



CERTIFICATION AND FINANCING PROPOSAL

LA PITAYA CITRUS FARMING PROJECT IN HERMOSILLO, SONORA

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EXECUTIVE SUMMARY

LA PITAYA CITRUS FARMING PROJECT IN HERMOSILLO, SONORA

Project Summary:

Project Name:	La Pitaya Citrus Farming Project in Hermosillo, Sonora.
Sector (Project type):	Sustainable Food Value Chains.
Objective:	The project will improve agricultural practices to produce more high-value crops, including more efficient use of water resources, better water management practices, the creation of organic farming inputs, enhanced product packaging facilities, and the development of a renewable energy system to support operations.
Expected Outcomes:	By converting water-intensive crops to organic citrus and chickpeas, building a packaging facility and a photovoltaic solar power plant, the Project is expected to generate the following environmental benefits: - i.) At least 30% improvement in water use efficiency per hectare by reducing 2,972 m³ per hectare per year (317,726 gallons per acre per year), resulting from the implementation of crops that, together, use less water per hectare than previous crops. - ii.) A 23% decrease in water use per ton of produce obtained, equivalent to 79 m³ per ton (20,870 gallons per ton), as well as a 140% increase in the market value of the crops. - iii.) Elimination of typical losses in the supply chain related to the transportation of produce from harvesting to packaging. - iv.) Generation of 160 MWh of electricity per year with the installation of a photovoltaic solar energy system and thus the prevention of emissions related to power generation: approximately 73.45 metric tons/year of greenhouse gases (GHG) (referred as CO₂), 0.22 metric tons/year of nitrogen oxides (NO_x) and 0.58 metric tons/year of sulfur dioxide (SO₂). - v.) Reduction of soil erosion and runoff with the use of drip irrigation systems. - vi.) Improvement in soil quality by eliminating the use of pesticides and approximately 3,100 kg (6,834 lbs.) of synthetic fertilizers, which will be replaced with organic fertilizer produced on from vermiculture-based leachates.

Population to Benefit:	Community wide. ¹
Sponsor:	Agrícola MS La Pitaya, S.A. de C.V.
Borrower:	Agrícola MS La Pitaya, S.A. de C.V.
Lender:	North American Development Bank (NADBank).

¹ The benefits resulting from the Project will include more efficient use of water in agricultural crops compared to previous crops. Additionally, the Project is expected to generate approximately 50 jobs in the packaging area, 200 jobs during the harvest season and 100 jobs during the non-harvest season. Therefore, the benefited population is described as community-wide, since a specific number of people cannot be defined.

CERTIFICATION AND FINANCING PROPOSAL

LA PITAYA CITRUS FARMING PROJECT IN HERMOSILLO, SONORA.

1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES

The project consists of the reconversion of agricultural operations near Hermosillo, Sonora, for the establishment of 104 hectares (257 acres) of lemon, 150 hectares (371 acres) of orange and the relocation of 260 hectares (642 acres) of chickpeas; supported by investments to improve agricultural practices to produce greater quantities of high-value crops. The project includes a drip irrigation system including wells, pumps and reservoir; vermiculture area for production of organic leachate; packing plant with cold rooms, sleeping area with dining room, infirmary and recreation; a 120-kW solar photovoltaic system to supply part of the electricity consumption of the packaging plant and electrical substation (the "Project").²

The purpose of the Project is to incorporate sustainable practices in agriculture, increasing water use efficiency, soil improvement, organic crops production and renewable energy generation. The sponsor has begun a transition process towards the production of crops that use lower volumes of water per hectare when in 2022 it began with the planting of 104 hectares (257 acres) of lemon, and 260 hectares (642 acres) of chickpea, cultivated through the implementation of sustainable practices, such as drip irrigation and the use of organic fertilizers and pesticides.

The Project is expected to produce approximately 684,000 boxes of lemons and oranges per year once the crops are well established (year 7), equivalent to 40 tons per hectare of lemon and 55 tons per hectare of orange. The Project's solar photovoltaic system will generate approximately 160 megawatt-hours (MWh) of electricity during the first year of operation.

