WSBS) service, develop a sustainable energy program, and improve connectivity with a waterway system.[5] The PTSP will begin to reestablish the presence of the GoC across remote swaths of territory and support balanced territorial development.

[1] By comparison, the Gini coefficient of comparable countries such as Peru, Mexico, and Brazil were 0.45, 0.48, and 0.53 respectively, in 2014. Data from World Bank, World Development Indicators, data.worldbank.org.
[2] In 2015 the Atlantic and Pacific regions had a Multidimensional Poverty Rate, which takes into account 15 designated welfare indicators, of 33.8 percent and 31.2 percent respectively; Bogotá's rate is 4.7 percent.
[3] The National Development Plan was approved through Law 1753 of June 9, 2015.
[4] An overview of the *Gerencia Pacífico* is available at www.somospazcifico.gov.co.
[5] Basic sanitation includes fecal, wastewater, and solid waste management.

Table 1. Socioeconomic Indicators Comparing the Pacific Coast, Andean Pacific, and National 2014

Indicator	Weighted Averages (%)		
	Pacific Coast	Andean Pacific	National
Mid-secondary education* coverage	17.5	36.7	42.0
Sewerage network coverage	24.4	77.7	94.3
Water network coverage	38.1	88.1	89.7
Electricity coverage	66.8	94.5	93.6
Unsatisfied basic needs	60.1	23.8	27.8

Source: Estrategia Todos Somos PAZcífico, Presidencia de la Republica, 2015. Encuesta Nacional De Calidad De Vida. DANE 2014. Note: * Education for children 15 to 17 years old.

3. **The GoC engaged multilateral banks to finance up to US$400 million for the PTSP**. The World Bank has been engaged with the GoC since the conceptualization of the PTSP and also supported discussions to mobilize additional partner resources.[6] The GoC requested financing from the World Bank for two freestanding loans to support the implementation of the PTSP: (i) US$41.9 million for the development of a waterway project to improve safe and reliable boat transportation between Pacific coast cities (under preparation); and (ii) US$126.7 million to improve WSBS services in the urban cores of the Municipalities of Guapi and Tumaco (proposed in this Project Appraisal Document). The Inter-American Development Bank (IDB) approved a US$231.4 million loan in December 2015 for WSBS investments in the municipalities of Buenaventura and Quibdó, as well as an electrification program for some 50 Pacific coast communities.[7] The proposed operation plays a central role in operationalizing the comprehensive PTSP and in supporting the peace building process in a uniquely vulnerable area of the country.

B. Sectoral and Institutional Context

4. **Colombia has a comprehensive legal and institutional framework to improve WSBS services.** A clear tariff and subsidy regulatory structure is based on socioeconomic conditions and cost recovery principles, coupled with the General Revenue Sharing System (*Sistema General de Participaciones*, SGP)[8] to transfer national resources to municipalities. The Residential Public Services Law (Law No. 142 of July 11, 1994) initiated a series of reforms that (i) decentralized public service provision; and (ii) separated the policy making, regulatory, and operating functions, establishing independent regulatory and supervisory bodies. The Ministry of Housing, City, and Territory (*Ministerio de Vivienda, Ciudad y Territorio*, MVCT) is the sector policy maker and responsible for implementing national policies, plans and programs in the WSBS sector; the Commission for the Regulation of Water Supply and Sanitation (*Comision de Regulacion de Agua Potable y Saneamiento Basico*, CRA) is responsible for sector regulation, including rates and performance quality; the Superintendence of Residential Public Services (*Superintendencia de Servicios Públicos Domiciliarios*, SSPD) is responsible for the control and oversight of residential public services; and municipalities are responsible for ensuring service delivery through private, public or mixed companies, or, in limited instances, through direct provision. These reforms have

[6] Initial discussions began in 2013 and the GoC and the World Bank explored different partnership options.
[7] See: "*Water, Basic Sanitation, and Electrification Program for the Colombian Pacific Region as Part of the "Plan Todos Somos PAZcífico*", http://www.iadb.org/en/projects/project-description-title,1303.html?id=CO-L1156.
[8] The Residential Public Services Law (Law No. 142 of July 11, 1994) establishes the subsidy scheme. The SGP is a national resource transfer mechanism (Law No. 1176 of December 27, 2007), whereby part of the national budget is assigned to municipalities and sectors, including WSBS.

allowed Colombia to test various WSBS service delivery models, including public, private and mixed-capital companies and such an approach has succeeded in addressing many performance issues in medium and large cities.[9]

5. **Colombia's reform efforts have resulted in important strides to improve national WSBS coverage, but challenges remain in small towns and rural areas.** National coverage average levels for water and sewerage connections increased from 78 percent and 61.8 percent, respectively, in 1993 to 94.3 percent and 89.7 percent in 2014. National coverage of solid waste collection services was 81.9 percent in 2014. However, these advances mask disparities between urban small towns and dispersed rural areas,[10] where coverage levels remain as low as 57.5 percent, 15.7 percent and 24.1 percent for water, sewerage connections and solid waste collection services[11] respectively and only 42 percent of the water provided meets quality standards for drinking. In 2007, the MVCT created the Departmental Water Plans (*Planes Departamentales de Agua*, PDAs) program to promote economies of scale and the regionalization of WSBS services led by the Department.[12] Furthermore, in 2014, the GoC embarked on a series of reform and normative adjustments to improve WSBS services in small towns and rural areas. To this end, the GoC (i) approved a national policy for WSBS in rural areas and a differentiated regulatory and tariff scheme for small service providers; (ii) created support mechanisms and management models for WSBS in small towns; and (iii) injected public capital investments in priority areas. However, to implement these reforms, technical and financial support would be required to address the inherent challenges of providing WSBS services in poor small towns and rural areas including (i) lack of financial, technical and implementation capacity; (ii) difficulties attracting specialized water operators to work in poor and challenging municipalities; and (iii) high investment needs due to significant infrastructure backlogs.[13]

6. **The urban cores of Guapi and Tumaco face common WSBS service provision challenges spanning from low sanitation coverage resulting in diarrhea cases above the national average, to inadequate drinking water quality, as detailed in Table 2.** In Guapi, the municipality's public service unit provides WSBS services. However, the SSPD decertified the municipality in 2011 as a result of administrative, financial, and operational difficulties, and now the Department of Cauca is administering Guapi's SGP funds. As part of the GoC's regionalization policy, the Department, and the departmental water company (*Empresa Caucana de Servicios Públicos*, EMCASERVICIOS) began partnering in June 2015 with the specialized operator (*Empresa de Acueducto y Alcantarillado de Popayán*, EAAP) from Popayán, the Departmental capital, to assist Guapi to implement an emergency plan to restore water supply service and to

[9] Medium-size cities have populations between 100,000 and 500,000, and large cities exceed 500,000 inhabitants.
[10] Colombia has roughly 1,099 municipalities, of which some 989 are small (less than 50,000), relatively poor, and geographically scattered, adding a layer of complexity to the coverage and delivery of quality WSBS services. Source: 'Charting a New Course: Structural Reforms in Colombia's Water Supply and Sanitation'; World Bank.
[11] DANE (2014) Encuesta Nacional de Calidad de Vida.
[12] The Departmental Water Plan program was approved through article 91 of Law No. 1151 of 24 July, 2007. Colombia is a unitary state with 33 administrative and political divisions: 32 departments and one capital district (Bogotá). Each department has a Governor elected for a 4-year period and a Department Assembly. Departments are formed by a group of municipalities, which in turn are headed by a mayor and administered by a Municipal Council.
[13] Specialized water operators are public or private, commercially independent entities that have full responsibility for managing the water supply and sanitation service infrastructure of one or more municipalities, including, *inter alia*, tariff setting, billing and collection, and the provision of services.

improve service provider management and operation through a series of institutional capacity building activities. In Tumaco, the public service company (*Aguas de Tumaco*) has been responsible for providing WSBS services since 2008 and in 2009 introduced a specialized operator (Aquaseo) to provide the urban population with WSBS services through an 18-year management and operation contract. However, an infrastructure backlog and changes to oil royalties resulted in a financial shortfall that has not allowed the operator to provide adequate services.

Table 2. WSBS Situation in Guapi and Tumaco compared to national average

Service Level Indicators	National	Guapi	Tumaco
Water supply coverage	94.3%	17%	45%
Sewerage coverage	89.7%	16% deficient sewerage*	0% sewerage**
Water continuity	20 hours/day; 7 days/week	Varies from 1 hour/week to 2 hours/day	48 hours/week in Zona Continental 72 hours/week in Isla Tumaco 48 hours/week in Isla El Morro
Non-revenue water reduction	34%	90%	75%
Micrometering	80%	0%	39%
Revenue collection rate	71%	0	39%
Water quality (IRCA)***	No risk/high risk	High risk	Low risk
Solid waste management coverage	95%****	Inadequate collection and there is no area for final disposal. Solid waste disposed of in the streets.	85% collection and final disposal. Future capacity limited.

Sources: SSPD, June 2015, REDI 2014, and CONPES 3847, 2015, Aquaseo.
* No sewerage treatment, 5 significant raw sewage discharges. Inadequate latrines and septic tanks.
** Inadequate latrines and septic tanks; 38 significant raw sewage discharges to the street or bodies of water.
*** IRCA = *Índice de Riesgo de la Calidad del Agua para Consumo Humano* (drinking water quality index)
**** 79 percent of municipalities adequately dispose of solid waste and 95 percent of waste produced is collected

7. **The Bank is well positioned to support WSBS investments in the context of the PTSP.** The World Bank has a long history of support for infrastructure investments and sector reform in Colombia. In the 2000s, the World Bank financed the Water Sector Reform Assistance Project (Loan 7077-CO) and the Water and Sanitation Sector Support Project (Loan 7281-CO), which initiated a Business Modernization Program aimed at attracting the private sector to manage and operate WSBS in small and medium-size municipalities. Loan 7281-CO also supported the creation within the MCVT of the now institutionalized national process (*mecanismo de viabilización de proyectos*, MVP) through which all WSBS investment projects financed by the national government undergo a technical, financial, social and environmental evaluation for approval before implementation. The on-going La Guajira Water and Sanitation Infrastructure and Service Management Project (Loan 7434-CO) supports the first Department Water Plan in Colombia. The World Bank has also supported the Solid Waste Management Program Project (Loan 7742-CO), a national program seeking to improve the quality and coverage of integrated solid waste management services in Colombia. Knowledge services supported by the World Bank, such as the 2014 WSBS Regionalization Study and the 2014 Preparing for the National Strategy for the Infrastructure Development in WSBS Study, have provided valuable input to the DNP and ongoing sectoral initiatives. The Project has also benefited from the Bank's global experience in the provision of WSBS in challenging and peace building situations. The Bank's global expertise

is especially relevant given the challenges facing municipalities, including extreme poverty, geographic conditions, informal urban growth, and the constant threat of crime and violence.[14]

C. Higher Level Objectives to which the Project Contributes

8. **The proposed Project is closely aligned with the Colombia Country Partnership Framework (CPF) FY2016-2021.**[15] Specifically, the Project would directly support Objective 3: Improved Access to and Quality of Service Delivery in Target Areas of Pillar II: Enhancing Social Inclusion and Upward Social Mobility through Improved Service Delivery by financing WSBS investments to improve coverage, quality and efficiency of these services in the municipalities of Guapi and Tumaco. It would additionally support Objective 1: Strengthening Public Management Capacity to Support Territorial Development and Objective 2: Enhanced Capacity for Natural Resource Management in Target Regions under Pillar I: Fostering Balanced Territorial Development by including technical assistance to the different levels of government to coordinate the access to and quality of WSBS services. It is also aligned with the cross-cutting theme of "Assisting in Constructing the Peace," as implementation of the PTSP will help build peace through development by closing important gaps in public service provision and rebuilding confidence in the GoC among the local population. The Project also reflects issues identified in the 2015 Systematic Country Diagnostic (SCD), in particular the lack of territorial integration as a major constraint to inclusive development, and points to the Pacific as the most unequal region of the country.[16]

9. **The Project will directly support the World Bank's twin goals by focusing on a region characterized by high levels of poverty, violence, forced displacement, and poor basic service provision.** The Pacific region that has the highest poverty and extreme poverty rate in the country at 65.9 percent and 39.1 percent respectively. Both municipalities the Project would support lack reliable WSBS services. In Guapi solid waste is disposed of in open-air locations and, on occasion, near houses or bodies of water, contributing to environmental problems and posing a risk to public health. Intestinal parasitism is one of the main causes of doctor visits in both municipalities[17] and the infant mortality rate is also much higher than the national average, with Tumaco's being twice the national infant mortality rate.[18] The Project economic analysis estimates that approximately 40 percent will be saved in health costs by improving WSBS services in both municipalities. In addition, the Project will support the GoC's broader PTSP in the peace building process in an area that has suffered from the historical presence of armed groups, such as the Revolutionary Armed Forces of Colombia (*Fuerzas Armadas Revolucionarias de Colombia*, FARC), and organized crime that fueled drug trade and illegal mining, and generated an environment of violence that led to human rights violations.

[14] The threat of crime and violence is particularly relevant in Tumaco.
[15] *Colombia - Country Partnership Framework for the Period FY16-21*. World Bank Group Report Number 101552.
[16] *Colombia – 2015 Systematic Country Diagnostic*. World Bank Group Report Number 97878.
[17] Morbidity rates caused by intestinal parasitism stood at 38.8 and 27.80 per 1000 inhabitants, in Tumaco and Guapi respectively.
[18] The infant mortality rates in Guapi and Tumaco are 30.66 and 33.33 per 1000 live births, respectively. The national infant mortality rate in Colombia is 16.80 per 1000 live births.

II. PROJECT DEVELOPMENT OBJECTIVES

A. Project Development Objectives (PDOs)

10. The PDOs are to improve: (i) coverage and service quality of water supply and basic sanitation in urban areas in the Municipality of *Tumaco* and the Municipality of *Guapi*; and (ii) operational efficiency of the service providers in said municipalities.

B. Project Beneficiaries

11. The quality of life of residents in these areas is expected to improve significantly through increased access to better quality WSBS and overall reduction in pollution in both the cities and associated water bodies, resulting in improved public health and income generating possibilities. The Project will directly benefit about 142,480 inhabitants located in the urban perimeters of Guapi (18,005 people) and Tumaco (124,475 people) by providing access to basic services: water, sanitation, and management of solid waste.[19] The populations of Guapi and Tumaco are 50.2 and 49.9 percent female, respectively. Additionally, over half of the populations of both Guapi and Tumaco are under the age of 20. About 96 percent and 91 percent of the population in Tumaco and Guapi are considered poor, respectively.[20] Some 97 percent of the urban core population of Guapi and 93 percent of urban core population of Tumaco self-identify as Afro-descendent.[21] See **Annex 2** for further details on Project beneficiaries.

C. PDO Level Results Indicators

12. The indicators for coverage and service quality are direct project beneficiaries, people in urban areas provided with access to "Improved Water Sources", people in urban areas provided with "Improved Sanitation Facilities", water supply continuity (hours/day), and number of untreated sewage discharge points to water bodies eliminated. Indicators for operational efficiency are revenue collection rate and level of non-revenue water for the municipal service providers. For additional details and the full results framework, refer to **Annex 1**.

III. PROJECT DESCRIPTION

A. Project Components

13. The Project focuses: on (i) delivering the necessary WSBS infrastructure; (ii) supporting service providers' institutional performance through targeted capacity building and institutional strengthening measures to establish and consolidate operational efficiency and service quality; and (iii) implementing a comprehensive social plan with a civil-engagement strategy to foster behavior change and Project acceptance among the population. To achieve these goals, the proposed project

[19] Population based on municipality projections for 2022. Current population (2016) for the urban cores of Tumaco is 114,533 people and for Guapi 18,199.
[20] This assumes people belonging to socioeconomic strata 1 and 2, who are considered poor as defined by the GoC.
[21] Data from the Colombia 2005 Census, *Departamento Administrativo Nacional de Estadística*, http://systema59.dane.gov.co/cgibin/RpWebEngine.exe/PortalAction?&MODE=MAIN&BASE=CG2005AMPLIADO&MAIN=WebServerMain.inl.

will finance the four components described below. **Annex 2** provides a more detailed description of the components.

14. **Component 1. Water Supply and Basic Sanitation Improvements in the Municipality of Guapi (US$30.87 million of which US$30.84 million IBRD).** Provision of goods, works, technical assistance and training to improve selected water supply and basic sanitation coverage and service quality investments in the Municipality of *Guapi*, including, *inter alia*, the following investments: (i) construction of a new water-intake structure and raw water mains, optimization of the existing water treatment plant, and rehabilitation and construction of distribution water mains and networks; (ii) construction of a new wastewater collection, treatment and disposal system; and (iii) construction of a solid waste disposal solution and implementing environmental restoration activities.

15. **Component 2. Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco (US$90.21 million of which US$83.43 million IBRD).** Provision of goods, works, technical assistance and training to improve selected water supply and basic sanitation coverage and service quality investments in the Municipality of *Tumaco*, including, *inter alia*, the following investments: (i) rehabilitation and/or construction of raw water mains, optimization of the existing water treatment plant, and rehabilitation and/or construction of distribution water mains and networks; (ii) construction of a new wastewater collection, treatment and disposal system and implementation of a sanitation demonstration solution for stilt houses; and (iii) improvement of the collection system for solid waste and constructing a solid waste landfill.

16. **Component 3. Capacity Building and Institutional Strengthening of Service Providers in the Municipalities of Guapi and Tumaco (US$5.43 million of which US$5.43 million IBRD).** Provision of goods, technical assistance and training for capacity building and institutional strengthening activities to support improved water and sanitation performance of service providers and to ensure efficient and sustainable services, including, *inter alia*, the following activities: (i) provision of support to the Municipality of *Guapi* to develop a long-term service delivery model; (ii) strengthen the existing service delivery model in the Municipality of *Tumaco*; (iii) provision of assistance to the Municipality of *Tumaco* and the Municipality of *Guapi* to develop online monitoring tools to assess the quality of services provided; (iv) carrying out of studies on, *inter alia*, demand management, fecal sludge management, non-revenue water management, and storm-water management, all under terms of reference (ToRs) acceptable to the Bank; and (v) supporting implementation of agreed recommendations for the demand management and non-revenue water management studies referred to in (iv) above.

17. **Component 4. Project Management and Environmental and Social Management. (US$7.01 million, of which US$7.01 million IBRD).** Provision of goods, technical assistance and training to the PIU for the implementation of the Project (including, *inter alia*, in the areas of financial management, procurement, disbursement, and safeguards management) and financing of Operating Costs.

B. Project Financing

18. The lending instrument will be an Investment Project Financing (IPF) of US$126.7 million to the *Fondo para el Desarrollo del Plan Todos Somos PAZcífico* (TSP Fund), represented by its

Fiduciary Agent and Trustee FIDUCIARIA LA PREVISORA, S.A. (FUDUPREVISORA) with a guarantee of the Republic of Colombia. The TSP Fund was created by article 185 of Law No. 1753 of 9 June, 2015 and is regulated by Decree 2121 of 3 November, 2015. The Project would have a disbursement period of six years following the disbursement schedule included in the data sheet of this document. The fixed spread loan has a final maturity of 10.5 years including a grace period of 6.5 years. As the Borrower, the TSP Fund will receive Bank funds to implement the Project and after Project closing it will receive transfers from the general national budget to repay the Bank loan. In October 2015, the *Consejo Nacional de Politica Fiscal* authorized the Ministry of Finance and Public Credit (*Ministerio de Hacienda y Crédito Público,* MHCP) to allocate future national budget to guarantee loan payments for the US$400 million assigned to overall PTSP.[22]

C. Project Cost and Financing

19. The overall Project cost is US$133.51 million and the World Bank contribution is US$126.70 million, as outlined in **Table 3**. Local funds, which includes national government and municipality contributions, are estimated at US$6.81 million corresponding to land acquisition and some drinking water works in Tumaco.[23] **Annex 2** includes a detailed Project cost estimate.

Table 3 Project Estimated Cost Summary

Components	IBRD (US$ Millions)	Local (US$ Millions)	Total (US$ Millions)
Component 1. Water Supply and Basic Sanitation Improvements in the Municipality of Guapi.	$30.84	$0.03	$30.87
Component 2. Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco.	$83.43	$6.78	$90.21
Component 3. Capacity Building and Institutional Strengthening of Service Providers in the Municipalities of Guapi and Tumaco.	$5.43	n.a.	$5.43
Component 4. Project Management and Environmental and Social Management.	$7.01	n.a.	$7.01
Total	$126.70	$6.81	$133.51

D. Lessons Learned and Reflected in the Project Design

20. **The Project design incorporates important lessons captured from the implementation of Bank-financed projects in Colombia and across the World Bank.** Lessons from more than 10 years of project implementation in Colombia that are embedded in Project design include[24]: (i) ensuring a fully functioning Project Implementation Unit (PIU) with qualified professionals (technical, safeguards, project management, and fiduciary) who are trained in Bank procedures from the start of project implementation; (ii) a comprehensive and experienced construction supervisor firm (*interventor integrado*) to oversee designs and construction works;[25] (iii)

[22] *Consejo Nacional de Política Fiscal, No. de Radicación* 3-2015-020901, October 26, 2015.

[23] The water works will be implemented by the Municipality with own funds as part of their capital improvement program.

[24] Lessons learned from the Water Sector Reform Assistance Project (Loan 7077-CO) the Water and Sanitation Sector Support Project (Loan 7281-CO), and the ongoing La Guajira Water and Sanitation Infrastructure and Service Management Project (Loan 7434-CO).

[25] The Bank and Colombia have had good results when the role of the construction supervisor is carried out by the specialized water operator that has a management and operation contract with the municipality.

integrating social and environmental safeguards approaches, including citizen engagement activities, with clear responsibilities and adequate budget in the project design; (iv) a strong centralized approach to project execution with clear and transparent rules of the game coupled with an active participation from local authorities and key stakeholders from project conceptualization to implementation has worked well in the past in weak and poor municipalities in Colombia; and (v) World Bank presence helps to attract quality operators and consultants in difficult environments as demonstrated in La Guajira. Leveraging global experience, the Project looks at experiences from India on professionalization contracts as well as social accountability of service provision by capturing consumer feedback.[26] World Bank experience in fragile and conflict settings informed the design of the institutional arrangements, which embed PIU liaisons and decision making participation in the municipalities of Guapi and Tumaco. The World Bank is also leveraging knowledge generated through partnerships with the Global Facility for Disaster Reduction and Recovery (GFDRR) and the Korean Green Growth Trust Fund (KGGTF). Finally, the Project seeks to develop sustainable WSBS solutions for stilt houses in Tumaco, based on Bank experience from Indonesia and Bolivia.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

21. **Given the challenges associated with the implementation of WSBS projects in small municipalities and low local government capacities, the GoC proposes to execute investment projects through a centralized, multi-sectorial implementation arrangement while ensuring strong articulation with key stakeholders in the Pacific Coast**. The TSP Fund will be administered and represented by FIDUPREVISORA, a national mixed capital fiduciary company linked to the MHCP, and will operate under the commercial provisions applicable to the fiduciary.[27] The implementing agency for the Project and the overall PTSP is the National Unit for Disaster Risk Management (*Unidad Nacional de Gestión del Riesgo de Desastres,* UNGRD), a national-level entity that reports directly to the Presidency of the Republic. The UNGRD created a PIU to oversee the technical, administrative, safeguards, and operational aspects of the IDB and World Bank-financed PTSP initiatives, including this Project. With the support of IDB technical assistance, the UNGRD has started staffing the PIU with the project coordinator, lead specialists and other key staff. The PIU will coordinate closely with national, local and regional authorities and service providers and employ decentralized project liaisons that will be embedded in the municipalities. For this Project, the MVCT is the sectorial entity responsible for approving WSBS subprojects through the MVP process and to support the PIU in the prioritization and validation of subprojects.

[26] A World Bank supported technical assistance in eight cities in India (P131968) that strengthens citizen voice through demand-side monitoring of service delivery through information and communication technology (ICT)-based systems (geo-referenced mobile to web systems); see http://www.slbconnect.in/web/cfs/home. Regarding professionalization contracts, see Kingdom, W., Mugabi, J., and D. Ehrhardt. (2015), 'Professionalization Contracts for Small Municipal Water Service Providers in India: Business Model Development,' World Bank.

[27] Ministry of Finance Resolution 4060, of November 10, 2015, establishes the UNGRD as the implementing agency and Ministry of Finance Resolution 4075, of November 12, 2015, identifies FIDUPREVISORA as the Fiduciary Agent.

22. **Institutional coordination and backstopping mechanisms are in place to facilitate communication across the range of stakeholders and provide additional support to the PIU.** The *Gerencia Pacífico*, a unit of the Presidency of the Republic staffed with professionals from the Pacific region, provides political support and facilitates coordination among departmental and municipal governments, including in the application of social safeguards instruments. An Executive Committee for the TSP Fund (*junta administradora*), comprised of high level official from the national government and the Pacific Region local authorities, will provide strategic direction for the PTSP.[28] A Technical Committee (*comité técnico*) made up of technical staff from the PIU, MVCT, DNP, and local authorities will provide technical recommendations and support preparation and approval of subprojects through the MVP process. The PIU budget allocation is about US$18 million, about 4.5 percent of the combined US$400 million loan amount (IDB and WB). **Annex 3** offers additional detail on the implementation arrangements for the proposed project.

B. Results Monitoring and Evaluation

23. **The UNGRD will have overall responsibility for the project's monitoring and evaluation (M&E)**. The UNGRD will monitor and evaluate the Project based on the results framework in **Annex 1.** The UNGRD will prepare semiannual progress reports during Project implementation in a manner and format acceptable to the Bank. These reports will describe the progress made and current status of all components and activities and specifically, progress towards achievement of the PDO and other content specified in the Project Operational Manual (OM). Furthermore, the PIU will conduct a midterm evaluation to analyze progress with respect to the results framework, relevant actions to reduce implementation risks, and to identify pertinent project restructuring to achieve PDO indicators. The PIU will also carry out a final evaluation to determine whether the Project achieved its PDO, and analyze implementation performance and lessons learned. Under component 4, US$500,000 has been earmarked for M&E. The PIU will include M&E and planning staff to report directly to the project coordinator.

24. **Social accountability and citizen engagement.** The Project will establish a systematic Citizen Engagement mechanism as part of the Project's social management model. This will be achieved through a mandatory grievance system that all contractors will implement at construction sites to collect, register and address the grievances. In addition, the Project will finance an Information, Communication, and Participation Plan (ICPP), which will be implemented during the project cycle by the PIU in close coordination with municipalities and other stakeholders. The ICPP includes a gender awareness strategy at the neighborhood level, as well as customer surveys that will be regularly posted online to demonstrate a two-way process by which the Project adapts based on citizen input. The UNGRD will produce quarterly reports on these topics. The project will also support the adoption of information and communication technology based monitoring tools for tracking service status and improvements and routine capturing citizens' feedback on the quality of the service that will be made publicly available online through city-level dashboards for improved accuracy, transparency, and social accountability of all stakeholders.

[28] The Executive Committee is comprised of the Minister of Hacienda and Credito Publico, the Minister of MVCT, the Director of DNP, the Governor of Choco, The Governor of Valle del Cauca and the mayors of Tumaco and Buenaventura, as stipulated in Decree 2121 of 2 November, 2015 (article 2.15.5).

C. Sustainability

25. **The Project would support on going institutional reforms and local authorities to improve coverage and service delivery and place these municipalities on a path towards sustainability.** In Guapi, the Project would support the development and implementation of a long-term service delivery model and alternative operational schemes adequate to the context of the municipality in accordance with Colombian regulations that define differential schemes for small towns with difficult access and complex settings. In Tumaco, the current model will continue with Aquaseo as a private specialized operator and *Aguas de Tumaco* as the municipal water company. The Project would provide technical assistance and capacity building to ensure reasonable levels of management, technical knowledge transfer, operational efficiency, and financial viability. The works envisioned do not constitute an extraordinary operational burden, and the Colombia regulatory framework allows operators to recover operation and maintenance (O&M) cost through tariffs and a transparent subsidy earmarked for WSBS.[29] Furthermore, the Project would implement a comprehensive social management plan, including an educational and awareness campaign throughout the project cycle, to ensure beneficiaries adoption of WSBS systems and management models and promote good hygiene practices and community environmental stewardship.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

26. **The overall implementation risk of the Project is deemed *High*,** based on the challenges inherent to the local environment, previous experience in the WSBS sector in Colombia, and the capacities of the responsible agencies.

27. **Stakeholder risk is considered *High*** in light of the local environment and potential opposition to the introduction of volumetric billing; recyclers whose income generating activities may be affected by the construction of a new landfill; potential conflicts over procurement given security issues in the area; tension between local residents and administrative authorities based elsewhere; the prevalence of organized criminal structures and associated governance challenges; and residents whose homes or businesses are outside the expanded coverage area. Mitigation measures include the implementation of an ICPP and a Social Inclusion Plan (SIP) for Waste-Pickers, a Grievance and Redress Mechanism (GRM). These instruments and associated institutional arrangements for implementation and monitoring are detailed in **Annex 3**. In light of the fragile environment where competition for works contracts could agitate local actors, the Project will include a percentage of local labor in works contract, as well as working closely with local authorities, the municipalities and the procurement and social team to ensure that bidding processes are competitive and transparent. The *Gerencia Pacífico* will also play a key role to mitigate potential conflicts.

