CERTIFICATION AND FINANCING PROPOSAL

EQUIPMENT FOR SANITARY LANDFILL OPERATIONS IN THE CENTRAL REGION OF COAHUILA

Submitted: May 25, 2016

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EXECUTIVE SUMMARY

EQUIPMENT FOR SANITARY LANDFILL OPERATIONS IN THE CENTRAL REGION OF COAHUILA

Project:	The proposed project consists of the acquisition of heavy equipment for the Central Region Landfill, which serves the municipalities of Castaños, Frontera, Monclova, Nadadores and San Buenaventura in the state of Coahuila, Mexico (the "Project").
Project Objective:	The purpose of the Project is to maintain proper solid waste management in the region through the purchase of equipment for landfill operations, which will help reduce inadequate solid waste disposal and related risks for soil and groundwater contamination, as well as vector-related diseases and other harmful effects.
Expected Project Outcomes:	The Project is expected to generate environmental and human health benefits related to the following Project: a) Optimize landfill operations for the disposal of up to 400 metric tons of solid waste per day; b) Fully comply with applicable laws and regulations; and c) Continue providing proper waste disposal service for approximately 96,000 households.
Population Benefitted:	345,797 residents of the central region of Coahuila.[1]
Project Sponsor:	*Patronato Pro Limpieza de los Municipios de la Región Centro del Estado de Coahuila, A.C.*, the non-profit organization that operates the regional sanitary landfill.
Project Cost:	US$554,340.
NADB Grant Amount:	Up to US$500,000, from NADB's Community Assistance Program (PAC) to cover up to 90% of the project cost. [2]

[1] Source: Mexican national statistical institute, INEGI, Mexican Census 2010.
[2] Since the project costs may be paid in pesos, the Bank is requesting a grant amount in dollars that will allow for possible fluctuations in the exchange rate.

Uses & Sources of Funds:
(US$)

Uses	Amount	%
Equipment*	$554,340	100.0
TOTAL	**$554,340**	**100.0**
Sources	**Amount**	**%**
NADB CAP grant	$ 498,906	90.0
Sponsor equity	55,434	10.0
TOTAL	**$554,340**	**100.0**

*Includes the service agreement and value-added tax (VAT).

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1. ELIGIBILITY

Project Type

The Project falls within the eligible category of solid waste.

Project Location

The Project is located in the central region of state of Coahuila, approximately 200 km (125 miles) southwest of the U.S.-Mexico border.

Project Sponsor and Legal Authority

The Project sponsor is *Patronato Pro Limpieza de los Municipios de la Región Centro del Estado de Coahuila A.C.* ("Patronato Pro Limpieza" or the "Sponsor"), a partnership formed by the municipalities of Castaños, Frontera, Monclova, Nadadores and San Buenaventura and the steel mill, *Altos Hornos de México, S.A.B. de C.V.* (AHMSA). Patronato Pro Limpieza is a nonprofit organization founded in April 1995 to manage a regional landfill and strengthen the municipal solid waste management services of its member communities. The Sponsor has the legal authority and equity to develop the activities included in the Project.