The Project is expected to generate the following environmental benefits:

- i.) At least 30% improvement in water use efficiency per hectare by reducing 2,972 m³ per hectare per year (317,726 gallons per acre per year), resulting from the implementation of crops that, together, use less water per hectare than previous crops.
- ii.) A 23% decrease in water use per ton of produce obtained, equivalent to 79 m³ per ton (20,870 gallons per ton), as well as a 140% increase in the market value of the crops.
- iii.) Elimination of typical losses in the supply chain related to the transportation of produce from harvesting to packaging.
- iv.) Generation of 160 MWh of electricity per year with the installation of a photovoltaic solar energy system and thus the prevention of emissions related to power generation: approximately 73.45 metric tons /year of greenhouse gases (GHG) (referred as CO₂),

² Vermiculture is a biotechnology based on the use of some species of worms to transform raw material from biodegradable organic fertilizer into organic worm fertilizer. The Project will use this type of biotechnology to obtain organic leachates that will be injected directly into the crop irrigation system.

0.22 metric tons /year of nitrogen oxides (NO_x) and 0.58 metric tons /year of sulfur dioxide (SO₂).

- v.) Reduction of soil erosion and runoff with the use of drip irrigation systems.
- vi.) Improvement in soil quality by eliminating the use of pesticides and approximately 3,100 kg (6,834 lbs.) of synthetic fertilizers, which will be replaced with organic fertilizer produced on from vermiculture-based leachates.

The Project sponsor, Agrícola MS La Pitaya, S.A. of C.V. (MS La Pitaya or the Sponsor), will expand its operation to more than 500 hectares, which will require the transfer of water rights currently assigned to other user(s). Such transfer of rights will not increase the amount of existing extraction rights in the aquifer.

2. ELIGIBILITY

2.1. Project Type

The Project falls within the eligible category of Sustainable Food Value Chains, as it consists of investments that will promote the most efficient use of resources such as water and energy, in addition to the implementation of agricultural practices that reduce soil erosion and runoff and encourage the use of organic fertilizers and pesticides, pursuant to Resolution 2021-15 of the NADBank Board of Directors.

2.2. Project Location

The Project will be implemented in two different sites, both within the municipality of Hermosillo: the first site, known as “La Tinajita”, consists of 299 hectares (739 acres) owned by shareholders of MS La Pitaya and is 45 km (28 miles) southwest of Hermosillo and 284 km (176 miles) south of the U.S.-Mexico border. La Tinajita is located at the following coordinates: latitude 28°46'51.79"N and longitude 111°19'47.69"W. The second site, known as “El Aguila,” covers 354 hectares leased by MS La Pitaya, of which 260 (642 acres) are cultivated. El Aguila is located 15 km (9 miles) southwest of Hermosillo and 259 km (161 miles) south of the U.S.-Mexico border, at the following coordinates: latitude 29°0'0.61"N and longitude 111°8'0.38"W. Figure 1 shows the geographical location of the two Project sites.

Figure 1
PROJECT LOCATION MAP



2.3. Project Sponsor and Legal Authority

The Project Sponsor is Agricola MS La Pitaya, S.A. of C.V. (MS La Pitaya or the “Sponsor”). The Sponsor will implement the Project and contract the financing. MS La Pitaya, a company established on August 2, 2018, is headquartered in Hermosillo, Sonora, Mexico and has the legal authority to develop the Project.

