Border Environment Cooperation Commission

Construction of a Sanitary Landfill, Closing of Current Dumpsite, and Improvements to the Municipal Solid Waste Services in San Luis Rio Colorado, Sonora

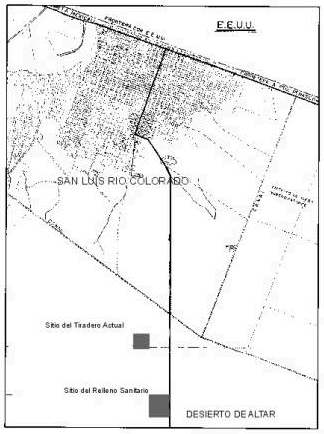
General Criteria

1. **Type of Project.**

The project consists of the construction of a sanitary landfill, the closing of the current dumpsite, and several improvements, including equipment purchases, for comprehensive solid waste management in San Luis Río Colorado, Sonora.

2. **Location of Project.**

The project is located within the municipality of San Luis Río Colorado, in the state of Sonora. The study area comprises the urban area of San Luis Río Colorado, which is located within the 100-km. border zone. The population of San Luis Río Colorado, estimated at 180,000 in the year 2000, is expected to reach 440,000 by the year 2020. The sanitary landfill will be located in the southern part of the city, as shown in the following illustration.



3. **Description of Project and Tasks.**

The description of the project's distinct components is divided into final disposal, collection, street-sweeping, and the closing of the current site. Moreover, the investment program for the proposed work is divided into three stages. The first stage will have a duration of four years, while the second and third stages will take three years each.

Final disposal

The construction of a sanitary landfill for final solid waste disposal is proposed. This method uses engineering principles to confine the waste in the smallest possible area, covering it daily with layers of dirt and compacting it to reduce its volume. In addition, it anticipates problems that might be caused by liquids and gases produced in the landfill by the decomposition of organic material.

The confinement area must be prepared after the final disposal. The construction of the sanitary landfill will be carried out in three stages, each one or which will consist of a ditch and three terraced-shaped layers, with the lowest elevation mark at 29.50, in the center of the land, and with elevation marks of 30.5 in the surrounding areas; the site area will be on a 1% grade. The operation will be carried out after the preparation of each stage, until the entire excavation is covered.

Given the topographic and hydrological characteristics of the site, the operation will fully utilize the terrain's surface, in accordance with the combined method. This method will be used because of the terrain allows for the excavation of ditches or trenches in which to dispose of the waste.

The site is located on a plain where the groundwater is at an approximate depth of 31.17 meters. As a result of the prevailing climatic conditions in the town of San Luis Río Colorado (SLRC), no leachates should, in theory, be produced; nevertheless, for safety reasons a minimal system to control any leachates that are produced will be proposed.

The operation will begin within the ditch, which will have with a depth of three meters. An access ramp will be constructed for collection vehicles to enter and exit; solid waste will be deposited at the foot of the slope; and a combined method will be used.

The following three layers will rise up starting at the level of the natural terrain; hence they will form three-meter-high layers superimposed on one another, until a maximum height of 12.50 meters is reached, taking the ditch into account.

For efficient compacting, machinery (a Caterpillar model 816B or similar solid-waste compactor) with a compacting capacity of 700 to 830 kg/m^3 is proposed The compactor will move first in one direction and then transversally.

For the closing of the three stages, the final cover of the last layer will have a thickness 0.50 meters, of which it is proposed that 0.40 m. be made of the material removed during excavation, and 0.10 m. be made fine material removed from the material bank.

The coverage material will be taken from the storage area to the next day's dumping area, it order for it to be close at hand and so that it will not obstruct the discharge operations of the collection vehicles.