2. CERTIFICATION CRITERIA

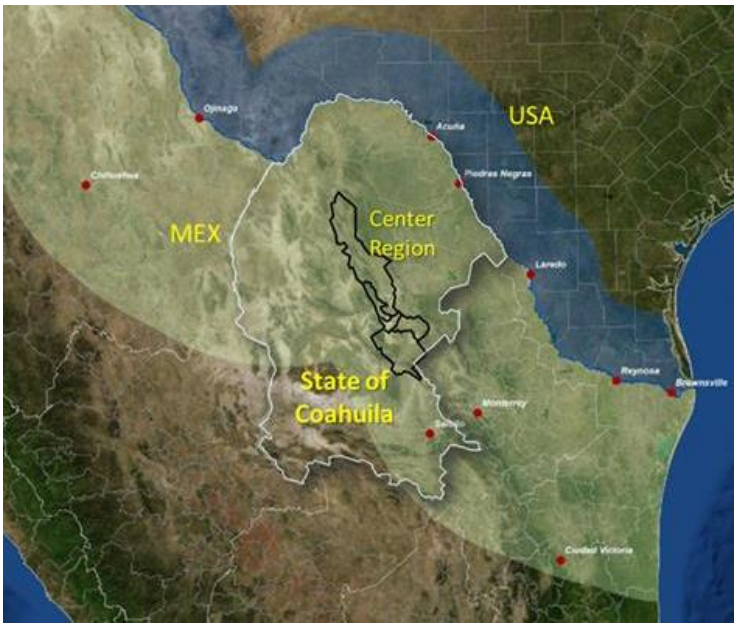
2.1. TECHNICAL CRITERIA

2.1.1. Project Description

Geographic Location

The Project is located in the central region of Coahuila, which includes the municipalities of Castaños, Frontera, Monclova, Nadadores and San Buenaventura. The regional landfill that serves these five municipalities is located in Frontera, which borders Monclova to the northwest. Figure 1 shows the approximate location of the Project.

Figure 1
PROJECT VICINITY MAP



General Community Profile

According to the 2010 Mexican census, the municipalities of Castaños, Frontera, Monclova, Nadadores and San Buenaventura have a combined population of 345,797 residents, which represents 12.6% of the state's population. Altogether, they contribute 14.6% to Coahuila's gross domestic product (GDP). According to the 2009 economic census, the average per-capita income in the state of Coahuila is $168,200 pesos. Table 1 shows the average per-capita income of each municipality participating in this Project.

Table 1
GENERAL ECONOMIC INFORMATION

City	Population [A]	Average Per-Capita Income (MXP) [B]	% of State's GDP [B]
Castaños	25,892	83,423	0.5%
Frontera	75,215	214,675	3.5%
Monclova	216,206	225,679	10.6%
Nadadores	6,335	7,340	0.0%
San Buenaventura	22,149	12,400	0.0%
Total	**345,797**		**14.6 %**
State of Coahuila [C]	2,748,391	101,015	

[A] Source: INEGI, 2010 Mexican Census.
[B] Source: INEGI, 2009 Economic Census.
[C] Source of the average per capita income for the state, INEGI, Coahuila statistical perspective, December 2012

According to the 2009 economic census, the economically active population in this region totals 79,350. Additionally the census describes that manufacturing constitutes the most important sector, employing 37.9% of the working population; commerce represents the second largest sector, employing 1.6% of the work force; and transportation contributes with 1.1% of total employment in the region.

Table 2 shows the status of basic public services and infrastructure for each of the municipalities participating in the Project.

Table 2
BASIC PUBLIC SERVICES AND INFRASTRUCTURE

Water System	Castaños	Frontera	Monclova	Nadadores	San Buenaventura
Coverage	87.1%	96.5%	97.4%	95.8%	98.0%
Number of hookups	5,951	18,692	56,834	1,702	6,029
Wastewater Collection					
Coverage	81.5%	94.0%	97.9%	78.5%	90.2%
Number of connections	5,571	18,220	57,122	1,394	5,550
Wastewater Treatment					
Coverage	0 %	0 %	0 %	0 %	0 %
Treatment facilities	None	None	None	None	None
Solid Waste					
Collection coverage	98 %	95 %	98 %	96 %	95 %
Final disposal	Central Region Landfill				
Street Paving					
Coverage (urban area)	No data available				

Source: INEGI, Census 2010.

Solid Waste Management Profile

In an effort to improve solid waste management in the central region of Coahuila, in April 1995, prior to the establishment of state and federal regulations, AHMSA promoted the creation of Patronato Pro Limpieza, a nonprofit organization formed by the municipalities of Castaños, Frontera, Monclova, Nadadores, San Buenaventura, and AHMSA.

