

**Colombia**

**Plan PAZcifico: WSS Infrastructure & Service Delivery Project  
(P156239)**

Executive Summary

Environmental Management Framework and Social Safeguards  
Instruments



## Acronyms and Abbreviations

ANLA	Autoridad Nacional de Licencia Ambientales (National Environmental Licensing Authority)
CAR	Corporación Autónoma Regional (Regional Environmental Authorities)
CARs	Corporaciones Autónomas Regionales (Regional Autonomous Corporations)
CONPES	Consejo Nacional de Política Económica y Social (National Economic and Social Policy Council)
DANE	Departamento Administrativo Nacional de Estadística (National Administrative Department of Statistics)
DNP	Departamento Nacional de Planeación (National Planning Department)
EA	Environmental Assessment
EAAP	Empresa de Acueducto y Alcantarillado de Popayán
EIA	Environmental Impact Assessment
EMCASERVICIOS	Empresa Caucana de Servicios Públicos
EMP	Environmental Management Plan
EOT	Esquema de Ordenamiento Territorial (Land Use Planning Framework)
FINDETER	La Financiera de Desarrollo Territorial S.A. (Territorial Development Bank)
GoC	Government of Colombia
GRM	Grievance and Redress Mechanism
IDB	Inter-American Development Bank
IP	Indigenous Peoples
JAC	Juntas de Acción Comunal (Communal Action Committees)
MADS	Ministerio de Ambiente y Desarrollo Sostenible (Ministry of Environment and Sustainable Development)
masl	Meters Above Sea Level
MADS	Ministerio de Ambiente y Desarrollo Sostenible (Ministry of Environment and Sustainable Development)
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)
PIU	Program Implementing Unit
PSMV	Plan de Saneamiento Manejo de Vertimientos (Sanitation and Discharge Management Plan)

PTSP	Plan Todos Somos PAZcíficos (We are all Pacific Plan)
RPF	Resettlement Policy Framework
SAT	Safeguards Advisory Team
SINA	Sistema Nacional Ambiental (National Environmental System)
SSPD	Superintendencia de Servicios Públicos Domiciliarios (Superintendent of Residential Public Services)
UNGRD	Unidad Nacional para la Gestión del Riesgo de Desastres (National Unit for Disaster Risk Management)
WSBS	Water Supply and Basic Sanitation

## I. Background

The Government of Colombia (GoC) launched the Plan Todos Somos PAZcífico (PTSP) in 2014 to close persistent socioeconomic gaps between the country's Pacific coast and the Andean interior. The GoC has prioritized investments in water supply and basic sanitation (WSBS)<sup>1</sup> and electricity infrastructure in the urban cores of the municipalities of Buenaventura, Guapi, Quibdó, and Tumaco, as well as coastal waterway transportation linking Buenaventura and Tumaco. The GoC has requested financing by the World Bank of a loan (the "Project") to support the implementation of the PTSP: the WSS Infrastructure & Service Delivery Project for US\$126.7 million.

The Project is categorized by the World Bank as environmental Category A, per OP/BP 4.01, based on the potential impacts of the solid waste disposal investments under the Project Components 1 and 2, though, these sub-projects are designed to result in significant positive environmental impacts by improving the existing solid waste disposal operations. The remaining Project works (sub-projects) are lower risk and complexity sub-projects that do not present significant environmental impacts and can be mitigated with relatively standard measures (e.g., analogous to Category B projects under OP/BP 4.01). Section 4 provides a summary of potential environmental and social impacts related to the works in these components.

This Executive Summary summarizes the environmental and social safeguard instruments for the Project, which include:

- Environmental Management Framework (EMF), which was prepared by the borrower since the detailed designs and locations for most of the sub-projects that would be financed by the proposed Project will not be completed during the preparation stage. The EMF requires for Category A sub-projects, the preparation of an Environmental Impact Assessment (which includes an Environmental Management Plan) and for sub-projects that would be Category B type works the EMF requires the development of an Environmental Management Plan.
- Resettlement Framework, which establishes guides and procedures for sub-projects that displace people from their homes, or cause economic displacement due to loss of land, buildings or sources of income. Within this framework an assessment of the affectations and formulation of alternatives is required to minimize displacement and identify options for restoration and / or improvement of their quality of life, their ability to generate income and production levels.
- Social Inclusion Plan of the Tumaco Waste Recyclers, which applies to subproject involving the closure of the existing landfill in the municipality of Tumaco. The plan entails an assessment of the population carries the recycling activity and analyzes alternatives for performing permitted economic activities under Colombian law, to ensure a better quality of life and long-term sustainability.
- Information, Communication and Participation Plan, which is designed to develop a comprehensive process of interaction: community - municipal institutions and responsible for the works, which enables the positive valuation, ownership and care of works by the

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<sup>1</sup> Basic sanitation includes fecal, wastewater and solid waste management.

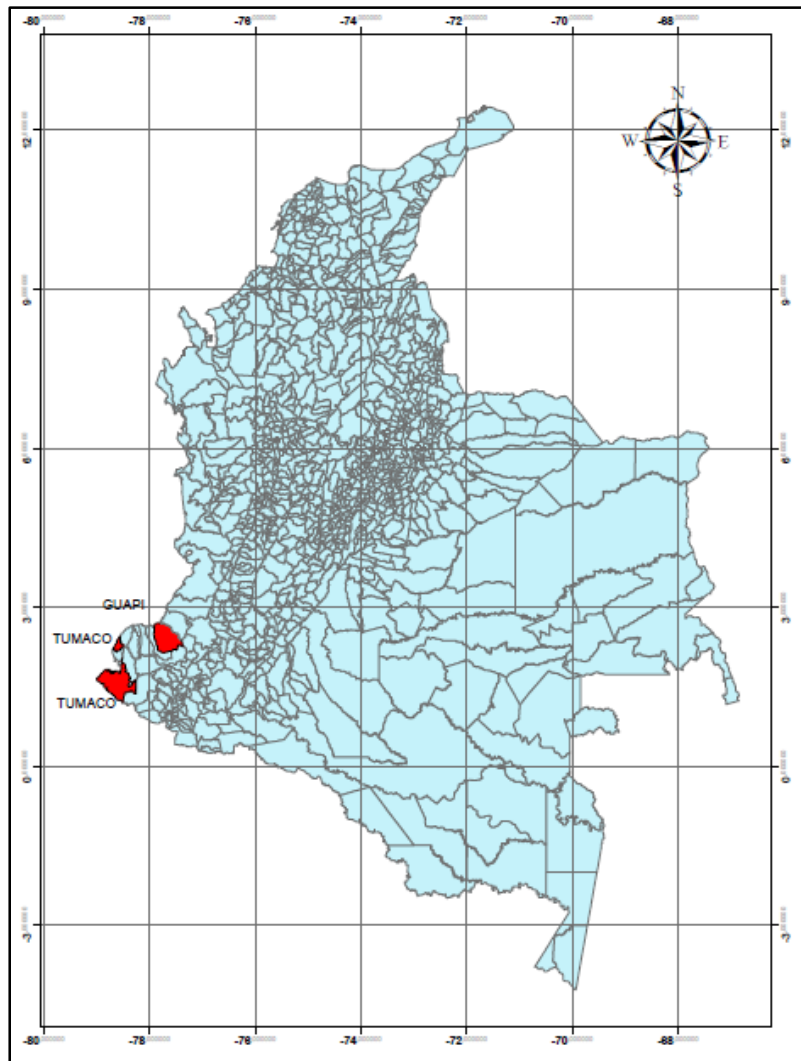
community. The plan includes socialization and dissemination of the Project, citizen participation in the project cycle, water pedagogy, and citizen Oversight Committees; Complaints and Requests.

## II. Project Description

### Project Location

The urban cores of the municipalities of Guapi and Tumaco (see Figure 1) are home to approximately 18,111 and 111,589 residents, respectively. The two municipalities face several common WSBS service provision challenges, from low sanitation coverage to inadequate drinking water quality.

Figure 1 - Location of Guapi and Tumaco



Source: Instituto Geográfico Agustín Codazzi

## Project Development Objective

The proposed Project development objectives are (i) to improve coverage and service quality of water supply and basic sanitation in urban areas in the municipalities of Tumaco and Guapi and (ii) to improve operational efficiency of the utilities in these two municipalities.<sup>2</sup> The key objectives and associated indicators are as follows:

For the Municipality of Guapi, Cauca, the specific key objectives are as follows:

- Structure and implement efficient and sustainable structures for the delivery of water supply and basic sanitation services.
- Undertake necessary infrastructure investments to achieve 95 percent drinking water coverage with continuity of 24 hours per day in the urban core, 85 percent sewerage coverage, and reduce discharge of the 13 direct wastewater outfalls. Achieve 10 m<sup>3</sup>/conn-month of water losses.
- Implement an adequate solid waste solution, as well as 100 percent collection of solid waste.