Closing the current final (open-air) disposal site

San Luis Río Colorado's current municipal dumpsite will be closed by carrying out the following activities:

1. *Removing and accumulating all waste disposed within the plot of land, within an area measuring 507.5 x 441.0 m. and 2.5 m. high.*
2. *Compacting the accumulated waste by using a Cat-06 Caterpillar-type bulldozer/tractor.*
3. *Leveling the terrain at a 1/1000 southward grade, more or less in accordance with the natural slope of the land.*
4. *Once the land has been leveled, the waste will be covered with a 0.30-m.-thick layer, for a total of 70,292.5m^3 of cover material.*
5. *It is suggested that the cover material described in the preceding point be compacted to 70% using the Cat-06 tractor.*
6. *Given the area's precipitation range, the construction of an unlined perimeter drain for rainwater channeling is not recommended.*
7. *Forty-two biogas venting wells, 2.10 m. deep and with a diameter of 0.80 m., will be constructed; the height above the level of the closed surface will be 2.0 m. For the casing of the wells, 200-liter drums are suggested, as well as gravel 2-2.5 inches in diameter to fill the annular space between the perforation diameter and the drums.*
8. *The area's climatic conditions make it unfeasible to place either a grass cover or a tree fence on its entire surface.*
9. *Finally, the area must be enclosed with 2.0-m.-high cyclone meshing and upper protection made of three-strand barbed wire along the entire periphery of the land.*

In accordance with the characteristics the site will have once it is closed--and especially considering its contents--it can only be used for the construction of a recreation area.

Collection System

The collection strategy proposes the method, frequency and equipment requirements for providing the collection service and giving 100-percent coverage in the short-term. To this end, two action plans have been designed, the difference between them being the frequency with which the service would be provided. Hence, the first option calls for a frequency of twice per week and the second for three times per week.

The option of providing service twice per week was selected. The sidewalk-collection method is proposed, using six-ton-capacity rear-loading collection vehicles. With the proposed number of vehicles, each vehicle would make two trips per shift and collect an average of five tons per trip. Also, the acquisition of one additional vehicle to give once-per-day service exclusively to the center of the city is proposed.

This strategy calls for the proposed actions to begin being implemented this year; also this year, investments in equipment acquisition and/or rehabilitation will be made, so as to increase the coverage and frequency of the service. The specific objectives are:

1. *To achieve 100-percent coverage in the collection service provided to households and other sources.*
2. *To establish four collections macro-routes to balance workloads and collected waste between the different routes.*
3. *To maintain the sidewalk-collection method, using rear-loading compactors.*
4. *To establish a collection frequency of once per day in the center of the city and twice per week in the rest of the city.*
5. *To establish two eight-hour shifts for waste collection, from Monday through Saturday.*
6. *To propose equipment acquisition and replacement program over the 10-year planning period, in accordance with the requirements of the proposal.*
7. *To implement a preventive and corrective maintenance program for all available infrastructure.*
8. *To design supervision program to monitor the collection routes and evaluate the quality of the service.*
9. *To give training courses to the operations staff on: corrective use of collection vehicles; safety measures; dealing with the public; and, quality of service.*

In the short-term, the acquisition of 10 collection vehicles and the rehabilitation of three existing vehicles is proposed.

Street-sweeping system

The scope of this strategy entails improvements in the quality, coverage, and efficiency of the mechanical sweeping service and the implementation of manual sweeping in the down town area. This strategy essentially consists of maintaining services on the routes that until now have been swept mechanically, increasing the frequency of the service, and implementing manual sweeping in the down town are on a daily basis. Its specific objectives are:

1. *To implement manual sweeping in the center of town.*
2. *To increase the frequency with which the current routes are mechanically swept.*
3. *To implement technical procedures for these activities.*
4. *To establish personnel training to ensure the assigned work is performed correctly the equipment is used properly.*
5. *To implement a preventive maintenance program for refurbished and acquired equipment.*
6. *To acquire support equipment (dump trucks) for the service's daily operations.*

The following goals have been set:

1. *To increase the efficiency of the mechanical sweeping, from 17 to 32 km/sweeping machine/day, which would mean an 89% increase.*
2. *To increase the length of the routes serviced with mechanical sweeping from 251.9 to 385.2 km. per week, for a 53% increase.*
3. *To implement manual sweeping in the center of town, covering an average of 11 km./day, from Monday through Saturday.*
4. *To acquire support equipment for the mechanical sweeping service.*
5. *To refurbish the equipment to extend its service life by three years, given that the service life of the new equipment will be seven years.*
6. *To acquire, in the first year, a new sweeping machine and refurbishing those presently being used.*
7. *To implement a preventive maintenance program for refurbished and acquired equipment.*

4. **Compliance with International Treaties and Agreements**.

The project will improve health and environmental conditions on both sides of the border. The proposed work will be carried out exclusively in Mexico and will not affect the United States--although the closing of the current dumpsite will prevent fires, which can affect the air quality of San Luis, Arizona

Human Health and Environment

Human Health/Environmental Needs.

Increased trash generation without service that is properly planned, organized, and operated as well as open-air dumpsites pose a risk for the population's health and the quality of life, as well as a threat to the ecosystem. This project will contribute to solve the environmental pollution and health problems that affect the population of San Luis Río Colorado, Sonora. The most noteworthy of these problems are:

1. *Air pollution in terms of odors, gases, aerosols, and particles (because of windborne dust and smoke generated in the final disposal sites), as well from possible fires in dumpsites and leaks of biogas into the atmosphere.*
2. *Groundwater contamination (through possible leachates generated in the current dumpsite during the rainy season) once the soil has become contaminated.*
3. *The presence of harmful fauna such as rats, flies, mosquitoes, cockroaches, and other disease-transmitting vectors and other nuisances.*
4. *Risks due to occupational exposure to contaminating agents and accidents.*
5. *Deterioration of the Town's Image.*

2. Environmental Evaluation.

The environmental evaluation of the project was conducted through an Environmental Impact Document (MIA), based on the guide prepared for this purpose by State of Sonora's Ministry of Ecology. The site designated for the construction of the San Luis Rio Colorado sanitary landfill had been selected in a previous final design prepared in 1994. The land lies southwest of the urban area, precisely 1.7 km. from the channel of irrigation district 14 on the PEMEX highway.

The MIA was prepared using BECC technical assistance support. It was submitted to the State Ministry of Ecology in June 2001 for review and comments, which were received at the end of that month. The consultant is in the process of responding to the comments so as to deliver the final version and wait for the Ministry's advisory opinion.

3. Compliance with Ecology and Cultural Laws and Regulations.

As mentioned above, the State Department of Ecology reviewed and issued its comments on the Environmental Impact Statement; once these issues have been dealt with, the project is expected to comply with Mexican regulations. The MIA did not identify potential impacts on archeological or cultural resources, since the work will be carried out on a piece of that is being turned over to the municipality, on the condition that it be used exclusively for the sanitary landfill. The INAH's finding is still pending.

Technical Feasibility

1. Appropriate Technology.

The proposed technology is suitable for the physical and socioeconomic conditions of San Luis Río Colorado, as described below for each one of the components of the system.

The sanitary landfill was designed in accordance with a generation study conducted in the city from March 22 to 29, 2000; the study ran for eight consecutive days and obtained 100 pre-samples for each socioeconomic level. The following table shows average, per day, per capita generation of household solid waste (HSW):

Socioeconomic Level	Generation Kg/inhab./day
High	*0.743*
Mean	*0.711*
Low	*0.826*
Average	*0.760*

Given a population of 181,745, the assumed generation was approximately 138.12 tons/day of HSW in 2000.

Waste generation from other sources was determined by analyzing the daily reports from personnel residing in the municipal dumpsite and that were provided by the Sanitation Department, which is a part of the Department of Municipal Public Projects and Services (DOSPM) The waste data for the seven days analyzed in the study indicate an average of 32.7 tons/day. Based on this information, it was concluded that 170.82 tons/day municipal solid waste (MSW) are generated.