28. **The fiduciary risks are considered *Substantial***, due to potential issues arising from the complexity of the institutional arrangements for project implementation, the low capacity of the supported municipalities, and potential delays in the preparation of detailed engineering designs

[29] For additional information on the subsidy scheme, please refer to Annex 5, Appendix A.

and subsequent approval through the MVP process. Construction supervisor firms will be hired to support the PIU in providing quality control of detailed designs, ensure compliance with permitting and licenses and environmental and social safeguards, and provide construction and contract oversight, The GoC has indicated that the PTSP is a priority and PTSP sub-projects will be prioritized by the MVCT. The Technical Committee and the PIU will support coordination and resolution of technical issues among the service providers, municipalities and facilitate the approval process with the MVCT.

29. **The risk rating for Institutional Capacity for Implementation and Sustainability is *High,*** due to potential overexertion of the UNGRD, capacity of the municipalities, and interagency and intergovernmental coordination. The core UNGRD team will receive training on Bank safeguards, fiduciary policies and project management aspects. The OM will define clear roles to actively involve municipalities and service providers in design and construction to ensure a seamless handover of Project financed works to municipalities. A long-term service delivery model will be developed for Guapi for the O&M of the works. The *Gerencia Pacífico* and the Executive Committee, acting as representatives of the Presidency of the Republic in the implementation of the PTSP, will facilitate intergovernmental coordination.[30]

30. **Other risks include crime and violence in the Project area.** The TT will work closely with the Government, United Nations, and Bank Security Adviser to address evolving security considerations, as outlined in **Annex 4**. In addition, the *Gerencia Pacífico* plays a key role in linking national level political discussions with the region and the PIU.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

31. **A cost-benefit analysis showed positive results for Components 1 and 2 and an overall expected return of 20 percent.** Water interventions show the highest returns of 29 percent, and sanitation (including solid waste) 15 percent. The expected return from water and sanitation is higher than the six percent discount rate recommended by the World Bank and the 11.97 percent established by the CRA. The analysis includes the following benefits: (i) cost savings by households when drinking water services improve; (ii) cost savings on healthcare when sanitation improves; and (iii) increases in revenue and gains from efficiency improvements. Detailed analysis of the results can be found in **Annex 5.**

32. **Results of the financial analysis indicate that despite poor fiscal performance of the municipalities, the Project is financially viable in relation to O&M cost when SGP subsidies are applied and efficiency gains are reached.** The following actions would be required to ensure viability of the project: (i) efficiency gains are attained, particularly with the revenue collection rate at 70 percent; (ii) tariffs increase by reducing subsidies awarded to households, to levels that remain attainable for low-income customers; and (iii) same levels of SGP transfers committed to WSBS service subsidies are continued. Results shows that despite tariff increase, the share of monthly WSBS bill in family income (assumed as 2 minimum salaries) will increase from 2 percent to 3.7 percent, below the 5 percent normally accepted. Experience in Colombia shows that

[30] CONPES document 3847 of November 3, 2015.

revenue collection rate of 70 percent and tariff increase are feasible with service delivery improvement and social interventions.

B. Technical

33. **The water supply subcomponent in Tumaco represents a technically sensible approach to improve coverage, quality and continuity in the urban perimeter.** Investments are derived from a strategic plan that combines much needed infrastructure with demand management and non-revenue water approaches to improve operational and commercial efficiencies. The GoC has been financing the implementation of the 2011 Capital Improvement Plan (CIP), but additional resources are needed to complete the CIP and improve service. The proposed works are the result of an evaluation of alternatives and reflect medium and long-term planning.[31] The Project would finance twenty-five works that are part of Tumaco's CIP, of which six have detailed designs and are currently in the MVP review process. These six works, to be constructed on vacant municipal land, entail construction of a raw water main, improvements to the existing drinking water treatment plant, and construction of a distribution system for Zona Continental. The designs were prepared in accordance with Colombia technical guidelines for WSBS (*Reglamento Técnico del Sector Agua y Saneamiento*, RAS). The other nineteen works are at concept stage and detailed designs will be conducted with GoC funds.[32]

34. **While detailed engineering designs for the other subcomponents are not as developed as Tumaco water supply, the TT review concluded that achieving the PDO is realistic in terms of scope, timeframe and cost under a technically sensible approach.** Master plans and feasibility studies are being conducted that include a diagnostic of the existing situation, evaluation of alternatives, and design of cost-effective solutions with a medium and long-term vision, considering environmental and social aspects. All consultancies are following engineering design standards and level of service provisions determined by Colombia technical guidelines. The Project would only finance activities that: (i) are approved by MVCT's MVP process;[33] (ii) constitute the cost-effective solution; and (iii) comply with Bank environmental and social safeguards instruments. Preliminary feasibility studies indicate the possibility of incorporating elements of shallow sewer design and appropriate wastewater treatment technologies to comply with water quality standards in the receiving water body while reducing O&M demand. The Project would include household intradomiciliary connections for about 60 percent of the population in Guapi and Tumaco.[34] A solid waste solution in Guapi would require the construction of a material recovery facility because of limited available space for a landfill, which requires adequate capacity and O&M resources to operate. The TT reviewed preliminary cost estimates based on bid price data from similar projects, such as La Guajira, Cartagena, and Quibdó in the Pacific Region. Although unit costs may be considered high for conventional projects, the TT considers the costs acceptable for the conditions in Guapi and Tumaco, which entail difficult access and security issues.

[31] The water supply CIP in Tumaco is based on a design capacity to serve a population at year 2041.
[32] In general, the 19 works have similar typology to the six works reviewed by the Bank.
[33] Sub-projects must be economically, technically, environmentally, and socially viable in accordance with MVCT Resolution 379 of 2012.
[34] The selection process for beneficiaries will be based on the criteria established in the MVCT intra-domiciliary connectivity regulation (Decree No. 0169 of 23 January, 2008) and will be supported by the PIU social team to ensure transparency and prevent social conflicts.

C. Financial Management

35. **A Financial Management (FM) Assessment of the UNGRD and FIDUPREVISORA was conducted in accordance with World Bank Policy OP/BP 10.00 for the implementation of the PTSP.** The UNGRD has experience implementing investment projects, however, it is a relatively new organization with still limited experience with infrastructure operations financed by multilateral banks. FIDUPREVISORA will be the fiduciary agent and loan recipient. Both entities have sound internal control procedures in place. However, given the complexity of the institutional arrangements and the substantial inherent risk of the project, the Project includes agreed mitigation measures to ensure that adequate financial management arrangements are in place for project implementation; the details of which are included in **Annex 3**.

D. Procurement

36. **The PIU will be responsible for the procurement processes** using technical inputs from engineering consultancies hired by FINDETER, Aquaseo, and EMCASERVICIOS. A full assessment of the UNGRD's capacity to implement procurement activities was conducted in February 2016, which reviewed the organization, staffing, procurement experience, procurement practices, track records, and the interaction of the Procurement Unit with other technical and administrative areas of the organization relevant to management of procurement. The UNGRD is a robust institution that operates under a clearly defined legal framework with an institutional structure that allows it to adapt to changing requirements in a short time. It is familiar with the World Bank's Procurement Guidelines and procedures, standard bidding documents, and preparation of Procurement Plans. Considering the complexity of the project, the UNGRD will have a PIU with a dedicated procurement team using terms ToRs acceptable to the World Bank. Training on World Bank Procurement Guidelines and overall project management planning will be conducted together with the IDB. A Procurement Plan was prepared to establish the particular contracts of works, goods, and services, the proposed methods for procurement of such contracts, and the related Bank review procedures. The main issues are identified in **Annex 3**.

E. Social (including Safeguards)

37. **The UNGRD prepared a comprehensive Social Assessment** to establish baseline social conditions in the municipalities of Guapi and Tumaco. The Project is expected to have a strong positive impact on the environmental and social conditions faced by the poor in these municipalities. The assessment identified strong interest on the part of local residents in improving WSBS services, as well as potential adverse social impacts, including a reduction in the income generating opportunities of waste pickers, an influx of male laborers during construction, and low public trust in Government plans, and others outlined in the risk section, paragraph 27. To mitigate these impacts, the UNGRD also prepared two social management instruments that build on GoC and multilateral experience from the Pacific coast and around Colombia: (i) a SIP and (ii) an ICPP. The social assessment offers guidance on the application of these safeguards instruments. While physical displacement of people is not directly expected as a result of project activities, OP/BP 4.12 Involuntary Resettlement is triggered and the Borrower prepared a Resettlement Policy Framework (RPF) as a precautionary measure in the unlikely event that resettlement becomes necessary. The social assessment confirmed that there are no indigenous peoples present in the area of influence of the Project; therefore, OP 4.10 Indigenous Peoples is not triggered. The Project

includes a GRM, under the ICPP, to submit and address complaints that arise over the course of project implementation. The Project incorporates multiple outlets, including in-person, telephone, and email, for residents to access the GRM. The Project's GRM aims to dovetail with the established mechanisms under Colombian law for social accountability, which includes the establishment of *Veedurías Ciudadanas* (citizen's oversight committees) and *Derecho de Petición* (a constitutional right that every Colombian citizen has to request information to a public agency). The project design includes appropriate arrangements and budget to ensure implementation of these instruments. The social instruments prepared for the project are described in **Annex 3**.

F. Environment (including Safeguards)

38. **The Project is expected to generate important environmental sustainability and public health benefits in Guapi and Tumaco** by eliminating (i) latrines and septic pits that contaminate surface water and groundwater sources; (ii) the discharge of untreated domestic wastewaters onto water bodies; (iii) the risk of contamination of drinking water networks; and (iv) the practice of solid waste disposal in open dumps in urban areas and public roadways. The Project triggers OP/BP 4.01 Environmental Assessment and is categorized as Category "A" based on the potential impacts of the two solid waste disposal sub-projects under Components 1 and 2. The remaining Project works are considered to have relatively minor to moderate potential impacts (non–significant) and can be mitigated with relatively standard measures. Some potential environmental impacts include removal of vegetation; demolition and excavation; excavation of contaminated solid waste; construction materials; groundwater usage; construction staging areas; and noise or odors from the operation of sanitation facilities. The landfills entail specific risks, including potential impacts on groundwater due to leachate or the failure of the landfill liner system. No new asbestos pipes will be purchases and existing asbestos pipes and other solid waste will be disposed of in accordance with Colombian regulations. The project triggers OP/BP 4.04 Natural Habitats and OP/BP 4.36 Forests given the type of works and potential locations and associated environmental conditions. In addition, OP/BP 4.11 Physical Cultural Resources is triggered to cover any chance find of cultural or archaeological significance during construction. The UNGRD prepared an Environmental Management Framework (EMF) against which to assess and manage the environmental impact of the proposed sub-projects without detailed designs and site selection. An Environmental Management Plan (EMP) was prepared for water subprojects in Tumaco that have detailed designs.

39. **Projects on International Waterways (OP 7.50)** is triggered since some of the Project activities in Tumaco involve the Mira River, which flows through Ecuador and Colombia and is therefore an international waterway, as described in paragraph 1(a) of OP 7.50. However, the Project falls under the exemption from notifying other riparians set out in paragraph 7(a) of OP 7.50 and a memorandum to the Regional Vice President to this effect was processed. See **Annex 3** and the Project Integrated Safeguard Data Sheet (ISDS) for more details on the environmental aspects of the Project.

40. **Environmental and social safeguards documents have been disclosed in-country and on the World Bank's external website**, and an English-language Executive Summary of the EMF and Social Safeguards Instruments has been submitted to the World Bank's Board of Directors.[35] The UNGRD presented social and environmental instruments to national and local authorities, as well as interest groups and residents of the municipalities, and final versions of the documents incorporate feedback received. Local authorities, businesses, and residents expressed strong support for the Project and indicated that they hoped to see the timely completion of the works, particularly given that previous public works projects have been promised but not delivered, and asked to be kept up to date on Project developments. Community members expressed concern about the potential impact of works on mangrove stands, as well as insuring that works contracts hire local workers. Based on feedback from consultations, the ICPP includes specific mechanisms to promote sustained engagement between the community and implementing agency, including a series of meetings and workshops to maintain fluid citizen participation. The EMF clearly identified the location of mangroves and other natural habitats, as well as pertinent Colombian regulations that restrict civil works in those areas. A percentage of local labor will be include in biding documents for works contracts.

G. World Bank Grievance Redress

41. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

[35] A summary of all disclosures and consultations is included in Annex 3, Table 3.8

Annex 1: Results Framework and Monitoring

COLOMBIA: Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239)

Summary of PDO Level Results Indicators	Aspects of the PDO measured
• Direct project beneficiaries (number), of which women (%), of which poor (%) • People in urban areas provided with access to Improved Water Sources under the project (number) • People provided with access to "Improved Sanitation Facilities" under the Project (number), of which urban (number)	• Coverage • Quality
• Water supply continuity in the Project's intervention area (Hours/day) • Untreated sewage discharge points to water bodies eliminated under the Project (number)	• Quality
• Revenue collection rate in the Municipalities of Guapi and Tumaco (percentage) • Level of non-revenue water in each municipality (m^3/conn-month)	• Efficiency

Results Framework

Project Development Objectives

PDO Statement

The Proposed Development Objectives are to improve: (i) coverage and service quality of water supply and basic sanitation in urban areas in the Municipality of *Tumaco* and the Municipality of *Guapi*; and (ii) operational efficiency of the service providers in said municipalities.

These results are at	Project Level

Project Development Objective Indicators

	Indicator Name	Baseline	Cumulative Target Values						
			2016	2017	2018	2019	2020	2021	2022 (End Target)
1	Direct project beneficiaries (Number) - (Core)	0	0	0	23889	124170	137979	140154	142480

	Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	*0*	*0*	*0*	*50*	*50*	*50*	*50*	*50*
	Poor beneficiaries (Percentage - Sub-Type: Supplemental)	*0*	*0*	*0*	*95*	*95*	*95*	*95*	*95*
2	People in urban areas provided with access to Improved Water Sources under the project (Number) - (Core)	0	0	0	22061	49384	63192	65367	67694
3	People provided with access to "improved sanitation facilities" under the project (Number) - (Core)	0	0	0	0	34594	76546	84157	85554
	People provided with access to "improved sanitation facilities" - urban (Number - Sub-Type: Breakdown) - (Core)	*0*	*0*	*0*	*0*	*34594*	*76546*	*84157*	*85554*
4	Untreated sewage discharge points to water bodies eliminated under the Project (percentage)	0	0	0	0	17	65	100	100
5	Water supply continuity in the Project's intervention area (Hours/day)	7	7	7	7	12	19	24	24
6	Revenue collection rate in the municipalities of Guapi and Tumaco (percentage)	39	39	45	50	55	60	65	70
7	Level of non-revenue water in the Municipalities supported by the Project (m3/conn/month)	20.6	20.6	19.2	17.3	15.5	13.6	11.9	10.0

Intermediate Results Indicators

			Cumulative Target Values						
	Indicator Name	Baseline	2016	2017	2018	2019	2020	2021	2022 (End Target)
Component 1. Water Supply and Basic Sanitation Improvements in the Municipality of Guapi									
8	New piped household water connections that are resulting from the project intervention (Number) - (Core)	0	0	0	605	1780	2626	2658	2711

9	Piped household water connections that are benefiting from rehabilitation works undertaken by the project (Number) - (Core)	0	0	0	0	563	563	563	563
10	New household sewer connections constructed under the project (Number) - (Core)	0	0	0	0	669	2853	2881	2929
11	Water quality risk for human consumption in Guapi (IRCA index)	High	High	High	High	Moderate	No Risk	No Risk	No Risk
12	Adequate municipal solid waste disposal capacity in Guapi (tons/day)	0	0	0	0	0	8.6	8.7	8.9
	Component 2: Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco								
13	New piped household water connections that are resulting from the project intervention (Number) - (Core)	0	0	0	4258	8998	11080	11534	11996
14	Piped household water connections that are benefiting from rehabilitation works undertaken by the project (Number) - (Core)	0	0	0	0	10909	10909	10909	10909
15	New household sewer connections constructed under the project (Number) - (Core)	0	0	0	0	7026	13831	15525	15783
16	Adequate municipal solid waste disposal capacity in Tumaco (tons/day)	72	72	72	72	74	80	85	87
	Component 3: Capacity Building and Institutional Strengthening of Service Providers in the Municipalities of Guapi and Tumaco								
17	Level of Non-Revenue Water in Guapi (m^3/conn/month - Sub-Type: Supplemental)	25	25	25	22	19	16	13	10
18	Level of Non-Revenue Water in Tumaco (m^3/conn/month - Sub-Type: Supplemental)	19.9	19.9	18.3	16.6	15	13.3	11.7	10
19	Micro-metering coverage in the Project's intervention area (percentage).	33	33	42	50	58	71	81	95

	Micro-metering coverage in the Project's intervention area, Guapi (percentage – Sub-Type: Supplemental).	*0*	*0*	*0*	*0*	*0*	*32*	*48*	*95*
	Micro-metering coverage in the Project's intervention area, Tumaco (percentage – Sub-Type: Supplemental).	*39*	*39*	*48*	*57*	*67*	*76*	*86*	*95*
22	Institutional and Operational Model for Guapi developed and in implementation (Yes/No)	No	No	No	Yes	Yes	Yes	Yes	Yes
	Component 4. Project Management and Environmental and Social Management								
23	Grievances registered related to delivery of project benefits addressed (%) (Percentage) - (Core)	-	-	90	95	95	95	95	95
	Grievances related to delivery of project benefits that are addressed-(number) (Number - Sub-Type: Supplemental) - (Core)								To be reported once implementation begins.
24	Number of performed meetings for continuous Project communication and feedback executed following the ICPP (Number)	2	4	10	14	18	22	26	30
	Number of people that participated in the meetings for continuous Project communication and feedback executed following the ICPP (Number)	*130*	*260*	*260*	*260*	*260*	*260*	*260*	*260*

Indicator Description

Project Development Objective Indicators				
Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Direct project beneficiaries	People in the municipalities of Guapi and Tumaco who will benefit from an increase in water coverage, improved water quality and	Twice a year	Supervision reports. It is important to ensure that people benefitting from more than one intervention are not counted more than once, because of this it assumes that direct project	UNGRD

	continuity, access to wastewater collection and treatment, and solid waste collection.		beneficiaries are all who are connected to a water supply networks and experienced improvements in their water service continuity. Targets were estimated using population projections from DANE.	
Female beneficiaries	*This is a supplemental indicator. Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.*	*Twice a year*	*Departamento Administrativo Nacional de Estadística (DANE).*	*UNGRD*
Poor beneficiaries	*This is a supplemental indicator. Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are poor.*	*Twice a year*	*Departamento Administrativo Nacional de Estadística (DANE). Poor people are considered those who belong to socio-economic strata 1 and 2, as classified by the DANE.*	*UNGRD*
People in urban areas provided with access to Improved Water Sources under the project	People in the municipalities of Guapi and Tumaco benefitting from new piped household water connections.	Twice a year	Contractor and supervision reports. The classification of urban areas will follow the official definition used by the Government of Colombia. The data on the number of people provided with access will be estimated by multiplying the actual number of piped connections with an estimate of the number of people per household connection. According to DANE, there are 4.4 people and 5.5 people per household in Tumaco and Guapi, respectively.	UNGRD
People provided with access to 'improved sanitation facilities" under the project.	People in the municipalities of Guapi and Tumaco benefitting from (i) new household sewer connections; and (ii) improved on-site sanitation (tbc).	Twice a year	Contractor and supervision reports. The data on the number of people provided with access will be estimated by multiplying the actual number of sewer connections with an estimate of the number of people per household connection. According to DANE, there are 4.4 people and 5.5 people per	UNGRD

			household in Tumaco and Guapi, respectively.	
People provided with access to "improved sanitation facilities" - urban	*This is a supplemental indicator. Based on the assessment and definition of People provided with access to 'improved sanitation facilities", specify what percentage of them live in urban areas.*	*Twice a year*	*Departamento Administrativo Nacional de Estadística (DANE). The classification of urban areas will follow the official definition used by the Government of Colombia.*	UNGRD
Untreated sewage discharge points to water bodies eliminated under the Project (percentage)	This indicator measures the number of direct untreated sewage discharge points to water bodies that are eliminated as part of the Project in the municipalities of Guapi and Tumaco.	Twice a year	Supervision and operator's reports. There are 38 main sewage discharge points in Tumaco and 5 in Guapi. These have been properly identified and are geo-referenced. All of these points are expected to be eliminated by the sanitation investments under the Project.	UNGRD
Water supply continuity in the Project's intervention area (Hours/day)	Weighted average of the number of hours of water supply per day in Guapi and Tumaco.	Twice a year.	Supervision and operator reports.	UNGRD
Revenue collection rate in the municipalities of Guapi and Tumaco (percentage)	Ratio between the amounts collected and amounts billed in the urban areas of the Municipalities of Guapi and Tumaco in a calendar year.	Twice a year.	Supervision and operator reports.	UNGRD
Level of non-revenue water in the Municipalities supported by the Project (m3/conn/month)	Water produced minus water billed in year *t* per average number of connections in year *t* divided per month. PDO indicator calculated as an average of non-revenue water in Guapi and Tumaco weighted by population.	Twice a year	Supervision and operator reports. IWA water balance model. The national water loss criteria is 7 m^3/con- month; however, considering the current situation in Tumaco the Project considers acceptable if the Aquaseo reaches a value of 10 m^3/con-month and adopts a non-revenue water program to execute after the Project.	UNGRD
Reduction of Non-Revenue Water in Guapi (m^3/conn/month - Sub-Type: Supplemental)	*This indicator disaggregates the information provided above for Guapi.* Idem.	*Twice a year*	*Supervision and operator reports. IWA water balance model. Idem*	UNGRD

Reduction of Non-Revenue Water in Tumaco (m^3/conn/month - Sub-Type: Supplemental)	*This indicator disaggregates the information provided above for Tumaco.* Idem.	*Twice a year*	*Supervision and operator reports. IWA water balance model. Idem*	UNGRD

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
New piped household water connections that are resulting from the project intervention (Number) - (Core)	Number of new piped household water connections which result from the project intervention in the municipalities of Guapi and Tumaco.	Twice a year	Contractor and supervision reports. The contractor should have a registry of all new water connections constructed.	UNGRD
Piped household water connections that are benefiting from rehabilitation works undertaken by the project (Number) - (Core)	This indicator is measured as the number of piped household water connections benefiting from rehabilitation works in the municipalities of Guapi and Tumaco. Rehabilitation works are undertaken so that existing customers see the quantity and/or quality of their water supply services enhanced.	Twice a year	Contractor and supervision reports. The target value is the existing water supply clients who are expected to see improvements in their water service quality and/or quantity.	UNGRD
New household sewer connections constructed under the project (Number) - (Core)	This indicator is measured as the cumulative number of new sewer connections constructed under the project in the municipalities of Guapi and Tumaco.	Twice a year	Contractor and supervision reports. The contractor should have a registry of all new sewerage connections constructed.	UNGRD
Water quality risk for human consumption in Guapi (IRCA index)	This indicator measures the risk posed by the water supply quality for human consumption in the municipality of Guapi, as defined by the Index of Water Quality Risk for Human Consumption (*Índice de Riesgo de la Calidad de Agua*, IRCA).	Twice a year	The Ministry of Health carries out regular monitoring of the water supply quality in Colombian municipalities and rate each municipality according to the IRCA Index. It measure 22 water quality parameters. Of a total of 100 points, a rating of below 5 is considered to pose no risk for human	UNGRD

			consumption. The IRCA is defined in *Resolución Número 2115 Junio 22 de 2007.*	
Municipal waste disposal capacity created under the project (tons/day)	This indicator measures the municipal solid waste disposal capacity created in the municipalities of Guapi and Tumaco.	Twice a year	Contractor and supervision reports. There are about 72 tons per day produced in Tumaco and 8.5 in Guapi. The final value is estimated by multiplying the projected population in 2022 times the current solid waste production per person, assuming that the new landfill in Tumaco is constructed, that the final solid waste disposal solution for Guapi is constructed and that 100% of the population receives solid waste collection services.	UNGRD
Micro-metering coverage in the Project's intervention area (percentage).	This indicator measures micro-metering coverage in the municipalities of Guapi and Tumaco.	Twice a year	Contractor and operator reports	UNGRD
Institutional and Operational Model for Guapi developed and in implementation (Yes/No)	Institutional and Operational Model for water supply and basic sanitation for Guapi developed and in implementation.	Twice a year	Institutional and Operational Model. In addition to reporting whether the model has been developed and implemented, comments should be included in progress reports to indicate the steps taken to implement this action.	UNGRD
Grievances registered related to delivery of project benefits addressed (%) (Percentage) - (Core)	Grievances will have to be systematically collected and registered by all contractors executing Project-financed works in the construction sites as part of the Project's social management scheme. The indicator will measure the percentage of those grievances that will be actually addressed by the contractors.	Twice a year	Progress reports.	UNGRD
Grievances related to delivery of project benefits that are addressed- (number)	Same as above but given in numbers rather than percentage.	Twice a year	Supervision reports.	UNGRD

(Number - Sub-Type: Supplemental) - (Core)				
Number of performed meetings for continuous Project communication and feedback executed following the ICPP (Number)	A series of meetings and workshops with different stakeholders for continuous Project communication and feedback are planned under the Project's Information, Communication, and Participation Plan (ICPP). This indicator measures the number of meetings executed and thus stakeholder involvement with the Project. The UNGRD will systematize the information produced and the conclusions reached during those meetings into quarterly reports that will be publicly available.	Quarterly	Progress reports.	UNGRD
Number of people who participated in the meetings for continuous Project communication and feedback executed following the ICPP (Number)	This indicator complements the indicator above, it provides information on how many people participated in the workshops.	Quarterly	Progress reports	UNGRD

Annex 2: Detailed Project Description

COLOMBIA: Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239)

1. ***Project Description.*** The Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project is designed to support the GoC's *Plan Todos Somos PAZcifico* program, which aims at narrowing socioeconomic development gaps in the Pacific Region. The Proposed Development Objectives are to improve: (i) coverage and service quality of water supply and basic sanitation in urban areas in the Municipality of *Tumaco* and the Municipality of *Guapi*; and (ii) operational efficiency of the service providers in said municipalities. The lending instrument will be an Investment Project Financing (IPF) of US$126.7 million to the *Fondo para el Desarrollo del Plan Todos Somos PAZcífico represented by its Fiduciary Agent and Trustee FIDUCIARIA LA PREVISORA, S.A.* with a sovereign guarantee from the Republic of Colombia.

2. The Project focuses on (i) delivering the necessary WSBS infrastructure; (ii) supporting service providers' institutional performance through targeted capacity building and institutional strengthening measures to establish and consolidate long-term service delivery models to improve operational efficiency and service quality; and (iii) implementing a comprehensive social plan with a civil-engagement strategy to foster behavior change and Project acceptance among the population. To achieve these goals, the proposed project will finance the four components described below.

3. **Component 1 – Water Supply and Basic Sanitation Improvements in the Municipality of Guapi (US$30.87 million of which US$30.84 million IBRD).** Provision of goods, works, technical assistance and training to improve selected water supply and basic sanitation coverage and service quality investments in the Municipality of *Guapi*, including, *inter alia*, the following investments: (i) construction of a new water-intake structure and raw water mains, optimization of the existing water treatment plant, and rehabilitation and construction of distribution water mains and networks; (ii) construction of a new wastewater collection, treatment and disposal system; and (iii) construction of a solid waste disposal solution and implementing environmental restoration activities. The Project would finance a construction supervisor for the works to provide quality control, monitoring and inspection, and contract administration.

4. **Subcomponent 1.1 – Improving water supply delivery in Guapi.** About 17 percent of the residents in the urban core of Guapi are connected to the municipal drinking water system that does not meet the minimum service delivery levels established under the Colombian regulations. Water service is provided for less than two hours per day and of poor drinking water quality, resulting in low levels of consumption per user (4 m^3/month). As a result, many residents meet their water needs through the collection of rainwater and raw river water. In addition, the distribution networks are not adequately designed and operated to prevent, reduce and control real water losses (physical losses) and there is a high level of illegal connections in the system (commercial losses). The municipality lacks basic data on operational and commercial performance to estimate non-revenue water losses, but losses are expected to be high. In an effort to find a short term solution to the water issues in Guapi, the Department of Cauca, the EAAP, and

EMCASERVICIOS, are executing an emergency plan that consists of restoring service from the existing groundwater system, minor rehabilitation works to the distribution system and drinking water treatment plant, and network cadaster and hydraulic system modeling to improve operation. While the emergency plan would improve water supply delivery in Guapi, the proposed solution is temporary and does not reach the entire projected Guapi population. The Bank-financed Project becomes critical to provide a long-term, comprehensive water solution in Guapi.