For the Municipality of Tumaco, Nariño, the specific key objectives are as follows:

- In water supply (i) increase service coverage to 95 percent; (ii) guarantee water supply that is fit for human consumption 24 hours per day, seven days per week; and (iii) achieve 10 m<sup>3</sup>/conn-month of water losses.
- In sewerage, increase service coverage from 0 percent to 53 percent, which entails the elimination of direct wastewater outfalls in the areas of intervention.
- In solid waste disposal, develop the infrastructure necessary for adequate final disposal of solid waste over the long term.

## Project Component Descriptions

The project is divided into the following four main components:

**Component 1: Water Supply and Basic Sanitation Improvements in the Municipality of Guapi.** The Project would finance civil works, equipment, and services to improve WSBS coverage and service quality in Guapi's urban perimeter. Specifically, the component's activities include (i) constructing a new water-intake structure and related water mains, optimizing the existing water treatment plant, and rehabilitating and constructing water mains and distribution networks (including micro and macro metering and pressure monitoring systems); (ii) expanding and rehabilitating the sanitation solution (sewerage and on-site sanitation) and constructing the

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<sup>2</sup> Project objectives are based on the National Economic and Social Policy Council's (*Consejo Nacional de Política Económica y Social*, CONPES) opinion 3847, *Plan todos somos PAZcífico: concepto favorable a la nación para otorgar garantía al patrimonio autónomo "fondo para el desarrollo del plan todos somos pazcífico", para contratar operaciones de crédito público externo hasta por la suma de usd 400 millones, o su equivalente en otras monedas, destinados a su financiamiento parcial y; declaración de importancia estratégica del programa de inversión que se financiará con estos recursos*, issued November 2015:

<https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/3847.pdf>.

wastewater treatment plant; and (iii) constructing a final solid waste disposal solution and implementing an environmental restoration project (rehabilitation of approximately 6 km of road which used solid waste as a base material). The Project would finance a project management consultancy for the works to provide quality control, monitoring and inspection, and contract administration.

**Component 2: Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco.** The Project would finance civil works, equipment, and services for WSBS activities to improve coverage and service quality in Tumaco’s urban perimeter. Specifically, the component’s activities include (i) rehabilitating the water-intake structure, optimizing the existing water treatment plant, and rehabilitating and constructing water mains and distribution networks (including micro and macro metering and pressure monitoring systems); (ii) implementing a sanitation solution (sewerage and onsite sanitation) and constructing a wastewater treatment plant; and (iii) improving the collection system for solid waste and constructing a final disposal solution. The Project would finance a project management consultancy for the works to provide quality control, monitoring and inspection, and contract administration.

**Component 3: Capacity Building and Institutional Strengthening of Service Providers in Guapi and Tumaco.** The Project would finance goods and services for capacity building and institutional strengthening activities to support improved utility performance and to ensure efficient, sustainable services. This component is divided into the following four subcomponents (i) supporting Guapi to develop a long-term service delivery model; (ii) assisting Tumaco and Guapi develop their tariff and subsidize structure to cover for O&M cost as per GoC’s current regulations; (iii) supporting Tumaco’s existing service delivery model by strengthening Aguas de Tumaco capacity to provide oversight for the contract with Aquaseo and to improve service delivery in rural areas.; and (iv) conducting studies and workshops in Guapi and Tumaco on demand management, non-revenue water, and stormwater to improve commercial and operational efficiency as well as integrated urban water management.

**Component 4: Project Management and Environmental and Social Management.** The Project would support the functioning of the Program Implementing Unit (PIU) with technical specialists and training to strengthen the Unit’s fiduciary and safeguards management capacity. In particular, this component would support the implementation of the Environmental Management Framework and associated instruments, including Environmental Impact Assessments and Environmental Management Plans to be developed for individual sub-projects. It would also support the implementation of the Social Management Plan, which includes gender analysis and Grievance and Redress Mechanism (GRM), as well as the Involuntary Resettlement Framework; Social Inclusion Plan; and an Information, Communication, and Participation Plan. See Section 5 for details.

## **Project Cost Estimate**

Table 1 summarizes the estimated project total cost and loan amount by component.



**Table 1 – Project Estimated Cost**

<b>Project Components</b>	<b>IBRD Financing (US\$ millions)</b>
Component 1. Water Supply and Basic Sanitation Improvements in the Municipality of Guapi.	\$29.6
Component 2. Water Supply and Basic Sanitation Improvements in the Municipality of Tumaco.	\$86.3
Component 3. Capacity Building and Institutional Strengthening of Service Providers in Guapi and Tumaco.	\$4.8
Component 4. Project Management and Environmental and Social Management.	\$6.0
<b>Total Project Costs</b>	<b>\$126.7</b>

### **III. Legal and Regulatory Framework**

#### **Colombia**

A matrix of national, regional, and local policies and institutions are relevant for the proposed Project. The 1986 Decentralization law transferred responsibility for WSBS service provision to municipalities. The Natural Renewable Resources Code, first passed in 1973 and updated since, and the National Sanitation Code of 1979 establish the legal foundations for the WSBS sector. Environmental policy is set at the national level by the Ministry of Environment and Sustainable Development (*Ministerio de Ambiente y Desarrollo Sostenible*, MADS). These policies are implemented by the National Environmental System (*Sistema Nacional Ambiental*, SINA), established by Law 99 of 1993, regulates the country’s environmental sector through a decentralized network of 34 Regional Autonomous Corporations (*Corporaciones Autónomas Regionales*, CARs) and four Urban Environmental Authorities. The jurisdiction of the Corporación Autónoma Regional de Cauca covers Guapi, and CORPONARIÑO covers Tumaco.

Colombian law requires environmental licenses or authorizations for all projects that result in adverse impacts on natural resources or the environment. CARs and the National Environmental Licensing Authority (*Autoridad Nacional de Licencia Ambientales*, ANLAs), depending on the jurisdiction, are charged with issuing environmental licenses and ensuring that projects adhere to applicable environmental legislation and regulations. The EA provides a detailed description of the legal and institutional framework, as well as analysis of the applicability of individual policies and licenses to the proposed project components.

#### **World Bank**

The proposed Project is categorized by the World Bank as Category “A”, per OP/BP 4.01, based on the potential impacts of the solid waste disposal investments under Project Components 1 and 2. The World Bank safeguards policies triggered are summarized below.

***Environmental Assessment (OP/BP 4.01).*** The project is proposed to be classified as Environmental Category A due to the two solid waste landfills, although all these projects will result in significant positive environmental impacts they may have long-term, irreversible impacts if not managed and mitigated properly and require more in-depth environmental and social assessments. The remaining project works (sub-projects) do not present significant environmental impacts and can be mitigated with relatively standard measures. See Section 4 for summary of potential negative impacts.

An Environmental Management Framework (EMF) was prepared by the borrower since the detailed designs and locations for sub-projects that would be financed by the proposed Project will not be completed during the preparation stage. See Section 5 for details.

***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 the types of works and the potential locations and associated environmental conditions. At the moment, the exact locations of the sanitary landfills of Guapi and Tumaco remain to be defined, but the available information indicates that they will be outside of urban environments. In this peri-urban areas there is the presence of forests, wetlands and mangroves. Related to landfills, Colombian regulations prohibit landfills in natural habitats such as natural parks, wetlands, moors and mangroves. The EMF establishes criteria for the location of basic sanitation works in permissible areas.

***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. As part of the EIAs required under the EMF for Guapi and Tumaco, an Archaeology Program Preventive and a Plan of Archaeological Management (Decree 1185 of 2008) must be submitted to the ICANH (governmental authority) 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.

***Involuntary Resettlement (OP/BP 4.12).*** The main activity relevant to this safeguard is the construction of the sewerage system in the two municipalities. Although the current design does not identify any needs for land acquisition, this safeguard is triggered taking into consideration the future possibility of land requirements for the location and construction of pumping stations and other sanitation infrastructure. A Resettlement Policy Framework has been developed.

This safeguard is activated by the closure of the landfill in Tumaco. The landfill site to close is currently used as a final disposal site in the municipality of Tumaco, and activities of material recovery or recycling are carried out by several families who derive their livelihood from this activity (which is prohibited by Colombian regulations). Thus, the closure of the existing landfill would involve the displacement of these local families and / or their income generating activities.