The MSW generation projection for the following 10 years, assuming a per capita generation of 0.99 kg/day, is given below:

Year	Population	Generation (t/year)
2001	*192,650*	*66,030*
2002	*204,209*	*69,962*
2003	*216,462*	*74,163*
2004	*229,449*	*78,654*
2005	*243,216*	*83,454*
2006	*255,377*	*87,870*
2007	*268,146*	*92,546*
2008	*281,553*	*97,499*
2009	*295,631*	*102,745*
2010	*310,412*	*108,301*

The sanitary landfill's design calls for it to have three cells, two of which have an approximate service life of four years and the other of three.

The technical evaluation included a determination of the theoretical time of leachate production. The conclusion of this evaluation was that a total buffer of 26.98 m. of soil is needed for each m^2 of soil receiving area in which these leachates percolate.

Given that a soil buffer of 26.98 m. is required to protect the water table from the year contamination and the depth of the groundwater, according to measurements taken in 2000 close to study site, is more than 31 m., and considering that the excavation will be 3 m. deep, the effective thickness or soil buffer is 28 m., for which reason lining with geosynthetic materials is not required

Nevertheless, a suitable preparation of the site is required to guarantee that in the future, the aquifer will not become contaminated by percolated liquids, and, similarly, to control and remove these liquids to the base of the landfill as quickly as possible, so as to eliminate the effects of instability in the operation. The executive project of the sanitary landfill includes a leachate-control system .

For the operation of sanitary landfill, the acquisition of the equipment shown in the following table is proposed:

Characteristics	Description
Brand	*Caterpillar or similar*
Type	*Chain Loader*
Model	*953 b*
Daily Operating Capacity	*225 tons/day*
Power	*120 hp*
Accesories	
Scoop	*2.25 yards 3*
Chains	*18"*
Characteristics	**Description**
Brand	*Caterpillar or similar*
Type	*Solid waste compactor*
Model	*816 B*
Compacting capacity	*712 - 830 kg/m.3*
Power	*216 hp*

The following table indicates the cover material requirements for the sanitary landfill's 10.3 years of service life.

Stages	Service life (years)	Waste deposited	Waste deposited (m3)	Number of cells	Cover material (m3)
1	*4.0*	*315,953*	*421,271*	*1,268*	*47,856*
2	*3.4*	*320,982*	*427,976*	*1,052*	*48,618*
3	*2.9*	*320,982*	*427,975*	*898*	*48,618*
Total	**10.3**	**957,917**	**1,277,222**	**3,218**	**145,092**

Sweeping

For the closing of the three stages, the final cover of the last layer will have a thickness 0.50 meters, of which it is proposed that 0.40 m. be made of the material removed during excavation and 0.10 m. be made fine material removed from the bank.

The acquisition of new sweeping equipment and the refurbishing of the existing equipment is proposed. The needed equipment includes 12 carts, 24 metal drums (two per cart), 24 uniforms, 144 brooms, 144 dustpans, 24 caps, 24 pairs of boots, 24 pairs of gloves, and 24 reflection vests. In addition, the acquisition of a sweeping machine is proposed for the first year, another for the fourth, and their replacement each 10 years (seven years of service life, plus three more with refurbishing).

For mechanical sweeping, four routes with service from 11:00 p.m. to 6:00 a.m., Monday through Saturday, are proposed. The number of kilometers to be served per week, per route, is: 93 km. (1st. route), 98.7 km. (2nd. route), 100.5 km. (3rd. route), and 92.4 km. (4th. route). Moreover, the distance covered by manual sweeping will be 132 km. per week, and the frequency will be daily, from Monday through Saturday.

Collection

As part of the collection strategy, three collection routes have been designed for the city, and one for the down town area. To meet this goal, seven collection vehicles will be required for household waste and an additional four vehicles for industrial and commercial waste.

