

Border Environment Cooperation Commission

Wastewater Collection and Treatment Project in Praxedis G. Guerrero, Chihuahua

1. General Criteria

1.a Project Type

The project consists of the expansion and rehabilitation of the wastewater collection system (WWCS) and the construction of a wastewater treatment plant (WWTP) based on oxidation lagoons, for the community of Praxedis G. Guerrero, Municipality of Praxedis G. Guerrero, Chihuahua.

This project belongs to BECC's *Wastewater Treatment and Domestic Water and Wastewater Hookups* sectors.

1.b Project Category

The project belongs to the category of *Community Environmental Infrastructure Projects – Community-wide Impact*. The project will improve wastewater collection quality service in the city of Praxedis G. Guerrero resulting in a positive impact to this community.

1.c Project Location and Community Profile

The State of Chihuahua is located in the northern part of the Republic of Mexico, neighboring the United States of America (USA). Praxedis G. Guerrero is located at the northeastern end of the State of Chihuahua in the Municipality of Praxedis G. Guerrero. It is one of the 23 communities found in the area known as the Juarez Valley. It is a traditionally agricultural community, although, due to its proximity with Ciudad Juarez, a significant portion of its residents are currently employed at *maquiladoras* established in the city.

Figure 1 shows the location of Praxedis G. Guerrero, Municipality of Praxedis G. Guerrero, in the northeastern end of the state of Chihuahua.



Figure 1. Location of Praxedis G. Guerrero, Municipality of Praxedis G. Guerrero

Demographics

Population projections prepared for the development of the Final Design for the Improvements to the Wastewater Collection and Treatment Systems in Praxedis G. Guerrero, Municipality of Praxedis G. Guerrero, Chihuahua, were based on *National Institute of Statistics, Geography and Informatics* (INEGI, for its initials in Spanish) Census, and *National Population Council* (CONAPO, for its initials in Spanish) data. The current population (2007) has been estimated to be 3,546 inhabitants, with an average 1.64% annual growth rate. The monthly median per-capita household income is \$3,252 Mexican pesos per month.¹

Environmental Services

Existing Drinking Water System

The drinking water system obtains its supply from two deep wells located in the area. The main distribution network consists of a 4.66 m of 3 in and 4 in line and a 4.44 mi of 6 in distribution line. Service coverage was estimated at 95%. There is no macro or micro-metering. The total number of users in the community is 1,225 which 1,116 are domestic and 59 are commercial.

Existing Wastewater Collection and Treatment System

Praxedis G. Guerrero has approximately 70% wastewater collection coverage. The system consists of sewer lines, manholes, and mains; wastewater is discharged into two lift stations, one of which is out of operation, while the second one discharges wastewater into an agricultural canal that eventually discharges into the "*Interceptor Drain*", which runs parallel to the Rio Grande and discharges into it 31 mi southeast of the community at a point named "*El Guayuco*". Residents who are not connected to the wastewater collection system dispose of their wastewater in latrines and septic tanks, with the associated public health and groundwater contamination risks.

Wastewater Treatment

Wastewater treatment is non existent.

1.d Legal Authority

The project sponsor is the state utility, *Junta Central de Agua y Saneamiento del Estado de Chihuahua* (JCAS), in coordination with the local utility, *Junta Municipal de Agua y Saneamiento* of Praxedis G. Guerrero (JMAS). The legal authority of the JRAS is established in the 1564 Administrative Code of Chihuahua². The JRAS has the jurisdiction to provide drinking water and collection services to the municipality, while the JCAS is the regulatory entity in charge of developing projects related to improving the infrastructure of these services for Guadalupe.

The project falls within the scope of agreements targeted at improving the environment and the quality of life of border residents, which have been signed by Mexico and the United States. The United States and Mexico have signed six major bilateral agreements related to air, water, land protection and pollution control issues. These include:

- 1889 International Boundary Convention
- 1944 Water Treaty
- 1983 La Paz Agreement, or Border Environment Agreement

¹ Source: NADB estimation based on statistics by INEGI and the National Commission of Minimum Wages.

² <http://info4.juridicas.unam.mx/adprojus/9/174/default.htm?s=>

- 1990 Integrated Border Environmental Plan (IBEP)
- 1994 North American Free Trade Agreement (NAFTA)
- Border 2012 Program

The project complies with the spirit of all these agreements, and all of them have been considered since the onset of the project.