To mitigate social impacts from the closure of the landfill in Tumaco, the Plan for Social Inclusion calls for carrying out a diagnostic of the population engaged in recycling activities and the

development of alternatives to link the population with economic activities that are permitted under Colombian law, in order to guarantee a better quality of life and sustainability in the long term.

#### IV. Environmental and Social Baseline

##### Guapi

##### Geography and Physical Characteristics

The municipality of Guapi is situated southwestern Cauca Department where the Guapi river enters the Pacific Ocean, as indicated in Figure 2. The urban core, which comprises 20 neighborhoods, spans an area of 4.4 km<sup>2</sup> and sits at five masl. Average annual rainfall is approximately 4,000 mm and average temperature is 29° C. Rivers and the Pacific Ocean are the primary means of transportation between Guapi and Buenaventura, Timbiquí, López de Micay and municipalities in Nariño Department. Private operators transport passengers and cargo along the Buenaventura – Guapi – Buenaventura route in 200 horsepower boats. The level of the Guapi River can fluctuate up to 3.7 m every six hours based on tide cycles, impacting navigation.

Figure 2 – Municipality of Guapi



##### Population and Society

The 2015 DANE census reported a population of 29,722 residents in the municipality of Guapi, of which 18,111 live in the urban core. Projections for 2020 in Table 2 estimate that the population will grow to 30,042 and urbanization will increase to 61 percent from 57 percent in 2005. The population of the municipality is 84 percent afro-descendent. Fifty-seven percent of the populations under the age of 20. Outside of the urban core, in towns including Alto Guapi, Bajo Guapi, Napi, San Francisco, Guajui, and Chanzara, Community Councils are the primary instances of local government and decision making in rural areas of the municipality, though the urban core is governed by the mayor and municipal administration.<sup>3</sup> There are no indigenous communities in

<sup>3</sup> Afro-descendent Community Councils are recognized by the 1993 law of the same name. Neighborhood associations called Communal Action Committees (*Juntas de Acción Comunal*, JAC) operate in urban areas.

the urban core. The area of influence of the project is limited to the urban core and no additional consultation processes regarding vulnerable groups apply to the project.

**Table 2 – Population, Guapi**

Year	POPULATION			
	Urban Core	Rural Areas	% Urban Core	Total
2005	16,273	12,390	57%	28,663
2010	17,460	11,802	60%	29,262
2015	18,111	11,611	61%	29,722
2020	18,459	11,583	61%	30,042

Source: DANE, 2015

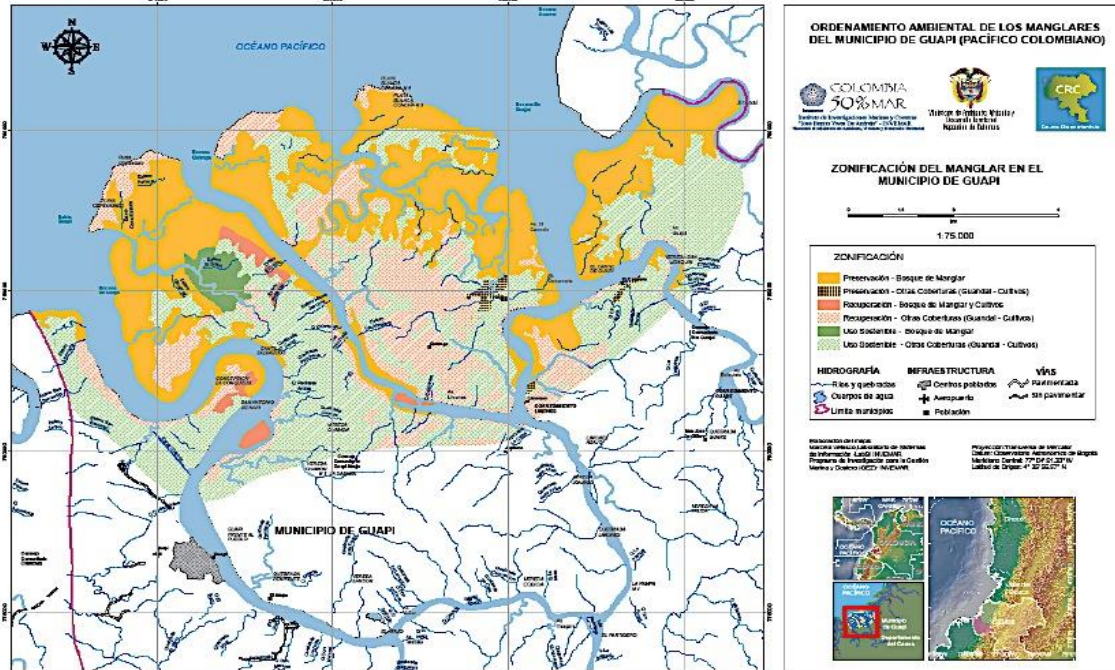
### **Economic Activity**

Approximately 40 percent of Guapi residents are unemployed, and some 60 percent of economic activity takes place in the informal economy. The presence of navigable rivers and the closeness to the ocean define economic activity in Guapi. Residents take advantage of high tide for navigation and low tide to for fishing, including the harvest of mussels, mollusks, and shrimp, among others. Indeed, fishing is the most important source of employment and income in the area. While some 80 percent of fishers work in the formal economy, these workers have limited access to healthcare, social and financial services. In recent years strategies have been implemented to reduce the shrimp take as a means to promote the sustainability of the local marine ecosystem. Additionally, some residents fell trees and transport the timber by water for sale in Guapi or to lumber companies in Buenaventura. The local area also supports coconut, corn, and rice production, among other crops. Finally, artisanal miners extract gold and platinum along rivers in the municipality.

### **Environmental Aspects**

Situated along the Guapi River delta, mangrove forests predominate the landscape outside the urban core of Guapi as shown in Figure 3. According to the 2005 land use plan, 80 percent of rural land in the Municipality of Guapi (outside the area of influence of the proposed project) is considered forest and protected under Decree 2811. The municipality is home to important mangrove and other forest ecosystems. Some 4,993 hectares of the total 5,420 hectares of mangroves in the municipality lie within protected areas, though all protected areas are outside the urban core where the project would finance investments. A further 206 hectares have been designated restoration areas. Beyond their value as biodiverse ecosystems, these mangrove forests represent an important source of natural resources for the local communities, ranging from timber products (wood from mangroves are used in the construction of stilt homes) to the collection of fish and crustaceans for human consumption. In recognition of their economic value, the 2009 Land Use Plan designates 221 hectares of mangrove forests in the Municipality of Guapi as sustainable use areas.

**Figure 3 – Mangrove Forests in the Municipality of Guapi**



Source: Municipality of Guapi Mangrove Plan, 2009

### Natural Hazards

Structures in the majority of neighborhoods are at high risk of flooding. To mitigate this risk, residential buildings in the majority of neighborhoods in the urban core of Guapi are built on piles, or stilts. This type of construction protects building from high tides while offering close access to watercourses.

In the municipality of Guapi, a particular form of road building was used in some road sections in which solid waste is mixed with dirt to form the road base. Some of the streets constructed with this method result in being slightly elevated and thus serve as a type of flood water control structure. The presence of solid waste in these road presents a potential significant risk to human health, and a potential source of contamination of the drinking water network. As part of the Project, an environmental restoration work will be done to remove solid waste in approximately 6 km or roadways. The specific design will be developed as part of Project implementation. The EMF includes environmental guidelines for urban environmental restoration of roads and dump sites in the municipality of Guapi, where the scope of environmental restoration plans are described and basic environmental management measures are established.

### Drinking Water

Some 60 percent of the residents in the urban core of Guapi are connected to the municipal drinking water system, though the water that flows through the system is of poor quality and not apt for human consumption. Moreover, water flows for only two hours per day. As a result, many residents meet needs for personal consumption through the collection of rainwater or river water.