5. This subcomponent aims at improving coverage and service quality of drinking water in the urban area of Guapi with a projected population of 18,953 in year 2022 (project closing year). The Project objective is to reach a water supply coverage of 95 percent, continuity of 24 hrs per day and a water quality level lower than five points (posing no risk to human consumption) according to the IRCA index.[36] In addition, the Project aims at improving operational efficiency by reaching acceptable levels of water losses (10 m^3/conn-month) and improving revenue collection rate to 70 percent. To that end, the Project would finance the construction of a new water-intake structure and related water mains and storage facilities; optimizing the existing water treatment plant; rehabilitating and constructing distributions networks including intra-domiciliary connections; and installation of micro and macro metering and pressure monitoring systems.

6. The MVCT, with national funding, is in the process of procuring consulting services for a water supply master plan for Guapi to conduct a diagnostic, evaluation of water source alternatives, and designs of a proposed cost-effective solution that complies with technical guidelines (RAS), environmental and social safeguards.[37] This consultancy is expected to begin in October 2016. During project preparation, a 2-day technical workshop, with an external water expert and local engineers, was conducted to develop a project concept for this subcomponent to assess the feasibility of achieving PDO indicators with the proposed budget allocation. The project concept was based on a surface water source system to reduce operating costs and to take advantage of the existing water treatment system. The workshop concluded that the Project would be able to meet PDO indicators with the proposed budget allocation for investments, but it reinforced that equally important are efforts to improve operational and commercial efficiency as well as institutional changes to ensure sustainable water service delivery.

7. The project delivery method is envisioned through a standard works contract with related services, including detailed design and a transferring period to the service provider of up to 6-months, which includes start-up and training. The Project also includes multiple instances for the service provider to be actively involved in the prioritization, design and supervision of the subprojects. The construction supervisor would oversee and provide quality control for the detailed design and overall construction, including compliance with environmental and social safeguards. With the technical information resulting from the water supply master plan, the PIU would develop the bidding documents and conduct the procurement process once the project is approved by the MVCT's MVP process. The long-term success of this subcomponent is linked to institutional strengthening activities (subcomponent 3.1) and intensive community and social intervention

[36] Drinking water quality index refers to the Index of Water Quality Risk for Human Consumption (*Índice de Riesgo de la Calidad del Agua para Consumo Humano*, IRCA) regulated by the Ministry of Health.

[37] See http://www.minvivienda.gov.co/viceministerios/viceministerio-de-agua/reglamento-tecnico-del-sector-de-agua-potable.

(component 4) to promote beneficiaries appropriation and improve commercial efficiency.

8. **Subcomponent 1.2 – Construction of a wastewater management solution in Guapi.** The existing sewerage infrastructure covers 16 percent of the urban area. However, the system is precarious: sewerage pipelines are in a poor state and suffer from low capacity caused by the lack of a separate storm water collection system and inadequate solid waste management. Some households have septic tanks and latrines that are poorly constructed and operated. There is no cleaning service for the septic tanks, which generates additional problems due to the high level of the water table. There is also a considerable number of stilt houses that do not have adequate sanitation. The systems produce overflows and discharge significant amounts of untreated wastewater at five points into receiving water bodies and street canals, affecting public health and ecosystems.

9. This sub-component seeks to finance the construction of a new wastewater system for the collection, treatment, and disposal of wastewater generated in the urban perimeter of Guapi. The Project would directly benefit about 18,005 people in 2022 and would be designed to handle the projected population for the year 2040. Specifically, the subcomponent would finance main collectors, pump stations, force mains, secondary networks, household and inter-domiciliary connections, and a wastewater treatment plant. The wastewater treatment plant (average flow of 50 l/s) is intended to discharge into the Guapi River, which has an average flow of 357,000 l /s. The Guapi wastewater master plan (prepared in 2000) recommended a preliminary treatment with a river outfall as the best solution; however, the final decision of using this technology is pending approval of the environmental regional authority (*Corporación Autónoma Regional del Cauca*). A water quality modeling study confirms proposed treatment complies with the Guapi river water quality standards. In addition, the Project would finance a pilot project to introduce adequate on-site sanitation in the stilt houses area.

10. The project delivery method is envisioned through one standard works contract with related services, including detailed design and a transferring period to the service provider of up to 6-months, which includes start up and training. The Project also includes multiple instances for the service provider to be actively involved in the prioritization, design and supervision of the subprojects. The construction supervisor would oversee and provide quality control to the detailed design and overall construction, including compliance with environmental and social safeguards. The contractor also would carry out social activities related to the household and intradomiciliary connections. EMCASERVICIOS is carrying out technical and environmental feasibility studies for the sewer system and the wastewater treatment solution. With the technical information stemmed from these studies, the PIU would develop the bidding documents and conduct the procurement process once the project is approved by the MVCT's MVP process. The long-term success of this subcomponent is linked to institutional strengthening activities (subcomponent 3.1) and intensive community and social intervention (component 4) undertaken by the PIU, municipality, contractors, and operator to promote beneficiaries' appropriation of project works and encourage household connections.

11. **Subcomponent 1.3 – Improving solid waste management in Guapi.** The Municipality of Guapi produces 8.5 tons of solid waste per day, which is collected three times per week by a municipal vehicle. The municipality utilized a landfill at Temuey, at which time it was closed due

to conflicts with neighboring communities in 2008. Since 2008, a portion of the solid waste collected has been used as fill material for roadways and flood control structures in the urban core. This practice arose in part due to the lack of an adequate site for final disposal. Much of the solid waste that is not used as fill material is disposed of in city streets, beside or below homes, or in open dumps in vacant lots. Preliminary estimates indicate that some 30,000 m^3 of solid waste are buried in urban sectors in Guapi. This situation creates a significant health risk for the local population. Additionally, the accumulated solid waste poses a risk to existing and future drinking water systems. The Department of Cauca is executing an interim plan to address immediate solid waste concerns in the short term, including (i) the construction of a new cell at the site of the former landfill in Temuey (6 km upriver from the urban core) for an interim period of three years and (ii) purchase of two tractors to improve the collection of solid waste and transport to the interim landfill. However, the Municipality of Guapi needs a medium and long-term solution for solid waste management, as well as an environmental restoration plan for the urban sectors affected by the current solid waste practice. The municipality of Guapi has received authorization from the regional environmental authority, *Corporación Autónoma Regional del Cauca* (CRC), and has reached an agreement with the local community to proceed with construction of the new cell to implement the interim plan. EMCASERVICIOS is conducting a feasibility study that includes an evaluation of alternative for treatment and final disposal. Preliminary results suggest that a landfill solution alone is not feasible because of limited land availability, proximity of the airport and lack of road access to Guapi. In addition, EMCASERVICIOS is conducting an integrated solid waste management plan (ISMP) for the Municipality of Guapi, which includes waste characterization and quantification, assessment of current management system, identifying goals, objectives and key stakeholders, and an action plan based on the principles of waste prevention and collection, recycling and composting and final disposal. Per Colombian regulations, the Municipality of Guapi will need to implement the ISMP.

12. The closure of the Temuey landfill is scheduled for 2019 and will be carried out in accordance with an environmental assessment as per Colombian legislation and regulations. The closure is not included in the Project and is not considered as an associated activity.

13. This sub-component seeks to finance a long-term solution for Guapi's solid waste management problem, which may include a combination of a materials recovery facility (MRF) and a small landfill. An MRF is a specialized plant that receives and separate recyclable and organic materials from unrecoverable solid waste that will be disposed of in a landfill. In addition, the Project would also finance an environmental restoration activity to remove approximately 30,000 m^3 of solid waste, which includes removal of accumulated waste, filling with appropriate material, and final disposal.

14. The project delivery method for the solid waste solution is envisioned through one standard works contract with related services, including detailed design and a transferring period to the operator of up to 6-months, which includes start up and training. Another works contract is also envisioned for the environmental restoration project. The Project includes multiple instances for the service provider to actively participate in the prioritization, design and supervision of the subprojects. The construction supervisor would oversee and provide quality control to the detailed design and overall construction, including compliance with environmental and social safeguards. With the technical information from EMCASERVICIOS studies, the PIU would develop the

bidding documents and conduct the procurement process once the project is approved by the MVCT (MVP process). The long term success of this subcomponent is linked to institutional strengthening activities (subcomponent 3.1) tailored at implementing the PGIRS and intensive community and social intervention (subcomponent 4) to promote beneficiaries appropriation.

15. **Component 2 – Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco (US$90.21 million of which US$83.43 million IBRD).** Provision of goods, works, technical assistance and training to improve selected water supply and basic sanitation coverage and service quality investments in the Municipality of *Tumaco*, including, *inter alia*, the following investments: (i) rehabilitation and/or construction of raw water mains, optimization of the existing water treatment plant, and rehabilitation and/or construction of distribution water mains and networks; (ii) construction of a new wastewater collection, treatment and disposal system and implementation of a sanitation demonstration solution for stilt houses; and (iii) improvement of the collection system for solid waste and constructing a solid waste landfill.

16. **Subcomponent 2.1 – Improving Water Supply Delivery in Tumaco.** The municipality of Tumaco consists of two islands in the Pacific Ocean (Isla Tumaco and Isla El Morro) and one area in the Continent (Zona Continental). Total population in Tumaco (urban perimeter) is about 114,533 people distributed 77 percent in Isla Tumaco, 15 percent in the Continent, and the remaining 8 percent in Isla El Morro. The airport and hotels are located on Isla El Morro. Aguas de Tumaco, the municipal water agency, contracted Aquaseo S.A through an 18-year management and operation contract in 2009 to deliver WSBS services. However significant service provision challenges remain on account of deficient and aging infrastructure. The drinking water network in Tumaco covers 42 percent of residents, including 60 percent of the population on Isla Tumaco, 25 percent on the mainland, and 20 percent on Isla El Morro.[38] There is a high risk of contamination within the system due to aging pipes and informal connections. Interrupted service is provided for 72 hours per week in some sectors, while others receive just 48 hours per week. Non-revenue water losses are estimated at 75 percent and revenue collection rate is estimated at 35 percent. About 30 percent of the population (about 20,000 inhabitants) in Isla Tumaco lives in informal stilt houses built on the sea where water is obtained by rainwater cisterns, stand pipes or illegal connections.

17. In 2010 Aquaseo S.A. conducted a water supply master plan that resulted in a capital investment plan of US$41 million to improve the water supply service in the urban perimeter with a current population of 114,533 inhabitants and a projected population of 117,529 in year 2022. Aquaseo S.A., with national government resources, has implemented several waterworks, but additional resources are required to improve coverage and service delivery to acceptable levels. Therefore, Subcomponent 2.1 becomes critical to reach 95 percent coverage, continuity of 24 hrs per day and a water quality level lower than five points (no risk to human consumption) according to the IRCA index.[39] In addition, the Project aims at improving operational and commercial efficiency by reaching acceptable levels of water losses (10 m^3/conn-month) in Tumaco.[40]

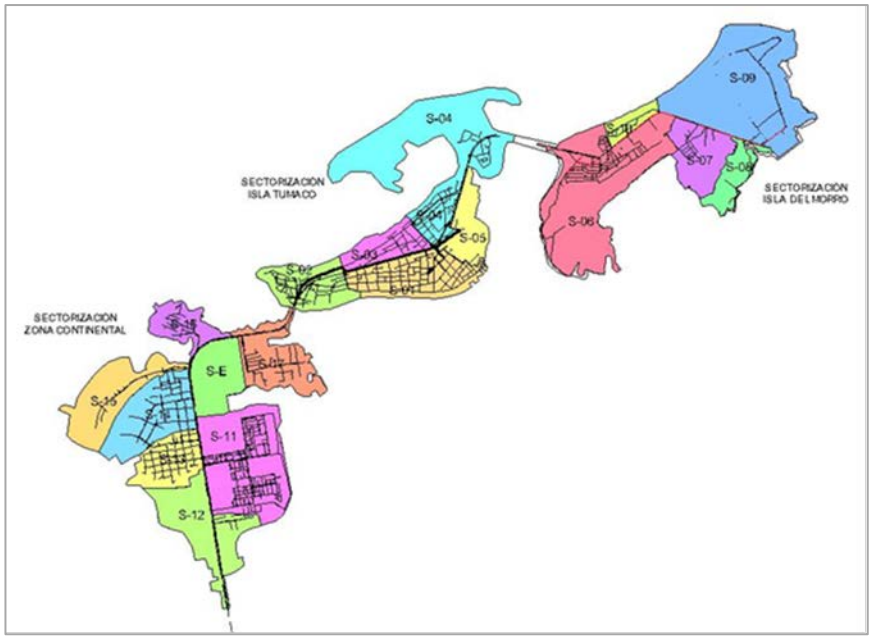
[38] CONPES

[39] Drinking water quality index refers to the Index of Water Quality Risk for Human Consumption (*Índice de Riesgo de la Calidad del Agua para Consumo Humano*, IRCA) regulated by the Ministry of Health.

[40] The national water loss criteria is 7 m^3/con- month; however, considering the current situation in Tumaco the Project considers acceptable if the Aquaseo reaches a value of 10 m^3/con-month and adopts a non-revenue water program to execute after the Project.

Aquaseo's approach is to invest in much needed infrastructure while improving operation by creating 17 measurement and control districts (DMC) designed to isolate and manage the distribution networks to improve service delivery and ensure adequate pressure (Figure 1).

Figure 1. Proposed Districts of Measurement and Control



18. This Subcomponent would finance the construction of water mains, storage facilities, pumps stations; improvements to the existing water treatment plant including a solids management solutions; construction of water distribution networks in the Zona Continental sector and in stilt houses (*palafíticas*) sectors in Isla Tumaco, including intra-domiciliary connections. The Project would also finance an energy redundancy project, a SCADA system, and micro and macro metering and pressure monitoring systems to ensure service efficiency and continuity.

19. During project preparation, the MVCT and Aquaseo presented 25 proposed activities to be financed with the Bank loan. To facilitate the procurement process, as well as project implementation and functionality, the 25 activities were organized in four main groups: (i) improvement of water transmission system; (ii) improvement and expansion of potable water treatment plant; (iii) construction of water distribution systems; and (v) construction of water system for Nuevo Tumaco. Groups 1-3 are required to meet water demands in Zona Continental, El Morro and Isla Tumaco and Group 4 is needed to begin redirecting population growth to the area of Nuevo Tumaco, which is identified as an area of lower risk to earthquakes and tsunamis. The works contract would include performance-based elements in the payment schedule to create incentives to achieve operational results and a short start-up and transition period to transfer the infrastructure to Aquaseo. The construction supervisor would oversee and provide quality control to overall works contact, including compliance with environmental and social safeguards. Aquaseo has detailed designs for six of the 25 activities, which are currently in the MVP process for MVCT approval. Aquaseo's engineering consultant firm is preparing detailed design for the other 19 activities, which are expected to be completed by December 2016. The consultant firm will prepare an operational manual of the water system, which contractors will have to follow to ensure that

the entire system is operating as envisioned. The PIU would develop the bidding documents and conduct the procurement process once the projects are approved by the MVCT (MVP process). The long-term success of this subcomponent is linked to institutional strengthening activities (subcomponent 3.1) and intensive community and social intervention (subcomponent 4) to promote beneficiaries appropriation and improve commercial efficiency.

20. **Subcomponent 2.2 – Construction of a wastewater management solution in Tumaco.** Tumaco urban perimeter does not have sewer coverage. Some neighborhoods in Tumaco—including Pradomar, la Florita, El Morro, and El Batallón—are connected to a basic wastewater collection system, though it is in poor condition and none of this wastewater is treated before discharge to the ocean. Some households have septic tanks and latrines that are poorly constructed and operated. There is no formal cleaning service for the septic tanks, which generates additional problems due to the high level of the water table. There is a highly populated silt house area that disposes fecal matter directly into watercourses. This overall situation has resulted in contamination of water bodies and presence of sewage running along the streets and houses, affecting significantly public health and ecosystems.

21. This sub-component seeks to finance the construction of a new wastewater system for the collection, treatment, and disposal of wastewater generated in the urban perimeter of Tumaco. The Project would directly benefit about 60,702 people located in Tumaco and Morro Islands (53 percent of Tumaco's urban population). Specifically, the subcomponent would finance main collectors, pump stations, force mains, secondary networks, household and inter-domiciliary connections, and a wastewater treatment plant. The wastewater treatment plant (average flow of 0.13 m^3/s) is envisioned to discharge into the Pacific Ocean. The wastewater treatment plant would need to comply with water quality standards and effluent regulations set by the Environmental Regional Authority (*Corporación Autónoma Regional de Nariño* – Corponariño). In addition, the Project would finance a demonstration project to introduce adequate sanitation in the stilt houses area.

22. The project delivery method is envisioned through one standard works contract for the new wastewater system. The works contract would include performance-based elements in the payment schedule to create incentives to achieve operational results and a short start-up and transition period to transfer the infrastructure to Aquaseo. In addition, a separate contract is envisioned for the demonstration project for stilt houses. The construction supervisor would oversee and provide quality control to the detailed design and overall construction, including compliance with environmental and social safeguards. The contractor also would carry out social activities related to the household and intradomiciliary connections. The MVCT, through FINDETER, is conducting a wastewater master plan to identify and evaluate alternatives and developed detail designs and cost estimates. The PIU would develop the bidding documents and conduct the procurement process once the project is approved by the MVCT (MVP process). The long-term success of this subcomponent is linked to institutional strengthening activities (subcomponent 3.1) and intensive community and social intervention (subcomponent 4) undertaken by the PIU, municipality, contractors, and operator to promote beneficiaries appropriation and household connections.

23. **Subcomponent 2.3 – Improving solid waste disposal in Tumaco.** Tumaco urban area generates about 72 ton/day of solid waste (0.83 kg/hab/day). Aquaseo provides solid waste management service to the Municipality of Tumaco since 2011, and service has improved considerately since Aquaseo took over. However, the current landfill has reached capacity, which has deteriorated the collection process – trucks now leave garbage in open area at the site and in city streets. The recollection equipment has passed its useful life. In addition, there are security issues that complicate the operation of the landfill. Aquaseo is processing a permit with the environmental regional authority to construct another cell in the existing landfill, which will allow them to continue using the current landfill for another two years (works related to construction of the new cell will be financed by Aquaseo). The current sanitary landfill, located in Buchelli, is expected to be closed by mid-2018, and the closure plan for the sanitary landfill has been approved by the existing environmental license (Resolution 207-2013).

24. The municipality's Solid Waste Management Plan, last revised in 2008, is in the process of being updated in accordance with current regulations and to incorporate waste reduction and recycling measures. The plan would include an analysis of alternatives for the location of the landfill and engineering studies for the proposed site. The new sanitary landfill in Tumaco should be operational by the second half of 2018. The Bank will not finance the closure of the existing landfill and it is not considered an associated activity. The design and construction of the new sanitary landfill must be carried out in compliance with national environmental regulations and the environmental standards of the World Bank (see annex 3, table 10).

25. This subcomponent seeks to finance the construction of a new engineered landfill to provide a long term solid waste solution, as well as the acquisition of equipment (tractors and compactors) for the landfill operation and solid waste collection. The project delivery method consists of a standard works contract for the engineered landfill with related services, including the development of detailed designs and an operational manual. The landfill would be operated by Aquaseo. The construction supervisor would oversee and provide quality control to the detailed design and overall construction, including compliance with environmental and social safeguards. With the technical information resulted from the solid waste master plan, the PIU would develop the bidding documents and conduct the procurement process once the project is approved by the MVCT's MVP process. The long-term success of this subcomponent is linked to institutional strengthening activities (subcomponent 3.1) as well as community and social intervention (subcomponent 4). In particular, the project would finance the implementation of a social inclusion plan for the informal waste pickers that might be attracted to the new landfill. Said social inclusion plan can also be used by the Borrower for informal waste pickers at existing landfills, even though those landfills are not part of the Project. The social inclusion plan entails an assessment of the population involved in recycling activities, analyzes alternatives for performing permitted economic activities under Colombian law, and includes the improvement of the labor, health, and security conditions of informal recyclers.

26. **Component 3 – Capacity Building and Institutional Strengthening of Service Providers in the Municipalities of Guapi and Tumaco (US$5.43 million of which all IBRD).** Provision of goods, technical assistance and training for capacity building and institutional strengthening activities to support improved water and sanitation performance of service providers and to ensure efficient and sustainable services, including, *inter alia*, the following activities: (i)

provision of support to the Municipality of *Guapi* to develop a long-term service delivery model; (ii) strengthen the existing service delivery model in the Municipality of *Tumaco*; (iii) provision of assistance to the Municipality of *Tumaco* and the Municipality of *Guapi* to develop online monitoring tools to assess the quality of services provided; (iv) carrying out of studies on, *inter alia*, demand management, fecal sludge management, non-revenue water management, and storm-water management, all under terms of reference acceptable to the Bank; and (v) supporting implementation of agreed recommendations for the demand management and non-revenue water management studies referred to in (iv) above.

27. **Subcomponent 3.1 – Establishing an Adequate Service Delivery Model in Guapi.** The municipality of Guapi managed WSBS service provision directly through a municipal Public Service Unit (PSU) created in 2012. However, it was decertified by the SSPD for use of SGP resources in 2011. Since then, the Department of Cauca assumed the responsibility of ensuring service provision and the administration of funds. The Department carried out an institutional assessment and proposed an action plan to improve service provision in the municipality. In June 2015, the Department and EMCASERVICIOS, signed an agreement with the specialized operator of Popayan, the Departmental capital, (Empresa de Acueducto y Alcantarillado de Popayán, EAAP), as part of the regionalization strategy to assist Guapi to implement an emergency plan to restore water supply service and to improve service operation and management through a series of technical studies, works, and capacity building activities. As this agreement ends in December 2016, this subcomponent seeks to support Guapi to establish a long-term service delivery model and to strengthen the institutional capacity of the municipal PSU for ensuring efficient provision of quality services and regaining certification from SSPD.

28. The subcomponent would finance consultant services, training and goods that would provide targeted technical assistance to the Municipality of Guapi to design and operationalize the service delivery model. Consultants, in close collaboration with the municipality and key stakeholders, would identify and evaluate service delivery models and alternative operational schemes adequate to the context of the municipality in accordance with Colombian regulations, including differential operational schemes for areas difficult to access and difficult to manage. Consultants would assist in the structuring of the model, including the preparation of bidding documents with performance targets to meet during service delivery as well as in the preparation and implementation of a transition plan towards its operationalization. The Project would also provide capacity building activities to strengthen the PSU capacity in the institutional, administrative, financial, commercial, technical, operational and social areas for ensuring efficient provision of quality services and regaining certification from SSPD. These activities would include assisting the PSU, inter-alia, in (i) developing and implementing a recertification strategy; (ii) defining an organizational and personnel structure optimal to ensure efficient service provision; (iii) improving administrative, commercial, financial, asset management, social, citizen engagement, and technical procedures, operational tools and manuals; (iv) implementing a tariff structure and financial model with transparent subsidies in accordance with existing Colombian legislation and establishing procedures for budget preparation and control execution on the basis of the actual tariff scheme; (v) developing and implementing a commercial system that fulfills SSPD and CRA requirements, including users' cadaster, micro-metering, billing, delivering, collection control, and complaint management; (vi) conducting demand management and non-revenue water control activities to improve operational efficiency; (vii) improving accounting and

financial procedures and practices to enable separate and independent management of the PSU in accordance with SSPD regulation; and (viii) improving solid waste collection, management, and disposal and providing technical training tailored to the selected solution.

29. **Subcomponent 3.2 – Consolidating Tumaco's Service Delivery Model.** The Municipality of Tumaco is certified and has public service company (Aguas de Tumaco), which has been responsible for ensuring WSBS service provision since 2010. Aguas de Tumaco signed an 18-year management and operation contract with a private specialized operator (Aquaseo) to ensure service provision in urban areas and it is responsible for providing oversight to the contract throughout its term that ends in 2025. Aguas de Tumaco remains responsible for ensuring WSBS service provision in rural areas, with technical and financial support from the Municipality through inter-administrative agreements. Since there is a functioning operational structure, this subcomponent seeks to consolidate the current model by strengthening Aguas de Tumaco's capacity to ensure WSBS service provision in both urban and rural areas of the municipality.

30. Regarding WSBS service provision in urban areas, the subcomponent seeks to strengthen *Aguas de Tumaco's capacity* to provide oversight to *Aquaseo's* concession contract with respect to meeting performance targets and complying with investments and works plan linked to the municipality's urban plans and projected growth. This subcomponent would finance a consulting firm that would carry out a comprehensive assessment of *Aguas de Tumaco's* institutional capacities in the legal, administrative, commercial, social, financial, technical, and operational areas to provide targeted technical assistance and capacity building activities in those areas where support is required. These activities would include assisting *Aguas de Tumaco and the municipality*, inter-alia, in (i) assessing service access and quality status in urban areas, identifying formal and informal providers; (ii) defining an organizational and personnel structure optimal to ensure efficient supervision of the contract; (iii) reorganizing and developing administrative, commercial, financial, social, technical and managerial procedures, mechanisms and tools for strategic planning, contract supervision, and performance monitoring; (iv) preparing and implementing a plan to monitor and control the service provided; (v) improving wastewater and solid waste management, including through nonconventional technologies and management models and operational schemes adequate to areas difficult to access and difficult to manage; and (vi) improving operational manuals for solid waste collection, management, and disposal.

31. This subcomponent would also provide technical assistance and capacity building activities to strengthen *Aguas de Tumaco's capacity* to ensure service provision in rural areas through supporting strategic planning, provision of technical assistance to local providers for O&M of existing rural infrastructure, and monitoring the indicators and targets established for the rural areas. In this regard, the subcomponent would support *Aguas de Tumaco*, the municipality, the PDA, and the MVCT to implement normative, management models, planning, and monitoring instruments in line with the rural WSBS policy developed by the MVCT (CONPES 3810/2014). The activities identified during preparation include, inter-alia, (i) assessing the status of WSBS service in the rural areas of the municipality; (ii) formulating a master plan for ensuring WSBS services in rural areas, articulated with Municipal and Departmental development Plans; (iii) defining an strategy for the supervision and provision of technical assistance to rural service providers; (iv) supporting the implementation of the Information System for Rural Water and Sanitation (SIASAR) for tracking service status and improvements in rural areas.

32. **Subcomponent 3.3 – Promoting social accountability on the quality of service provided.** This subcomponent will support the municipalities of Tumaco and Guapi to adopt monitoring methodologies and tools for capturing of consumer feedback on the quality of service provided by operators in each city, making it publicly available online for improved accuracy, transparency, and social accountability of service providers and stakeholders. The activities supported under this subcomponent would include, inter-alia, (i) adopting methodologies and developing ICT tools for tracking service status and improvements; (ii) carrying out periodic assessments of service levels from the citizens' perspective annually; (iii) developing city-level dashboards to make the results publicly available; and (iv) providing capacity building and training in the use of the methodologies and tools developed.

33. **Subcomponent 3.4 – Supporting Technical Studies and Learning Exchange**. WSBS challenges in Guapi and Tumaco call for the need to enhance the local governments and service providers' capacity to plan and develop WSBS services considering good planning practices and technical solutions for difficult situations. This subcomponent will support technical studies in Guapi and Tumaco and learning exchange activities on demand management, fecal sludge management, alternative sanitation solutions and models for stilt houses areas, non-revenue water, and storm water management.

34. **Component 4 – Project Management and Environmental and Social Management. (US$7.01 million, of which all IBRD).** Provision of goods, technical assistance and training to the PIU for the implementation of the Project (including, *inter alia*, in the areas of financial management, procurement, disbursement, and safeguards management) and financing of Operating Costs. In particular, this component would support the implementation of the environmental and social management plans, which contains a civil-engagement strategy, gender analysis, and Grievance and Redress Mechanism (GRM).

35. **Project Beneficiaries.** Improving coverage and service quality of water and basic sanitation services will directly benefit about 142,480 inhabitants located in the urban perimeters of Guapi (18,005 people) and Tumaco (124,475 people) by providing access to basic services: water, sanitation, and management of solid waste.[41] The populations of Guapi and Tumaco are 50.2 and 49.9 percent female, respectively. Additionally, over half of the populations of both Guapi and Tumaco are under the age of 20. About 96 percent and 91 percent of the population in Tumaco and Guapi are considered poor, respectively.[42] Some 97 percent of the urban core population of Guapi and 93 percent of urban core population of Tumaco self-identify as Afro-descendent.[43]

36. The quality of life of residents in these areas is expected to improve significantly through increased access to better quality water and sanitation services and overall reduction in pollution in both the cities and associated water bodies, resulting in improved public health and income generating possibilities. The small-scale harvest of shellfish for sale and domestic consumption is

[41] Population based on municipality projections for 2022. Current population (2016) for the urban cores of Tumaco is 114,533 people and for Guapi 18,199.
[42] This assumes people belonging to socioeconomic strata 1 and 2, who are considered poor as defined by the GoC.
[43] Data from the Colombia 2005 Census, *Departamento Administrativo Nacional de Estadística*, http://systema59.dane.gov.co/cgibin/RpWebEngine.exe/PortalAction?&MODE=MAIN&BASE=CG2005AMPLIADO&MAIN=WebServerMain.inl.

an important part of daily life for many local residents, and some 70 percent of the people involved in these actives are female. Improving the health of the river and marine ecosystems as a result of the project should improve the income generating prospects of these women.