1.e Project Summary

Project Description

The project consists of the expansion and rehabilitation of the sanitary wastewater collection system and the construction of a lagoon-based wastewater treatment plant for the community of Praxedis G. Guerrero. The proposed project includes the following components:

- Expansion of the wastewater collection system to increase coverage from 70% to 100%.
 - 43,707 ft of 8 in diameter wastewater collection lines
 - 11,529 ft of 10 in diameter wastewater collection lines
 - 10,981 ft of 12 in diameter wastewater collection lines
 - 2,654 ft of 15 in diameter wastewater collection lines
 - 4,472 ft of 18 in diameter wastewater collection lines
 - 258 manholes
 - 1,225 household connections
- Merging wastewater collection lines into a single system.
- Construction of a lift station and a force main to convey wastewater to the proposed WWTP construction site.
- Construction of a 0.34 MGD Wastewater Treatment Plant for the community of Praxedis G. Guerrero.

The cost of the wastewater collection and treatment project is \$4.28 million dollars. Figure 2 presents a sketch of the proposed wastewater treatment plant and the lift station with pretreatment.

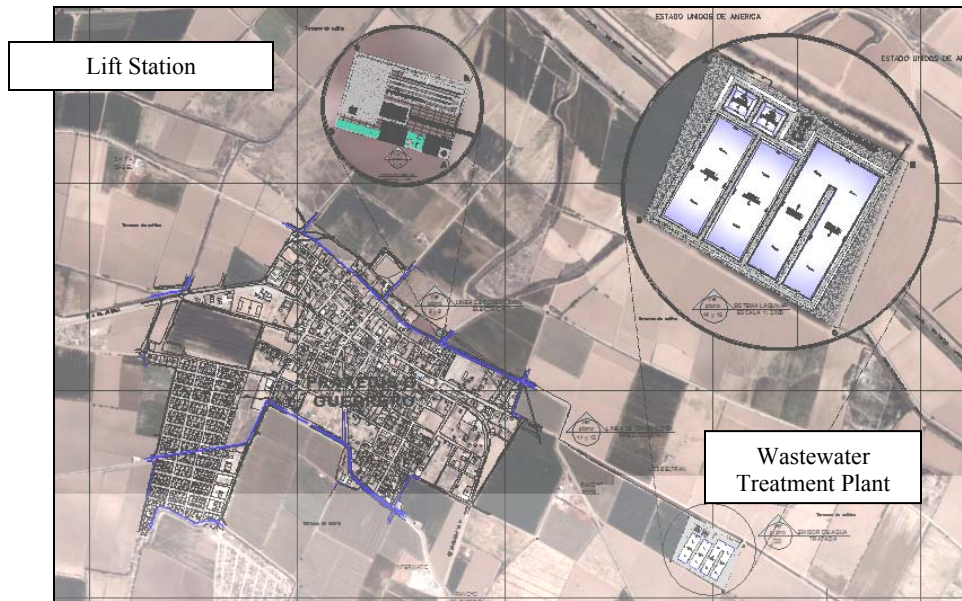


Figure 2. Location of the wastewater treatment facility and lift station with pretreatment

Project Justification

For decades, the community of Praxedis G. Guerrero has suffered from the lack of an appropriate wastewater collection and treatment system. The city discharges wastewater into agricultural canals that eventually flow into the *"Interceptor Drain"*, which carries wastewater from Ciudad Juarez, storm water, and agricultural drain water. This drain runs parallel to the Rio Grande and is adjacent to the city, which creates a risk for the dissemination of water borne diseases.

The lack of wastewater collection in some areas of the community forces residents to dispose of wastewater by using latrines and cesspools which, due to the relatively shallow water tables and the type of soil, result in wastewater overflows and cause health and aquifer contamination risks.

The proposed wastewater collection project will allow the collection of wastewater from sectors that currently lack this service, reducing thus the potential for human contact with raw wastewater and organisms that are vectors for diseases. It will also reduce the potential for groundwater and surface water contamination by eliminating the use of latrines, septic tanks, and wastewater discharges to open-air drains. The effluent from the proposed wastewater treatment plant will be discharged to agricultural drains and eventually to the Rio Grande, creating an environmental and human health benefit for residents of the Juarez Valley and adjacent areas in the United States.

The project was evaluated as Category 1 during the US Environmental Protection Agency (EPA) Prioritization Process 2005/2006 due to the lack of wastewater treatment infrastructure.