The Municipality of Guapi was responsible for WSBS service provision until the national Superintendent of Residential Public Services (*Superintendencia de Servicios Públicos Domiciliarios*, SSPD) revoked its certification in 2007 on account of financing and operational shortcomings. Since then, the Department of Cauca has been responsible for service provision. The national Ministry of Housing, City, and Territory (*Ministerio de Vivienda, Ciudad y Territorio*, MVCT), in coordination with EMCASERVICIOS, has hired Empresa de Acueducto y Alcantarillado de Popayán S.A. (EAAP), a specialized operator, to administer the water system in Guapi. This project would provide technical assistance to the municipality of Guapi to eventually introduce a local operator and regain operating certification. The departmental government of Cauca has put in place an emergency plan to improve the existing groundwater-based system through (i) refurbishing the drinking water treatment plant and (ii) bringing a pumping station back on line. Once completed in 2016, these short term interventions should offer residents improved water service until longer term solutions can be implemented. An institutional and operational strengthening plan is in place that incorporates the following elements: (i) Network cadaster to identify all existing system infrastructure; (ii) System modeling and proposal for network optimization; (iii) Evaluation of the existing drinking water treatment plant; (iv) Structural evaluation of storage tanks; (v) Minor repairs required to bring the existing system on line; and (vi) Technical, financial, and operations training. The MVCT, in coordination with the Bank, is undertaking a water master plan to be financed with government funds that will define sub-projects to be financed with project funds, including (i) an evaluation of alternatives for water sources; (ii) technical design studies for drinking water treatment plan infrastructure; and (iii) hydraulic optimization of the network. One potential alternative is to construct a surface water-based system, which would take advantage of existing, but deteriorated, infrastructure and reduce operating costs.

### **Sanitation**

Approximately 41 percent of Guapi's urban residents are connected to the municipal sewage system, though none of this wastewater is treated before discharge. Due in part to poor sanitary conditions, infant mortality reaches 30 per 1000 live births in Guapi, more than double the national rate of 14. EMCASERVICIOS is in the process of hiring a consultant to update the existing 2010 Master Plan for Sanitation in line with changes to environmental regulations. Specifically, water quality standards have changed that pertain to wastewater effluent into the Guapi River. As part of the Project, water quality studies will be undertaken to determine current levels of effluent and the type of wastewater treatment required to meet the new standards. This work will also define the works required for the construction of the network, home connections, wastewater treatment plant, and outfalls. The majority of homes in Guapi are built on stilts above waterways. The Project is also considering a pilot program for on-site sanitation solutions for these buildings.

### **Solid Waste**

The Municipality of Guapi produces approximately 8.5 tons of solid waste per day, which is collected three times per week by a municipal vehicle. Since 2008, a portion of the solid waste has been used as fill material for roadways 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 has been in non-permitted areas.

The government of Cauca has drafted an interim plan to address immediate sanitation concerns in the short term, including: the implementation of an interim disposal site located in Temuey, 6 km

upriver from the urban core, for a period of three years; and purchase of two tractors to improve the collection of solid waste and transport to the interim disposal site. The government's interim plan does not address the restoration of areas currently used as open dumps or roadways and flood control structures build with solid waste as fill material. Preliminary estimates indicate that some 30,000 m<sup>3</sup> of solid waste needs to be removed. The removal and adequate disposal of this accumulated solid waste would be financed by the Project. EMCASERVICIOS has hired a firm to identify, evaluate, and select among alternatives for a technical solution for solid waste management that will be financed by the project. This consultancy will also identify and evaluate alternative locations for the solid waste solution.

## Tumaco

### Geography and Physical Characteristics

The municipality of Tumaco covers an area of 3,778 km<sup>2</sup> on the southern Pacific coast of Nariño Department, abutting the Ecuadorean border, and is made up of 50 individual towns in addition to the municipal core. The scope of the proposed project is limited to the five communes (*comunas*) and 84 neighborhoods in the municipality's densely populated urban core. The urban municipal core sits on the islands of Tumaco, El Bajito, and El Morro in the Pacific Ocean, while the bulk of the rest of the population lies on the mainland. According to the Land Use Framework (*Esquema de Ordenamiento Territorial*, EOT), these islands are at low to medium risk of soil liquefaction and tsunamis. Tumaco is located some 300 km by road from the departmental capital of Pasto, and has extensive maritime links with along the coast. Elevation ranges from sea level to 400 masl, average temperature is 26° C, and the area receives an annual average of 2,843 mm of rain. Numerous rivers bisect the municipality, including the Alcabi, Chagüi, Guiza, Mataje, Mejicano, Mira, Nulpe, Patía, Pulgande, Rosario, and San Juan, among other minor watercourses.

Figure 4 – Municipality of Tumaco



## Population and Society

According to 2015 estimates from DANE, the total population of the Municipality of Tumaco totaled 199,659, of which 111,589, or 56 percent, were in the urban core. It is estimated that the total population will grow by 38 percent by the year 2020, with slightly faster growth in the urban core, as indicated in Table 3. Approximately half of the population is under the age of 20. Similar to the case of Guapi, Community Councils serve the main type of local government in rural areas, while the urban areas where the proposed project will take place are governed by the mayor and municipal administration. Forced displacement from armed conflict as well as contamination from aerial spraying of coca has encouraged migration to rural areas. The homicide rate of 115 per 100,000 inhabitants is among the highest in the country.

**Table 3 – Population, Tumaco**

Year	POPULATION			
	Urban Core	Rural Areas	% Urban Core	Total
2005	84,679	75,276	53%	159,955
2010	97,547	81,458	54%	179,005
2015	111,589	88,070	56%	199,659
2020	126,782	94,687	57%	221,469

Source: DANE, 2015

## Economic Activity

The local economy is dominated by agriculture, commercial fishing, and small-scale mineral extraction. Tumaco produces 100 percent of the African Palm, 92 percent of the cacao, and 51 percent of the coconut in Nariño Department. Forestry is also important sources of income. Outside of the formal economy, Tumaco is among the largest coca producing regions in the country. Tumaco is the terminus of a major oil pipeline; it serves as the primary port for petroleum exports on the Pacific coast and is the second busiest in the country. In recent years it has served to export oil from Putumayo Department and Orito, Ecuador. The beaches and mangrove forests on El Bajito and El Morro islands support a growing tourism industry in Tumaco. The nearby Mira river delta offers a wide array of flora and fauna, making it an attractive ecotourism destination. As a result, the bulk of hotels in Nariño are concentrated in Tumaco.

## Environmental Aspects

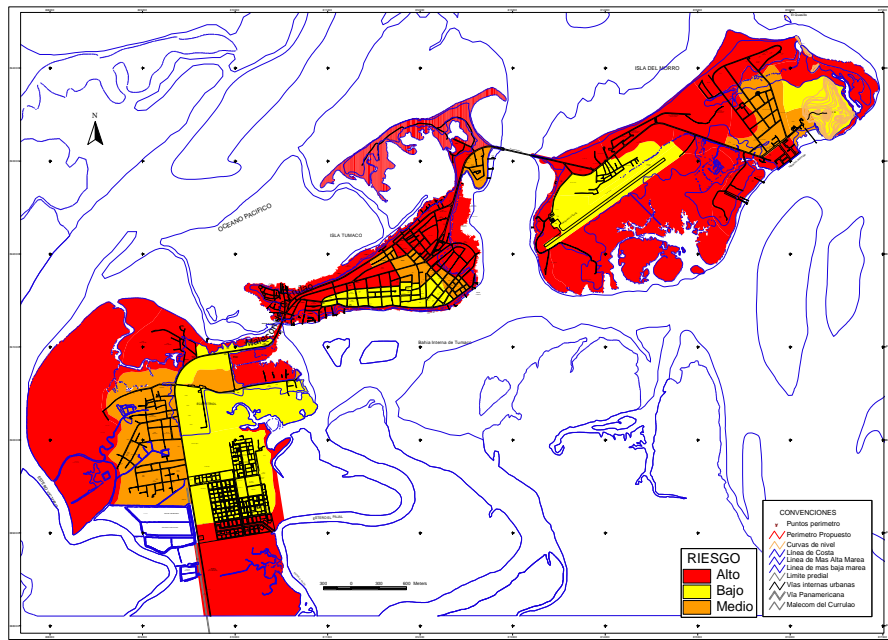
Tumaco sits along the Tumbes-Chocó-Magdalena biodiversity corridor that runs the length of the Pacific coast from southern Panama, through Colombia and Ecuador to northern Peru. According to the 2008 EOT, some 27,466 hectares along the coast in Tumaco, or 8 percent total municipal territory, is covered with mangrove forests and classified as a protected area. Local residents harvest muscles and crustaceans among the mangrove for sale and personal consumption. Mangroves support a biodiverse, but fragile ecosystem that occupies a key role in coastal food chains. As such, Colombian legislation recognizes mangrove forests as strategic ecosystems and confers these areas with special protected status. The Project will finance investments in the urban core located near these mangrove forests, though not within the protected area. Investments in basic sanitation in the urban area are expected to reduce the flow of pollutants that is currently discharged in and around the mangroves forests.