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

According to the 2020 Mexican Census, the population of Sonora that year was 2,944,840, which represented 2.3% of Mexico's population.³ The state of Sonora represented 3.6% of

³ Source: INEGI, Population and Housing Census, 2020,
(<https://cuentame.inegi.org.mx/monografias/informacion/son/default.aspx?tema=me&e=26>)

Mexico's gross domestic product (GDP) in 2020.⁴ According to the 2019 Economic Census, the main economic activities that contribute to the state's total gross production include: manufacturing (45.9%), mining (16.8%), trade (12.9%) and services (10.5%).⁵

In 2020, the population of the municipality of Hermosillo was 936,263. According to the 2019 Economic Census, the main economic activities that contribute to the total gross production of the municipality include: manufacturing (52.0%), retail and wholesale trade (12.3%) and services (11.6%).⁶

In addition to providing environmental benefits to the region derived from water and energy efficiency efforts, the Project is expected to benefit the community of Hermosillo by creating job opportunities and generating income during the Project's implementation and operation. The Project is expected to create approximately 50 jobs in the packaging area, 200 jobs during the harvest season, and 100 jobs during the non-harvest season. The project's services, such as a sleeping area with a dining room and recreation, infirmity services, and a social worker on-site, will ensure the employees' optimal working conditions.

Furthermore, as a result of changing dietary lifestyles in modern society and the increasing awareness of climate change and resource depletion issues among the public, it is expected that organic crops will experience an increasing demand in the market, and that a transition will be made towards the production of crops with higher value and lower water requirements in regions with less access to water.

Profile of the Agricultural Sector in the State

Sonora is a strategic state for agriculture in Mexico since it contributes 9.9% of the country's total farming area. Its production value places it fourth in the national ranking, standing out for its production of grapes, asparagus and especially wheat, which yielded a little more than two million tons in 2023.⁷ Figure 2 shows Sonora's main agricultural products by value in 2023.

⁴ Source: INEGI, Contribution to the national Gross Domestic Product (GDP), (<https://cuentame.inegi.org.mx/monografias/informacion/son/default.aspx?tema=me&e=26>)

⁵ Source: INEGI, 2019 Economic Census, (<https://www.inegi.org.mx/app/saic/>).

⁶ Ibid.

⁷ Source: SIAP, Sonora Agrifood Infrograph (*Infografía Agroalimentaria de Sonora*), 2023, (https://nube.siap.gob.mx/infografias_siap/pag/2023/Sonora-Infografia-Agroalimentaria-2023)

Figure 2
MAIN AGRICULTURAL PRODUCTS IN SONORA

	Wheat grain	Grapes	Asparagus	Potatoes	Alfalfa
					
Value (MMXP)	17,014	10,026	8,305	4,317	4,205
Percentage of the state's total value	27.2	16.0	13.3	6.9	6.7
Volume	2,018,451 t	326,850 t	202,658 t	533,544 t	3,561,602 t

Source: SIAP

Sonora has more than 38,000 agricultural production units that, in addition to the substantial impact on the state's economy, represent a major source of income and employment for the community.

According to the SIAP Statistical Yearbook of Agricultural Production, during 2022, the state of Sonora produced a total of 15,480 tons of lemon, 165,480 tons of orange and 21,145 tons of chickpea grain.⁸ Once the Project is implemented, orange production in the state of Sonora will increase, placing oranges among the main crops produced in the state.

Of the 558,064 hectares (1,379,006 acres) used for produce farming in the state of Sonora during 2023, 95.3% use artificial irrigation or water distribution systems, while only 4.7% are rainfed.⁹ This is largely due to the arid conditions of the state of Sonora.

3.1.2. Water Use in the Agricultural Sector

Food production activities in the agricultural sector pose several environmental challenges, such as the extensive use of land, water, and energy. Water is a critical input for agricultural production and plays a crucial role for food security. According to a study developed by the World Bank, farming with artificial irrigation systems represents 20% of the total agricultural area and contributes 40% of total food production worldwide. It is, on average, at least twice as productive per unit of land than rainfed agriculture, allowing for more intense production and crop diversification.¹⁰ According to SIAP's 2022 Agricultural Production Statistics, in Mexico, 29% of the land used by the agricultural sector has artificial irrigation, while the remaining 71% is rainfed.¹¹ However, as stated above, due to the pressing need to make the best use the state's water resources and its mostly arid climate, more than 95% of the farming