Important issues for Certification:

The Project falls within the BECC's priority sectors and complies with General Criteria.

Pending issues:

None.

2. Human Health and Environment

2.a Compliance with Applicable Environmental Laws and Regulations

The WWTP's final design was developed considering the need of the effluent to present an adequate quality for public use, eliminating the impact risk on residents' health who have contact with the treated water. Final design complied with the applicable environmental regulations contained in Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges to national waters and properties.

The construction of the proposed project will follow the guidelines established by National Water Commission (CONAGUA, for its initials in Spanish) for the construction of this type of infrastructure. Additionally, the construction to be accomplished is not expected to impact protected areas or ecological reserves. During the implementation of the project, the JCAS will oversee the tasks for conformance with the aforesaid guidelines.

The National Institute of Anthropology and History (INAH, for its initials in Spanish), through Official Communication No. E/022-D/2006, issued on September 26, 2006, determined no objection to the development of this project in the area of Praxedis G. Guerrero, inasmuch as there is no evidence of archeological or historical settlements in the area. Based on the above, no impacts to cultural resources are anticipated as a result of the project's implementation.

2.b Human Health and Environmental Impacts

Human Health Impacts

The community of Praxedis G. Guerrero is located within the area known as the Juarez Valley, southeast of Ciudad Juarez, and adjacent to the Rio Grande. 30% of the population lacks wastewater collection services, and wastewater treatment is nonexistent, which represents a condition that poses human health and environmental risks. Residents who lack wastewater collection dispose of their wastewater using latrines and cesspools. The rest of the wastewater are discharged to agricultural drains through a lift station, eventually resorting to the use of portable pumps when the system is overcharged due to the deficient condition of the existing wastewater collection system. After traveling 31 miles, agricultural drains later flow into the "*Interceptor Drain*" to ultimately flow into the Rio Grande, when water conveyed by the drain is not used for agricultural irrigation.

The lack of wastewater collection for 30% of the population, in addition to the existence of clay soil and shallow water tables, has resulted in wastewater overflows and runoffs throughout the community, creating a risk for the transmission of diseases due to the residents' contact with these unhealthy wastewaters. The purpose of this project is to address the existing public health and groundwater contamination risks and to prevent these threats.

The development of this project will help address the aforementioned issues, and will improve public health conditions for local residents as follows:

- (1) Human health conditions will be improved by reducing or eliminating wastewater overflows as a result of an improved wastewater collection system; the risk of the residents' contact with wastewater will also be reduced.
- (2) Reduced potential for soil and aquifer contamination that may result from the inadequate use of latrines and septic tanks in areas that lack wastewater collection service, as well as from the use of poorly maintained lines and the discharge of raw wastewater to agricultural canals.
- (3) The construction and operation of the proposed WWTP, the construction of new lines, and the improvements to existing wastewater collection lines, will reduce groundwater, surface water, and soil contamination.

Human health statistics for Praxedis G. Guerrero are limited, but there is information regarding a high incidence of diseases that include hepatitis A, measles, shigellosis, and tuberculosis. Table 1 shows information about contagious diseases in the 80 communities in the U.S-Mexico border and the 44 U.S. border counties.

Table 1
Contagious diseases, Number of cases, and Occurrence Rates in the U.S.-Mexico Border, 2000
Mexican Border Communities, U.S. Border Counties

Disease	Number of Cases			
	Mexican Border Communities		U.S. Border Counties	
	Cases	Rate*	Cases	Rate*
Dengue	173	2.7	6	0.1
Hepatitis A	1526	24.0	722	11.0
Hepatitis B	71	1.1	410	6.3
Malaria	784***	4.7***	15	0.2
Salmonellosis/Shigel losis	582	9.2	1880	28.7
Tuberculosis	2124	33.4	653	10.0

Source: Mexico: Surveillance Unit, General Directorate of Epidemiology, SSA; United States: State Health Departments of Arizona, California, New Mexico, Texas.

* Cases for each 100,000 residents.