This public-private partnership has proven to be successful for many years in the municipality of Monclova and surrounding communities, as private-sector participation has provided an element of continuity during changes in municipal government. Under this scheme, AHMSA acts as the head of the Patronato Pro Limpieza and operates the regional landfill, controls the budget and maintains the vehicles used for landfill operations. Each Municipality pays a monthly fee that all together covers 50% of the total cost of operating the landfill and AHMSA provides the other 50%.

The regional landfill began operations in 1995 and is classified as a Type A landfill (more than 100 metric tons per day). It complies with Mexican federal standard NOM-083 SEMARNAT-2003, and is expected to have a total of 16 cells with an overall useful life through 2035. The landfill occupies 50 hectares (123.5 acres) of land west of Ciudad Frontera. Approximately 380 metric

tons of waste is deposited in the landfill on a daily basis. Cell No. 9 will reach full capacity in about one year. Cell No. 10 is currently under construction, and the Sponsor expects to initiate its operation by the end of 2016.

The Sponsor owns heavy equipment and machinery for landfill operations, including a dump truck (1998 model) to move soil and cover waste, a towable water tank (1998 model) for dust control and to support compacting, a 816-F compactor (2006 model), a 938 G backhoe to move soil, and a D7R bulldozer (model 1998) to spread soil and waste prior to compacting. The 1998 D7R bulldozer has already exceeded its expected useful life, requires constant repairs and jeopardizes proper solid waste management. Without the proposed equipment, the expected life of the landfill will be reduced and maintenance costs will increase.

Project Scope and Design

The proposed project consists of the acquisition of a bulldozer, Caterpillar D7 or similar, with the following specifications: an enclosed cabin, low ground pressure (LGP) tracks for added stability and greater surface area for more efficient waste compaction, along with an extended blade to facilitate waste dispersion and to protect the machine from waste passing over the top of the blade.

Figure 2 provides an example of the type and brand of bulldozer that may be purchased.

Figure 2
EXAMPLE OF REQUIRED EQUIPMENT

To assure adequate maintenance of the new equipment, the procurement process will also consider the purchase of a maintenance service package for a minimum of two years. It is estimated that once notice of grant approval is received, the procurement process will take approximately three to four months and will be carried out in accordance with NADB procurement policies and procedures. Table 3 shows the expected Project milestones.

Table 3
PROJECT MILESTONES

Key Milestones	Status
Bidding process	Anticipated for the third quarter, 2016
Equipment delivery	4 months after notice to proceed

2.1.2. Technical Feasibility

Design Criteria

The main objective of the proposed Project is to provide a new D7 bulldozer to carry out landfill operations in an orderly and efficient manner and continue complying with Mexican standard NOM-083-SEMARNAT-2003. According to that standard, a sanitary landfill should provide for the final confinement of solid waste without harming or endangering the health and safety of the public.

NOM-083 requires that every landfill have an operation manual and a program to monitor and control environmental impacts. It includes basic operation and closure requirements, but does not specify the equipment required for that purpose. The basic operation requirements for a Type A landfill include solid waste confinement and compaction, daily covering of waste and controlling the unintended dispersion of light materials. It also stipulates that the separation of waste should not interfere with landfill activities. The basic landfill closure requirements include the capture of biogas and leachates, which then must be burned or recirculated back into the landfill, respectively.

Selected Technology

Recommendations for appropriate equipment were prepared by the Sponsor based on experience, the size of the landfill and the amount of waste received. The equipment specifications were also selected taking into consideration the tasks required under NOM 083 for handling solid waste, which include: supplying, dispersing, and compacting cover material on a daily basis. BECC contracted a consultant to review the equipment proposed by the Sponsor to ensure that that it was appropriate and would allow the Sponsor to operate the landfill in compliance with the requirements. The consultant verified that based on the volume of waste received, the requested equipment is appropriate.

2.1.3. Land Acquisition and Right-of-way Requirements

No land acquisition or rights-of-way are required for the Project. The Municipality of Frontera, a member of Patronato Pro Limpieza, holds the title to the landfill property where the equipment will be used.