2. Operation and Maintenance Plan.

The operation of the sanitary landfill is a fundamental part of solid waste management in the final disposal stage, as set forth in standard PROY-NOM-084-ECOL-1997; the purpose of this is to minimize environment and health risks.

The landfill will be operated with the combined method, which is a standard method of operation in Mexico and complies with the requirements set forth in the respective regulations.

The estimated costs of the project and the financial analysis include the operating and maintenance costs necessary for the appropriate upkeep of the machinery.

3. Compliance with applicable design norms and regulations.

The executive project for the sanitary landfill was prepared and submitted to SEDESOL. In fact, the current executive project is a modified version of the project prepared by SEDESOL in 1994. The proposed sanitary landfill complies with the requirements set forth in Mexican regulations.

Financial Feasibility and Project Management

1. Financial Feasibility.

The project is divided into three stages. The first calls for the construction of the landfill, including the acquisition of equipment for its proper operation and complementary work, the closing of the current dumpsite, the acquisition of street-sweeping and solid waste collection equipment. The second stage consists of the acquisition of additional street-sweeping and collection equipment, as well as the construction of the second cell in the sanitary landfill. The final stage consists of the acquisition of additional equipment and the construction of the third cell of the sanitary landfill.

The investments required in the three stages are shown below:

PERIOD	COST AND STUDIES	AMOUNT (pesos)
STAGE I (Year 1-2002)	**SWEEPING**	
	Truck (1)	*80,000*
	Collecting carts (12)	*36,000*
	Sweeper (1)	*500,000*
	Dump truck (1)	*550,000*
	Training courses	*50,000*
	SUBTOTAL	*1,216,000*
	COLLECTION	
	*Rear loading compactor (3)**	*1,920,000*
	Pick up (2)	*160,000*
	Training courses	*50,000*
	Routing studies	*50,000*
	SUBTOTAL	*2,180,000*
	FINAL DISPOSAL	
	Land acquisition	*3,000,000*
	*Complementary works**	*1,226,678*
	*1st cell**	*4,118,494*
	*Project management**	*2,461,452*
	Closure of open air dump	*1,500,000*
	*Compactor (1) **	*2,500,000*
	Water truck (1)	*600,000*
	Dump truck (1)	*600,000*
	*Front-end loader (D-6)**	*1,500,000*
	Pick-up (1)	*80,000*
	Dozer	*650,000*
	SUBTOTAL	*17,506,624*
	GENERAL SERVICES	
	Equipment and tools	*550,000*
	Radio communication	*18,000*
	SUBTOTAL	*568,000*
	INSTITUTIONAL DEVELOPMENT	
	Creation and strenghtening of the operating agency	*1,200,000*
	SUBTOTAL	*1,200,000*
	SOCIAL STRATEGY	
	Environmental education	*100,800*
	Environmental culture	*210,700*
	Atention to open air dump workers	*210,000*
	SUBTOTAL	*521,500*
	TOTAL (1st stage)	*23,922,124*
STAGE II (2003-2006)	**SWEEPING**	
	Sweeping machine	*1,100,000*
	Routing Studies	*100,000*
	Training Courses	*50,000*
	SUBTOTAL	*1,250,000*
	COLLECTION	
	Rear-Loading Compactor (4)	*2,560,000*
	Training Courses	*50,000*
	Routing studies	*50,000*
	SUBTOTAL	*2,660,000*
	FINAL DISPOSAL	
	2nd cell and complementary work	*4,196,894*
	SUBTOTAL	*4,196,894*
	SOCIAL STRATEGY	
	Environmental Education	*268,800*
	Environmental Culture	*470,400*
	SUBTOTAL	*739,200*
	TOTAL (2nd stage)	*8,846,094*
STAGE III	**SWEEPING**	