** Border counties in Arizona, New Mexico, and Texas only.

*** Includes data only about border states.

The high level of border crossings between the United States and Mexico complicates epidemiological surveillance and the development of strategies to address the spread of infectious diseases. The thousands of border crossings each day underline the potential for the spread of diseases in both directions. Under these circumstances, the United States and Mexico must coordinate their strategies by developing a binational response to the spread of infectious diseases.³

Environmental Impacts

The environmental impact resulting from the project will be positive overall, as wastewater service conditions will be made available to 100% of the residents, reducing thus the risk for wastewater seepage caused by the use of latrines and cesspools. In addition, all the construction tasks will be carried out in areas of the city that have been previously disturbed.

³ Healthy Border 2010: An Agenda for improving Health on the United States-Mexico Border (October, 2003).

During the construction phases, minor environmental impacts will result from the excavation needed to install the wastewater collection and water lines; said impacts include fugitive particulate matter emissions, gas emissions by construction machinery, temporary street blockage, presence of workers in the area, and risk conditions for people and vehicles

To reduce the environmental impacts during the construction phase, mitigation measurements will be taken similar to watering roads to reduce dust, maintaining vehicles to reduce emissions, setting up prevention signs to avoid risk situations, installing portable restrooms, etc.

In relation to the phase of operation activities, negative impacts are not anticipated, provided that the project tasks are carried out according to specifications, pursuant to timing and development conditions in the final design and complying with the Environmental Impact Ruling as established.

Transboundary Impacts

No negative transboundary impacts are anticipated as a result of the development of wastewater collection and treatment project. On the contrary, a beneficial effect is anticipated on the U.S. since that water can enter the Rio Grande through the "Interceptor Drain" will have better quality now that the raw sewage will be treated.

Formal Environmental Authorization

Pursuant to the provisions of the General Law on Ecological Balance and Environmental Protection as to Environmental Assessments (EA), the Secretariat of the Environment and Natural Resources (SEMARNAT) determined through official communication SG.IR 08-2006/093 that the project required the development of a Preventive Environmental Impact Statement. The document was prepared and submitted to the SEMARNAT for review on May 9, 2007, and through official communication SG.IR 08-2007/157 a finding was issued on June 6, 2007, after determining that the project complied with all requirements within the Mexican process.

As for the U.S. environmental assessment process (NEPA), a transboundary impact study was developed and submitted for evaluation to the U.S. Environmental Protection Agency (EPA). As of now, the study is in the public comment period.

As part of the environmental assessment process, the final design was submitted to the International Boundary and Water Commission (IBWC) in the United States and its corresponding commission in Mexico (CILA, for its initials in Spanish). No negative comments were received from neither of the regulatory entities.

Important issues for Certification:

The project resolves a significant human health and environmental problem.

Pending issues:

None.

3. Technical Feasibility

3.a Technical Aspects

Project Development Requirements

The final designs of the wastewater collection and treatment systems were developed pursuant to technical specifications contained in the Wastewater Collection and Treatment Manual prepared by CONAGUA's Technical Directorate and Official Mexican Standard NOM-001-CNA-1995 "Sanitary Sewerage System – Specifications for Hermeticity."

Wastewater Collection System

The development of the Final Design for the wastewater collection project was based on the review of alternatives and the preferred option; i.e., it included the design of a gravity collection system with conveyance to a single lift station and discharge point. Table 2 shows the lengths and sizes of proposed wastewater collection lines.

Table 2
Sizes of PVC wastewater collection pipes

PVC Wastewater Collection lines	
Diameter (in.)	Linear Feet
8	43,707
10	11,529
12	10,981
15	2,654
18	4,472

Additionally, the system includes 258 manholes and 1,225 household connections.

Wastewater Treatment Plant

In March 2007, the JCAS completed the "Final Design for the Construction of the Praxedis G. Guerrero Wastewater Treatment Plant." The facility will have a 0.34 MGD design flow rate. The system's total wastewater retention time will be 41.6 days.

In order to prevent potential seepage through the lagoons' fore slopes and to provide slope stability, the project considers the installation of a 1 mm thick high-density (HD) polyethylene geomembrane placed over a 200 gr/m² geotextile to prevent potential damage to the geomembrane.

Pretreatment

It includes two parallel systems with a 45° manual bar screening, sand trap, and reinforced concrete flow meter with the following dimensions:

- 32 ft x 12.5 ft primary treatment
- 1.6 ft x 3.8 ft screens with 0.08 ft separation
- A 1.6 ft x 11.5 ft and 0.5 ft deep sand trap will be built for removal of wastewater grit

Lift Station

The study area has a flat topography, which calls for a significantly deep wastewater collection system. As such, the project requires the construction of a pumping station to "lift" wastewater and provide it a hydraulic charge before sending it off to the lagoon system for treatment. The lift station is designed for a maximum 25 minutes residence time in the wet chamber to prevent septic conditions. Additionally, the lift station will have sufficient hydraulic capacity to protect the overall infrastructure, and it will have emergency power generation equipment in case of electrical power outages.