2.1.4. Management and Operation

Under Patronato Pro Limpieza, AHMSA is responsible for managing, operating and maintaining the regional landfill. Landfill operations are performed by a crew of 13 people: a sanitary landfill manager, a general supervisor, five equipment operators, three general laborers, three scale operators and a night guard. There are operation and maintenance (O&M) manuals in place that document routine tasks, as well as procedures to address unexpected conditions and ensure the proper operation of the solid waste system.

Each Municipality pays a monthly fee that altogether covers 50% of O&M costs, and AHMSA provides the other 50%. Patronato's Board of Directors meets every month in Monclova to review the budget, O&M costs and the equipment used in its operation. The estimated operating budget for the landfill is approximately $12.6 million pesos annually. Based on the current O&M budget, those funds should be sufficient to support the estimated costs of the landfill operations, including equipment maintenance.

2.2. ENVIRONMENTAL CRITERIA

Using deteriorated or inadequate equipment could compromise landfill operations and lead to groundwater and soil contamination, as well as create an environment conducive to harmful fauna and vectors. Implementing the Project will help the Sponsor continue to operate the landfill properly and in compliance with regulations, thus reducing potential environmental and human health risks related to the accumulation of improperly handled solid waste.

2.2.1. Compliance with Applicable Environmental Laws and Regulations

Applicable Laws and Regulations

The Project does not require any environmental authorizations, as it consists of the acquisition of equipment. However, the equipment acquired through the proposed Project will support the Sponsor's compliance with the following Mexican laws and regulations:

- *General Law of Ecological Balance and Environmental Protection (LGEEPA)*, which establishes the environmental regulatory framework, expands the strategic vision and conveys specific powers and duties to the states and municipalities, so that environmental problems can be addressed directly.

- *General Law for Waste Prevention and Comprehensive Waste Management (LGPGIRS)*, which seeks to identify the criteria that should be considered by various levels of government in the generation and comprehensive management of solid waste, in order to prevent and control environmental pollution and ensure the protection of human health.

- *Mexican federal standard NOM-083-SEMARNAT-2003*, which specifies the environmental protection requirements for selecting, designing, constructing, operating,

monitoring, and closing final disposal sites and complementary works for municipal solid waste and waste requiring special handling.

- *Coahuila State Law for Waste Prevention and Comprehensive Waste Management*, which establishes the framework for environmental protection and waste management in Coahuila**.**

Environmental Studies and Compliance Activities

No environmental studies or compliance activities exist related to the acquisition of vehicles. On April 12, 2013, the Sponsor submitted an Environmental Impact Assessment (MIA) to the Office of Environmental Control and Urban Environment of Coahuila for the construction and operation of a regional landfill in the central region of the state. On April 21, 2013, the state environmental office issued the permit for the landfill.

Pending Environmental Tasks and Authorizations

There are no environmental authorizations pending.

Compliance Documentation

There is no compliance document required related to the Project.

2.2.2. Environmental Effects/Impacts

Existing Conditions and Project Impact – Environment

Improperly managed urban solid waste poses a risk to human health and the environment. Uncontrolled dumping and improper waste collection causes a variety of problems, including water pollution, the proliferation of insects and rodents, and increased flooding due to blocked drainage canals or gullies. In addition, it may result in safety hazards from fires or explosions.[3] Proper waste management also supports better control of related greenhouse gas (GHG) emissions that contribute to climate change, by facilitating methane capture.

Project implementation will allow solid waste materials to be processed in a confined structure, preventing their release into the surrounding environment. The Project is expected to generate environmental and human health benefits related to the following Project outcomes.

- Optimize landfill operations for the disposal of up to 400 metric tons of solid waste per day;
- Fully comply with applicable laws and regulations; and
- Continue providing proper waste disposal services for approximately 96,000 households.