37. Project impacts are expected to spread to nearby municipalities as the urban cores of Guapi and Tumaco are considered regional hubs for education, health and other public services. Beyond the urban core, the communities of Chilvy, Llorente, and Candelillas in the Municipality of Tumaco will benefit from the Project through use of the Tumaco landfill financed by the Project. Rural communities in Guapi and Tumaco will also benefit from the strengthened planning and implementation capacities of the municipal units in charge of WSBS service provision supported through the institutional strengthening component of the Project.

38. Table 2.1 includes a more detailed cost estimate.

Table 2.1. Detailed Project Cost Estimate

Project Components	Total Amount US$	IBRD Financing US$	Local Financing US$	% IBRD Financing
Component 1. WSBS Improvements in the Municipality of Guapi.	28,290,686	28,260,686	30,000	99.9%
Subcomponent 1.1 - Improving water supply delivery in Guapi	9,213,767	9,208,767	5,000	
Subcomponent 1.2 - Construction of a wastewater management solution	12,875,288	12,865,288	10,000	
Subcomponent 1.3 - Improving solid waste management	3,868,180	3,853,180	15,000	
Construction Supervisor	2,333,451	2,333,451		
Component 2. WSBS Improvements in the Municipality of Tumaco.	82,678,608	75,897,608	6,781,000	91.8%
Subcomponent 2.1 - Improving water supply delivery in Tumaco	29,966,667	23,366,667	6,600,000	
Subcomponent 2.2 - Construction of a wastewater management solution	40,984,067	40,943,067	41,000	
Subcomponent 2.3 - Improving solid waste disposal in Tumaco	5,461,100	5,321,100	140,000	
Construction Supervisor	6,266,775	6,266,775		
Component 3. Capacity Building and Institutional Strengthening of Service Providers in Guapi and Tumaco.	4,975,000	4,975,000		100%
Subcomponent 3.1 - Establishing an adequate service delivery model in Guapi	1,800,000	1,800,000		
Subcomponent 3.2 - Consolidating Tumaco’s service delivery model	700,000	700,000		
Subcomponent 3.3 - Promoting social accountability on the quality of service provided	400,000	400,000		
Subcomponent 3.4 - Supporting technical studies and learning exchange	2,075,000	2,075,000		
Component 4. Project Management and Environmental and Social Management.	6,421,770	6,421,770		100%
Subcomponent 4.1 - Information, Communication, and Participation Plan	400,000	400,000		

Project Components	Total Amount US$	IBRD Financing US$	Local Financing US$	% IBRD Financing
Subcomponent 4.2 - Social Inclusion Plan	320,000	320,000		
Subcomponent 4.3 - PIU administration	5,701,770	5,701,770		
TOTAL PROJECT BASE COST	122,366,064	115,555,064		
Physical Contingency	5,777,753	5,777,753		
Price Contingency	5,367,183	5,367,183		
TOTAL PROJECT COST	133,511,000	126,700,000	6,811,000	

Annex 3: Implementation Arrangements

COLOMBIA: Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239)

Project Institutional and Implementation Arrangements

1. **Project implementation arrangements for *Plan Todos Somos PAZcifico* (PTSP) have been developed based on lessons learned from previous projects in the WSBS sector in Colombia.** Donor-financed WSBS projects in Colombia have typically been implemented through one of the following two arrangements: (i) the borrower is the national government and the executing agencies are the MVCT and municipalities; or (ii) a subnational government acts as borrower and executing agency (e.g., the Department of La Guajira and the Bogota River Environmental Authority are current Bank borrowers) with a sovereign guarantee from the GoC. Institutional capacity constraints at the subnational level have delayed previous projects. Based on this experience, the proposed Project adopts a more centralized implementation approach in which national authorities act as the borrower and lead the execution of the project in close collaboration with municipal and departmental authorities and service providers. This section describes the proposed implementation arrangements for the PTSP in general and for this Project specifically. This proposed arrangement is currently in place for the IDB multisector water and energy project (approved in December 2015 with a loan amount of US$231.4 million), and would also be used for the proposed Bank-financed WSBS Project as well as the complementary waterways project.

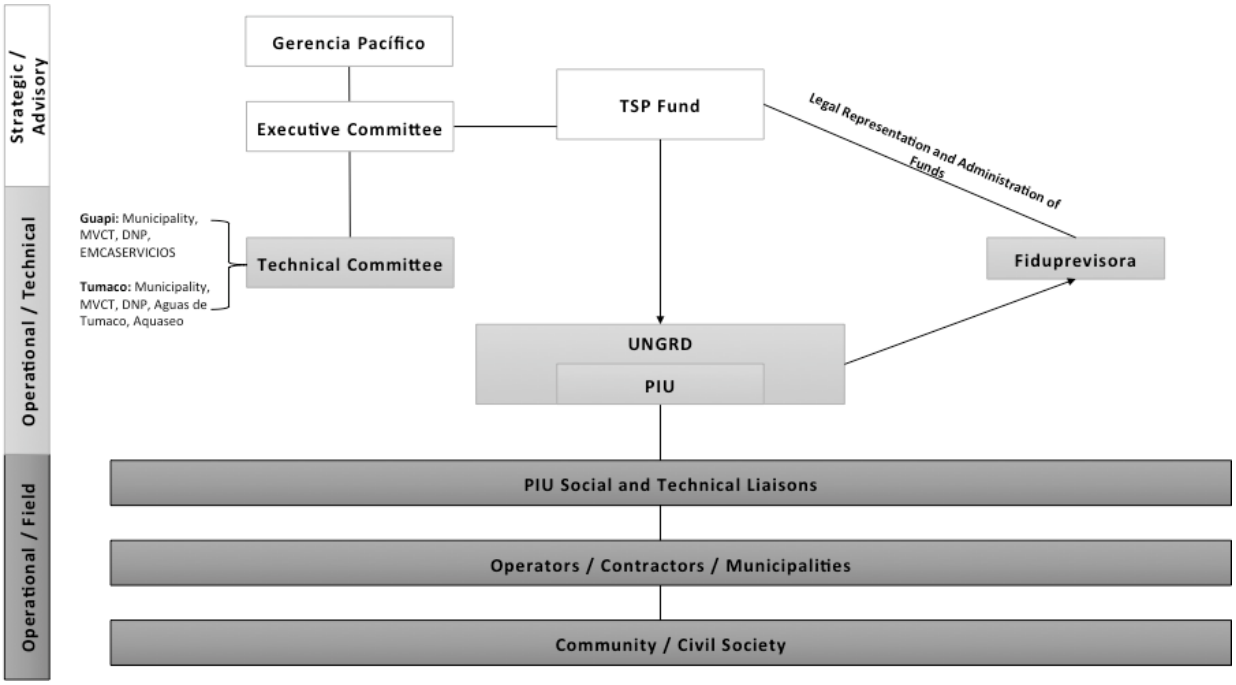
2. **Borrower.** The borrower for the proposed Project will be the *Fondo para el Desarrollo del Plan Todos Somos PAZcífico* (TSP Fund) represented by its Fiduciary Agent and Trustee FIDUCIARIA LA PREVISORA, S.A. The GoC established the TSP Fund through article 185 of the 2014-2018 National Development Plan (approved through Law 1753 of 2015) as a standalone trust fund to make infrastructure investments in the Pacific Coast. The Trust Fund provides the GoC the legal, financial and operational vehicle to execute strategic multi-sectoral investments. The Trust Fund will be administered and represented by FIDUCIARIA LA PREVISORA S.A. (FIDUPREVISORA), a mixed capital fiduciary company linked to the Ministry of Finance and Public Credit (MHCP), and will operate under the commercial provisions applicable to the fiduciary.[44] This scheme provides flexibility, efficiency and effectiveness to project implementation because it eliminates the need to apply public budget management norms and allows the Trust Fund to enter into contract arrangements. The borrower will assume responsibility for debt service to the Bank with resources that the national government will allocate to it in the National General Budget, which are guaranteed by available future appropriations under Colombian law. The Republic of Colombia will provide a sovereign guarantee.

3. **Implementation arrangements consider local, departmental, and national actors**. Key implementation agencies include: (i) a qualified PIU established by the UNGRD and (ii) an independent fiduciary agent, FIDUPREVISORA S.A., to administer fund flows. The implementation of the project will also involve coordination with other stakeholders including MVCT, *Gerencia Pacífico*, the Municipalities of Guapi and Tumaco, service providers, regional

[44] Ministry of Finance Resolution 4075, of November 12, 2015, identifies FIDUPREVISORA as the Fiduciary Agent.

environmental authorities (CARs), and DNP. Figure 3.1 outlines the relationships between these actors.

Figure 3.1. PIU Organizational Structure

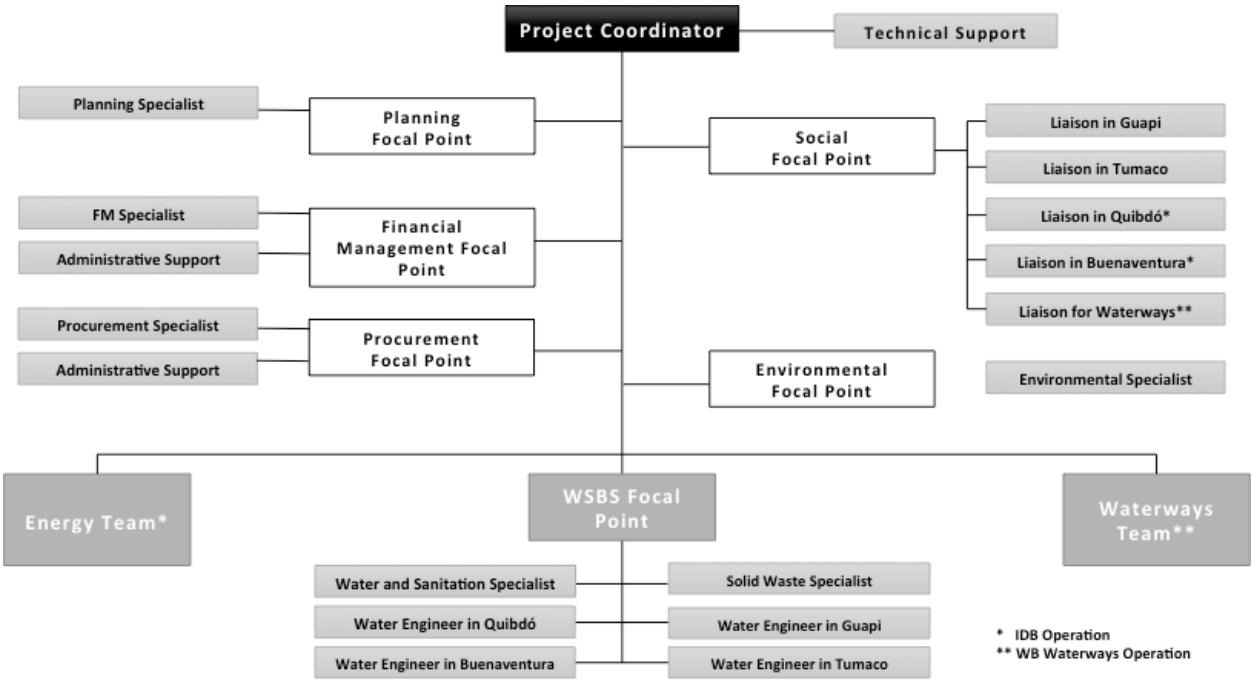


4. **The implementing agency for the Project and the overall PTSP is the National Unit for Disaster Risk Management *(Unidad Nacional de Gestión del Riesgo de Desastres-UNGRD).***[45] The UNGRD is a national-level entity, which reports directly to the Presidency of the Republic, though its operation is decentralized throughout the country. The UNGRD has legal status and financial and administrative autonomy and has the legal mandate to coordinate the National Disaster Risk Management System.[46] The UNGRD also operates as the implementing agency for several grants and loans that are a national priority, including the Program to Support Sustainable Development of San Andres (US$70 million loan financed by the IDB and approved in 2013).[47] The UNGRD, with technical assistance from the IDB, has created a Project Implementing Unit (PIU) which is responsible for overall project implementation of both Inter-American Development Bank (IDB) and World Bank Plan PAZcífico projects including compliance with the banks' fiduciary management, reporting requirements, monitoring activities, and implementation of the environmental and social requirements. The PIU has established a proposed organizational chart and budget allocation, which include social and environmental staff.

[45] Ministry of Finance Resolution 4060, of November 10, 2015, establishes the UNGRD as the implementing agency.
[46] The UNGRD acts as the coordinator of the National Disaster Risk Management System and is the lead institution for the three disaster risk management processes: understanding risk, risk reduction, and disaster response and established under Decree 4147 of 2011 and Law 1523 of 2012.
[47] See: "*Program to Support the Sustainable Development of the Department of the San Andrés, Providencia, and Santa Catalina Archipelago*"; http://www.iadb.org/en/projects/project-description-title,1303.html?id=CO-L1125.

5. **The PIU team's responsibilities include:** (i) providing technical, financial, legal, social, communications, and environmental support to specialized operators and municipalities to facilitate the implementation of the project; (ii) preparing and regularly updating the program execution plan, the annual work plan, and the procurement plan when necessary; (iii) carrying out the selection process for works, good, and consulting services, and interfacing with the fiduciary agent to enter into contracts financed by the project; (iv) undertaking supervisory and follow-up tasks associated with the works as well as compliance with Bank safeguards, program execution, monitoring, evaluation, and reporting; and (v) performing sound financial management of the project, including the preparation of supporting documentation for disbursement requests, (Withdrawal Applications, SOEs), verification of expenditures, and submittal of financial reporting documents as required by the Bank. The PIU also carries out the following roles to ensure compliance with Bank safeguards policies: (i) ensure knowledge of and compliance with social and environmental safeguards policies on the part of all government stakeholders, consultants, and works contractors; (ii) work with the Municipalities of Guapi and Tumaco to obtain all necessary environmental permits, licenses, and authorizations; and (iii) work closely with all government stakeholders, consultants, and works contractors to ensure compliance with the EMF, RPF, SIP, and ICPP. The PIU will work in coordination with the line ministries (MVCT for this Project) to obtain technical approvals as needed. The PIU is led by a project coordinator and supported by thematic focal points, as indicated in Figure 3.2, as well as local liaisons embedded in municipal governments to proactively work with local authorities.

Figure 3.2. PIU Organizational Structure



6. The PIU created under UNGRD currently has a project coordinator, lead procurement specialist, lead water specialist, lead planning specialist, planning specialist, lead social specialist, lead financial specialist, and a communication specialist. The UNGRD currently is in the selection process of the lead environmental lead. A covenant has been included in the legal agreement for

the PIU to complete hiring of an adequate full team satisfactory to the Bank in accordance with the Operational Manual within 30 days of effectiveness.

7. **Interagency and Intergovernmental Coordination**. An Executive Committee (*junta administradora*) for the TSP Fund—coving the World Bank-financed WSBS and waterways projects, as well as the IDB-financed project—is comprised of senior representatives from MHCP, DNP, two Governors and two Mayors from the Pacific Coast, and three representatives from the Presidency. The Executive Committee's main function will be to approve the annual work plans, define strategic guidelines, and carry out general monitoring of the plan's execution. To complement the Executive Committee, the UNGRD will establish a project Technical Committee (*comité técnico*) with technical staff from the departments, MVCT, DNP, PIU, and municipalities as a platform to ensure adequate coordination and provide support for the preparation and the approval of subprojects through the MVP process. The Operational Manual defines the role of the Technical Committee as well as frequency of meetings. The MVCT will support the validation, prioritization, and approval of sub-projects through the MVP process, and will participate in the Technical Committee.

8. **Municipalities.** The Municipalities of Guapi and Tumaco played an active role in the design of the Project and have defined functions throughout Project implementation. While the UNGRD serves as the implementing agency, municipalities participate in the Executive and Technical Committees. Institutional strengthening activities under Component 3 will be targeted to build capacity at both municipalities. The municipality will support the implementation of the Information, Communication, and Participation Plan (ICPP), led by the PIU. The municipalities will receive the works financed under the Project and be responsible for O&M. The Municipalities are in charge of obtaining all licenses necessary for operating the water and sanitation services and is also responsible for land acquisition and easement permits.

9. ***Gerencia Pacífico***. President Santos of Colombia established the *Gerencia Pacífico* to coordinate national level policy in the Pacific region by promoting dialogue, planning, and follow-through.[48] The *Gerencia* led the strategic development of the PTSP through consultations at the local level and is charged with overseeing its successful implementation. The entity, housed in the Presidency in Bogota, is staffed with personnel from the region, many of who have held positions in local and departmental government in the Pacific, and provides a strong link between the Office of the President and local authorities. Based on its deep local ties, the *Gerencia Pacífico* compliments the technical leadership of the PIU with political backing.

10. **Construction Supervisor (Consulting Firm)**. The UNGRD will hire a construction supervisor (*interventor integrado*) for each municipality to strengthen supervision of the design and construction of sub-projects, as well as oversight for the implementation of the social and environmental project instruments. The consulting firm will function as a technical interface and a conduit to transfer knowledge by coordinating interaction between the PIU, municipalities, specialized operators, and contractors. It will provide on-the-ground supervision of sub-projects through personnel based in the Pacific region.

[48] CONPES document 3847 of November 3, 2015. An overview of the *Gerencia Pacífico* is available at www.somospazcifico.gov.co.

11. **Service providers/specialized operators.** EMCASERVICIOS and the Departmental Government of Cauca are financing several feasibility and environmental studies to support project structuring and bidding documents for sub-projects in Guapi. EMCASERVICIOS is also supporting institutional strengthening and capacity building to the Municipality of Guapi. Guapi does not have an operator; however, the Project would support the creation of a service delivery model that would operate the WSBS systems. Aguas de Tumaco is the municipal water company and Aquaseo is the specialized operator that has an operating contract with Aguas de Tumaco. Aquaseo will operate and maintain the infrastructure developed under this project.

12. **Fiduciary Agent and Flow of Funds**. All project funds—including loan proceeds and local funds when applicable—will be managed by an independent fiduciary agent (*fiduciaria*). The fiduciary agent (FIDUPREVISORA S.A.) will handle the contracting of works, goods and services based on the selection process conducted by the UNGRD and make the related payments, as well as loan repayment, and will charge the incremental costs for these services of approximately 0.75 percent of the total loan to cover the operating costs for the fiduciary management of the project. The Vice-Presidency of Fiduciary Administration within FIDUPREVISORA will be the division responsible for the fiduciary aspects of the project.

Financial Management, Disbursements and Procurement

Financial Management

13. **FM assessment.** An FM assessment of the UNGRD and *FIDUPREVISORA* was conducted in accordance with World Bank Policy OP/BP 10.00 for the implementation of the *Plan Todos Somos PAZcífico* Program (PTSP). The UNGRD has experience implementing investment projects, however, it is a relatively new organization with still limited experience with infrastructure operations financed by multilateral banks. FIDUPREVISORA, will be the fiduciary agent and loan recipient. Both entities have sound internal control procedures in place. However, given the complexity of the institutional arrangements and the substantial inherent risk of the project, the assessment has concluded that to ensure that adequate financial management arrangements are in place for project implementation, important mitigation measures must be implemented, including: (i) approved Operational Manual with clear roles and responsibilities of participating entities in the program, including but not limited to the UNGRD, FIDUPREVISORA, and the MVCT; (ii) approved Operating Regulations (*Reglamento Operativo)* between UNGRD and FIDUPREVISORA that define the relations, as well as roles and responsibilities of both entities; (iii) the fiduciary team is hired/appointed, at UNGRD and FIDUPREVISORA; and (iv) the financial information system software has been modified by FIDUPREVISORA to meet project needs. The Borrower has met actions (iii) and (iv) and is expected to meet (i) and (ii) by effectiveness.

14. **The overall FM assessed risk for the project is Substantial,** considering the complexity of the institutional arrangements for the project, the limited experience of the UNGRD implementing multilateral projects, and the close supervision and coordination required for implementation of project activities at the beneficiary municipalities, Guapi and Tumaco. Furthermore, the rating also considers that the Project will be implemented through new instruments such as the TSP Fund, with FIDUPREVISORA as the fiduciary agents and the

recipient of the loan with a guarantee from the Government, the UNGRD as the executing entity, and the projects to be financed under the loan are approved by the MVCT. To mitigate these risks, the PIU will required to retain adequate FM staff, and Bank FM specialist will provide support during project implementation.

15. **FM action plan and FM-related conditions.** The action plan agreed upon as a result of the assessment is described in table 3.1.

Table 3.1. FM Action Plan

Description of Action/Condition	By when
The Project Operational Manual has been adopted by the Borrower in a manner satisfactory to the Bank	Effectiveness. An advance operational manual has been reviewed by the Bank
Operating regulations (*Reglamento Operativo)* between UNGRD and FIDUPREVISORA approved by the Bank	The operating regulations has been reviewed and approved by the Bank. By effectiveness, the operating regulations have been agreed by Fiduprevisora and UNGRD.
Fiduciary team is hired/appointed, at the UNGRD and FIDUPREVISORA	A core team has been hired and appointed. Not later than thirty (30) days after the effective date, the UNGRD, shall ensure that the PIU is staffed with the professionals set forth in the Project Operational Manual.
Financial information system software has been modified by FIDUPREVISORA to meet project needs and its operating	Completed

16. **Budgeting arrangements.** The UNGRD, as the executing entity, will be responsible for preparing and monitoring the annual operating plan and the respective budget. The budget, and any modifications made to it, will be recorded and monitored by the UNGRD through the PeopleSoft information system housed by FIDUPREVISORA but with access made available to the UNGRD. The procurement process will be the responsibility of the UNGRD once the selection process is completed and the contract is signed and recorded in the information system by FIDUPREVISORA. Upon review and approval by the UNGRD, project payments will be processed and recorded by FIDUPREVISORA through the PeopleSoft information system.

17. **Staffing arrangements.** The UNGRD will guarantee to keep qualified financial staff at all times, including, but not limited to, a financial specialist and two assistants, and that FIDUPREVISORA assigns the staff, in numbers and qualifications as agreed between the entities, for the adequate financial management of the funds.

18. **Fiduciary agent.** FIDUPREVISORA, as the fiduciary agent and loan recipient will sign the contracts for works, goods, and services based on the selection process conducted by the UNGRD; make payments for works, goods, and services; facilitate the software for budget and accounting of the project; conduct project accounting; and handle loan repayment, the latter through budget allocated by the MHCP. The vice-presidency of fiduciary administration within FIDUPREVISORA will be the division responsible for the fiduciary aspects of the project.

19. **Accounting and financial reporting.** Budget and project accounting will be integrated within the PeopleSoft information system housed at the fiduciary agent (FIDUPREVISORA), a

system where budgeting, accounting, and treasury modules are interfaced. FIDUPREVISORA will incorporate improvements to the system to keep separate records for the activities financed by the loan and capture and report budget and accounting information by component and subcomponent according to the project needs. The UNGRD is responsible for the overall project FM and will have concurrent access online as a user to the information system, for budget monitoring, consultations, and generation of information for preparation of project financial reports and disbursement requests submitted to the Bank on the basis of SOEs.

20. The unaudited interim financial reports (IFRs), prepared by the UNGRD, under formats agreed with the Bank and documented in the project operational manual, will be submitted to the Bank on a semi-annual basis within 45 days after the end of each such period. The IFRs will serve as a basis for the annual financial statements and audit purposes.

21. The UNGRD and FIDUPREVISORA shall retain all records (contracts, orders, invoices, bills, receipts and other documents), evidencing expenditures under their respective parts of the Project until at least the later of: (i) one year after the Bank has received the audited Financial Statements covering the period during which the last withdrawal from the Loan Account was made; and (ii) two years after the Closing Date. The UNGRD and FIDUPREVISORA shall enable the Bank's representatives to examine such records.

22. **General flow of funds.** The Bank will disburse the loan proceeds into a Designated Account (DA) in US Dollars in the name of the Project held at Banco de Bogota (NY), which is a commercial bank acceptable to the Bank, from where, upon approval by the UNGRD and based on the estimated payments for a period not to exceed of 30 days, funds will be transferred to a project operating account in local currency (Colombian Peso). Both accounts will be managed and held by FIDUPREVISORA (the financial agent, *fiduciaria*), and monthly conciliations will be provided to UNGRD. The disbursements methods under the Project would be advances and reimbursement of eligible expenditures reported through statements of expenditure (SOEs) as indicated in the Disbursement Letter. Initial deposit to the Designated Account will be up to the amount of US$25,000,000, based on an approved cash forecast for two quarters (it based on signed contracts), and a cash flow report will be periodically submitted to the Bank (included in the IFR). Based on the Financial Management Assessment, the project justifies this as a better flow of funds option and to be implemented under controls that are in place to support advances with a variable ceiling. The Borrower will request approval from the Task Team Leader before submitting a request for an advance.

23. **Project operating costs.** The PTSP is to be funded through three operations, one financed by the IDB and two by the World Bank. The World Bank operations include the project subject of this document, Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239); and a second loan for the Enhancing Waterway Connectivity of Colombia's Plan Pacifico Project (P156880, in preparation). The operating costs are estimated at about 5 percent of the cost of each operation. Individual operations will finance specific technical leaders and other specific project operating costs. The one IDB and two World Bank operations will co-finance payment of the Project coordinator, and the Fiduciary and technical teams, as well as other operating costs that support the three projects, as defined in the project operational manual. Other project operating costs co-financed by the IDB and World Bank operations include: the

external audits, payments to Fiduprevisora up to 0.75 percent of the total loan to cover the operating costs for the fiduciary management of the project, bank charges, and travel costs of the PIU. The payments to FIDUPREVISORA have been approved by the Ministry of Finance based on the proposal submitted by FIDUPREVISORA S.A.; proposal that include operating costs such as the team assigned for the management of the project, legal support, elaboration of the project contracts, processing payment and accounting of project transactions, reporting, internal audit review, and other administrative costs needed for the management of the project funds. The proposal is considered reasonable to cover such operating costs.

24. **Retroactive Financing.** Up to an aggregate amount not to exceed US$25,340,000 in retroactive financing will be available for eligible expenditures to be made on or after January 1, 2016, but in no case more than one year prior to the date of the loan agreement.

25. **Front-end Fee**. The Borrower will pay from its own resources the front-end fee, and it shall be equal to one quarter of one percent (0.25%) of the Loan amount. The Borrower shall pay the Front-end Fee not later than sixty days after the Effective Date pursuant to Section 2.03 of the Loan Agreement.

26. **External audit arrangements.** The Project's annual financial statements will be audited by a private firm under terms acceptable to the Bank with an interim review to conduct on-site visits to the project within the first nine months of the period being audited. The project annual audited financial statements will be submitted to the Bank not later than six months after the end of each audited period.

27. According to the Access to Information Policy for the World Bank-financed operations, the Borrower will disclose the audited project financial statements in the UNGRD's web site. Following the World Bank's formal receipt of these statements from the Borrower, the Bank will make them available to the public in accordance with the World Bank Policy on Access to Information.

28. **Local contribution.** The local amount is about US$6.8 million for land acquisition and construction of some water activities. There are also in-kind contributions to be provided by the MVCT and EMCASERVICIOS, estimated at US$5 million, and comprise mainly design and feasibility studies of the projects to be financed under the project.

29. **Implementation support and supervision strategy.** The World Bank FM team (PRMM-LCR) will monitor the implementation of the FM action plan to ensure the successful implementation and that the deadlines are met. During project implementation semi-annual FM supervisions will be conducted, and the periodic unaudited IFRs, and the annual external audit report will be reviewed.

Disbursements

30. **Disbursement arrangements.** The proposed disbursement arrangements[49] are summarized in tables 3.2 and 3.3:

Table 3.2

Disbursement method	Advance and reimbursement
DA and timing of documentation	Segregated and quarterly (same as IFRs)
Supporting documentation	SOEs
Limits	Variable up to US$25 million

Table 3.3. Disbursement Categories

Category	Amount of the Loan Allocated (expressed in US$)	Percentage of Expenditures to be financed (inclusive of Taxes)
(1) Goods, works, non-consulting services, consultants' services, Training and Operating Costs under the Project	126,700,000	100%
TOTAL AMOUNT	126,700,000	

Procurement

A. General

31. Procurement for the project will be carried out in accordance with the World Bank's "Guidelines Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers," dated January 2011 and updated in July 2014; the World Bank's "Guidelines Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers," dated January 2011 and updated in July 2014; and the provisions stipulated in the Loan Agreement. For each contract to be financed by the Loan, the different procurement methods, consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and timeframe will be agreed between the Borrower and the Bank in the Procurement Plan.

(a) **Procurement of works.** Civil works procured under this project will include construction contracts and installation of water, sewage, and solid waste systems. Planned processes do not have high complexity from the procedure point of view.

(b) **Procurement of goods**. Goods will be procured under this project.