Force Main

The pressure line that will convey untreated wastewater from the lift station to the treatment system is proposed to be 10" diameter HD RD 41. This force main will first reach a pressure-breaking, flow distribution structure made of reinforced concrete that will equitably distribute the wastewater flow to each of the anaerobic lagoons.

Primary Treatment

It consists of two anaerobic lagoons that will be built using excavation and quarry materials. These will have a square shape with the following dimensions: 82 ft. interior side; and 11.5 ft. normal operational depth.

Secondary Treatment

The two facultative lagoons for secondary treatment will have similar characteristics to the anaerobic lagoons, i.e., their berms will be built using excavation and quarry materials, and will have the following dimensions: 475.7 ft long interior side, 164 ft short interior side, and 6.56 ft normal operational depth. Maturation lagoons will have characteristics similar to the above lagoons, with 11.9 days mean residence time. Figure 3 shows the WWTP's layout.

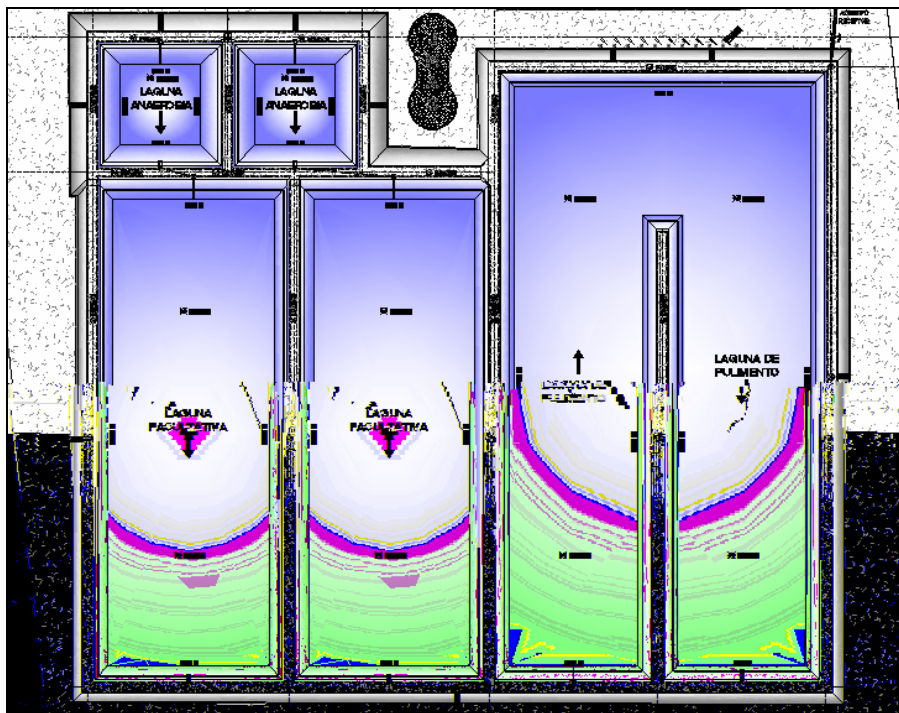


Figure 3. Wastewater Treatment Plant Layout

Appropriate Technology

Wastewater Collection System

In order to count with an adequate and efficient system, a preliminary engineering analysis was developed considering different technical alternatives. The project alternatives reviewed consisted basically on the following scenarios:

- a) **No-action Alternative.** Under this scenario, the community of Praxedis G. Guerrero would not be able to merge its wastewaters into a single location and send it off to the wastewater treatment facility. Residents who lack wastewater collection service would continue to discharge their wastewater into latrines and septic tanks, with the resulting risks for aquifer contamination and transmission of water borne diseases. In sum, this alternative presents environmental, human health, social, and political implications that render it unviable.
- b) **Expand the wastewater collection system to 100% of the population and make it converge into a single location for pumping to a wastewater treatment plant.** This alternative was reviewed and considered to be the preferred alternative, inasmuch as it allows for the entire population of Praxedis G. Guerrero to have wastewater collection service at a reasonable initial cost, with adequate subsequent operation and maintenance costs.
- c) **Expand the wastewater collection system to 100% of the population of Praxedis G. Guerrero, and make it converge into two different sites for pumping to a wastewater treatment plant.** This alternative was reviewed but considered unviable due to higher initial and operation and maintenance costs.