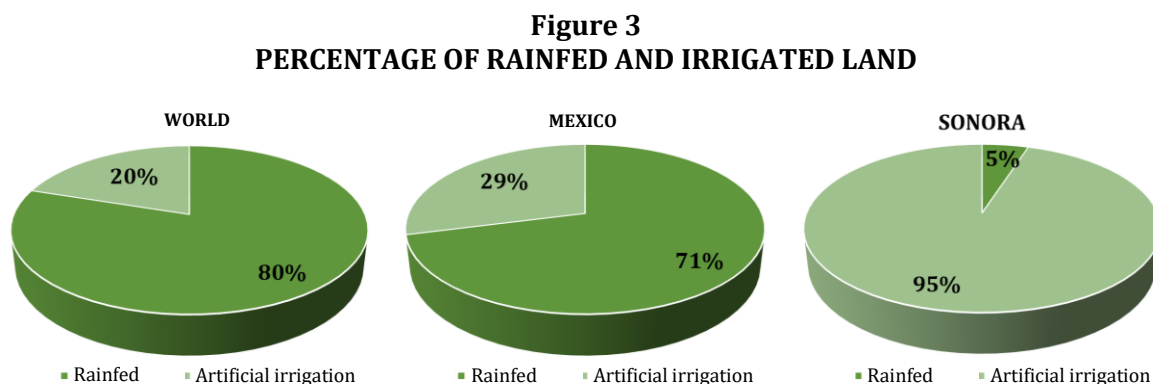
⁸ Source: SIAP, Statistical Yearbook of Agricultural Production [*Anuario Estadístico de la Producción Agrícola*], 2022, (<https://nube.siap.gob.mx/cierreagricola/>).

⁹ Ibid.

¹⁰ Source: World Bank, Water in agriculture [*El agua en la agricultura*], <https://www.worldbank.org/en/topic/water-in-agriculture>

¹¹ Source: SIAP, Agricultural Production Statistics for Mexico, 2022, (<http://infosiap.siap.gob.mx/gobmx/datosAbiertos.php>).

land in Sonora uses some type of artificial irrigation system.¹² Figure 3 shows a comparison between the percentage of rainfed lands and those that use artificial irrigation systems in the world, Mexico, and Sonora.



Source: Charts developed by NADBank using information provided by FAO and SIAP.

Due to population growth, urbanization and climate change, competition for water resources is expected to increase globally, and will have a particular impact on agriculture. At this time, agriculture corresponds (on average) to 70% of all freshwater withdrawals in the world, 75% in Mexico and 87% in Sonora.^{13 14} Projections show that by 2050, the world's population will exceed 10 billion and, whether in urban or rural areas, residents will need food and fiber to address their basic needs. Estimates indicate that by 2050, agricultural production should increase by approximately 70%.¹⁵

According to the Mexico's Water Statistics Report (*Estadísticas del Agua en México*, EAM) published by CONAGUA in 2021, the country ranks fourth in the world in terms of water withdrawals, only below China, the United States and Indonesia. Table 1 shows the countries with the highest rate of water withdrawals and their percentage of use by main sectors.

¹² Ibid.

¹³ Source: World Bank, Water in agriculture (*El agua en la agricultura*), <https://www.worldbank.org/en/topic/water-in-agriculture>.

¹⁴ Source: Mexican Water Statistics, CONAGUA, 2021, (https://sinav30.conagua.gob.mx:8080/PDF/EAM_2021.pdf)

¹⁵ Ibid.