## Natural Hazards

Based on the 2008 EOT, some 85 percent of the urban area of Tumaco faces seismic risks and associated liquefaction, in addition to tsunamis, as indicated in Figure 5. Stilt houses, built to sit above high tide, cover approximately 30 percent of the area of the main island of Tumaco. Figure 6 shows the approximate areas of stilt houses in red. Informal housing is concentrated in high-risk areas.

Figure 5 – Risk Map, Tumaco



Source: EOT, San Andrés de Tumaco, 2008

Figure 6 – Stilt House Areas, Tumaco



Source: Google Maps, author's preparation.

### **Drinking Water**

Aguas de Tumaco, the municipal water agency, has contracted Aquaseo S.A. to deliver WSBS services since 2010, though significant service provision challenges remain on account of deficient infrastructure. The drinking water network in Tumaco covers 45 percent of residents, including 60 percent of the population on Isla Tumaco, 25 percent on the mainland, and 20 percent on Isla el Morro. There is a high risk of contamination within the system due to aging pipes and informal connections. Service is provided for 72 hours/week in some neighborhoods, while others receive just 48 hours/week. Losses due to leaks and informal connections are estimated at 75 percent.

### **Sanitation**

Some neighborhoods in Tumaco—including Pradomar, la Florita, El Morro, and El Batallón—are connected to a basic wastewater collection system, though none of this wastewater is treated before discharge to the ocean. Other residents employ septic tanks and other onsite solutions. An estimated 40 percent of households dispose of excreta in open air locations or directly into watercourses. Deficient sanitation infrastructure contributes to the high infant mortality rate in Tumaco of 29.9 deaths per 1,000 live births, as compared to 14 at the national level. FINDETER has contracted the preparation of a Sanitation Master Plan for Tumaco to identify and evaluate alternatives, develop designs, cost estimates, and bidding documents for the sanitation works, including a possible on-site solution for stilt houses, proposed under this Project.

### **Solid Waste**

Tumaco lacks a safe, long-term solution for solid waste disposal, and today garbage accumulates in city streets as result of inadequate collection. The solid waste that is collected is currently disposed of at the Buchelli temporary landfill, located in a rural area 19 km south of the urban core of Tumaco. The urban area of the municipality of Tumaco produces approximately 72 tons/day of waste, with a per capita output of 0.83 kg/person/day. The municipal government has hired AQUASEO S.A. E.S.P. to provide collection and solid waste disposal services (AQUASEO also provides street sweeping). The site has reached capacity and collection trucks now leave garbage

in open area at the site. Leachate from the disposal site has the potential to contaminate local water sources. The site's current environmental license is valid until June 2016 and it will be safely closed once the new landfill is online. The municipality's Solid Waste Management Plan, last revised in 2008, is in the process of being updated in accordance with current regulations. An analysis of alternatives for the location of the landfill will be carried out as part of the preparation of the plan. Once the plan has been updated, the proposed project would finance an engineered landfill to provide a long term solid waste solution.

## **Environmental and Social Impacts**

### **Positive Impacts**

The Project Development Objectives are (i) to improve coverage and service quality of water supply and basic sanitation in urban areas in the municipalities of Tumaco and Guapi and (ii) to improve operational efficiency of the utilities in these two municipalities. The Project focuses on (i) delivering the necessary WSBS infrastructure coupled with operational management and institutional strengthening to expand coverage, increase efficiency, and improve service delivery; (ii) supporting utilities' institutional performance through targeted capacity building and institutional strengthening measures to promote regionalization and the consolidation of highly specialized operators to ensure service sustainability; and (iii) implementing a comprehensive social plan with a civil-engagement strategy to foster behavior change and Project acceptance among the population.

The sanitation infrastructure sub-projects that would be built in the municipalities of Guapi and Tumaco will bring important benefits for public health and environmental sustainability in the region primarily through: (i) the elimination of latrines and septic pits that contaminate surface water and groundwater sources; (ii) eliminating the discharge of untreated municipal wastewaters into surface water sources; (iii) eliminating the potential contamination of the drinking water network due to infiltration of domestic wastewater from septic tanks and latrines into the water supply systems; and (iv) eliminating the practice of improper disposal of solid waste resulting in soil and water contamination.

### **Potential Negative Environmental and Social Impacts**

Given that specific engineering designs for the infrastructure works to be financed by the proposed Project are still to be developed, the specific environmental and social impacts are not defined at this time. These will be identified during the development of specific EA instruments as defined in the EMF.

Related to the sub-projects involving the new landfill in the municipality of Tumaco and the system of treatment and final disposal of solid waste for the municipality Guapi, the main potential environmental impacts include: 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; possible contamination of surface water associated due to earthworks; loss of vegetation cover required for project implementation; air pollution by odors associated with the handling of leachates and decomposition of waste disposed; generation of greenhouse gases; noise emission by the use of machinery and equipment; and possible social

conflicts as solid waste projects at times face resistance from local communities or waste pickers. The waste management sub-projects will generate positive impacts once operational, as controlled management of solid waste mitigates risks to the natural environment and to health of the population.

The other sub-projects includes drinking water and sewage systems for municipalities of Tumaco and Guapi. The main environmental impacts expected during construction will be temporary while the works are carried out, including impacts on vehicular traffic, noise, emissions of particulate matter by earthworks and removal of vegetation cover for the installation of pipes. The impacts during the construction phase will be temporary while the works are carried out. During the operational phase, the greatest potential impact is community resistance to the introduction of micrometering and volumetric billing of water.

The following presents a summary of some of the main potential environmental impacts during construction and operation.

## **Construction**

### **Removal of Vegetation**

In both Guapi and Tumaco, project work construction will require in many locations the removal of natural vegetation. Given the urban and peri-urban location of most works, no endangered or threatened species are anticipated. No impacts are anticipated in mangrove forests or protected areas. Once the design locations of civil works are finalized, an assessment will be undertaken to catalog existing vegetation and establish relevant mitigation measures.

### **Demolition and Excavation**

Earth moving activities carried out during construction can produce adverse impacts on waterways, encourage erosion, create dust, or generate concerns by local communities (i.e., obstructing vehicular traffic). Material must be transported and stored in a controlled manner. Similarly, the demolition of roads or structures must be carried out to avoid the contamination of soils of waterways.

### **Excavation of Contaminated Solid Waste**

In Guapi, as described above, many roadways have small areas of solid wastes that have illegally dumped alongside the road. The contaminated mixture of soil and solid waste must be properly disposed of in an impermeable landfill cell. The location of the cell must adhere to Decree 0838 and receive authorization from relevant environmental authorities.

### **Construction Materials**

The use of construction materials (sand, gravel, etc.) could create impacts associated with the sites used to extract these resources. As such, all construction materials should be obtained from authorized sources.

### **Activities in Stilt House Areas**

The development of water and sanitation networks in areas with stilt houses presents a particular set of challenges during the construction phase. The contractor must implement measures to

prevent construction debris from falling into water bodies. The contractor should also have a plan to minimize traffic disruptions for people and vehicles prior to the start of works in stilt house areas.

### **Wells and Groundwater Usage**

Drinking water systems financed by the proposed project may use wells to extract groundwater, depending on final project engineering designs. Any eventual groundwater pumping must be conducted to minimize impacts on the aquifer. All wells must have relevant environmental authorizations.

### **Access Roads**

The construction of municipal landfills may require building new access roads. This process will entail the removal of vegetation, moving soil, construction of storm water management solutions, and the use of sand, gravel, or other natural construction materials. As such, access roads must be based on specific engineering designs and adhere to respective Environmental Management Plans.

### **Construction Staging Areas**

The implementation and use of construction staging areas during civil works can generate impacts associated with their location and activities including, inter alia, noise, dust, solid waste, and wastewater. Staging areas should ideally be located in areas that do not impede traffic and have adequate vehicular access. Temporary barriers and enclosures should be in place to ensure the safety of the site. Land used for staging areas must be authorized by the landowners and/or municipalities. It is also important to have a citizen communication plan in place to keep local communities abreast of project developments, including expected timeline, as well as to have a Grievance redress complaint mechanism in place.

### **Land Acquisition and Resettlement**

The construction and expansion of physical infrastructure for drinking water plants, wastewater treatment plants, and landfills will require the acquisition of land. While no resettlement is anticipated under the proposed project, a Resettlement Policy Framework has been prepared in accordance with Bank safeguard policies and relevant local legislation should resettlement become necessary.