(c) **Procurement of non-consultant services**. Non-consulting services to be procured will be according to the required activities for project implementation. All procurement notices shall be advertised on the UNGRD or National Contracting Office (*Colombia Compra Eficiente*, SECOP) web-page or in at least one local newspaper of national circulation. In addition, the International Competitive Bidding

[49] For details, refer to the Disbursement Letter and see the Disbursement Handbook for World Bank Clients as well as the Disbursement Guidelines for Projects.

(ICB) procurement notices and contract award information shall be advertised in United Nations Development Business online.

(d) **Selection of consultants**. It is planned to hire construction supervisor consulting firms to carry out supervision of works contracts and some specific studies for the two municipalities.

(e) **Individual consultants**. Most of the consulting services to be contracted will be related to supervision, training, and technical assistance. The consulting services mentioned above may be provided by individual consultants selected by comparison of qualifications of at least three candidates and hired in accordance with the provisions of Section V of the Consultant Guidelines. The web-page of UNGRD or SECOP or a national newspaper shall also be used to advertise a request of expression of interest for consulting firms or individuals and to publish information on awarded contracts in accordance with the provisions of paragraph 2.31 of the Consultant Guidelines. Contracts expected to cost more than US$300,000 shall be advertised in United Nations Development Business online.

(f) **Operational costs**. These costs refer to reasonable recurrent expenditures that will not have been incurred by the implementing agency in the absence of the project. They may include but are not limited to logistics, travel expenses and land transportation, and the commission to be paid to the fiduciary company, among others.

B. Assessment of the Implementing Agency's Capacity to Carry out Procurement

32. The PIU will work in the UNGRD facilities, the physical spaces are suitable for operation staff including internet connections and data network; the building has security measures in line with those of public entities. The proposed procurement team, including a procurement leader, two professional specialists and an administrative support professional, are reasonable for the implementation of project procurement plan. The workload of the people will be monitored, and they must work exclusively on the project. The UNGRD applied the general Law on archives which governs all public entities, under this legislation, the file records of the Project contracts should be structured, within its administrative processes the documents will be sent later to the entity who will be the manager of the TSP Fund and will be responsible for managing the files on the stage of contract execution. A review of the fiduciary agent indicated that the Entity has no major difficulties in carrying out these activities as the manager of the Fund. However, it will need adequate coordination in performing ex post procurement reviews with the Bank, as well as an independent audit firm when deemed necessary by the Bank.

33. **Availability of assessment documentation and dissemination.** Detailed procurement documentation relevant to this capacity assessment will be available in the Bank project files (P-RAM system).

34. **Risk mitigation plan.** Table 3.4 summarizes the mitigation actions proposed for the procurement-related risks identified above.

Table 3.4. Procurement Improvement Action Plan

Risks - Areas for Improvement	Mitigation Actions	Responsibility	When
Programming project procurement for the first 18 months of execution	Preparation of a comprehensive, detailed Procurement Plan for the first 18 months of Project execution.	UNGRD	Effectiveness An advance procurement plan has been reviewed by the Bank.
Management project	The Project Operational Manual has been adopted by the Borrower in a manner satisfactory to the Bank	UNGRD	Effectiveness An advance OM has been reviewed by the Bank.
Lack of staff with expertise in procurement processes with World Bank guidelines	Hire staff with the knowledge and experience acceptable to the World Bank who will be responsible for carrying out the process of selecting and contracting with World Bank guidelines. An update training on World Bank procedures will be conducted before the start of implementation of the Procurement Plan.	UNGRD	A core team has been hired and appointed, which includes a lead procurement specialist. Not later than thirty (30) days after the effective date, the UNGRD, shall ensure that the PIU is staffed with the professionals set forth in the Project Operational Manual.
Understaffing since the PIU would cover processes for three operations at once.	It should periodically review the workload of staff hired to manage procurement, if necessary reinforce the team with additional staff to ensure quality processes. It should encourage capacity building to enable the UNGRD take advantage of the experience and capitalize on behalf of their teams, creating their own capacity on issues related to such projects.	UNGRD	During project implementation

35. As a result of the capacity assessment carried out in February and May 2016, the overall project risk for procurement is rated Substantial, considering the country risk, the agency's capacity to implement procurement, the implementation arrangements and the complexity of the institutional arrangements for the project. The level of risk for the Project will be reassessed once there is evidence that the above mentioned mitigating measures have been properly conducted.

36. The UNGRD prepared a detailed and comprehensive Procurement Plan, which includes all contracts for which invitations for bids and proposals will be issued in the first 18 months of Project implementation. The Procurement Plan will be available in the Web page indicated by the Bank, at least 45 day after Project's effectiveness.

D. Procurement Plan

37. The Procurement Plan will be updated at least annually, or as required, to reflect the actual project implementation needs and improvements in institutional capacity. The World Bank's

standard bidding documents and standard requests for proposals will govern the procurement of goods and civil works through ICB and the selection of consulting firms, respectively. All other standard bidding documents to be used for each procurement method different to ICB, as well as model contracts for the procurement of works, goods, and consultants, are included in the Operational Manual.

I. General

Bank's approval Date of the Procurement Plan: ***August 29, 2016***
Date of General Procurement Notice: **December 12, 2016**
Period covered by this Procurement Plan: 18 months

II. Details of the Procurement Arrangements Involving Methods and Review

38. Thresholds for the use of the different procurement methods and recommended thresholds are given in table 3.5.

Table 3.5. Thresholds for Procurement Methods and for Recommended Bank Review

Estimated Value Contract Threshold	Procurement Method	Bank Prior Review
Works: ≥US$20,000,000 <US$20,000,000 and ≥US$350,000 <US$350,000 Any estimated cost	 ICB NCB Shopping Direct contracting	According to Procurement Plan
Non-consulting Services: ≥US$2,000,000 <US$2,000,000 and ≥US$100,000 <US$100,000 Any estimated cost	 ICB NCB Shopping Direct contracting	According to Procurement Plan
Consulting Firms: Any estimated cost ≥US$300,000 <US$300,000	 SSS QCBS, QBS, FBS, LCS QCBS, QBS, FBS, LCS, CQS	According to Procurement Plan
Individual Consultants: Any estimated cost Any estimated cost	 SSS 3 curricula vitae	According to Procurement Plan

Note: CQS = Selection Based on the Consultants' Qualifications; FBS = Selection under a Fixed Budget; LCS = Least-Cost Selection; NCB = National Competitive Bidding; QBS = Quality-Based Selection; QCBS = Quality- and Cost-Based Selection; SSS = Single-Source Selection.

39. **Short list consisting entirely of national consultants.** Short list of consultants for services, estimated to cost less than US$400,000 equivalent per contract, may consist entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Reference to Project Operational/Procurement Manual

40. **Project Operational Manual**. A project Operational Manual has been prepared and reviewed by the Bank. The manual describes, among other things, the technical aspects of the project; the legal framework governing the project; institutional arrangements, including the roles and responsibilities of the project implementation key stakeholders, such as the UNGRD, FIDUPREVISORA, and the MVCT; the fiduciary aspects, financial and procurement; and the monitoring of the project. It incorporates by reference the Operating Regulations (*Reglamento Operativo*) between the UNGRD and FIDUPREVISORA.

41. The capacity assessment of the Implementing Agency has recommended two supervision missions per fiscal year to visit the field to carry out post review of procurement actions. The size of the sample for post-review will be defined before each mission.

Environmental and Social (including safeguards)

42. **Environmental Assessment (OP/BP 4.0).** The Project is expected to generate important environmental sustainability and public health benefits in Guapi and Tumaco through the elimination of (i) latrines and septic pits that contaminate surface water and groundwater sources; (ii) discharge of municipal wastewaters onto surface water sources and beaches; (ii) the contamination of the drinking water network due to infiltration of domestic wastewater from septic tanks and latrines; and (iv) eliminating the practice of solid waste disposal in open dumps in urban areas and public roadways. Investments financed by the Project are expected to improve the quality of life in Guapi and Tumaco, as well as increase property values.

43. The Project is categorized as environmental Category "A" based on the potential impacts of the two solid waste disposal sub-projects under Components 1 and 2; nevertheless, these sub-projects will result in significant positive environmental impacts. The remaining project works (sub-projects) are considered to not present significant environmental impacts and can be mitigated with relatively standard measures. The following environmental safeguards have been triggered: Environmental Assessment (OP/BP 4.01); Natural Habitats (OP/BP 4.04); Forests (OP/BP 4.36); and Physical Cultural Resources (OP/BP 4.11).

44. Detailed designs and site selection for all of civil works in Guapi, as well as the wastewater and solid waste disposal interventions and some water supply works in Tumaco have not been completed during project preparation. As such, the UNGRD prepared an Environmental Management Framework (EMF) against which to assess and manage the environmental impact of the proposed sub-projects. The EMF includes baseline data; policy, legal, and institutional framework; analysis of alternatives and identification of environmental impacts; mitigation measures; and control and supervision measures. The EMF annexes detail the procedures for complying with environmental safeguards throughout the implementation of the Project, including the Environmental and Social Impact Assessments (ESIA), applicable for two municipal waste sub-projects (landfills) and other Environmental Management Plans (EMPs) for the other sub-projects.[50] In accordance with good practice, Annex 8 of the EMF provides guidance for eventual

[50] The EMPs can be developed at the design stage including all of the necessary environmental licenses. The EMP is required for all sub-projects including master plans for water supply and sewerage, and for improvements in the efficiency of the water supply system. The EMP can also be prepared during the construction phase before the

closure of the Tumaco landfill at the end of its operational phase. The EMF also enumerates the environmental instruments that require a no objection from the Bank.

45. The EMF/EMP identified potential environmental risks during the construction phase , such as disruptions to traffic and noise associated with construction machinery and activities; possible impacts on water bodies associated to earthworks and wastewater generated from construction activities; emissions of particulate matter by earthworks and removal of vegetation cover; community resistant from land acquisition and installation of water metering. The impacts during construction phase will be temporary while works are carried out. During the operation phase, the potential risks include unpleasant odors and noise from the operation of sanitation facilities; inadequate sludge management and wastewater effluent discharges; possible impacts on surface and/or ground water due to leachate generation and waste disposal on the ground; possible ground water or aquifer contamination due to failure of landfill liner system; and possible social conflicts from potential tariff increase and volumetric billing and existing waste pickers in Tumaco. All Project adverse impacts are expected to be management with known technology, good practices and management solutions. The wastewater facilities are relatively small with a 0.13 m^3/s design flow for Tumaco and a 0.05 m^3/s design flow for Guapi. Furthermore, national and regional environmental institutions and regulations provide assurance for the compliance of environmental measures identified for the Project. Related to existing asbestos cement water supply pipes, no new pipes purchased will contain asbestos, as per current legislation. The Project expects a generation of about 5 m^3 of asbestos cement waste from pipe handling in the water intake structure and drinking water plant in Tumaco. Therefore, the EMF and the subsequent sub-project EMPs include management measures for the removal, packaging, transportation and disposal of existing asbestos waste.

46. Guapi and Tumaco are considered small towns and, are located in somewhat isolated areas where large-scale manufacturing and agricultural industries are not present. The Project only expects management of municipal waste and not hazardous waste. Municipal solid waste production in Tumaco is estimated at 72 tons/day and in Guapi 8.5 tons/day. Nevertheless, the Colombian solid waste regulation (Decree 4741 of 2005) prohibits the introduction of hazardous waste in municipal solid waste landfills and only allows the management of hazardous waste to specialized and certified operators. The EMP and EMF include measures and guidelines to manage hazardous waste, including a list of specialized and certified companies, in particular if required during the construction phase.

47. For the water supply related sub-projects projects in Tumaco that have detailed designs, an Environmental Management Plan was prepared. These works include (i) construction of 5.5 km of a 20-inch raw water main; (ii) construction of 2.5 km of a 20-inch raw water main to replace the existing water main from the water intake structure to the water treatment plant; (iii) improvements to the existing potable water treatment plant; (iv) construction of main distribution system for the Zona Continental; (v) construction of distribution networks for the Zona Continental Phase I; and (vi) construction of distribution networks for the Zona Continental Phase II.

beginning of the works and needs to be approved by the supervising agency. Annex 7 of the EMF provides more detail in this respect.

48. Tables 3.6 and 3.7 summarize the environmental management instruments that will be used in Guapi and Tumaco, respectively.

Table 3.6. Environmental Management Instruments, Municipality of Guapi

Type of Work	Instrument for Environmental Management*	Reference and/or Reach
Improvement and optimization of the drinking water treatment plant	EMP	RAS 2000, Environmental Guideline of the Ministry of Environment, World Bank - OP 4.01 - annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD
Construction and/or improvement of the aqueduct networks	EMP	RAS 2000, Environmental Guideline of the Ministry of Environment, World Bank - OP 4.01- annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD
Construction and/or improvement of the sewerage network	EMP	RAS 2000, Environmental Guideline of the Ministry of Environment, World Bank - OP 4.01 - annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD
Construction of wastewater treatment plant, first preliminary treatment	Environmental Evaluation of Discharges, Wastewater Discharge Risk Management Plan, and EMP	ToR adopted by the environmental authority, RAS 2000, World Bank - OP 4.01- annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD, World Bank recommendations if necessary
Construction of the definitive system for the management and final disposal of solid waste or sanitary landfill	Environmental Evaluation of Alternative Site Analysis EIA and EMP	Decree 838 of March 23, 2005, ToR adopted by the MVCT, RAS 2000, World Bank - OP 4.01- annex B and C, World Bank - EHS Guidelines for Waste Management Facilities, EMF prepared by the UNGRD, World Bank recommendations if necessary

Note: *Requires 'no objection' from the World Bank.

Table 3.7. Environmental Management Instruments, Municipality of Tumaco

Type of Work	Instrument for Environmental Management*	Reference
Improvement and optimization of the drinking water plant	EMP	RAS 2000, Environmental construction guideline of the Ministry of Environment, World Bank - OP 4.01 - annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD
Construction and/or improvement of the aqueduct networks	EMP	RAS 2000, Environmental construction guideline of the Ministry of Environment, World Bank - OP 4.01 - annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD
Construction and/or improvement of the sewerage network	EMP	RAS 2000, Environmental construction guideline of the Ministry of Environment, World Bank - OP 4.01 - annex C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD
Construction of wastewater treatment plant, treatment system to be determined	EIA, Environmental Evaluation of Discharges, Wastewater Discharge Risk Management Plan, and EMP	ToR adopted by the environmental authority, RAS 2000, World Bank - OP 4.01 - annex B and C, World Bank - EHS Guidelines for Water and Sanitation, EMF prepared by the UNGRD, World Bank recommendations if necessary
Construction of the new sanitary landfill for the final disposal of solid waste.	Environmental Evaluation of Alternative Site Analysis, EIA, and EMP	Decree 838 of March 23, 2005, ToR adopted by MVCT, RAS 2000, World Bank - OP 4.01 - annex B and C, World Bank - EHS Guidelines for Waste Management Facilities, EMF prepared by the UNGRD, World Bank recommendations if necessary

Note: *Requires 'no objection' from World Bank.

49. The EMF provides guidance on a range of activities that can generate environmental and social impacts during the construction phase, including removal of vegetation; demolition and excavation; excavation of contaminated solid waste; construction materials; groundwater usage; construction staging areas; and special procedures for activities in stilt house areas. The operational and maintenance phase implies a distinct set of potential social and environmental impacts. The EMF identifies potential risks and mitigation techniques to incorporate at the design stage, including buffer zones around drinking water and wastewater treatment plants to lessen the impact of noise and odors, as well as the selection of technologies and equipment. The EMF defines the requirements for the preparation and consultation of the Environmental and Social Impact Assessments (ESIA) for the two landfill sub-projects compliant with OP/BP 4.01 for Category A projects. The ESIAs for the landfills in Tumaco and Guapi, which will be based upon final site selection and engineering designs, will include analysis for alternative locations and/or designs, environmental management plan, and stakeholder participation (information disclosure and stakeholder consultation).[51] The World Bank will give its no objection to the selected sites and ESIAs. The closure of existing landfills are neither included in the Project nor are they considered an associated activity.

50. **Natural Habitats (OP/BP 4.04).** While no significant negative impacts on natural habitats, including in particular mangroves, are anticipated by project works, this policy is triggered given

[51] The analysis of alternatives will also follow the criteria established in the Sole Regulatory Decree for the housing, city and territory sector 1077 of 2015 (Chapter 3, section 2).

the types of works and the potential locations and associated environmental conditions. National environmental regulations restrict infrastructure works in protected areas. Regional autonomous corporations (CARs) will verify that the construction and operation of drinking water and sanitation infrastructure does not unduly impact protected areas or sensitive ecosystems (based on decree number 1076 of 2015). Additionally, the EMF includes an annex that establishes environmental criteria for the location of civil works and clearly outlines relevant restrictions. CARs also verify compliance with wastewater discharge permits as well as proposed sites and impacts of sewerage systems and wastewater treatment plants.

51. **Forests (OP/BP 4.36).** The policy is triggered because mangrove forests are present in Guapi and Tumaco. However, the design of the project will be made in such a way to prevent any adverse impacts on the mangrove or any other forests through proper site selection. Decree number 1076 of 2015 restricts the construction of infrastructure works in protected areas or sensitive ecosystems. The EMF includes an annex that establishes environmental criteria for the location of civil works and clearly outlines relevant restrictions**.**

52. **Physical Cultural Resources (OP/BP 4.11).** This safeguard is only triggered in a preventive manner. Based on a preliminary assessment it is unlikely that physical cultural resources would be found in the areas directly affected by the Project sub-projects. In the case of the six waterworks sub-projects in Tumaco, all works will take place along existing roadways in urban areas. As a precaution, the EMF includes measures for chance finds. As part of the EIAs in Guapi and Tumaco, an Archaeology Program Preventive and a Plan of Archaeological Management (Decree 1185 of 2008) must be submitted to Colombian Institute of Anthropology and History for approval. The purpose of this program is to assess the expected levels of involvement on the archaeological heritage by the construction and operation of the works, as well as develop and implement management measures that may be required for the Archaeological Management Plan.

53. **International Waterways (OP 7.50).** The proposed waterworks activities comprise minor additions or alterations to the ongoing scheme aimed at improving coverage, efficiency and service quality under the Project as envisaged in paragraph 7(a) of OP 7.50. There will be no incremental withdrawal of water from the Mira River since the Project activities comply with withdrawal permit requirements specified in national regulations. Additionally, the new wastewater system financed under the Project will not discharge into the Mira River. The Project is located on the furthest downstream part of the river some 55km from the Ecuador boundary and as a result, the proposed works will not adversely change the quality or quantity of the river section in Ecuador. Works will not be adversely affected by Ecuador's possible water use because of high rainfall in the area and large river flows in the Mira River. The Project therefore qualifies for an exception from the requirement to notify other riparians under paragraph 7(a) of OP 7.50 and a memorandum to the Regional Vice President to this effect was processed.

54. **Social Assessment.** The UNGRD has prepared a comprehensive Social Assessment to establish baseline social conditions in the urban cores of the municipalities of Guapi and Tumaco and document the complex way of life of these areas, including considerations related to historical background, economic and sociocultural dynamics, demographics, education, health, housing, gender, and armed conflict. The assessment identifies potential social impacts of the proposed

project—including on income generating activities of waste-pickers at the existing Buchelly landfill and influx of male laborers—and offers guidance on the application of these safeguards policies, including citizen participation, complaint mechanisms, and gender mainstreaming. Based on the results of the social assessment, three social management instruments were prepared: (i) a RPF, (ii) a SIP, and (iii) an ICPP. The Bank has assessed the social assessment and the social instruments and found them to be acceptable and fully consistent with the requirements of World Bank safeguards policies and best practices.

55. **Social Inclusion Plan for Tumaco Waste-Pickers (SIP).** The project would finance the implementation of a social inclusion plan for the informal waste pickers that might be attracted to the new landfill. Said social inclusion plan can also be used by the Borrower for informal waste pickers at existing landfills[52], even if those landfills are not part of the Project. The social inclusion plan entails an assessment of the population involved in recycling activities, analyzes alternatives for performing permitted economic activities under Colombian law, and includes the improvement of the labor, health, and security conditions of informal recyclers.

56. **Information, Communication, and Participation Plan (ICPP).** The ICPP sets out a comprehensive process of interaction: community – municipal institutions are responsible for the works, which enables the positive valuation, ownership and care of works by the community. The plan includes socialization and dissemination of the Project, citizen participation in the project cycle, water pedagogy, and citizen oversight committees. The Project includes a GRM, under the ICPP, to submit and address complaints that arise over the course of project implementation. The Project incorporates multiple outlets, including in-person, telephone, and email, for residents to access the GRM. The Project's GRM aims to dovetail with the established mechanisms under Colombian law for social accountability, which includes the establishment of *Veedurías Ciudadanas* (citizen's oversight committees) and *Derecho de Petición* (a constitutional right that every Colombian citizen has to request information to a public agency). The PIU will implement the ICPP over the course of the project cycle in close coordination with municipalities and other local stakeholders.

57. ***OP 4.12 – Involuntary Resettlement Policy.*** The main activity relevant to this safeguard is the construction of water and sewerage systems in Guapi and Tumaco. Although current project information has not identified specific land acquisition necessitating resettlement, this safeguard is triggered, taking into consideration the future possibility of land requirements for the location and construction of pumping stations, wastewater treatment plants, landfills, and other infrastructure. While physical displacement of people is not directly expected as a result of project activities, the borrower prepared an RPF as a precautionary measure in the unlikely event that resettlement becomes necessary. A Bank review of the six water projects that have detailed designs in Tumaco concludes that land acquisition is not required. The 20-inch raw water main and the Zona Continental distribution system will be installed along public roads owned by the Municipality and permits for these activities have been granted by the Municipality.

58. ***OP 4.10 - Indigenous Peoples***. The Project will only be implemented in urban areas of the Municipalities Guapi and Tumaco and social screening conducted by the team during preparation confirmed that there are no indigenous peoples present in the Project area. No impact on

[52] Approximately 30 individuals engage in informal recycling activities at the existing Buchelly landfill.

Indigenous Peoples is expected as per the social assessment conducted for the project. Therefore, the Bank's operational policy on Indigenous Peoples is not triggered.

59. **Gender Strategy.** A gender strategy is included in the social management strategy to ensure that men and women participate equally in all project-related community activities, and partake of project benefits. The Project leverages the Bank's global experience to promote gender issues from the design stage through construction and operation.[53] During project preparation, interviews were carried out with leaders of women's organizations and non-governmental organizations, including the local *Mesa de Mujeres*, as well as other civil society groups to document gender issues in Guapi and Tumaco in the social assessment. The ICPP includes specific activities targeted to women based on the findings in the social assessment which will apply throughout the implementation of all Project activities. Additionally, the community engagement approach seeks to empower women throughout Project implementation.

60. The PIU will be responsible for ensuring the application of all safeguards policies and will coordinate with the various consultancies to prepare environmental and social assessments or plans associated with their respective sub-projects. All bidding documents for works and requests for proposals for consulting firms financed by the Project will incorporate environmental and social requirements, including, among other things, compliance with environmental and social management plans; construction health and safety; required environmental licenses and authorizations; and the preparation of environmental performance reports. The PIU social and environmental teams will work in close collaboration with *Gerencia Pacífico* to ensure coordination of the implementation of safeguards with municipal and other local actors. Additionally, the construction supervisor (*interventor integrado*) will support the UNGRD by providing oversight of the application of social and environmental safeguards by the works contractors. The project design includes appropriate arrangements, PIU staffing and budget to ensure implementation of the safeguards instruments.

61. **Consultation of safeguards instruments**. The UNGRD conducted consultations with national government stakeholders in December 2015 to give key stakeholders the opportunity to comment on the draft EMF and social instruments. Consultation meetings were held in January 2016 that included local and regional authorities. The UNGRD held open workshops in both Guapi and Tumaco in March 2016 to present an overview of the project to the local communities, newly inaugurated mayors, and other stakeholders. The mayors of both Municipalities, inaugurated in January 2016, expressed strong support for the Project. A workshop was held in Tumaco in July 2016 to elicit and incorporate stakeholder feedback on the EMP for the six waterworks projects with designs. Community members were similarly supportive of the Project and indicated that they hoped to see the timely completion of the works, particularly given a perception that previous public works projects have been promised but not delivered. Key stakeholders expressed concern about the potential impact of works on mangrove stands, the need to include actions to reduce water losses, as well as ensuring that works contracts hire local workers. Stakeholder feedback gathered through these workshops informed the final version of the social assessment and environmental management framework. The ICPP includes specific mechanisms to promote

[53] "Toolkit for Mainstreaming Gender in Water Operations," World Bank Water Global Practice; http://globalpractices.worldbank.org/waterpractice/Knowledge%20Base/Forms/DispPage.aspx?ID=380&Title=Toolkit.

sustained engagement between the community and implementing agency, including a series of meetings and workshops to maintain fluid citizen participation. The EMF clearly identified the location of mangroves and other natural habitats, as well as pertinent Colombian regulations that restrict civil works in those areas. A percentage of local labor will be include in biding documents for works contracts. The water component includes a non-revenue water program to tackle water losses. The safeguards instruments have been disclosed in-country[54] and on the World Bank's external website. English-language Executive Summary of the Environmental Management Framework and Social Safeguards Instruments has been submitted to the World Bank's Board of Directors.[55] Table 3.8 presents a summary of the disclosure of safeguards instruments.

[54] The social assessment and reports from the consultation process are available on the UNGRD website at: http://portal.gestiondelriesgo.gov.co/Paginas/Noticias/2016/Plan-Todos-Somos-PAZcifico-%E2%80%93PTSP%E2%80%93-.aspx.

[55] 'Executive Summary: Environmental Management Framework and Social Safeguards Instruments,' http://documents.worldbank.org/curated/en/2016/05/26370118/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-executive-summary-environmental-management-framework-social-safeguards-instruments.

Table 3.8. Safeguards Instrument Disclosure and Consultations

Instrument	Consultations	In-Country Disclosure	Bank Disclosure
Tumaco Environmental Management Plan (EMP)	April 20; July 18, 2016 - Tumaco	Complete draft published on the UNGRD website on 5/5/2016; final published on 9/2/2016; http://repositorio.gestiondelriesgo.gov.co/bitstream/20.500.11762/20013/15/PMA-etapa1%20INFORME%20PMA%20TUMACO.pdf All EMP annexes were disclosed on 9/2/2016 and are available at: http://repositorio.gestiondelriesgo.gov.co/handle/20.500.11762/20013.	Complete draft published on World Bank's external website on 5/12/2016, final published on 9/9/2016; http://documents.worldbank.org/curated/en/856851468031569108/Colombia-Plan-Pazcifico-Wss-Infrastructure-and-Service-Delivery-Project-environmental-assessment All EMP annexes available at: http://documents.worldbank.org/curated/en/762201473397288425/pdf/SFG2152-V2-EA-SPANISH-P156239-Box396306B-PUBLIC-Disclosed-9-7-2016.pdf.
Environmental Management Framework (EMF)	December 17, 2016 - National Authorities January 18 and 20, 2016 - Local and Regional Authorities February 18, 2016 - Stakeholders in Tumaco March 3, 2016 - Stakeholders in Guapi	Complete draft published on the UNGRD website on 2/2/2016; final version published on 9/2/2016; revised version published on 10/13/2016 http://repositorio.gestiondelriesgo.gov.co/bitstream/20.500.11762/20013/49/161012-INFORMEF-FINAL-MGA-PLAN-PAZCIFICO-V3.pdf All EMF annexes were disclosed on 9/2/2016 and are available at: http://repositorio.gestiondelriesgo.gov.co/handle/20.500.11762/20013	Complete draft published on the World Bank's external website on 3/7/2016, final version published on 8/9/2016, revised version published on 10/13/2016 http://documents.worldbank.org/curated/en/2016/03/26032837/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-environmental-assessment-marco-de-gestion-ambiental All EMF annexes were disclosed on 9/7/2016 and are available at: http://documents.worldbank.org/curated/en/759241473397778304/pdf/SFG1889-V3-EA-SPANISH-P156239-Box396306B-PUBLIC-Disclosed-9-7-2016.pdf.