(2007-2011)	*Collecting carts (12)*	*36,000*
	Routing studies	*100,000*
	Training Courses	*50,000*
	SUBTOTAL	*186,000*
	COLLECTION	
	Rear-loading compactor (1)	*640,000*
	Routing studies	*100,000*
	SUBTOTAL	*740,000*
	FINAL DISPOSAL	
	3rd cell and complementary work	*4,223,710*
	SUBTOTAL	*4,223,710*
	SOCIAL STRATEGY	
	Environmental education	*76,800*
	Environmental culture	*98,000*
	SUBTOTAL	*174,800*
	TOTAL (3rd stage)	*5,324,510*
TOTAL (1st, 2nd and 3rd stages)		*38,092,728*

**To be funded with SWEP resources and NADB loans, with the exception of rear-loading compactor truck.*

The project's costs, broken down by category, are indicated in the following table.

Process	**Amount**	**%**
Sweeping	*2,302,000*	*6.0*
Collection	*5,280,000*	*13.9*
Final disposal	*26,657,228*	*70.0*
General services	*568,000*	*1.5*
Institution Building	*3,285,500*	*8.6*
TOTAL	**38,092,728**	**100**

The financial structure of the project is given in the following table. Importantly, resources for the first stage of the project have been identified. The funds for the second and third stage will come from reserves, internal cash generated by town council, or credit resources.

Source	**Contribution**	**%**
NADB-SWEP	*5,000,000*	*13.1*
NADB-IDP	*1,200,000*	*3.2*
Credit	*8,086,624*	*21.2*
Fed/State/Municipal	*9,635,500*	*25.3*
Community (2nd. and 3rd. stages)	*14,170,604*	*37.2*
TOTAL	**38,092,728**	**100**

2. Rate Model

The proposed rates for municipal solid waste collection and disposal are given in the following table, along with the rates in effect in other localities.

Level	**SLRC**	**China - Gral Bravo**	**Puerto Peñasco**	**Ensenada**
Low	**15**	*20*	*14*	*9*
Mean	**32**	*40*	*27*	*18*
High	**56**	*na.*	*45*	*36*

n.a. - not applicable

3. Project Management

As part of the project, the creation of a paramunicipal solid waste agency to manage the street-sweeping and municipal solid waste collection and disposal services is being considered.

Public Participation

Beginning of the Public Process: *This process began March 19, 2001, with the delivery of the BECC Public Participation Guide and other reference documents to the mayor of San Luis Río Colorado, Sonora, José Enrique Reina Lizárraga, as the project's official sponsor.*

The Steefing Committee: *After the preliminary meeting with the sponsor to describe the BECC Public Process, work began on forming the Committee for this project. Hence, with the Minutes dated May 9, 2001, the aforementioned Committee and its executive committee were formed, with the following members:*

Chairman: Flavio Chávez Flores.
Secretary: Héctor Encinas
Voting Members: Raúl Acedo, Ramón Ortega, Norma Aranda, and Marcos Ochoa.
Technical Secretary: David López Fernández

Comprehensive Community Participation Plan: *In order to make the most of the available resources, so as to fulfill the social commitment and have a foundation on which to design the BECC-required Comprehensive Public Participation Plan for this project and comply with the certification process, the Steering Committee decided to review all the pertinent information in the "Public Opinion Study" that was delivered in May 2000 to the Municipal Potable Water, Sewage and Sanitation Operating Agency of SLRC, Son., (OOMAPAS), which had been conducted by "CONSULTORES AMBIENTALES DE SONORA. Although this information had been used for a water project, it is up-to-date in terms of identifying certain of the community's socioeconomic characteristics and especially regarding the most appropriate means of informing the community of environmental problems and possible solutions. Hence, the study served as the basis for the Public Participation Plan, the members of which were subsequently chosen from the Citizen's Committee and submitted for BECC approval.*

The Comprehensive Public Participation Plan was received on May 14, 2001, and was approved by the BECC on May 15.