### **Operation and Maintenance**

#### **Drinking Water Treatment Plants**

The operation of drinking water treatment plants in Guapi and Tumaco implies a series of activities, including the use of pumps, storage of chemicals used in treatment, and upkeep of physical infrastructure. Potential social and environmental impacts include noise and odors, which can generate complaints with the local community, disposal of wastewater treatment residues.

#### **Wastewater Treatment Plants**

The operation of wastewater treatment plants generates potential social and environmental impacts primarily in terms of receiving water quality impacts, nuisance issues such as noise and odors, and management and disposal of sludge.

## **Solid Waste Disposal**

Sanitary landfills can generate significant environmental impacts from the start of construction until well after its useful life. They can create a risk of contamination to soils, groundwater, and surface water. Landfills can also emit greenhouse gasses and noxious odors. In accordance with Colombian law, proposed landfill sites must be approved by the environmental authority and designed in accordance with guidelines set forth in Decree 0838 of 2005. Sanitary landfills require a full environmental impact assessment covering all stages of its lifecycle: construction, operation, maintenance, closure, and post closure. Additionally, sanitary landfill must have environmental management, monitoring, and contingency plans in place.

## **V. Environmental and Social Safeguards Instruments**

### **Environmental Safeguards Instruments**

Detailed designs and site selection for most civil works in Guapi and Tumaco will not be completed during project preparation. As such, the National Unit for Disaster Risk Management (*Unidad Nacional de Gestión del Riesgo de Desastres*, UNGRD) as the borrower prepared an Environmental Management Framework (EMF) in order to assess and manage potential environmental impacts of proposed sub-projects. However, there are six water works projects for Tumaco that have detailed designs. Therefore, following the EMF guidelines the UNGRD prepared PMAs for these six projects.

The EMF includes the following items:

- (i) *Baseline data.* Summary of relevant physical, biological, and socioeconomic conditions in the municipalities of Guapi and Tumaco.
- (ii) *Policy, legal, and institutional framework.* The policy, legal, and institutional framework within which the proposed project would be carried out, including applicable Colombian legislation and Bank safeguards policies.
- (iii) *Analysis of alternatives and identification of environmental impacts.* The EMF details the process of analysis of alternatives for specific technological solutions and locations for proposed sub-projects—including the ‘without project’ situation—with regard to potential environmental impacts; the feasibility of mitigating such impacts; sustainability under local conditions; and institutional and monitoring requirements.
- (iv) *Environmental framework for screening, assessing, and managing sub-projects.* The EMF identifies a typology of WSBS sub-projects to be financed under the proposed project. For each potential sub-project, the EMF identifies likely positive and negative impacts, to the extent possible, in qualitative terms. The EMF also identifies instruments to assess and mitigate potential environmental and social impacts.

The EMF annexes detail the procedures for complying with environmental safeguards throughout the implementation of the Project, including the preparation of Environmental Impact Assessments (EIA), applicable for landfills. The EMF environmental instruments are developed to comply with relevant Colombian social and environmental regulations and applicable World Bank safeguards.

A summary of the environmental management instruments for the principal works in Guapi and Tumaco are presented in Table 4 and 5, respectively. For Category A sub-projects, the EMF establishes as a the tool for environmental management the preparation of an Environmental Impact Assessment (which includes an Environmental Management Plan); for sub-projects that would be Category B type works, the instrument is the Environmental Management Plan(EMP).

**Table 4. Environmental Management Instruments, Municipality of Guapi**

<b>Type of Work</b>	<b>Instrument for environmental management*</b>	<b>Reference and/or reach</b>
Improvement and optimization of the potabilization plant aqueduct	Environmental Management Plan	RAS 2000, Environmental Guideline of the Ministry of Environment, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD
Construction and/or improvement of the aqueduct networks	Environmental Management Plan	RAS 2000, Environmental Guideline of the Ministry of Environment, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD
Construction and/or improvement of the sewerage network	Environmental Management Plan	RAS 2000, Environmental Guideline of the Ministry of Environment, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD
Construction of Wastewater Treatment Plant, first preliminary treatment	Environmental Evaluation of Discharges, Wastewater Discharge Risk Management Plan, Environmental Evaluation of Alternative Site Analysis, and Environmental Management Plan	TOR adopted by the environmental authority, RAS 2000, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD, WB 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 Environmental Impact Assessment and Environmental Management Plan	Decree 838 of 2005, TOR adopted by MVCT, RAS 2000, WB- OP 4.01- annex B and C, WB- EHS Guidelines for Waste Management Facilities, Environmental Management Framework prepared by UNGRD, WB recommendations if necessary

\*Requires no objection from WB

**Table 5. Environmental Management Instruments, Municipality of Tumaco**

Type of Work	Instrument for environmental management*	Reference
Improvement and optimization of the potabilization plant aqueduct	Environmental Management Plan	RAS 2000, Environmental construction guideline of the Ministry of Environment, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD
Construction and/or improvement of the aqueduct networks	Environmental Management Plan	RAS 2000, Environmental construction guideline of the Ministry of Environment, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD
Construction and/or improvement of the sewerage network	Environmental Management Plan	RAS 2000, Environmental construction guideline of the Ministry of Environment, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD
Construction of Wastewater Treatment Plant, treatment system to be determined	Environmental Impact Assessment, Environmental Evaluation of Discharges, Wastewater Discharge Risk Management Plan and Environmental Management Plan	TOR adopted by the environmental authority, RAS 2000, WB- OP 4.01- annex C, WB- EHS Guidelines for Water and Sanitation, Environmental Management Framework prepared by UNGRD, WB recommendations if necessary
Construction of the new sanitary landfill for the final disposal of solid waste.	Environmental Evaluation of Alternative Site Analysis, Environmental Impact Assessment and Environmental Management Plan	Decree 838 of 2005, TOR adopted by MVCT, RAS 2000, WB- OP 4.01- annex B and C, WB- EHS Guidelines for Waste Management Facilities, Environmental Management Framework prepared by UNGRD, WB recommendations if necessary
Closure of the Buchelli Landfill	Environmental Management Plan	Environmental License No 207 - 2013, WB- OP 4.01- annex C, WB- EHS Guidelines for Waste Management Facilities, Environmental Management Framework prepared by UNGRD, WB recommendations if necessary

\*Requires no objection from WB



### **Environmental Impact Assessment**

The landfill in Tumaco that would be financed by the proposed project has been identified as environmental Category A given the potential to generate significant adverse environmental impacts. As such, bank safeguards policy calls for a full Environmental Impact Assessment (EIA) to be conducted prior to the start of construction. The EIA will be prepared by the borrower and detail all potential environmental impacts during the construction and operation phases of the landfill. Design studies for a solid waste disposal solution in Guapi have not been completed. Annex 3 of the EMF contains a detailed explanation of the scope and procedures for the preparation of the EIAs for the landfills in Tumaco and Guapi, which will be based upon final site selection and engineering designs. As part of the specific EIAs to be developed under the EMF, environmental analysis for alternative locations and/or designs will be performed. The EIA preparation will include information disclosure and stakeholder consultation as defined in the ToRs and project communication and participation plan.

### **Environmental Management Plan**

The drinking water and sewerage investments in Guapi and Tumaco that would be financed by the proposed project have been classified as environmental Category B, as they present moderate environmental risks that can be mitigated through standard management practices. Bank safeguards procedures require that each sub-project have an Environmental Management Plan (EMP), prepared by the borrower, in place prior to the start of construction. The EMP outlines a detailed list of activities to prevent, mitigate, correct, or compensate the environmental impacts of the sub-project, and monitoring and contingency plans. Annex 4 of the EMF contains a detailed explanation of the scope and procedures to follow for the preparation of the EMP for the water and sanitation in Tumaco and Guapi based upon final site selection and engineering designs.

During project preparation, the client completed detailed designs for six water works activities that according to its project nature are classified as Category B. Following the EMF guidelines and instruments, the UNGRD conducted the EMP for each subproject. The UNGRD began consultation of the EMP and the Bank is currently reviewing them. The sub-projects include (i) construction of 5.5 km of a 20-inch raw water main and (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. The EMP will be disclosed in the InfoShop and the UNGRD's Website before project appraisal.