Instrument	Consultations	In-Country Disclosure	Bank Disclosure
Resettlement Policy Framework (RPF)	December 17, 2016 - National Authorities January 18 and 20, 2016 - Local and Regional Authorities February 18, 2016 - Stakeholders in Tumaco March 3, 2016 - Stakeholders in Guapi	Draft published on the UNGRD website on 2/15/2016, final published on 8/19/2016; revised published on 10/13/2016 http://repositorio.gestiondelriesgo.gov.co/bitstream/20.500.11762/20013/27/MARCO-DE-POLITICA-DE-REASENTAMIENTO-PAZCIFICO.pdf	Final published on World Bank's external website on 4/29/2016; revised published on 10/13/2016 http://documents.worldbank.org/curated/en/2016/04/26331140/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-resettlement-plan-marco-de-politica-de-reasentamiento
Social Assessment		Draft published on the UNGRD website on 2/15/2016, final published on 8/19/2016; revised published on 10/13/2016 http://repositorio.gestiondelriesgo.gov.co/bitstream/20.500.11762/20013/25/EVALUACION-SOCIAL-GUAPI-Y-TUMACO-SAT.pdf	Final published on the World Bank's external website on 4/1/2016; revised published on 10/13/2016 http://documents.worldbank.org/curated/en/2016/04/26264022/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-environmental-assessment
Social Inclusion Plan (SIP)		Draft published on the UNGRD website on 2/2/2016, final published on 8/19/2016, revised version published on 10/13/2016 http://repositorio.gestiondelriesgo.gov.co/bitstream/20.500.11762/20013/48/PLAN-DE-INCLUSION-SOCIAL-PARA-RECICLADORES-TUMACO-12-10-2016.pdf	Final Published on the World Bank's external website on 4/27/2016, revised version published on 10/13/2016 http://documents.worldbank.org/curated/en/2016/04/26287170/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-environmental-assessment-vol-2-plan-de-inclusion-social-para-recicladores-tumaco
Information, Communication, and Participation Plan (ICPP)		Published on the UNGRD website on 2/2/2016; http://repositorio.gestiondelriesgo.gov.co/bitstream/20.500.11762/20013/29/PLAN_DE_INFORMACION_COMUNICACION_Y_PARTICIPACION_CIUDADANA-GUAPI-TUMACO.pdf	Published on the World Bank's external website on 4/5/2016; http://documents.worldbank.org/curated/en/2016/04/26184857/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-environmental-assessment-plan-de-informacion-comunicacion-y-participacion-guapi-y-tumaco
Executive Summary of Environmental Management Framework and Social Safeguards Instruments	—	—	Published by the Board on the World Bank's external website on 5/10/2016; http://documents.worldbank.org/curated/en/2016/05/26370118/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-executive-summary-environmental-

Instrument	Consultations	In-Country Disclosure	Bank Disclosure
			management-framework-social-safeguards-instruments

Monitoring and Evaluation

62. The project results framework is included in **Annex 1**. This framework has been developed based on discussions with the UNGRD. The UNGRD will consolidate the data at the project level and produce semiannual reports to monitor progress. These reports will indicate the progress made under the different components and measure performance against the results indicators established in the Results Framework. The semiannual progress reports will allow better monitoring of the implementation of agreed activities by also providing information on (a) investment and disbursement performance over the period covered by the report and an updated disbursement calendar; (b) procurement performance and an updated Procurement Plan for activities under each of the components and subcomponents of the project; (c) accounting and FM performance; (d) progress in the implementation of the Environmental and Social Management Plan, including problems identified and documentation of positive environmental and social impacts in the areas of intervention; (e) potential developments that could affect project implementation, including a review of the main risks and the impact of mitigation measures envisioned at appraisal; and (f) other operational and administrative information judged relevant by the UNGRD or the TT accompanying project implementation. The second semiannual report of each calendar year should also include an annual operation plan for the following year. The UNGRD progress reports will be presented and submitted to the World Bank in accordance with the format established in the project's Operational Manual.

63. At the mid-term evaluation of the project, the TT and the UNGRD will undertake a detailed review of the M&E system to verify fulfillment of the agreed targets and compliance with other contractual commitments and will recommend any necessary corrective action.

Annex 4: Implementation Support Plan

COLOMBIA: Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239)

1. The implementation of the Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project will require substantial support from the TT throughout its implementation given its scope, PDO, and particular context. Implementation support from the World Bank will consist of the regular semiannual full supervision missions from the World Bank task team (TT); meetings and audio conferences between the TT, UNGRD, and other relevant stakeholders (the DNP, MVCT, and so on); and close coordination through the World Bank staff located in Colombia. Through the supervision missions, the team will also carry out field visits to major construction sites. Additional support will be provided by the World Bank's procurement, FM, and safeguards specialists. Particular emphasis of the implementation support will be on the quality of the ToRs for the preparation of the key studies and contracts of the project, on the strategic thinking associated with the capacity building and institutional strengthening of service providers in Guapi and Tumaco and on the compliance of the environmental and social safeguards. The implementation support plan will be reviewed at least once a year to ensure that it continues to meet the implementation support needs of the project.

Implementation Support Plan

2. The full semi-annual supervision missions, short follow-up technical missions and video and audio conferences as needed will focus on the following areas:

3. **Strategic support:** Supervision missions will meet with national and local authorities to: (a) review progress on the Project's activities; (b) discuss strategic alignment of the Project's different activities, especially at the planning level between the relevant stakeholders; and (c) evaluate progress on cross-cutting issues like monitoring and evaluation, training, communication, dissemination of Project results and experiences, and coordination between relevant stakeholders.

4. **Technical support:** Supervision will concentrate on: ensuring the technical quality of biding documents evaluation reports and, review construction plans. The Bank will ensure that it has adequate technical capacity in its team. During construction and commissioning, technical supervision will be provided to ensure that technical contractual obligations are met. The team's engineer will conduct regular site visits during project implementation, and involve technical specialists as needed.

5. **Fiduciary support:** Periodic supervision of procurement and financial management aspects will be provided by the TT specialists. In particular, these specialists will: (a) perform desk review of project IFRs and audit reports, following-up on any issues raised by auditors, as appropriate; (b) look into the operation of the control systems and arrangements described in this assessment; (c) update the FM rating in the FM Implementation Support and Status Report, as needed, (d) provide training and guidance on the conduction of procurement processes in compliance with the Procurement and Anti-Corruption Guidelines and the Project Operational Manual; (e) work with the UNGRD to enhance their capacity in procurement and financial management to facilitate Project implementation; (f) review procurement documents and provide

timely feedback to the UNGRD and (g) help monitor Project progress against the procurement plan. Supervision of both the procurement and financial management aspects of the Project will be carried out semi-annually during the regularly-scheduled Bank supervision missions, with continued contact between these visits as needed.

6. **Safeguards support**: The coordination begun during preparation would continue throughout Project implementation, especially to ensure that relevant safeguards concerns are included in the works financed under components 1 and 2. Supervision from the Bank safeguard specialists will take place at least twice a year and close communication will be maintained if requested by the Government.

7. **Security considerations**: The Project has been designed to support the peace building process that is unfolding in areas where important security risks exist for the TT during project supervision. The following mitigation measures have been identified: (i) all TT members will participate in a security induction with the Regional Security Advisor and take the UN SSAFE training; (ii) prior to each mission the TT will coordinate dates, security conditions, field activities, and contingency preparations with the PIU, the Regional Security Advisor, UN agencies, and other partners on the ground as relevant; (iii) arrange for reliable logistics and communications, including satellite phone and vehicles as necessary; (iv) communicate a detailed itinerary to the team leader and CMU, particularly for travel in remote areas; and (v) following a mission, the TT will provide feedback to the Regional Security Advisor regarding any incidents or findings. Additionally, the Operational Manual will contain a section on security, which will be updated regularly to reflect changing conditions on the ground.

Implementation Support Resource Estimate

Time	Focus	Skills Needed	Resource Estimate (Staff Weeks)
First twelve months	Project management and project implementation support coordination	TT lead	8 per year
	Social safeguards	Social specialist	5 per year
	Environmental safeguards	Environmental specialist	5 per year
	Technical and procurement review of ToR and bidding documents	TT lead, technical specialists, procurement specialist	10 per year
	Operational support	Operations analyst	8 per year
12–48 months	Procurement review of bidding documents	Procurement specialist	4 per year
	Technical review of ToR, technical reports, and bidding documents	TT lead, technical specialists	10 per year
	FM supervision	FM specialist	3 per year
	Social safeguards - supervision	Social specialist	3 per year
	Environmental safeguards - supervision	Environmental specialist	3 per year
	Project management and project supervision coordination	TT lead, technical specialists	10 per year
	Operational support	Operations analyst	4 per year

Skills Mix Required

Core Skills Needed for Supervision	Other Skills Needed Based on Specific Demand or Issue
• WSS specialists • Solid waste specialist • Water engineer • Wastewater engineer • Non-revenue water specialist • Environmental specialist • Social specialist • Procurement specialist • FM specialist	• Lawyer • Disbursement specialist • Financial analyst and economist

Annex 5: Economic and Financial Analysis

COLOMBIA: Plan PAZcifico: Water Supply and Basic Sanitation Infrastructure and Service Delivery Project (P156239)

Executive Summary of Financial and Economic Analysis

1. **A cost-benefit analysis was conducted to determine the economic viability of the proposed WSBS investments (Components 1 and 2).** The evaluation was carried out from financial and economic perspectives. To measure economic benefits from WSBS investments, the analysis assumed the avoided cost approach. For the water component, benefits were estimated as savings on prices paid by households when service improves, and for sanitation (including solid waste), benefits were estimated as savings on costs of health when sanitation improves. Financial benefits were estimated as the increase in revenues and gains from efficiency improvements.

2. **The Project will positively affect socio-economic development of Guapi and Tumaco** and its benefits will spread along the region benefiting neighboring communities[56] as well. The economic evaluation shows positive results for all components and an overall expected return of 20 percent. Water interventions show the highest returns of 29 percent, and sanitation (including solid waste) 15 percent. Benefits are expected to be higher, as some additional benefits were not quantified, such as impact of the reduction of pollution on the environment; impact of reduction of sewage and garbage disposal on the ocean wildlife; reduction of bad odors and elimination of garbage in the neighborhoods on the quality of life of the beneficiaries. The expected return from water and sanitation is higher than the six percent discount rate recommended by the World Bank, and also, it is higher than the discount rate of 11.97 percent, established by the CRA.

3. **The financial analysis examined the fiscal situation of the municipalities, the fiscal situation of the operators and the national WSBS tariff and subside to finance services**. According to DNP's annual municipal fiscal assessment, Tumaco and Guapi are considered "vulnerable" and "under stress", respectively. Both municipalities rely heavily on SGPs for fiscal resources because of their socioeconomic and financial situation. Because all households in Tumaco and Guapi are identified as strata 1 and 2 – the lowest income levels, the service providers require national transfers to compensate for subsidies awarded through the tariff scheme in order to achieve cost recovery. This is achieved through the Colombia SGP regulation, which allows for low income municipalities to use at least 15 percent of the SGP earmarked to the WSBS sector.

4. **Results of the financial analysis indicate that despite poor fiscal performance of the municipalities, the Project is financially viable in relation to O&M cost when SGP subsidies are applied and efficiency gains are reached.** The following actions would be required to ensure viability of the project: (i) efficiency gains are attained, particularly with the revenue collection rate at 70 percent; (ii) tariffs increase by reducing subsidies awarded to households, to levels that remain attainable for low-income customers; and (iii) same levels of SGP transfers committed to WSBS service subsidize are continued. Results shows that despite tariff increase, the share of monthly WSBS bill in family income (assumed as 2 minimum salaries) will increase from 2 percent to 3.7 percent, below the 5 percent normally accepted. Experience in Colombia shows that

[56] Among them: Carmelo, Timbiquí, Santa Bárbara – Isquande, El Charco and La Tola.

revenue collection rate of 70 percent and tariff increase are feasible with service delivery improvement and social interventions.

5. **The Project has a strong public investment justification.** Guapi and Tumaco are in very poor economic condition. National funds are needed not only to finance investment costs but also for O&M to compensate the lower tariffs paid by poor income customers. The Project will provide direct capital investment subsidies linked with technical assistance to Guapi and Tumaco. These municipalities will receive the project assets and are required to administer, operate and maintain them according to Colombian Pubic Service Law. As the Borrower, the TSP Fund will receive Bank funds to implement the Project and after Project closing it will receive transfers from the general national budget to repay the Bank loan. In October 2015, the *Consejo Nacional de Plitica Fiscal* authorized the MHCP to allocate future national budget to guarantee loan payments for the US$400 million assigned to overall *Plan Todos Somos PAZcífico*.[57]

A. Economic and Financial Analysis of the Project

6. This annex presents two analyses: (a) economic and financial evaluation of the activities to be carried out under the project and (b) assessment of service providers to examine their capability of maintaining and operating the works.

Methodology

7. A cost-benefit analysis was used for all components of the project. The evaluation was carried out from financial and economic perspectives to test for sustainability and economic viability. Both analyses calculated the net benefits generated by component on an incremental basis. From a financial point of view, the project was evaluated measuring its costs and benefits at market price in the same way they will be paid for and received from the services. From an economic point of view, each component was evaluated, converting financial cash flows into economic cash flows. Financial prices were transformed to economic prices using conversion factors to eliminate market distortions. Economic benefits were quantified beyond financial benefits, including the impact on households and the society in general.

8. Net benefits equal the difference between the incremental benefits and the incremental costs of two scenarios: with and without the project. The ‘with project’ scenario was built including the expected targets of the interventions. The ‘without project’ scenario was built maintaining the current situation, that is, coverage, hours of service, unaccounted for water, and service provider performance. The evaluation was complemented with distributive and sensitivity analyses.

9. To measure economic benefits from water and sewerage, an avoided cost approach was used. Benefits of water component were estimated as savings on prices paid by households when service improves. Benefits of sanitation were estimated as savings on costs of health when sanitation improves.

[57] *Consejo Nacional de Política Fiscal, No. de Radicación* 3-2015-020901, October 26, 2015.

10. Financial benefits were estimated as the increase of revenues and gains from efficiency improvement. Increase of revenue comes from expansion of the services and efficiency gains, such as revenue collection rate.

11. The activities were appraised measuring the flow of costs and benefits for the lifetime of the project, estimated at 30 years for water and sanitation and 15 years for solid waste management. The flow of costs and benefits were discounted with a 6 percent rate. Cost and benefits were expressed at 2015 prices.

12. Costs consisted of investment and O&M costs. Estimated cost of the project is US$127 million. Economic costs were adjusted taking out the 16 percent value added tax. O&M costs to be generated by the interventions were included in the evaluation.

Current Situation of Water and Sanitation services in Guapi and Tumaco

Guapi

13. **Current water situation.** Guapi is a municipality with 18,199 inhabitants in its urban area. The municipality is responsible for providing the water service. However, financial and operational difficulties in 2011 as well as noncompliance with national regulations led the SSPD to decertify the municipality. The Department of Cauca became in charge of managing the municipality's finances. The provision of the service has always been under financial difficulties and the operation has been very poor, at a point where currently there is practically no service provision in Guapi.

14. It is estimated that 17 percent of dwellings have water connection. When water is supplied, the frequency is only two hours every other week. The production system is in a precarious state. It consists of two wells operated by pumps that go out of service regularly. The capacity of the production system is 15 L/s. The distribution system consists of pipelines that are in poor condition and leak significant amount of water. As a consequence, the volume of water that is delivered to the households is nil.

15. The average precipitation in the city is 4,000 mm per year during the rainy season, and so it represents the main source of water for all households; yet, in the dry season, the availability is occasional. Rainwater is collected and stored in ways such as (a) reservoirs with capacity ranging from 1,000 to 5,000 liters; they are placed either underground, the rooftop, or on the ground close to the house; (b) water barrels ranging from 50 to 500 liters; or (c) jerry cans of 5 to 25 liters. Rainwater is used for all purposes but drinking and cooking, due to the poor quality. Instead they boil the rainwater or buy bottled water. The river is used sometimes for laundry and bathing.

16. The municipality is a gateway for tourists going to Gorgona Island, which is famous for scuba diving. In general, tourists stay overnight before heading to Gorgona. The hotels either dig their own wells or collect rainwater or do both.

17. Moreover, the municipality has special importance as a regional center. It supplies services that are not available in neighboring municipalities, such as airports, health centers, schools, and even a jail. The project interventions will go beyond the city and will be reflected at regional level. This is even more relevant given that Guapi and the neighboring communities are isolated, with

no road infrastructure; the only way in and out the city is either by boat or by plane. By plane, there are two ways: (a) daily flight from/to Cali or (b) weekly flight from/to Popayan. By boat, the connectivity is poor as the infrastructure is meager.[58]

18. The operation of the service is dependent on electricity (though to a lesser degree than in Tumaco). Water is produced from wells and so is pumped from underground. Electricity in the municipality is comparatively expensive as it is produced by fuel generators and provided by private operators, though a project is under way to connect Guapi to the national energy grid, which is expected to reduce energy costs. To partially alleviate the financial burden to poor customers, the national government transfers resources to the provider on regular basis; yet tariffs charged to customers in the municipality are higher than in the rest of the country.

19. **Price paid for water.** The population uses various sources of water and has to pay for each of them as follows: (a) investment required to collect rainwater; (b) investment on additional water containers to collect water; and (c) costs of purifying the water, either boiling or buying bottled water. There are some economic costs, such as cost of time when going to the river to either do laundry or take baths and time spent collecting and storing water.

20. A field survey was conducted during preparation to understand the current situation faced by households due to the poor services. It was found that the monthly price paid to get water consists of:

(a) price paid for harvesting and storing rain water, which need to be tightly closed due to presence of mosquitos.[59] The estimated investment cost per month per household is about COP 10,000 (US$4). Sometimes a pump is needed to improve water flow around the house, though it was not included in the calculation;

(b) investment on water containers, which costs COP 2,500 (US$1) per month;

(c) price of boiling or buying bottled water, needed for drinking and cooking, was estimated at COP 52,000 (US$21 per month)[60]; and

(d) cost of time when going to the river to do laundry or take baths, and also to store water. Average time was estimated as 40 minutes every other day, and it was priced at the minimum salary in Colombia adjusted by 50 percent to account for children and unemployed[61] (resulting cost of time spent collecting water, US$11 per month).

21. Total monthly price paid for water comes up to COP 92,500 (US$37) per household per month.

[58] To solve connectivity, the World Bank is preparing a transportation project, which consists of a waterway that will connect the municipality with other municipalities along the Pacific coast. The waterway will operate only during the hours of high tide.
[59] The estimated cost of both is about COP 430,000 (COP 30 for pipes and two 1,000 liter tanks of COP 200,000 each). Estimated lifetime is 10 years.
[60] Each household buys in average 1 liter per day of packet water at about US$1 per day.
[61] Minimum salary in Colombia is about US$250 per month, which corresponds to about US$1 per hour.

22. **Current sanitation situation.** About 16 percent of the urban population is connected to a precarious sewerage system where the sewerage pipelines are in poor state and have low capacity. The service does not operate. When sewage is collected, it is discharged untreated in several points on the Guapi River and on the El Barro stream, of which five points are considered significant. Some households have septic tanks that are poorly operated and some others have latrines. There is no cleaning service for the septic tanks, which generates additional problems due to the high level of the water table. This effectively means that Guapi has zero percent coverage of sewerage services.

23. Lack of water and sanitation significantly affects the health of Guapi's population. In 2014 and 2015, the number of deaths caused by diarrhea and other water borne diseases was 248 deaths per year, or about 13.8 deaths per 1,000 people, according to information provided by the Planning Secretary of the Municipality of Guapi.

24. **Solid waste.** The solid waste collection by the municipality is poor. The collection service is carried out using three carriages, which are driven by horses. About 8.5 tons are collected per day, with no sanitary landfill to discharge the waste. Garbage is disposed in open-air locations, near houses or water bodies, contributing to environmental problems and posing a risk to public health. In fact, intestinal parasitism is one of the main causes of doctor visits, and the infant mortality rate is also much higher than the national average, with Tumaco's being twice the national infant mortality rate of Colombia.[62]

Tumaco

25. The municipality of Tumaco consists of two islands in the Pacific Ocean, Tumaco and El Morro, and one area on the Continent (Zona Continental), with a population distribution of 77 percent, 8 percent, and 15 percent, respectively. The airport and hotels are located in Isla el Morro. The total population in Tumaco is 114,533, of which about 30 percent lives in stilt houses built on the sea in Tumaco Island.

26. **Water situation.** The water service is provided by *Aquaseo*, a specialized operator who, in 2009, signed an 18-year concession contract with the Municipality of Tumaco to provide water, sanitation, and solid waste services. The operation started in 2010.

27. About 42 percent of the houses have water connections. The water system consists of an intake in the Mira River of 300 l/s capacity. Pumping stations and main pipes are in a deplorable state; they generate water leaks at an estimated at 85 l/s. The water treatment plant has a capacity of 300 l/s, though it treats only the inflow of about 215 l/s.

[62] Infant mortality rate in Guapi and Tumaco is 30.66 and 33.33, per 1,000 live births, respectively. The national infant mortality rate in Colombia is 16.80 per 1,000 live births.

Table 5.1. Water Coverage in Tumaco

	Isla Tumaco	Zona Continental	Isla El Morro	Total
Population	88,190	17,180	9,163	114,533
Population (%)	77%	15%	8%	100%
Coverage with piped water	50%	20%	10%	42%
Population with water connections	44,095	3,436	916	48,447

28. Tumaco has a high poverty level and 84 percent of Aquaseo residential customers are classified as Strata 1, the lowest income group. The remaining 17 percent are classified as Strata 2 and 3. There are no middle- or high-income households. Among all customers, 92 percent is residential and 8 percent non-residential.

Table 5.2. Water Customers by Income Level and Economic Sector, 2015

Category	Number of Customers	Share of Residential Sector %	Share of Total %
Residential customers			
Strata 1	11,691	83%	—
Strata 2	1,770	13%	—
Strata 3	600	4%	—
Strata 4	68	0%	—
Strata 5	—	0%	—
Strata 6	—	0%	—
Total residential customers	14,130	100%	92%
Non-residential customers	1,312	—	8%
Total water customers	15,441	—	100%

29. A survey was carried out during preparation to understand the perception of the population about the services. It was led by professors of the University of Los Andes, who were hired by the World Bank.[63] The survey was conducted between October 25 and December 5, 2015. About 600 households were interviewed regarding living conditions in general and water and sanitation services in particular. The main problems highlighted by the community were the poor water service and lack of sanitation; other secondary problems were education, electricity, and security.

30. Main findings of the water situation were the following:

(a) The whole population, regardless of having a water connection or not, faces significant shortage of water. Water is distributed only once a week at indeterminate times; it could be at noon, midnight, or any other time. The uncertainty makes it necessary that a member of the family be vigilant until water is supplied. Each household needs to store as much water as possible.

[63] Garcia Orbegozo, Leonardo, and Fernando Carriazo Osorio. *Disponibilidad a Pagar por el servicio de agua y alcantarillado en Tumaco.* Enero 2016.

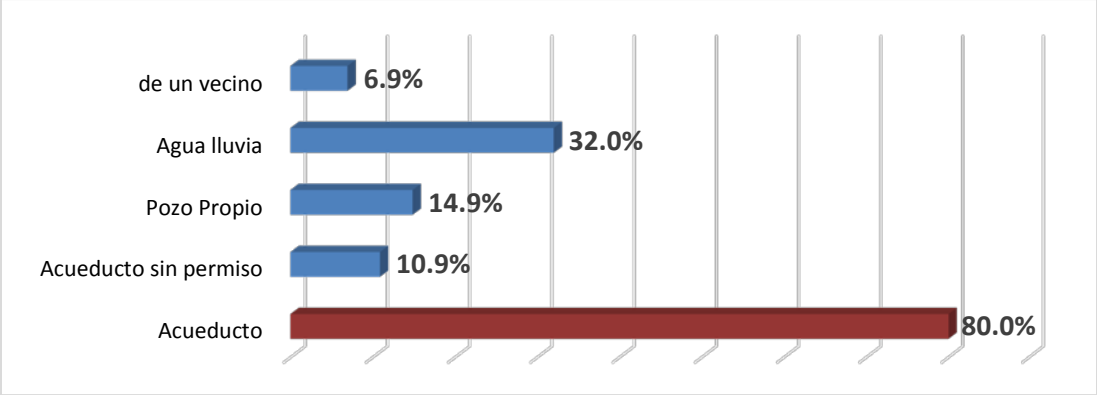
(b) Perception of the quality of water varies; yet, the majority of the respondents do not trust the water for cooking or drinking. Problems with water quality may be explained by the poor care that water containers receive.

(c) Another problem was the low pressure of the water, which makes it even more difficult to get enough water.

(d) Some households dig their own well, though costs are high and quality low.

(e) Other households collect rainwater; yet, rain is not frequent and the quality of water is poor and the presence of rodents on the roofs makes the situation worse.

Figure 5.1. Sources of Water in the Municipality of Tumaco

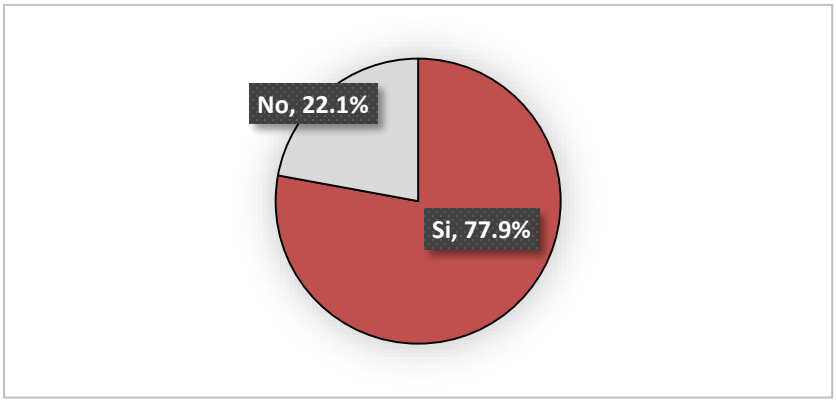


Source: World Bank Household Survey, November 2015.

31. Water is supplied only once a week and at very low pressure. Most of the households (78 percent) have an electric pump and operate it every time the water is supplied, regardless of having water connection or not. Those households with a connection install the pump inside the house to get as much water as possible while it is supplied. Those without a water connection install the pump in the main pipes and pull water to a hose pipe. The pump operates five hours per day on average.[64] Some households, especially those living in stilt houses, complement their water needs by collecting rainwater.

[64] Cost paid for the pump is COP 183,000 and the power is 0.56 HP.

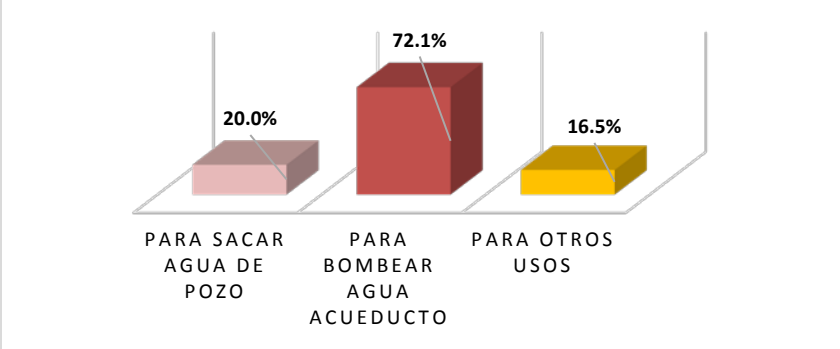
Figure 5.2. Households with Electric Pumps



Source: World Bank Household Survey, November 2015.

32. Ninety-two percent of respondents with electric pumps said that they use the pump either for pulling water from the main pipes (72 percent) or to pull water from wells (20 percent).

Figure 5.3. Uses of Electric Pumps

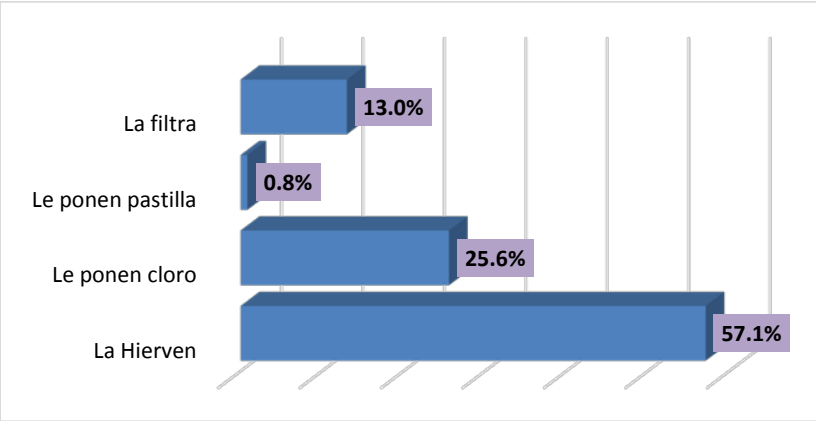


Source: World Bank Household Survey, November 2015.

33. All the households need water containers to store water. The number and type of container varies across them. Eighty-nine percent of households have, on average, 2.4 water tanks totaling almost 2 cubic meter capacity. The whole population has plastic containers of 200 liters and 20 liters.

34. Seventy-six percent of respondents do not trust the water for cooking or drinking. Of those, 57 percent boil it and the rest either put some chlorine or use filters. Additionally, it was found that 73 percent of households bought water for drinking and the average price paid per month was COP 10,980.

Figure 5.4. Methods of Treating the Water for Cooking and Drinking



Source: World Bank Household Survey, November 2015.

35. The prices paid for getting water are associated with the following practices: (a) if the house has a water connection, they receive a water bill from *Aquaseo*; (b) hoses and pumps to pull water from the pipes; (c) containers and reservoirs at home; (d) bottled water and treating the water for drinking and cooking; (e) cost of time spent fetching water from the pipes; and (f) cost of time when waiting for the water to be supplied and to store as much water as possible.