Wastewater Treatment System

The review of alternatives for wastewater treatment included the following options:

- a) **No-Action Alternative.** The Praxedis G. Guerrero community does not have a wastewater treatment system. Under this scenario, the population would continue discharging raw wastewater to the “*Dren Interceptor*”, which is unlined and presents a risk for aquifer contamination; in addition, there would be a continued risk of human contact with untreated wastewater, either directly or derived from the consumption of vegetables that have been in contact with wastewater, which represents a potential risk for the transmission of water borne diseases. After review, this alternative was ruled out, as it results in major human health and environmental risks.
- b) **Construction of a wastewater treatment system based on facultative and polishing lagoons.** This option was reviewed, but inasmuch as it requires a larger area for the construction of the system than the preferred alternative, and thus, a higher capital land cost, this alternative was determined not to be the most appropriate one.
- c) **Construction of a wastewater treatment system based on an Imhoff tank, and facultative and polishing lagoons.** Although this is the option that requires the least surface area for its construction, it also requires the highest initial investment. The above makes this option unacceptable.
- d) **Construction of a wastewater treatment plant based on anaerobic, facultative, and maturation lagoons.** This fourth option requires the lowest initial capital investment, least maintenance, and reduced operation costs. Thus, this was considered to be the most appropriate alternative

The treatment process is sufficient to generate treated wastewater that provides adequate quality for wastewater reuse and eliminates health risks for residents who may have contact with treated

The treatment system will generate treated wastewater with sufficient quality to be used for urban public uses.

The results acquired from the mathematical model indicated that biochemical oxygen demand (BOD) values from the convergence of the Rio Grande and the “*Interceptor Drain*” range from 20 to 30 mg/l, with dissolved oxygen concentrations (DOC) from 5.6 to 6.4 mg/l. These values comply with quality standards required by the Texas Commission on Environmental Quality (TCEQ).

In order to evaluate the potential impacts on water quality at the discharge point between the “*Interceptor Drain*” and the Rio Grande, the BECC developed a study named “Preliminary Study on Self-Depuration of WWTPs’ Effluent from Ciudad Juarez, Chihuahua and the Merging Flows from Communities at Guadalupe and Praxedis G. Guerrero, Chihuahua.

The sludge generated by the wastewater treatment process will be extracted from the lagoons in periods of approximately every five years and hauled away to the landfill for disposition.

3.b Management and Operation

Project Management

The administration of the project will be responsibility of the local utility, *Junta Municipal de Agua y Saneamiento de Praxedis G. Guerrero* (JMAS), under supervision of JCAS technical staff.

Operation and Maintenance

Organization

The JMAS counts with a president, secretary, treasurer, three alternates, operation and maintenance assistants, the support from the JCAS, which counts with the specialized personnel on water and wastewater collection operation and maintenance.

Operations and Maintenance

In reference to the wastewater treatment system, the JMAS will hire a qualified operator trained by the JCAS on the wastewater treatment operation systems. The operator will count with two temporary assistants to perform maintenance tasks. The Operation and Maintenance Plan presented as part of the project's final design includes the main activities needed to provide preventive maintenance to the proposed wastewater collection and treatment system. The JMAS will be in charge of the treatment system’s operation and maintenance with the supervision of the JCAS’s technical personnel.

The purpose of the infrastructure's Preventive Maintenance Plan is to make available a tool to help carry out the activities related to effluent quality control, facility operation, and prevention of system breakdowns. Ensuring the proper operation of treatment units will generate a good effluent quality. The conservation of treatment unit components, including pumps, screens, gates, valves, as well as structures such as berms, slopes, etc., must be a scheduled and consistent task.

Pretreatment Program

By virtue of the project area only comprises domestic users; the JCAS has dictated that Official Mexican Norm NOM-002-ECOL-1996 needs to be complied as part of the treatment process. The

norm establishes the permissible maximum contaminant levels of wastewater discharge to the urban or local wastewater collection systems. The JMAS will ensure that norm is being followed with the support of the JCAS.