### **Sanitation and Discharge Management Plan and Wastewater Discharge Permit**

Service providers are required to produce a Sanitation and Discharge Management Plan (*Plan de Saneamiento Manejo de Vertimientos*, PSMV), per Colombian legislation, to ensure that wastewater treatment effluent from the proposed treatment plants in Guapi and Tumaco meets water quality standards of receiving waters. These plans detail the programs, investments, and other activities involved in treating wastewater, and approved by the Regional Environmental Authorities (*Corporación Autónoma Regional*, CAR). The EMF contains more detail on the scope

and requirements of PSMVs and to make them consistent with EMP requirements outlined above. In addition, to obtain discharge wastewater effluent permit, the operator needs to conduct a (i) water quality modeling to ensure that water quality criteria in the receiving water is maintained and (ii) a risk management plan of wastewater discharges.

The EMF includes other environmental management measures including:

- Environmental related regulatory permits required
- Environmental guideline for closure of the existing Tumaco sanitary landfill including the development of closure plan to properly manage environmental and social impacts and risks
- Environmental guideline for the proper removal and management of solid wastes that have been inappropriately disposed of in Guapi
- Environmental criteria for the site selection of the location of water supply and waste water infrastructure
- Occupational health and safety procedures for the construction of water supply, solid waste management facilities and waste water infrastructure
- Requirement for Project work contracts to include contractual clauses defining the environmental, social, and health and safety requirements, including the implementation of the specific EA instrument to be developed as defined in the EMF
- Terms of reference for contracting of an independent firm to supervision the construction of works, including environmental regulatory and Bank requirements.

## **Social Safeguard Instruments**

### **Resettlement Policy Framework**

The main activity relevant to this safeguard is the construction of water, sewerage and solid waste systems in Guapi and Tumaco. Based on the Bank review of the proposed subprojects there is the possibility of land acquisition and easements for the location and construction of pumping stations, wastewater treatment plants, landfills, water mains, other infrastructure. Most likely land acquisition would occur on open lots with not infrastructure, dwellers, and economic activities. Physical displacement of people is not directly expected as a result of project activities. The Borrower prepared a RPF since land acquisition and easements are likely to occur given the nature of the projects, and in the unlikely event that physical resettlement becomes necessary after final designs are completed. This document includes: (i) the principles and objectives of the resettlement policy to be applied in subproject execution, (ii) the legal framework that governs the purchase of land, easements and the resettlement of population, (iii) the procedure for the preparation of resettlement plans, (iv) the institutional and implementation arrangements.

A Bank review of the six water projects that have detailed designs concludes that the 20-inch raw water main, the Zona Continental main distribution network, and the Zona Continental small distribution network will be installed in public roads owned by the Municipality and that permits for these activities have been granted by the Municipality. In addition, the Bank review concludes that land acquisition is not required for any of the six sub-projects.

### **Social Inclusion Plan for Tumaco Waste-Pickers**

Local residents, regularly visit the existing Buchelli landfill in Tumaco to salvage material for personal use or sale to a local recycling company called Sol de Oro. Violent conflicts regularly arise among waste-pickers over the distribution and appropriation of the range of these materials. The proposed project would finance the construction of new landfill as a long term solid waste solution and closure of the Buchelli landfill would be financed with counterpart funds Colombian legislation prohibits recycling activities at landfills, which will preclude these families from continuing their (informal) work at the new site and produce negative impacts on the income generating activities of the waste-pickers. To mitigate the impacts of the closure on these families, the borrower will prepare a social inclusion plan for waste-pickers in Tumaco that identifies families involved in informal recycling activities, as well as social, cultural, and economic characteristics of the waste-picker community. Based on this diagnostic, the plan will identify mechanisms to promote the social inclusion of this vulnerable population, including links with the education system and partnerships with employers to help find jobs for young people. The social inclusion plan will be developed prior to the closure of the Buchelli landfill.

### **Information, Communication, and Participation Plan**

The UNGRD has prepared an Information, Communication, and Participation Plan to promote sustained engagement between the community, the municipal governments, and implementing agency the over the course of project preparation and implementation. The plan addresses issues identified in the social assessment, including low levels of citizen trust in government institutions owing to a lengthy history of inadequate responses to social and economic challenges in both municipalities. Involving residents throughout the project should all them to feel a sense of ownership for the infrastructure developed in their communities. This plan is also consistent with the spirit of the 1991 Colombian constitution that establishes citizen participation as a fundamental principle of government decision making.

The plan calls for a series of meetings during project preparation where the UNGRD will present project details and timelines to stakeholders, including local communities, civil society organizations, and other government entities. Follow-up meetings will be held during project implementation to maintain an open mechanism for citizen participation. The plan will also promote education campaigns to help residents make more efficient use of water as well as to encourage citizens to take care of the infrastructure constructed by the project. Specific emphasis will be placed on women's empowerment and gender issues through the *Mujeres Cuidando el Territorio* (Women Caring for the Territory) program. The project will also take advantage of the existing community monitoring structure (*veeduría ciudadana*) in Tumaco, and promote the establishment of an analogous organization in Guapi, to disseminate firsthand information about the project.<sup>4</sup> The plan establishes a complain mechanisms to field and address grievances that arise over the course of project implementation. This channel of communication allows for the resolution of negative impacts at the personal and community level of the project. The Information, Communication, and Participation Plan, is included as an annex to the social assessment.

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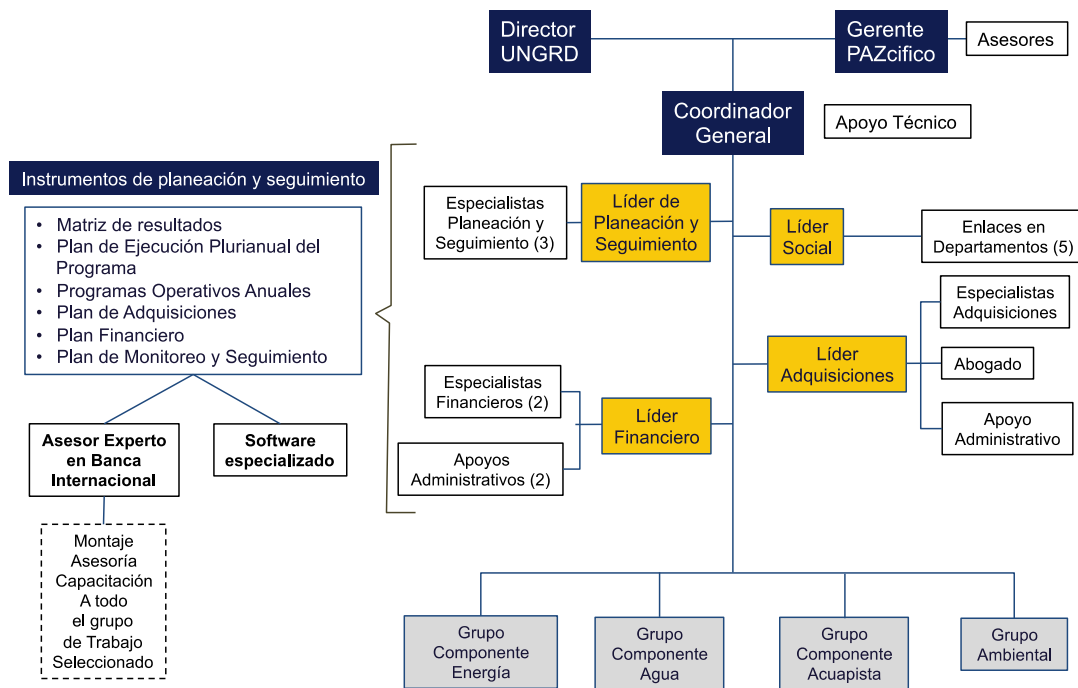
<sup>4</sup> The existing *veeduría ciudadana* in Tumaco is called the Development and Social Engagement Committee for Water, Sanitation, Solid Waste, and Electricity Service Provision in the Municipality of Tumaco (*Comité de Desarrollo y Control Social de Servicios Públicos Domiciliarios de Aseo, Acueducto, Alcantarillado y Energía Eléctrica del Municipio de Tumaco*).

## VI. Arrangements for Environmental and Social Management

An intergovernmental Executive Committee comprised of senior representatives from the Ministry of Finance (*Ministerio de Hacienda y Crédito Público*, MHCP), National Planning Department (*Departamento Nacional de Planeación*, DNP), two Governors and two Mayors from the Pacific Coast, and three representatives from the Presidency will oversee the Project.

The Implementing Agency for the Project and the overall Plan PAZcífico is the National Unit for Disaster Risk Management (*Unidad Nacional de Gestión del Riesgo de Desastres*, UNGRD). The UNGRD will create a Project Implementing Unit (PIU) responsible for overall Project implementation, including compliance with Bank environmental and social requirements. The UNGRD is in the process of hiring a core team, which includes social and environmental specialists, as outlined in Figure 7, to ensure implementation of environmental and social management instruments and compliance with Bank safeguards. Terms of reference for environmental and social specialists are subject to the no objection of the Bank.