[3] Source: U.S. Environmental Protection Agency (EPA), EPA530-F-02-026a (5306W) Solid Waste and Emergency Response, May 2002 (www.epa.gov/globalwarming).

There are environmental impacts associated with the daily operation of heavy equipment, such the emission of dust, air pollutants and noise, for which mitigation measures are required. However, when vehicles are operated and maintained properly, the environmental benefits of the Project outweigh the potential negative impacts, which in the long run are expected to be minimal when compared to the positive environmental impact of improving solid waste management and reducing soil and air contamination and risks to human health. Therefore, the environmental impacts resulting from Project implementation will be positive overall.

Mitigation of Risks

Although Project implementation will have no significant adverse impacts on the environment, the use of best management practices and compliance with local ordinances will address any potential temporary and minor adverse impacts. Equipment warranties and specifications also call for regular maintenance to prolong the useful life and efficiency of the equipment. A maintenance service contract will also be consider with the equipment to ensure the establishment of proper maintenance practices.

Moreover, the equipment purchased through the Project will be used to carry out activities that are inherently mitigation measures in and of themselves, as required by the solid waste management regulations. Specific mitigation measures using the new equipment are referenced in the landfill O&M manual, including: maintenance and repairs to access ways, cells and terminated areas; dust control; and capture of biogas and leachates.

Natural Resource Conservation

The implementation of the proposed Project will help prevent environmental degradation by supporting the ongoing operation of the sanitary landfill in compliance with applicable regulations.

No-Action Alternative

The no-action alternative was not considered viable, since the landfill requires new equipment in order to continue managing waste properly. The lack of adequate equipment could shorten the life of the landfill, lead to improper practices for waste containment and generate significant health and safety hazards for the public. The new equipment will replace the old vehicle, which is in poor working condition, preventing impacts associated with air quality and public health.

Existing Conditions and Project Impact – Health

The inadequate management of solid waste produces multiple negative impacts on human health and the environment. Even with the lack of epidemiological studies corroborating a direct link, it is widely recognized that agents exist in garbage that affect human health. Uncollected or inadequately confined waste can cause an increase in the number of registered cases of diseases such as: dengue, leptospirosis, gastrointestinal problems, breathing problems, skin infections and other problems that are worsened when the population lacks basic sanitary services. These same conditions may provoke frequent diarrhea that can lead to episodes of childhood malnutrition.

Human health statistics for the central region of Coahuila are limited. However, the 1984-2010 annual morbidity statistics published by the Office of Epidemiology of the Mexican Ministry of Health include morbidity indicators for the state of Coahuila. Table 4 provides information on the leading causes of communicable diseases in Coahuila during the period from 2010-2013, which are typically related to improper solid waste management.

Table 4
LEADING CAUSES OF COMMUNICABLE DISEASES IN THE STATE OF COAHUILA

Disease	2010		2011		2012		2013	
	Cases	Ranking	Cases	Ranking	Cases	Ranking	Cases	Ranking
Intestinal infections caused by other organisms & undefined diagnosis	157,196	2	157,796	2	175,476	2	162,647	2
Intestinal amebiasis	6,610	13	5,707	13	5,642	14	4,478	14
Other helminthiasis	2,648	18						
Typhoid fever	2,563	19	2,794	20	3,095	19	2,651	18
Paralhyphoid fever & other Salmonellosis	11,610	8	9,528	10	10,745	9		

Source: Mexican Ministry of Health, Office of Epidemiology, Annual Morbidity Reports
http://www.epidemiologia.salud.gob.mx/dgae/infoepid/inicio_anuarios.html

Project implementation is expected to prevent health risks associated with inadequately confined solid waste by supporting the continued operation of the sanitary landfill and thus reducing the possibility of human exposure to decaying garbage, and the creation of breeding grounds for disease-carrying vectors, such as flies and mosquitos.

Transboundary Effects

Transboundary environmental impacts are not anticipated since the location of the landfill is not adjacent to the United States. However, indirect benefits are expected in the region due to the reduction of transmissible diseases related to the inadequate disposal of solid waste in the area.