Permits, Licenses, and Other Regulatory Licenses

The municipality of Praxedis G. Guerrero counts with permits provided by the CONAGUA for drinking water extraction and wastewater discharge, including environmental authorizations for the development of the project. The wastewater collection and treatment projects have been reviewed by the EPA and validated by the CONAGUA, the BECC and the North American Development Bank (NADB).

Important issues for Certification:

Final Design was reviewed by the EPA, JMAS, BECC and NADB and was validated by the CONAGUA.

Pending issues:

None.

4. Financial Feasibility and Project Management

4.a Financial Feasibility

The North American Development Bank (NADB), after reviewing the financial information submitted by the project sponsor (JMAS of Praxedis), determined that the financial capacity and structure proposed by the JCAS are adequate. The information submitted and the financial analysis includes but is not limited to:

- i) Historical and pro forma financial statements;
- ii) Project's financial structure;
- iii) Investment budget;
- iv) Historical and pro forma operating and maintenance budget; and
- v) Economic and demographic information on the project area

A detailed analysis of the project's financial information is contained in the loan proposal that will be submitted to the NADB Financial Committee for authorization. Following is a summary of the financial analysis.

The total cost of the project is estimated at \$4.28 million dollars, including loan closing costs, design, supervision, construction, value-added- tax, and contingencies.

Item	Amount (Dollars)
Wastewater Collection and Treatment System	4,284,361
TOTAL	\$4,284,361

JMAS, JCAS, CONAGUA, EPA, and NADB have proposed a financial structure that will allow for the implementation of the project. The table below summarizes the proposed structure:

Funding Source	Type	Amount (Dollars)	%
NADB-BEIF	Grant	550,000	12.83%
Local/State/Federal	Grant	3,461,634	80.80%
NADB	Loan	272,727	6.37%
TOTAL		\$4,284,361	100.00%

JMAS exhibits a solid financial situation as reflected by their level of revenue and expenditure control. JCAS will earmark part of their revenues to service the debt.

JCAS has efficient finance management practices. Their sensible use of resources and financial discipline has translated into an operational surplus. The NADB loan will not affect the utility's financial situation, so JMAS will be able to continue addressing future infrastructure needs.

4.b Rate/Fee Model

Due to the characteristics of the Project, the JRAS will not require the implementation of a rate scheme for the Project. Currently, the JRAS has an adequate rate scheme, which will permit the support of operation and maintenance necessities, as well as the service debt with a feasible

range. It is noteworthy to mention that for the fiscal year 2007, the JRAS increased its rates up to 10.00%.

4.c Project Management

The project will be managed by JMAS. The utility has adequate personnel to manage the proposed infrastructure and address any potential emergency related to the project's operation and maintenance.

Important issues for Certification:

The project was analyzed and determined to be viable.

Pending issues:

None.

5. Public Participation

Comprehensive Public Participation Plan

The Comprehensive Public Participation Plan developed by the Steering Committee was approved by the BECC on March 15, 2007. The Steering Committee set to the task of preparing an outreach program, including the benefits resulting from the project, as well as the associated costs and economic impacts for the community.

Local Steering Committee

The Steering Committee was formally installed on February 2, 2007, at a meeting held at the City Hall in Praxedis G. Guerrero, Chihuahua. The meeting was attended by special guests, including the Mayor of Praxedis G. Guerrero, Juvenal Rodela Campos.



A Board of Directors was elected, comprised of the following individuals:

Steering Committee Chairman: Pablo Guzman Garcia, local resident.

Steering Committee Vice-Chairman: Mr. Ruben Silva Javalera, local resident.

Alternates:

- Jorge Luis Torres, resident
- Angélica Rabelo Saucedo, resident
- Gregorio Estrada López, resident

Public Access to Project Information

The Steering Committee, with assistance from JCAS, prepared written information about the project and designed flyers and brochures that were distributed at public meetings.

Additional Outreach Activities

Information meetings were held with local residents in anticipation of BECC public meetings.

Public Meetings

First Public Meeting

An invitation to the First Public Meeting, scheduled to be held on Sunday, April 29, 2007, was published on April 1st in the "Diario de Juarez." The meeting started at 1:30 p.m. at the local Hall "Ejidal". The meeting was attended by the Mayor of Praxedis G. Guerrero, **Juvenal Rodela Campos**, members of the Steering Committee, and the President of the Junta Municipal de Agua y Saneamiento de Praxedis G. Guerrero (JMAS), Mr. Gabriel Marquez Olguin. There were 52 attendees to the meeting. Additionally, 43 surveys were administered during the meeting, and 100% of those surveyed expressed explicit support for the project.