Public Information: *The project proposal has been available to the public in the municipal offices of the Department of Public Works and Municipal Services, located in City Hall; in addition the information has been disseminated through brochures and fliers.*

Public Meetings:

First Public Meeting: *Held June 19, 2001, in the Multiple Purpose Room of the DIF Municipal, with 115 persons in attendance; in it the project's technical characteristics and scope were presented. An exit poll was taken to determine if the project presentation had been properly understood; a majority of the respondents indicated they had fully understood it and that they felt that solving the trash management problem in the municipality is highly important.*

Second Public Meeting: *Planned for July 19 in the same location; all the economic aspects of the project will be presented in that meeting: funding sources; the project's contributors; and rate arrangements.*

Sustainable Development

Definition and Principles

The Border XII environmental program developed by Mexican and U.S. authorities defines sustainable development as economic and social development that is based on the conservation and protection of the environment and the rational use of natural resources and that takes into account present and future needs as well as the present and future impact of human activities.

The San Luis Río Colorado Sanitary Landfill Project complies with this definition of sustainable development--economic and social development that is based on the conservation and protection of the environment and the rational use of natural resources and takes into account present needs without compromising the possibility of future generations to meet their own needs.

Principle No. 1 *specifies that human beings are central to all concerns regarding sustainable development and that they are entitled to a healthy and productive life in harmony with nature. Deficiencies in trash collection and the lack of a suitable and controlled site for its final disposal clearly contribute to increased health problems. Hence, the construction of a sanitary landfill will have an immediate positive impact on the environment and human health in the surrounding area, since it will reduce the number of rodents, mosquitoes, cockroaches, flies and other vectors of disease.*

Principle No. 2 *establishes the right to develop in such a way that the developmental and environmental needs of present and future generations are ensured; this project fulfills this need, since is ensures sanitation for the current and future population by protecting the environment for its use by future generations. Without this project, the conditions in some areas of the city and the current urban sanitation service could grow noticeably worse. Many households dispose of their waste in ways not in line with criteria normally accepted by state and federal authorities, particularly in terms of open-air trash burning in backyards or streets.*

In taking into account the comprehensive management of municipal solid waste and non-hazardous industrial waste, the project fulfills **Principle No. 3**--*which states that environmental protection is an integral part of the development process--by improving urban sanitation services in San Luis Río Colorado and thereby reducing the potential contamination of the soil and the water table.*

Principle No. 4, *which refers the interest of the stakeholders in participating in any activity related to the sanitation project, is fulfilled through the implementation of the community participation plan described above. Moreover, the municipal authorities have actively taken part in developing the project.*

b. Institutional and Human Capacity Building.

The scope of the project calls for the creation of a paramunicipal sanitation agency to oversee street-sweeping, solid waste collection and final disposal. Consequently, rates have been proposed that will make the agency self-sufficient in its operations.

c. Conformance with Applicable Local/Regional Conservation and Development Plans

The Plan for the improvement of the comprehensive solid waste management in San Luis Río Colorado conforms to all applicable provisions set forth in national, state, and municipal development plans and complies with the terms of the 1995-2000 National Development Plan.

d. Conservation of Natural Resources

This project will conserve natural resources at two distinct levels: the operations level and the community level. The improvements projects will be designed and implemented with the best available technologies.

At the community level, the Public Participation Committee is expected to promote a reduction of waste generation among the various sectors of the population, through a more efficient utilization of resources.

This could involve inviting local schools to help raise their students' awareness regarding resource conservation and reduced waste generation, thereby changing consumption patterns in the home.

e. Community Development

The fundamental purpose of the implementation of this project is to substantially improve urban sanitation infrastructure, thereby providing the general population of San Luis Río Colorado with safe and reliable services.

The project calls for implementing, for the first time, a regular sweeping service for the principal streets in the center of San Luis Rio Colorado.

The implementation of the suggested improvements will increase the community's well-being, since the area's inhabitants will be able to rely on the permanent, systematic, safe, and suitable removal and disposal of their solid waste. Similarly, the volume of pollutants dumped indiscriminately into the environment will be reduced, through the elimination of the present inefficient waste management methods.