Figure 7 - Executing Agency Organizational Structure



Source: National Unit for Disaster Risk Management (UNGRD)

The Departments of Cauca, EAAP, MVCT, and Aquaseo, through consultancies, will prepare environmental and social assessments associated with sub-projects and will designate focal points to ensure the application of environmental and social instruments. The PIU and/or other entities will be responsible preparing the environmental and social assessments and plans during implementation. The Project includes technical assistance and training for the PIU, municipalities, and operators to increase capacity in the application of social and environmental safeguards. Bidding documents for works and project management consultancies will include standard environmental and social measures designed during project preparation to ensure that contractors

comply with safeguard policies. In addition, the existing *ventanilla unica* (MVCT project approval process) includes mechanisms associated with social, resettlement, and environmental aspects in the proposed Project works.

The UNGRD will hire project managers, based in each municipality, to serve as a liaison to strengthen supervision of the design and implementation of sub-projects, including the application of environmental and social instruments. The UNGRD will also hire a consulting firm to function as a technical interface between the PIU, specialized operators, and contractors. It will provide on-the-ground supervision of sub-projects through personnel based in the Pacific region.

### **Service providers/specialized operators**

EMCASERVICIOS, the departmental water company, is financing several feasibility and environmental studies to support project structuring and bidding documents. 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 a concession with Aguas de Tumaco. Aquaseo will operate the infrastructure developed under this project.

## **VII. Stakeholder Participation**

### **Project Consultation Process**

The UNGRD has prioritized stakeholder engagement throughout the preparation phase of the project. The consultation process took place in three iterative phases, involving (i) national authorities, (ii) regional and local authorities, and (iii) interest groups in Guapi and Tumaco. The consultation sought to:

- Present the proposed project, individual sub-projects, potential impacts, and risk mitigation measures in place for the populations and ecosystems in the area of influence of the project.
- Share the scope and implementation arrangements of the environmental management and social assessment and associated instruments (Resettlement Policy Framework; Social Inclusion Plan for Tumaco Waste-Pickers; and Information, Communication, and Participation Plan) with the public.
- Receive feedback, observations, and concerns from all stakeholders—citizens, social society, and government entities—to improve the design of the proposed project and social and environmental safeguards documents.

### **National Level**

The UNGRD launched the formal stakeholder consultation process with a workshop in Bogota on December 17<sup>th</sup>, 2015, with officials from the following national government agencies: National Planning Department; Ministry of Housing, City, and Territory; the Presidency; and the Ministry of Environment and Sustainable Development.<sup>5</sup> The social and environmental consultants retained

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<sup>5</sup> A full list of workshop participants is available in the Social Assessment and the Environmental Management Framework documents.

by the borrower led the presentations of the respective documents and fielded questions from participants.

The social presentation opened with a review of the findings from the social assessment undertaken in the field, including aspects of demography, culture, economic patterns, and current levels of public service provision. It then reviewed the instruments developed based on this assessment: Resettlement Policy Framework; Social Inclusion Plan for Tumaco Waste-Pickers; Information, Communication, and Participation Plan. Participants from the national government raised many important questions, including ensuring the financial sustainability of WSBS initiatives in the region and guaranteeing that social initiatives reached the full range of the effected population. The package of social safeguards documents was then revised in line with the feedback received, and these deliverables were reviewed by the borrower.

The environmental presentation was centered on generating an understanding of the various elements of the Environmental Management Framework and the entities responsible for its implementation. National government officials raised important issues, including the possibility that regulatory agencies will revise wastewater quality standards in the near term and the implications for the proposed project; the importance of incorporating lessons learned from academic research and previous WSBS initiatives in the Pacific region; and noted that the consultation process for the EA was separate from the consultation process for environmental licenses, among other pertinent comments. The borrower revised the EMF based on the valuable input received from national government stakeholders.

### **Local and Regional Authorities**

New mayors and municipal administrations took office in both Guapi and Tumaco in January 2016. It is important to bring new municipal authorities up to date on the work done underway for the proposed project in their communities. The UNGRD organized workshops in Guapi on January 18, 2015 and in Tumaco on January 20, 2016 to present the social assessment and associated instruments, as well as the EMF to local stakeholders. The workshop in Guapi included representatives from the municipal government, the Presidency, EMCASERVICIOS, and the government of Department of Cauca. The workshop in Tumaco included the participation of the municipal government, the Presidency, Aquaseo, and the government of the Department of Nariño. These workshops addressed the same themes as the national level event and, likewise, solicited feedback from local and regional authorities.

During the workshop in Guapi, the recently inaugurated mayor expressed support for the proposed project and interest in facilitating the process with local stakeholders. The municipality suggested prioritizing the development of a solid waste management solution given the urgency of the problem. Representatives of the Presidency suggested creating an interinstitutional working group to support the preparation and implementation of an emergency plan for solid waste management to be implemented in the near term. In Tumaco, the mayor expressed her full support for the proposed project and offered her assistance as needed in the design and implementation of sub-projects. The mayor recommended conducting the consultations at the neighborhood level. The stakeholders present in both workshops were in agreement with the approaches presented in the EMF.

## **Interest Groups in Guapi and Tumaco**

The UNGRD held workshops to present the EMF in the municipalities of Tumaco and Guapi on February 18 and March 3, 2016, to share the scope of the proposed project and associated safeguards instruments with beneficiaries, civil society, and other interested parties. Community workshops focused on the details of the proposed project, including specific civil works, timelines, coverage, and expected benefits for the communities. Social and environmental safeguards instruments were also discussed.

A total of 56 community members attended the workshops, including community leaders, businesspeople, civil servants, students, residents, and representatives of local institutions. The community was very receptive to the proposed Project and expressed a desire for works to begin as soon as possible—indeed, the most common questions dealt with when civil works would commence. Nevertheless, community members mentioned that earlier proposed projects in the area have never been built, engendering a lack of trust, and expressed hope that this Project would succeed in delivering WSBS infrastructure upgrades. Residents were interested to know more about how the scope of the Project was defined, including the scope of proposed coverage within urban areas and the lack of emphasis on rural communities. The UNGRD explained that the Project covers the first phase of investments determined through a series of working groups with the local community, which prioritized urban areas as a means to reach the highest possible number of residents with available resources. Clear and open channels of communication will address the historical lack of trust and help keep residents up to date about Project developments. Meeting participants also suggested that the Project seek to hire local workers for civil works. Several residents commended the selection of the UNGRD as implementing agency. The workshops in Guapi and Tumaco gathered input from citizens and helped residents establish a sense of ownership of the project.

## **EMF**

The EMF has been disclosed in-country on February 2<sup>nd</sup>, 2016 and in the World Bank's InfoShop on March 7<sup>th</sup>, 2016.<sup>6</sup> Prior to disclosure, the EMF was reviewed in consultation meetings with representatives from national, regional, and local government agencies, as well as at public consultation meetings that included civil society groups, key non-governmental stakeholders, and the private sector in Guapi and Tumaco. The concerns raised by the community during the presentation of the EMF and social management plans included date of start of work and quality assurance of works (note: EMF includes guidelines for supervision of works, designed to meet the schedule and corresponding environmental management measures). Specific comments related to solid waste management included concern as to the proximity of works to mangrove stands and areas of high vegetation (note: the EMF includes guidelines and criteria for the location of works to minimize environmental risks and ensure compliance with Colombian and Bank standards). In general, participants from local governments, environmental authorities and community in the workshops expressed a high degree of acceptance for the project; their concerns were aimed at clarifying the scope of the project.

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<sup>6</sup> See national disclosure copy at <http://portal.gestiondelriesgo.gov.co/Paginas/Noticias/2016/Plan-Todos-Somos-PAZcifico-PTSP-.aspx> and Bank disclosure copy at <http://documents.worldbank.org/curated/en/2016/03/26032837/colombia-plan-pazcifico-wss-infrastructure-service-delivery-project-environmental-assessment-marco-de-gestion-ambiental>.

As part of the development of sub-project specific EA instruments (e.g., EIA, EMP) defined in the EMF, specific public disclosure and consultation will be performed as defined in the EMF ToRs for these instruments in order to comply with Colombian regulatory requirements and Bank safeguard policies. The Information, Communication, and Participation Plan, prepared by the UNGRD, will guide the consultation process throughout implementation.