Second Public Meeting

The second public meeting will take place in July 14, 2007.

Final Public Participation Report

The Steering Committee and the applicant will prepare the "Final Public Participation Report" to demonstrate that the proposed objectives were fully met to BECC's satisfaction. This document will be submitted after the completion of the second public meeting.

Important issues for Certification:

The project is strongly supported by the community.
Corresponding approval documentation has been received.

Pending issues:

Hold 2nd public meeting and complete final public participation report.

6. Sustainable Development

6.a Institutional and Human Capacity Building

Actions within the scope of the project that contribute to institutional and human capacity building at the *Junta Municipal de Agua y Saneamiento* in Praxedis G. Guerrero include the following:

- Improve the utility's necessary wastewater collection infrastructure (wastewater collection lines)
- Building a wastewater treatment system
- Operating a wastewater collection system that meets applicable state and federal regulations
- Training operating staff

The JCAS will provide basic technical training to JMAS staff for the operation and maintenance of the new infrastructure that will be built as a result of the project's implementation. The staff will be provided operation and maintenance training prior to the commencement of WWTP operations. JCAS technical staff will provide guidance to JRAS as needed.

6.b Conformance to Applicable Local, State and Regional Laws Conservation and Development Plans

This project supplements the actions set forth in the Master Plan for Improvements to Water, Wastewater and Collection Services in Riparian Communities in the Upper Rio Grande, Juarez Valley (*Plan Maestro para el Mejoramiento de los Servicios de Agua Potable, Alcantarillado y Saneamiento en Poblaciones Ribereñas del Alto Bravo, Valle de Juárez*), which include the need to develop basic sanitary infrastructure works for in the Juarez Valley. The implementation of the project will help eliminate risks associated to the inadequate management of wastewater, and will provide treated wastewater for other uses.

The project adheres to the U.S.-Mexico Border 2012 Environmental Program by meeting Goal 1 (Reducing water contamination) and Objectives 1 (promoting an increase in the number of household connections to wastewater collection and treatment services) and 4 (promoting improve water utility efficiency). One of the program's guiding principles is reducing major risks to public health and conserving and restoring the natural environment.

6.c Natural Resource Conservation

The project contributes to reduce environmental deterioration by expanding existing wastewater collection lines and providing household connections to 100% of residents. Wastewater will be collected and conveyed to the WWTP to improve their quality, thus reducing aquifer contamination and human health risks resulting from raw wastewater discharges to streams or agricultural drains. The project also includes the application of sustainable building practices that will be part of the specifications of the construction process.

6.d Community Development

The completion of this project is crucial to the development of the community. The tasks proposed by the project will contribute to reduce the conditions that favor the proliferation of water borne and arboviral diseases related to inadequate wastewater disposal.

The implementation of an appropriate wastewater collection system promotes the development of the community, as it will help reduce contamination in local areas and to improve the quality of life of Praxedis G. Guerrero residents. Treated wastewater will be able to be diverted to other purposes, such as urban and agricultural uses.

<p><u>Important issues for Certification:</u></p>
<p>The project complies with all sustainable development principles</p>
<p><u>Pending issues:</u></p>
<p>None.</p>

Available Project Documentation.

- *"Estrategia de Gran Visión para el Abastecimiento y Manejo del Agua en las ciudades y Cuencas de la Frontera Norte en el Período 1999-2025"* [Global Vision Strategy for Water Supply and Management in Northern Border Cities and Basins during the 1999-2025 Period], CONAGUA, December 1999.
- Official Communication DT-922/2006 requesting a finding by INAH regarding the existence of archeological sites in the Praxedis G. Guerrero, Colonia Esperanza, and El Porvenir areas.
- Official Communication No. E/117-D/2006, in which INAH finds no objection for the development of this project in the Praxedis G. Guerrero area, inasmuch as no archeological settlements exist in the area.
- EPA's "Finding of no significant impact" (FONSI) dated June XXX, 2007.
- Consultation with SEMARNAT to determine jurisdiction and environmental assessment modality, Official Communication DT-374/2006, Junta Central de Agua y Saneamiento del Estado de Chihuahua, April 25, 2007.
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