36. From information captured in the survey, it is estimated that households are paying, on average, from COP 60,000 per month (US$20) to COP 70,000 (US$24) to satisfy their basic water needs, depending on the area where they reside. This "price" includes the cost of time spent operating the pump, storing water, and waiting for the water to be supplied. The cost of time was valued at 50 percent of the minimum salary in Colombia (about US$214 per month) and the time was assumed as follows: 2 hours per week for households with water connection, 3 hours for households without connection and main pipes close by, and 4 hours for households living in informal areas and stilt houses.

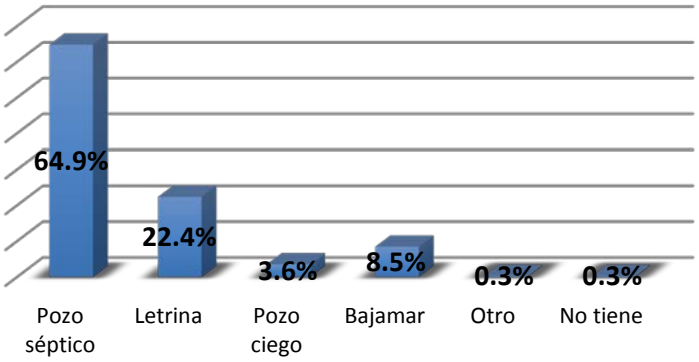
Table 5.3. Current Prices Paid in Tumaco to Get Basic Water Requirements

	With Water Connection	Without Water Connection Located Close to Main Water Pipes	Stilt Houses and Informal Areas
	COP/household/month	COP/household/month	COP/household/month
Payments to *Aquaseo**	4,913	0	0
Other payments			
Electric pump			
Operation	22,089	22,089	22,089
Investment	2,883	2,883	2,883
Bottled water	8,015	8,015	8,015
Treating water	2,280	2,280	2,280
Water containers	5,226	5,226	5,226
Total paid for water	45,407	40,494	40,494
Cost of time	14,644	21,966	29,289
Total paid	60,051	62,460	69,782

Note: *The average monthly bill per household is COP 12,283; however only 40 percent is collected, that is, COP 4,913.

37. **Current situation of sanitation.** The municipality of Tumaco does not have sewerage service. Each household has its onsite sewage disposal systems, which varies from septic tanks to latrines or directly discharged on the streets or the sea. According to results of the survey, 65 percent of households have septic tanks, though the practice of cleaning and properly maintaining them is almost nonexistent. Only 24 percent of respondents said they had it cleaned every year, paying a price of COP 12,676 on average. Approximately 97 percent of respondents have sanitary facilities.

Figure 5.5. Onsite Sewage Disposal Systems in Tumaco

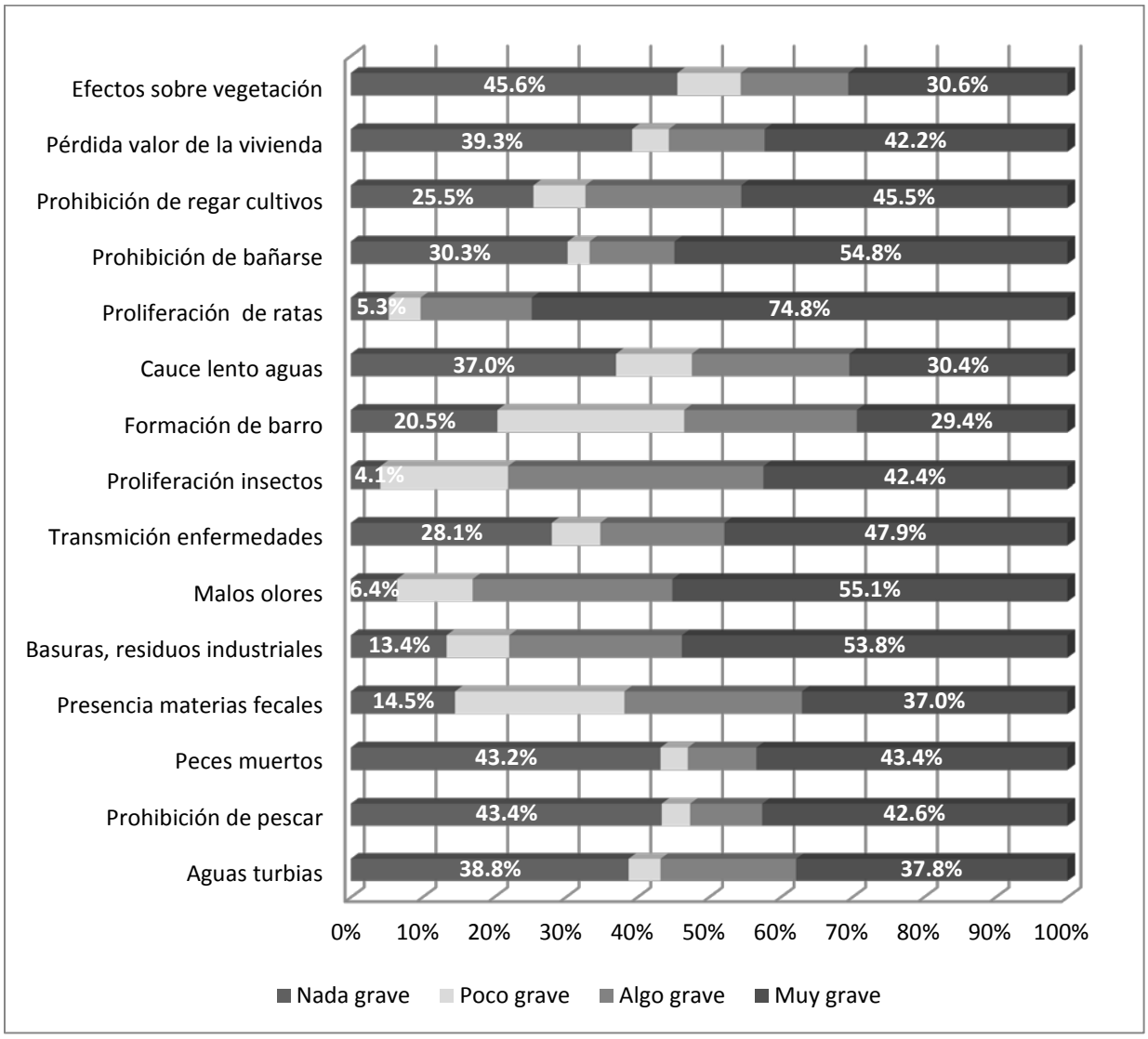


Source: World Bank Household Survey, November 2015.

38. The most problematic areas are those located on the coast or by the ocean, where there are stilt houses made of wood or cement. The areas are highly contaminated from discharges of sewage and garbage. When the tide is high, the garbage and sewage floats along the areas; when the tide is low, the garbage and sewage stays on the soil and emits a bad odor. When it rains, the houses are flooded with contaminated water.

39. Sixty-seven percent of households expressed that the presence of sewage running along the streets and high contamination in the neighborhood were common. The main problems affecting the daily lives were related to lack of sanitation, such as unpleasant odors, presence of rodents, garbage, and sewage; contaminated water bodies; and dead fish, among others.

Figure 5.6. Main Problems in the Neighborhood



Source: World Bank Household Survey, November 2015.

40. Lack of water and sanitation affects the health of Tumaco's population. According to the Health Secretariat of Tumaco, about 1,500 cases of diarrhea are reported annually by health centers. This number does not include the cases that are treated at home without going to consult a doctor.

Table 5.4. Cases of Diarrhea in Tumaco

	January–September 2016	Yearly Projected	Incidence per 1,000 People
Children < 1 year old	214	285	0.29
Children > 1 and < 4 years old	510	680	0.68
Children > 4 and < 14 years old	134	179	0.18
Persons > 14 and < 44 years old	158	211	0.21
Persons > 44 and < 64 years old	53	71	0.07
Persons > 65 years	45	60	0.06
Total	1,114	1,485	1.49

Economic Benefits of the Project

41. The project will bring benefits associated with the expansion and improvement of water, sanitation, and solid waste management services. The benefits expected are the following: (a) expansion of the water service to cover 95 percent of the urban population in both municipalities; (b) expansion of the sewerage service to 85 percent of the population in Guapi, and 53 percent in Tumaco; and (c) universal coverage of solid waste collection and disposal in appropriate landfill.

42. The benefits of the water component were measured as savings on water prices paid by the population when facing poor or nonexistent service. Net benefit corresponded to the difference between prices paid in the 'without project' situation, compared to prices to pay in the 'with project' situation. The 'without project' situation was forecasted assuming that prices paid at present will remain unchanged, which is a conservative assumption, given that population will grow and water will get scarcer. The scenario under the implementation of the works was projected assuming that the water was potable and supplied 24/7.

43. The benefits of sanitation and solid waste management were measured through the impact on health. These benefits were quantified as the averted costs when sanitation improves. Health costs consisted of (a) health care costs from formal health care services and traditional healers and (b) costs of premature death, which correspond to discounted lifetime income losses for death. Productivity costs equivalent to welfare or income lost due to sickness was not estimated due to lack of information.

44. The benefits of solid waste management service were measured assuming that current tariffs were a proxy of the willingness to pay for the improvement of the service.

45. **Benefits from health improvement.** These were measured as benefits from reduction of premature death and savings of cost of treatment of water borne diseases. Premature death has an economic impact due to loss of wages and economic outputs generated now and in the future. The human capital approach was used, which equates the value of a human life using the estimated future discounted income stream from a productive person, based on a working life of 17 to 65 years and a 3 percent discount rate. The value of life was estimated using the minimum salary of US$214 per person per month, multiplied by 30 percent to account for the high level of poverty and lack of economic opportunities in the municipalities.

46. The number of deaths caused by diarrhea and other water borne diseases was provided by the Planning Secretary of the Municipality of Guapi. In 2014 and 2015, there were 248 deaths per year, which equals to 13.8 deaths per 1,000 people. The same assumption was used for Tumaco.

47. The cost of treating diarrhea varies according to the severity and type of treatment. According to the Health Secretary of Tumaco, it is about COP 150,000 (US$50) on average.

48. **Impact of appropriate sanitation on health.** The effect of improved sanitation on health is assumed at 45 percent when accompanied by hygiene practices such as hand washing. When hygiene practices are not present, the impact reduces to 37.5 percent. The assumptions of the impact of sanitation were taken from the results of the studies carried out by Prüss et al. (2002)[65] and Esrey.[66] The studies derived the relative risks of diarrhea illness from international literature and quantified the shift of risk when transitioning between different water and sanitation scenarios. Table 5.5 presents the selected scenarios and their corresponding relative risks. Scenario I is considered as the ideal scenario in which there is no transmission of diseases through water, sanitation, or hygiene. In this case, the disease is transmitted through other mechanisms, mostly food or air (aerosols or person to person). The report reviews literature on the topic and suggests that the share attributable to water, sanitation, and hygiene in the transmission of the disease in the United States is 60 percent.[67]

[65] Prüss, Annette, David Kay, Lorna Fewetrell, and Jamie Bartram. 2002. "Estimating the Burden of Disease from Water, Sanitation, and Hygiene at a Global Level." *Environmental Health Perspectives* 110 (5).
[66] Esrey, S. A. 1991. "Water, Waste, and Well-Being: A Multicounty Study." *Am J Epidemiol* 143 (6): 703–708.
[67] Using the review prepared by Mead et al.: Mead, P. S., L. Sluttsker, V. Dietz, L. F. McCraig, J.S. Bressee, C. Shapiro, P. M. Griffin, and R. V. Tauxe. 1999. "Food Related Illness and Death in the United States." *Emerg Infect Dis* 5 (5): 607–625.

Table 5.5. Relative Risk under Selected Exposure Scenarios

Situation	Description	Pathogen Load	Relative Risk Associated with Scenarios	Reduction between Scenarios	
VI	No improved water supply and no basic sanitation in a country that is not extensively covered by those services and where water supply is not routinely controlled	Very High	11.00		
Vb	Improved water supply and no basic sanitation in a country that is not extensively covered by those services and where water supply is not routinely controlled	Very High	8.7	20.8%	From VI to Vb
Va	Basic sanitation but no improved water supply in a country that is not extensively covered by those services and where water supply is not routinely controlled	High	6.9	37.5%	From VI to Va
IV	Improved WSBS in a country that is not extensively covered by those services and where water supply is not routinely controlled	High	6.9	37.5%	From VI to IV
IIIc	IV and improved access to drinking water (generally piped to household)	High	6.9	37.5%	From VI to IIc
IIIb	IV and improved personal hygiene	High	6.05	45.0%	From VI to IIIb
IIIa	IV and drinking water disinfected at point of use	High	4.5	59.0%	From VI to IIIa
II	Regulated water supply and full sanitation coverage, with partial treatment for sewage, corresponding to a situation typically found in developed countries	Medium to Low	2.5	65%	From IV to II
I	Ideal situation, corresponding to the absence of transmission of diarrheal disease through water, sanitation, and hygiene	Low	1.0	60%	From II to I

Source: Based on Prüss et al. 2002.

49. The health benefits were applied to sanitation and so the chosen scenario assumed that water service was in place before sewerage service. When the sanitation component is implemented, it is expected to go from Scenario Vb in which water is available but no sanitation, to IV in which both services are in place. The expected impact is 37.5 percent reduction on waterborne diseases. When the services are accompanied with improved personal hygiene the impact increases to 45 percent.

Economic Results

50. The economic evaluation shows positive results for all components and overall the expected return is 20 percent. Water interventions show the highest returns at 29 percent, with sanitation (including solid waste) at 15 percent. Actual benefits will be higher, as additional benefits were not quantified, such as impact of the reduction of pollution on the environment;

impact of reduction of sewage and garbage disposal on the ocean wildlife; reduction of bad odors; and elimination of garbage in the neighborhoods on the quality of life of the beneficiaries.

Table 5.6. Results of the Economic Analysis of the Project

	Present Value of Flows (US$, thousands)			
	Costs	**Benefits**	**Net Benefits**	**Internal Rate of Return**
Guapi:				
Water	11,004	34,080	23,076	31%
Sanitation (includes solid waste)	25,555	34,142	8,587	9%
Water and Sanitation - Guapi	36,558	68,221	31,663	15%
Tumaco				
Water	31,134	135,467	104,333	29%
Sanitation (includes solid waste)	60,151	129,544	69,393	17%
Water and Sanitation - Tumaco	91,285	265,011	173,726	22%
Total Project				
Water	42,138	169,547	127,409	29%
Sanitation (includes solid waste)	85,706	163,685	77,980	15%
Total Water, Sanitation	127,843	333,232	205,389	20%

Financial Evaluation of the Project

51. As part of the financial evaluation of the project, this analysis examined the fiscal situation of the municipalities, the national framework of financing the service, and the financial situation of the operators.

Fiscal Performance of Municipalities

52. Tumaco and Guapi depend heavily on funds from the national government. Financial statements from 2011 to 2013 show that Guapi's revenues consisted of own revenues at 4 percent (collected from taxes and other charges), SGP transfers at 90 percent, and royalties at 6 percent. Tumaco's revenues consisted of 5 percent own revenues, 80 percent transfers from SGP, and 15 percent from royalties.

Table 5.7. Financial Statements of Guapi and Tumaco, 2011–2013

(COP, millions)	Guapi			Tumaco		
	2011	2012	2013	2011	2012	2013
1. Revenues						
1.1. Revenues from taxes	1,195	293	410	9,153	7,748	11,526
1.2. Other municipal revenues different than taxes	58	1	1	257	564	595
1.3. Transfer from SGP	11,855	13,666	24,110	134,211	167,216	182,672
1.4. Royalties and other	1,004	12	2,413	32,475	25,596	33,629
Total Revenues	14,112	13,971	26,934	176,096	201,125	228,421
2. Expenditure						
2.1. Current	2,180	1,190	1,180	8,461	8,184	13,550
2.2. Capital	15,722	11,345	23,357	175,724	194,897	98,309
Total Expenditures	17,901	12,534	24,537	184,185	203,081	111,859
3. Total Surplus (Deficit) (1 − 2)	(3,790)	1,437	2,397	(8,089)	(1,956)	116,562
4. Operational Surplus (Deficit) (1.1 + 1.2) − 2.1	(927)	(897)	(769)	949	129	(1,429)

Source: DNP; *Desempeno Fiscal de los Departamentos y Municipios* 2011, 2012, y 2013. *Anexos.*

53. Both municipalities have decreased their ability to cover current expenditures from own revenue, going from 57 percent in Guapi in 2011 to 35 percent in 2013. Tumaco went from 100 percent to 89 percent in the same period. Capital expenditure has increased in Guapi relative to total expenditure, while in Tumaco it has decreased.

Table 5.8. Indicators of Financial Performance of Guapi and Tumaco

	Guapi			Tumaco		
Financial Indicators	**2011**	**2012**	**2013**	**2011**	**2012**	**2013**
Coverage of current expenditures with own revenue	0.57	0.25	0.35	1.11	1.02	0.89
% of capital expenditure/total expenditure	0.88	0.91	0.95	0.95	0.96	0.88
Own revenues/total revenues	9%	2%	2%	5%	4%	5%
Transfers/total revenues	84%	98%	90%	76%	83%	80%
Royalties/total revenues	7%	0%	9%	18%	13%	15%

Source: Own calculation based on information presented in previous table with information from the DNP.

54. The fiscal sustainability of the municipalities is evaluated annually by the national government following the criteria established in Article 79 of Law 617 of October 6, 2000. The criteria includes five indicators: (a) ratio of current expenditure to current revenues, (b) share of capital expenditure to total expenditure, (c) savings capacity, (d) debt capacity, and (e) share of own revenues to total revenues. A final score is given based on levels attained in each indicator. The score is classified in one of five categories.

Table 5.9. Categories of Fiscal Performance

Fiscal Health	Strong	Good	Vulnerable	Under Stress	Decline
Performance Index Score	≥ 80	≥ 70 y < 80	≥ 60 y < 70	≥ 40 y < 60	< 40

55. The National Department of Planning annually publishes the results of the fiscal evaluation.[68] Information from 2009 to 2013 showed Guapi with a financial situation under stress, while Tumaco showed performance one level higher, indicating a vulnerable financial situation. When a municipality presents financial stress, like Guapi, it means that it is highly likely to show operating deficit due to insufficient own revenues. It is highly dependent on national government transfers and likely unable to comply with the ceiling established for operating expenses. The municipality requires special attention to guarantee financial sustainability in the long run. When a municipality presents a vulnerable financial situation, like Tumaco, it means that the municipality is highly dependent on national government transfers and that its finances are highly vulnerable to imbalances due to changes in its financial structure.

Table 5.10. Fiscal Performance of Guapi and Tumaco, 2009–2013

Performance Index Score	2009	2010	2011	2012	2013
Guapi					
Fiscal performance indicator	43.9	55.4	43.6	55.4	43.8
Fiscal Health Assessment	Under Stress	Under Stress	Under Stress	Under Stress	Under Stress
Tumaco					
Fiscal performance indicator	60.7	64.0	58.3	68.0	66.4
Fiscal Health Assessment	Vulnerable	Vulnerable	Under Stress	Vulnerable	Vulnerable

Source: DNP; *Desempeno Fiscal de los Municipios y los Deppartamentos. Anexos.*

Financial Structure of the WSS sector in Colombia

56. The Government's strategy to fund WSS sector infrastructure investment and operation relies, besides tariffs, on Government funding. The main national funding channels for WSS provision are

(a) General Revenue Sharing System (SGP), which is a national resource transfer mechanism, reformed under Law 1176 of December 27, 2007, whereby parts of the national budget are assigned to sectors and municipalities across Colombia. WSS service provision is one type of public service to which funds are assigned. Others include education, health, and so on;

(b) General National Budget, under which, in addition to the SGP resources, the central government may assign a portion of the national budget to fund specific capital projects in the WSS sector. Such funds are provided to municipalities for specific projects; and

(c) Royalty schemes, allocated directly to municipalities for capital investment works. The distribution of royalties is overseen by the DNP. The national government,

[68] DNP. *Desempeño Fiscal de los Municipios y Departamentos. Artículo 70 de la Ley 617 de 2000.*

through the CONPES, annually assigns the SGP transfer for each municipality, as well as the specific amount that each municipality must use in each sector.

57. Decree 4475 of November 26, 2008, defines how SGP funds are to be distributed for WSS. The share of the annual national budget assigned to WSS service is 5.4 percent.[69] Eighty-five percent of this funding is channeled through the General Revenue Sharing System (SGP) to the municipalities and 15 percent to the departments. The amount received by each municipality to use in WSS is based on the following criteria: (a) deficit of WSS coverage; (b) socioeconomic category of population served; (c) efficiency of the municipality on increasing coverage; (d) poverty level of the municipality; and (e) fiscal and administrative efficiency of the municipality.

58. The percentage of the SGP assigned to WSS in each municipality varies. In Guapi, it was 10 percent on average per year during 2010–2013, while in Tumaco, it was 4 percent (tables 12 and 13). Law 1176 of December 27, 2007 (Article 11), establishes the concepts on which the WSS funds can be used: (a) subsidies on tariffs for low-income customers; (b) debt service of funds used to finance investment; (c) investment projects and activities to improve efficiency in the provision of the service. Paragraph 2 of the same article establishes that municipalities such as Tumaco and Guapi have to apply at least 15 percent of the WSS transfer to compensate for subsidies awarded through tariffs to customers of low-income levels (Stratas 1, 2, and 3). Given that both municipalities have all the households in the lowest strata, the requirement to pay subsidies is higher than 15 percent, which is allowed by regulation.

59. To apply the funds to subsidies, the procedure is as follows:

(a) The WSS operator estimates the total amount to bill, applying the formula established by the CRA without subsidies;

(b) It then applies the subsidies approved by the municipality's council following the limits established by the CRA and also the contributions from high-income customers, if any. In the case of Tumaco and Guapi, there are no high-income customers and so there are no contributions or overcharges;

(c) The difference between subsidies and contributions constitutes the *Fondo de Solidaridad* and has to be paid or received by the municipality. In the case of Tumaco and Guapi, as there is no contribution from high-income customers, all the subsidies applied on tariffs have to be funded by the municipality using SGP transfers assigned to WSS.

60. As explained, the amount that each municipality receives from SGP committed to WSS (SGP-WSS) varies according to the criteria used by the national government. During 2011–2013, the amount received by Guapi to fund WSS corresponded on average to 10 percent of the total received by SGP from the national government and 9 percent of total revenues.

[69] Legislative Act 04 of 2007.

Table 5.11. SGP with Specific Destination to WSS Received by the Municipality of Guapi

Guapi SGP-WSS	2011	2012	2013	2014	2015
SGP to spend mandatorily on WSS (COP, millions)	1,475	1,581	1,526	1,680	1,815
% SGP-WSS/total SGP	12.4%	11.6%	6.3%	n.a.	n.a.
% SGP-WSS/total revenues	10%	11%	6%	n.a.	n.a.

Sources: 1. SGP-WSS from the DNP. Desempeno *Fiscal de los Departamentos y Municipios 2011, 2012, y 2013. Anexos.*
2. SGP-WSS transfers to *Aquaseo*.
Note: n.a. = Not applicable.

61. In Tumaco, the funds transferred from SGP committed to WSS corresponded on average to 4 percent of total SGP funds received, or 3 percent of total revenues. According to figures provided by *Aquaseo*, the municipality has complied on a regular basis with the amount billed by the operator as compensation to cover subsidies. This amount corresponded on average to 55 percent of SGP-WSS during the period 2012–2015.

Table 5.12. SGP with Specific Destination to WSS Received by the Municipality of Guapi

Tumaco SGP-WSS	2011	2012	2013	2014	2015
SGP to spend mandatorily on WSS (COP, millions)	6,122	6,463	6,889	8,081	8,196
% SGP-WSS /total SGP	4.6%	3.9%	3.8%	n.a.	n.a.
% SGP-WSS/total revenues	3.5%	3.2%	3.0%	n.a.	n.a.
SGP-WSS transferred to *Aquaseo* (COP, millions)	n.a.	3,933	3,515	4,390	4,570
SGP-WSS transferred to *Aquaseo*/total SGP-WSS	n.a.	60.9%	51.0%	54.3%	55.8%
SGP-WSS transferred to *Aquaseo*/total revenues	n.a.	2.0%	1.5%	n.a.	n.a.

Sources: 1. SGP-WSS from the DNP. *Desempeno Fiscal de los Departamentos y Municipios 2011, 2012, y 2013. Anexos.*
2. SGP-WSS transfers to *Aquaseo*.

62. **Projection of SGP linked to WSS for the period 2016–2021.** To estimate the amount to be received by the municipalities in the next five years, the projection made at 2015 prices assumed an annual growth rate of 3 percent.[70]This assumption is on the conservative side, given that the actual increase during the previous five years was higher: 5.3 percent in Guapi and 7.6 percent in Tumaco.

Table 5.13. Projection of Annual SGP to Spend on WSS for Tumaco and Guapi, 2016–2021

SGP-WSS (COP, millions)	2015 Actual	2016	2017	2018	2019	2020	2021
Guapi	1,815	1,870	1,926	1,984	2,043	2,104	2,167
Tumaco	8,196	8,441	8,695	8,956	9,224	9,501	9,786

[70] The 3 percent was assumed as the growth of Colombian GDP.

Financial Analysis of the Operators

Tumaco

63. *Aquaseo* is the operator in charge of providing water and sanitation[71] to the cities of Tumaco and Magangue (Department of Bolivar-North of Colombia). It started operations in 2010 and has a 15-year concession contract. The financial statements shown in table 5.14 include results from both operations.

64. The income statement shows that *Aquaseo* has operated in the red since the operation started in 2010. Only in 2012, it reached the breakeven point; yet in 2014, it showed losses again and reached 20 percent of revenues.

Table 5.14. Aquaseo Income Statement, 2010–2014

(COP, millions)	2010	2011	2012	2013	2014
Billed revenue	5,702	5,517	9,638	9,953	10,215
Operating revenue	6,672	10,911	8,976	8,127	10,647
EBITDA	(970)	(5,394)	662	1,826	(433)
Depreciation	43	169	146	138	138
Provision bad debts	0	333	797	2,140	1,212
EBIT	(1,014)	(5,896)	(280)	(453)	(1,783)
Financial expenses	97	41	125	0	0
Nonoperational revenue minus operational expenses	(20)	61	642	420	(299)
Net income	(1,131)	(5,877)	237	(32)	(2,082)
Operating margin	−17%	−98%	7%	18%	−4%
Net income/Billed revenues	−20%	−107%	2%	0%	−20%

65. Revenues effectively collected by *Aquaseo* are well below what it is actually billed. Information from Tumaco shows that revenue collection rate was 26 percent in 2010 and went up to 45 percent in 2015.

66. Figures from the balance sheet show a weak capital structure, where liabilities are far higher than equity. In 2010, it was 90:10 (liability:equity), and by 2014, equity became negative and debt higher than assets; capital structure: 101 liability: −1 equity.

[71] Including solid waste.

Table 5.15. Aquaseo Balance Sheet

(COP, millions)	2010	2011	2012	2013	2014
Assets					
Current assets	12,505	22,925	38,130	33,706	25,297
Long-term assets	421	649	685	600	579
Total assets	12,926	23,573	38,815	34,306	25,876
Liabilities and Equity					
Liabilities					
Current liabilities	10,277	23,122	31,244	25,390	17,963
Long-term liabilities	1,320	5,000	5,782	7,160	8,239
Total liabilities	11,597	28,122	37,026	32,550	26,202
Equity	1,329	(4,548)	1,789	1,756	(326)
Total liabilities plus equity	12,926	23,574	38,815	34,306	25,876
Liabilities/Assets	90%	119%	95%	95%	101%
Equity/Assets	10%	−19%	5%	5%	−1%

Guapi

67. In Guapi, the municipality is responsible for the provision of the service; yet the service provided is very poor and sometimes not operational at all. Following financial and operational difficulties in 2011, the SSPD decertified the municipality and assigned the Department of Cauca to manage Guapi's finances. The municipality still faces difficulties to operate and manage the services despite measures taken by the national government to curb the situation.

Financial Evaluation of Interventions in Guapi and Tumaco

68. To evaluate the project in financial terms, costs and benefits were estimated in market prices as they will be paid and received by the entities in charge of implementing and operating the project. The Government will fund 100 percent of investment and so the investment cost is not included in the evaluation; only operating costs were included.

69. Three scenarios were run to simulate the financial results of the operation in Guapi and Tumaco when interventions are implemented: (a) business-as-usual scenario, which keeps current efficiency levels unchanged; (b) scenario with efficiencies, which includes efficiency gains in revenue collection rate; and (c) scenario with efficiency plus tariff increase to make the operation financially viable. The projections were made at 2015 prices and no inflation was included.