Other Local Benefits

Equipment acquisition strengthens the institutional capacity of Patronato Pro Limpieza and promotes sustainable development within the region, which will improve the quality of life in the area at large.

2.3. FINANCIAL CRITERIA

2.3.1. Uses and Sources of Funds

The total estimated cost of the Project is US$554,340, including the cost of the equipment, a service agreement and value-added tax. The Project Sponsor requested a US$498,906 grant from NADB through its Community Assistance Program (CAP) to complete the financing of the Project. Table 5 presents a breakdown of the sources of funds for the Project.

Table 5
USES AND SOURCES OF FUNDS
(US$)

Uses	Amount	%
Equipment*	$554,340	100.0
TOTAL	**$554,340**	**100.0**
Source	**Amount**	**%**
NADB CAP grant	$ 498,906	90.0
Sponsor equity	55,434	10.0
TOTAL	**$554,340**	**100.0**

*Includes the service agreement and value-added tax (VAT).

Since the Project costs may be paid in pesos, the Bank is proposing that the Board approve a CAP grant for up to US$500,000, to cover any possible variation in the dollar amount based on fluctuations in the exchange rate. At no time will the CAP grant exceed 90% of the total Project cost.

2.3.2 Program Criteria Compliance

The proposed Project complies with all CAP criteria. It is located within the U.S.-Mexico border region served by BECC and NADB, is being sponsored by a public-private, non-profit organization that provides a public service and is in an environmental sector eligible for NADB financing. Additionally, as a solid waste project, it is considered a priority under the provisions of the CAP Program. As shown in the above table, the Project Sponsor has agreed to cover 10% of the project cost with its own funds, as required under the program.

Finally, there are no permits or authorizations required for the implementation of the Project, and the Project Sponsor is ready to initiate bidding for equipment acquisition once funding has been approved.

2.3.3. Conclusion

For the above reasons, NADB proposes providing a CAP grant for up to US$500,000 to Patronato Pro Limpieza de los Municipios de la Región Centro del Estado de Coahuila, A.C., for the implementation of the Project.

3. PUBLIC ACCESS TO INFORMATION

3.1. PUBLIC CONSULTATION

BECC published the draft certification and financing proposal for a 14-day public comment period beginning May 4, 2016. The following Project documentation was made available upon request:

- Landfill MIA Resolution (environmental clearance)

The public comment period ended on May 18, 2016, with no comments received.

3.2. OUTREACH ACTIVITIES

The Project is not required to conduct any public outreach activities pursuant to legal, regulatory or funding requirements. Since the Project does not require any environmental permits, no official notice was published in the local media.

BECC conducted a media search to identify potential public opinion or opposition to the Project. Articles found that are related to solid waste management in the central region of Coahuila include:

- *INFONOR diario digital CENTRO*. (September 2007). "*Equipan para mejor operación relleno sanitario en región Centro*" (Equipment to improve landfill operations for central región). The article describes the installation of a new scale to improve waste management at the landfill. http://wwwdevel.infonor.com.mx/index.php/centro/8/9097-equipan-para-mejor-operacion-relleno-sanitario-en-region-centro)

- *Zocalo Saltillo* (June 2015). "*Avanza planta en Relleno Sanitario*" (Construction of landfill plant moves forward). The article describes the construction status of a new waste sorting plant at the landfill. http://www.zocalo.com.mx/seccion/articulo/avanza-planta-en-relleno-sanitario-1435392267

- *Zocalo Saltillo* (September 2015. "*Entrega Patronato vehiculo recolector*" (Patronato delivers garbage collection truck to the municipality of Nadadores). http://www.zocalo.com.mx/seccion/articulo/entrega-patronato-vehiculo-recolector-1442897848

In general, the information identified in the articles describes the efforts of the Sponsor to maintain proper landfill operations. No opposition was detected in the media search for the Project.