70. The business-as-usual scenario includes revenues and operating costs generated from the expansion of the service according to targets of the investment under the project. Revenues were projected using the following assumptions: (a) tariffs were calculated applying existing subsidies, which were defined by the municipalities' council, as 70 percent to Strata 1, 50 percent to Strata 2, and 15 percent to Strata 3 and (b) revenue collection rate of 45 percent, which corresponds to current collection rate of Tumaco. For Guapi, the same collection rate was applied even though currently it is 0 as the service is neither billed nor charged. For projecting operating costs, the following assumptions were used for Tumaco: (a) for water service, the existing cost of providing the service was used, which is the same as the tariff established to customers of Strata 4; (b) for

sewerage service, it was estimated based on the works to implement under the project; resultant cost was equal to 2.5 percent of investment and similar to the cost of water without administrative cost; and (c) for solid waste, the cost of reference estimated for setting the tariff of Strata 4 was used. For Guapi, the same operating costs as Tumaco were assumed (energy costs are higher in Guapi than in Tumaco, though the water system is Guapi is expected to be less energy intensive than in Tumaco).

71. The scenario with efficiency gains included improvement on revenue collection rate.

72. The scenario with efficiency gains and increase in tariffs included the same assumption as in the previous scenario plus increase in tariffs to make the operation financially viable.

Guapi

73. Results of the business-as-usual scenario in Guapi shows that the operation will not be financially viable as the resources from the SGP-WSS will not be enough to cover operating deficit. The projection shows that after 2020 there will be an uncovered financial gap and by 2021, a deficit of about COP 700 million will be without financial source.

Table 5.16. Projection of Income Statement for WSS in Guapi for 2016–2021, Business-as-usual Scenario

Business-as-usual Scenario (COP, millions)	2017	2018	2019	2020	2021
Billed revenue					
Water	485	521	558	596	635
Sewerage	—	89	180	272	366
Solid waste	9	64	120	177	236
Total billed revenue	494	675	859	1,046	1,236
Operating costs					
Water	1,267	1,365	1,466	1,568	1,673
Sewerage	—	234	473	716	965
Solid waste	—	150	303	458	617
Total O&M	1,267	1,749	2,241	2,743	3,255
Operating deficit (with 100% revenue collection rate)	(773)	(1,075)	(1,383)	(1,697)	(2,018)
Operating deficit (with 45% revenue collection rate)	(1,045)	(1,446)	(1,855)	(2,272)	(2,698)
SGP-WSS received by municipality	1,926	1,984	2,043	2,104	2,167
% of SGP-WSS to cover deficit	54%	73%	91%	100%	100%
Deficit without source of funding	0	0	0	(168)	(531)
Cumulative deficit without funding					(699)

74. **Efficiency gains scenario keeping existing subsidies on tariffs.** This scenario was projected including only efficiency gains related to revenue collection rate. Additional efficiencies are expected from the interventions financed under the project, such as reduction of UFW and improvement on operational conditions of the service, which may reduce the operating cost per household. However, given that the information was not available at the time of this appraisal, no additional assumptions were made.

75. Revenue collection rate was gradually increased from 45 percent to 70 percent in 2019. Keeping all the other variables constant, results show a similar situation as the previous scenario. SGP transfers from the national government to spend on WSS will not be enough to pay off operational deficit, and by 2021, the gap with no financial resources will be about COP 222 million.

Table 5.17. Projection of Income Statement for WSS in Tumaco for 2016–2021 under Efficiency Gains Scenario

(COP, millions)	2017	2018	2019	2020	2021
Billed revenue	494	675	859	1,046	1,236
Operating costs	1,267	1,749	2,241	2,743	3,255
Operating deficit (with 100% revenue collection rate)	(773)	(1,075)	(1,383)	(1,697)	(2,018)
Operating deficit (with 70% revenue collection rate)	(995)	(1,311)	(1,640)	(2,011)	(2,389)
SGP-WSS received by municipality	1,926	1,984	2,043	2,104	2,167
% of SGP-WSS to cover deficit	52%	66%	80%	96%	100%
Deficit without source of funding	0	0	0	0	(222)
Cumulative deficit without funding					(222)

76. **Efficiency gains scenario decreasing subsidies on tariffs.** According to results of the previous scenario, additional financial sources are needed to pay for the operation. This scenario is run increasing the tariffs at levels that makes the operation viable when revenue collection rate remains at 70 percent. This means that the share of tariffs to finance the operation increases, through reduction of subsidies.

77. The municipalities' council approved the maximum subsidies allowed by Colombian regulation, which is equal to 70 percent to Strata 1, 50 percent to Strata 2, and 15 percent to Strata 3. The projection was run decreasing the subsidies to 40 percent in Strata 1, 20 percent to Strata 2, and eliminating the subsidy for Strata 3. In Guapi, there are no customers classified in Strata 3. Results shows that despite a tariff increase, the share of the monthly WSS bill in family income (assumed as two minimum salaries) will increase from 2 percent to 3.8 percent, below the 5 percent normally accepted.

78. Results of this scenario show that resulting deficit can be totally paid by transfers from the SGP committed to WSS. It is likely that additional efficiencies will allow to reduce the deficit even more and have additional room from the SGP funds to use for investment and rehabilitation of infrastructure.

Table 5.18. Projection of Income Statement for WSS in Guapi for 2016–2021 under Efficiency Gains Scenario and Increase of Tariffs

(COP, millions)	2017	2018	2019	2020	2021
Billed revenue	494	675	1,105	1,720	2,221
Operating costs	1,267	1,749	2,241	2,743	3,255
Operating deficit (with 100% revenue collection rate)	(773)	(1,075)	(1,136)	(1,023)	(1,034)
Operating deficit (with 70% revenue collection rate)	(995)	(1,311)	(1,468)	(1,539)	(1,700)
SGP-WSS received by municipality	1,926	1,984	2,043	2,104	2,167
% of SGP-WSS to cover deficit	52%	66%	72%	73%	78%
Deficit without funding	0	0	0	0	0
Cumulative deficit without funding					0

79. The financial structure from 2007 to 2021 shows that the funds to cover operation will come from tariffs (33 percent) and from the SGP obligated to WSS. After 2022, the share of funds from tariffs will cover almost half the operating cost; the other half will be covered by the SGP. Under this scheme, 75 percent of resources from the SGP-WSS will be used in operation.

Table 5.19. Financial Sources for Operation

Guapi	2017–2021	2022 and on
Collected revenue	33%	48%
SGP-WSS	67%	52%

80. The mechanisms to make the compliance of financial requirements feasible will be:

(a) concession contracts to be signed by the municipality and the operator. The contracts will include efficiency indicators to be complied by both parts (municipality and operators). The municipality will have to commit to an increase in tariffs and the operators will have to commit to efficiency gains in revenue collection; and

(b) national transfers from the SGP will continue and the national government will be vigilant regarding its right use. The concession contract of Tumaco is being revised by the municipality and the operator under the supervision of the national government. The concession contract for Guapi will be signed when the institutional arrangements are established and the operator is selected.

81. The target of 70 percent for revenue collection rate is feasible as experience in other projects in Colombia has shown. Results from the Implementation Completion and Results Report (ICR) of Project 7077 showed that the revenue collection rate improved significantly in the municipalities. In some, the level was even higher than 90 percent. An ongoing project in Maicao has shown additional improvement.

Table 5.20. ICR Colombia Project 7077

Commercial Indicators	Revenue Collection Rate	
	First Year of Operation	ICR
Altantico		
AAA Atlantico		
Baranoa	29%	95%
Polonuevo	23%	93%
Sabanagrande	47%	81%
Santo Tomas	38%	94%
Subtotal	39%	90%
Soledad (AAA Barranquilla)	n.a.	95%
Bolivar		
Acualco		
Arjona	47%	111%
Turbaco	32%	77%
Arjona and Turbaco	40%	95%
Sucre		
Adesa		
Sincelejo	62%	91%
Corozal	62%	91%
Sincelejo and Corozal	62%	91%

Note: In Arjona, the 2010 revenue collection rate is higher than 100 percent because it includes accounts payable in arrears.

Tumaco

82. Results of the business-as-usual scenario shows that the operation will not be viable. The operational deficit, with 45 percent revenue collection rate, will go from COP 7,200 million in 2017 to COP 14,600 million in 2021. The deficit will be higher than the amount transferred from the Government to spend mandatorily on WSS through the SGP. Currently, the Municipality of Tumaco is transferring to the operator 55 percent of the amount received through the SGP committed to WSS. This percentage will increase significantly in the coming years to 83 percent in 2017 and to 100 percent in 2018. Under this scenario, the municipality will spend the whole amount of SGP committed to WSS, and it will need additional resources to pay for remaining operational deficit of almost COP 10,000 million. This scenario is not feasible.

Table 5.21. Projection of Income Statement for WSS in Tumaco for 2016–2021 under Business-as-usual Scenario

(COP, millions)	2017	2018	2019	2020	2021
Billed revenue					
Water	2,029	2,368	2,712	3,062	3,417
Sewerage	—	316	634	956	1,282
Solid Waste	1,115	1,222	1,330	1,441	1,553
Total billed revenue	3,143	3,905	4,677	5,459	6,252
Operating costs					
Water	5,583	6,545	7,522	8,515	9,523
Sewerage	—	872	1,759	2,659	3,574
Solid Waste	3,056	3,360	3,668	3,981	4,298
Total O&M	8,639	10,777	12,949	15,154	17,395
Operating deficit (with 100% revenue collection rate)	(5,495)	(6,872)	(8,272)	(9,696)	(11,143)
Operating deficit (with 45% revenue collection rate)	(7,224)	(9,020)	(10,844)	(12,698)	(14,581)
SGP-WSS received by municipality	8,695	8,956	9,224	9,501	9,786
% of SGP-WSS to cover deficit	83%	100%	100%	100%	100%
Deficit without source of funding	0	(64)	(1,620)	(3,197)	(4,796)
Cumulative deficit without funding					(9,677)

83. **Efficiency gains scenario keeping existing subsidies.** This scenario was projected including only efficiency gains related to revenue collection rate. Additional efficiencies are expected from the interventions financed under the project, such as reduction of UFW and improvement on operational conditions of the service, which may reduce the operating cost per household. However, given that information was not available at time of this appraisal, no additional assumptions were made.

84. Revenue collection rate was gradually increased from the current level of 45 percent to 70 percent in 2019. It is believed that anything higher than this level is not possible in Tumaco as it was also expressed by the operator. Keeping all the other variables constant, results show a similar situation as the previous scenario. SGP transfers from the national government committed to WSS will not be enough to pay off operational deficit. Even though the cumulative gap to finance with other sources reduced by half, its level is still high at COP 5,500 million. This scenario is not feasible either.

Table 5.22. Projection of Income Statement for WSS in Tumaco for 2016–2021 under Efficiency Gains Scenario

(COP, millions)	2017	2018	2019	2020	2021
Billed revenue	3,143	3,905	4,677	5,459	6,252
Operating costs	8,639	10,777	12,949	15,154	17,395
Operating deficit (with 100% revenue collection rate)	(5,495)	(6,872)	(8,272)	(9,696)	(11,143)
Operating deficit (with 70% revenue collection rate)	(6,910)	(8,239)	(9,675)	(11,333)	(13,018)
SGP-WSS received by municipality	8,695	8,956	9,224	9,501	9,786
% of SGP-WSS to cover deficit	79%	92%	100%	100%	100%
Deficit without funding	0	0	(451)	(1832)	(3,232)
Cumulative deficit without funding					(5,515)

85. **Efficiency gains scenario decreasing subsidies.** This scenario increases the share of tariffs to finance the operation through reduction of subsidies. The municipalities' council has approved the maximum subsidies allowed by Colombian regulation, which is equal to 70 percent to Strata 1, 50 percent to Strata 2, and 15 percent to Strata 3. The projection was run increasing tariffs by decreasing the subsidies to 40 percent in Strata 1, 20 percent to Strata 2, and eliminating the subsidy for Strata 3. In Tumaco, only 4 percent of customers are classified in Strata 3. Results shows that despite tariff increase, the share of the monthly WSS bill in family income (assumed as two minimum salaries) will increase from 2 percent to 3.7 percent, below the 5 percent normally accepted.

86. Results of this scenario show that the resulting deficit can be totally paid by transfers from the SGP linked to WSS. It is likely that additional efficiencies will allow to reduce the deficit even more and have additional room from the SGP funds, to use for investment and rehabilitation of infrastructure.

Table 5.23. Projection of Income Statement for WSS in Tumaco for 2016–2021 under Efficiency Gains Scenario and Increase of Tariffs

(COP, millions)	2017	2018	2019	2020	2021
Billed revenue	3,143	5,037	7,752	9,909	11,360
Operating costs	8,639	10,777	12,949	15,154	17,395
Operating deficit (with 100% revenue collection rate)	(5,495)	(5,740)	(5,197)	(5,246)	(6,035)
Operating deficit (with 70% revenue collection rate)	(6,910)	(7,503)	(7,522)	(8,218)	(9,443)
SGP-WSS received by municipality	8,695	8,956	9,224	9,501	9,786
% of SGP-WSS to cover deficit	79%	84%	81%	86%	96%
Deficit without funding	0	0	0	0	0
Cumulative deficit without funding					0

87. The financing structure to cover operating costs will be 34 percent through tariffs and 66 percent through the SGP-WSS. The amount invested in WSS from the SGP corresponds to about 93 percent.

Table 5.24. Financial Sources for Operation

Tumaco	2017–2021	2022 Onwards
Collected revenue	34%	46%
SGP-WSS	66%	54%

Appendix A. Regulatory Framework of Water and Wastewater Tariffs in Colombia

1. Colombia has developed a comprehensive regulatory framework for tariffs and subsidies of water and sanitation, as well as for the provision of the services. The municipalities are responsible for the provision of the services, though they can award their operation to a private or state-owned operator through concession contracts. In some municipalities, the service is financially sustainable and no resources from the Government are needed. In some others, however, the service is not financially viable and needs substantial public financing. The difference lies in the economic conditions of the municipalities; for those with a mix of businesses, high-income level customers, and low-income level customers, the average tariff allows full cost recovery. For the municipalities whose economic conditions are poor, financial sustainability is not feasible without subsidies from the Government. The rules for applying public funds are defined in the regulatory framework.

2. The *Comision de Regulacion de Agua Potable y Saneamiento Basico* (CRA) is the entity that regulates the operation of water, wastewater, and waste management services in Colombia. Law 142 of July 11, 1994, created the CRA and established the tariff guidelines, which are ruled by CRA through Resolutions.

3. Tariff regulation is established in Resolution CRA 688 of 2014 and Resolution 735 of 2015, which establish (a) the formula to calculate the total costs of providing the services (investment plus O&M); (b) the subsidies to apply on tariffs based on the socioeconomic strata and the calculating costs; and (c) the financial mechanism to cover deficit in case it occurs.

4. The level of tariffs is based on the cost of providing the service. The formula to calculate the costs is as follows:

Cost = CMA + CMO + CMI + CMT,

where

i. CMA: Average administrative cost

ii. CMO: Average operative cost

iii. CMI: Average investment cost

iv. CMT: Average cost of environmental tariffs

5. CMA is the average administrative cost per customer. This cost excludes depreciation and all those costs related to pension funds. The resulting cost is then multiplied by an efficiency factor calculated by the CRA.

6. CMO is the average operative cost per cubic meter. The water average cost is calculated per cubic meter produced excluding water losses level defined by the CRA. The wastewater average cost is calculated per cubic meter of wastewater discharged. For both water and wastewater, the CMO consists of two components: (a) a portion that corresponds to particular characteristics of the area where the service is provided, such as energy and chemicals for water

and wastewater treatment, plus (b) a portion that is comparable with other providers, such as third-party services, leases, insurance, maintenance, and so on; this portion of the cost is based on the operative cost of the operator multiplied by an efficiency factor calculated by the CRA. The CMO excludes depreciation and all costs related to pension fund and labor liabilities.

7. CMI is the average investment cost per cubic meter. It includes three components: (a) investments in expansion, rehabilitation, and replacement; (b) current assets value; and (c) land investment. The total average is calculated as the sum of the present value of each component divided by the present value of the volume of water consumed (or discharged) during the average lifetime of assets. The CRA sets guidelines for the inclusion of certain types of investments and assets, as well as for the lifetime period to be considered.

8. CMT is the average cost of environmental tariffs. For water, it consists of the tariff of cubic meter of water used divided by one minus the water losses indicator established by the CRA. For wastewater, it consists of the pollution rate charged to the customers according to their discharges characteristics.

Tariffs

9. The tariffs correspond to the cost of providing the service, minus a subsidy (or plus an overcharge), depending on the category of customers.

10. **Tariff structure.** For both water and wastewater services, the tariff structure consists of a fixed charge per customer and a volumetric charge per cubic meter.

(i) The fixed charge equals the average administrative cost.

(ii) The volumetric tariff equals the sum of the average costs of operation, investment, and environmental rates.

11. **Subsidies and overcharges.** The guidelines for subsidies and overcharges are as follows:

(i) Subsidies are applied only to the monthly fixed charge and to the first block of consumption, which corresponds to a basic monthly consumption per household.

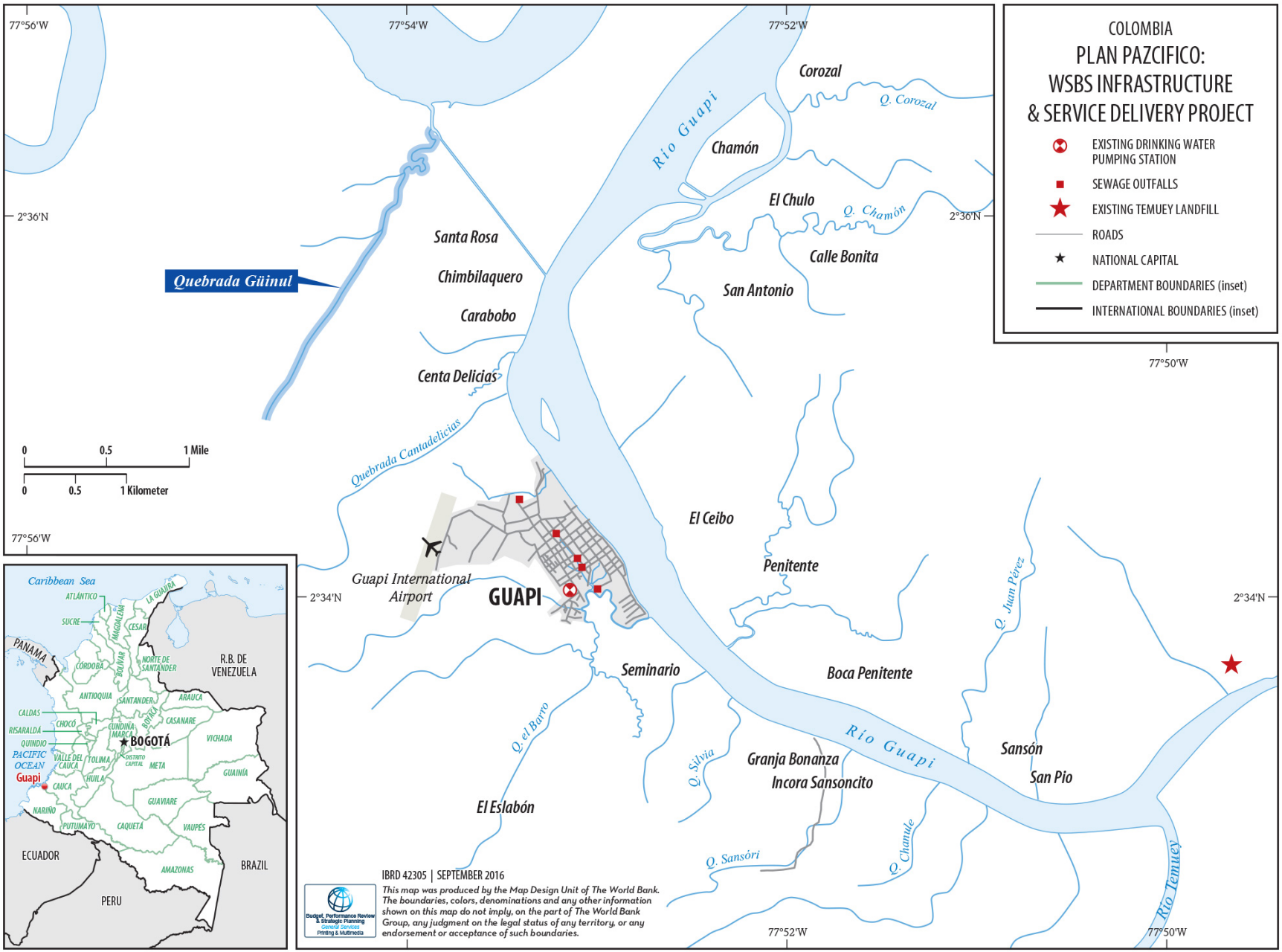
(ii) The CRA establishes the maximum percentage of subsidies to be applied on tariffs of low-income customers. The subsidy is to be paid off with overcharges on tariffs of high-income customers as well as industrial and commercial users. The CRA establishes ceilings for the subsidy and for overcharges. The operator has autonomy to set them within these limits. The operator’s decision is based on the composition of the market, looking for a balance between subsidies and overcharges. In poor areas, this is not always possible and to compensate the deficit, the national government transfers earmarked funds to the municipality through the Solidarity Fund.

(iii) The residential customers are classified in six strata levels, as a proxy for their income level, the lowest level being Strata 1. Residential customers classified as Strata 4 pay the full cost of providing the service, while Strata 1, 2, and 3 receive the subsidy. Strata 5, 6, and industrial and commercial customers pay overcharge.

(iv) The ceiling for the subsidies is as follows: Strata 1 can have a subsidy up to 70 percent of the cost; Strata 2 up to 40 percent; and Strata 3 up to 15 percent. Strata 4 pays the reference cost.

(v) The maximum overcharge is as follows: Strata 5 - 50 percent; Strata 6 - 60 percent; industrial customers - 30 percent; and commercial customers - 50 percent.

Annex 6. Project Maps


COLOMBIA
PLAN PAZCIFICO:
WSBS INFRASTRUCTURE
& SERVICE DELIVERY PROJECT
EXISTING DRINKING WATER PUMPING STATION
SEWAGE OUTFALLS
EXISTING TEMUEY LANDFILL
ROADS
NATIONAL CAPITAL
DEPARTMENT BOUNDARIES (inset)
INTERNATIONAL BOUNDARIES (inset)
77°56'W
77°54'W
77°52'W
77°50'W
2°36'N
2°34'N
Río Guapi
Corozal
Q. Corozal
Chamón
El Chulo
Q. Chamón
Calle Bonita
San Antonio
Santa Rosa
Chimbilaquero
Carabobo
Quebrada Güinul
Centa Delicias
Quebrada Cantadelicias
0 0.5 1 Mile
0 0.5 1 Kilometer
El Ceibo
Penitente
Guapi International Airport
GUAPI
Seminario
Boca Penitente
Q. Juan Pérez
Río Guapi
Sansón
San Pio
Granja Bonanza
Incora Sansoncito
Q. el Barro
Q. Silvia
El Eslabón
Q. Sansóri
Q. Chanule
Río Temuey
Caribbean Sea
PANAMA
ECUADOR
PERU
BRAZIL
R.B. DE VENEZUELA
PACIFIC OCEAN
Guapi
BOGOTÁ
ATLÁNTICO
LA GUAJIRA
SUCRE
MAGDALENA
CESAR
CÓRDOBA
BOLÍVAR
NORTE DE SANTANDER
ANTIOQUIA
SANTANDER
ARAUCA
CALDAS
CHOCÓ
BOYACÁ
CASANARE
RISARALDA
CUNDINA MARCA
VICHADA
QUINDIO
VALLE DEL CAUCA
TOLIMA
DISTRITO CAPITAL
META
GUAINÍA
HUILA
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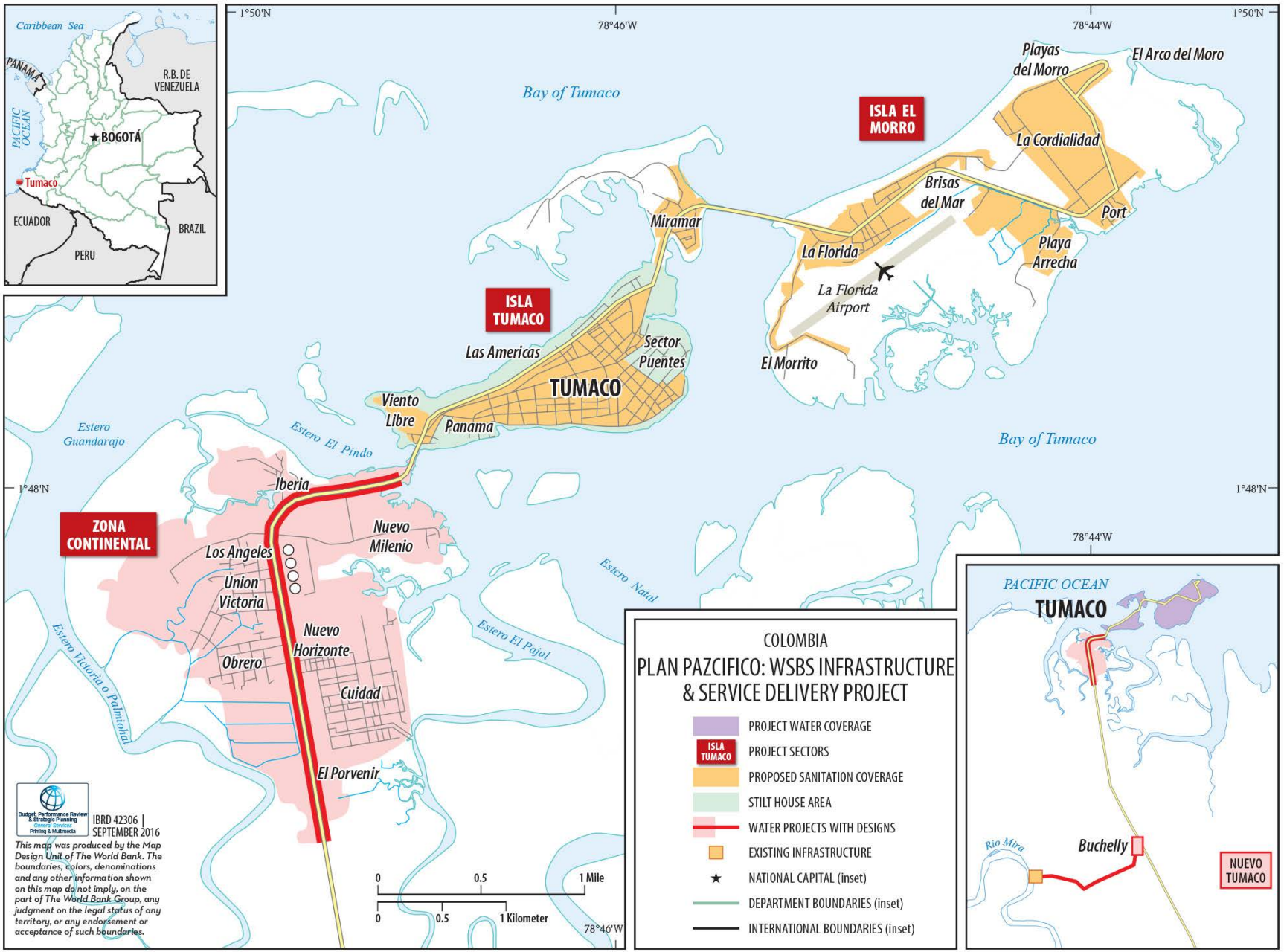
Caribbean Sea
PANAMA
R.B. DE VENEZUELA
PACIFIC OCEAN
BOGOTÁ
Tumaco
ECUADOR
BRAZIL
PERU
1°50'N
78°46'W
78°44'W
Bay of Tumaco
ISLA EL MORRO
Playas del Morro
El Arco del Moro
La Cordialidad
Brisas del Mar
Port
Miramar
La Florida
Playa Arrecha
La Florida Airport
El Morrito
ISLA TUMACO
Las Americas
Sector Puentes
TUMACO
Viento Libre
Panama
Estero Guandarajo
Estero El Pindo
1°48'N
Iberia
ZONA CONTINENTAL
Nuevo Milenio
Los Angeles
Union Victoria
Nuevo Horizonte
Obrero
Cuidad
El Porvenir
Estero Natal
Estero El Pajal
Estero Victoria o Palmitolal
IBRD 42306 | SEPTEMBER 2016
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0 0.5 1 Mile
0 0.5 1 Kilometer
COLOMBIA
PLAN PAZCIFICO: WSBS INFRASTRUCTURE & SERVICE DELIVERY PROJECT
PROJECT WATER COVERAGE
ISLA TUMACO
PROJECT SECTORS
PROPOSED SANITATION COVERAGE
STILT HOUSE AREA
WATER PROJECTS WITH DESIGNS
EXISTING INFRASTRUCTURE
NATIONAL CAPITAL (inset)
DEPARTMENT BOUNDARIES (inset)
INTERNATIONAL BOUNDARIES (inset)
PACIFIC OCEAN
TUMACO
Río Mira
Buchelly
NUEVO TUMACO