Table 1
COUNTRIES WITH HIGHEST WATER WITHDRAWAL RATES, 2021

No.	Country	Total Withdrawal (billion m ³ /year)	Agricultural Use (%)	Industrial Use (%)	Public Supply Use (%)
1	China	598.10	64.4	22.3	13.3
2	United States	444.30	39.7	47.2	13.1
3	Indonesia	222.60	85.2	4.1	10.7
4	Mexico	89.55	75.7	9.6	14.7
5	Philippines	85.14	79.6	12.4	8.0
6	Egypt	77.50	79.2	7.0	13.9
7	Russia	69.50	26.2	49.5	24.2
8	Brazil	63.50	55.8	18.1	26.2
9	Turkey	58.95	86.2	3.9	9.9
10	Uzbekistan	54.56	91.7	3.9	4.5

Source: EAM, CONAGUA

As shown in Table 1, 75.7% of the total volume of water withdrawn in Mexico is used for agricultural purposes, which represents a total of 67.79 billion m³ per year (54.96 million acre-feet per year). In comparison, the United States allocates a total of 176.39 billion m³ per year (143 million acre-feet per year) for agricultural uses.

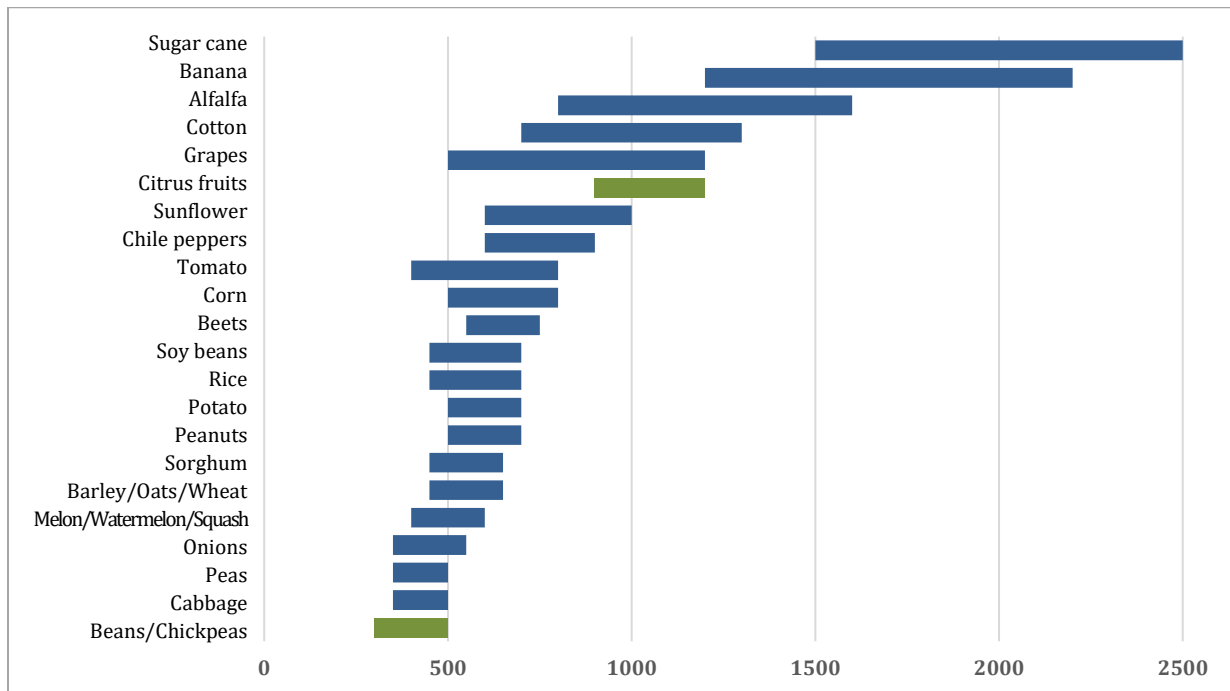
According to CONAGUA's 2024 Updated Report on the Average Annual Availability of Water in the Costa de Hermosillo Aquifer, based on 2022 data, the total volume of water withdrawal estimated for the Costa de Hermosillo irrigation district was 349 million m³/year (283 thousand acre-feet/year), of which 96.3% were for agricultural use, 2.3% for public/urban use, 0.9% for domestic/livestock use, 0.4% for industrial use, and 0.1% for services.¹⁶

Water needs in the agricultural sector vary primarily by type of crop, as well as by climate (temperature and relative humidity), and soil type. The United Nations Food and Agriculture Organization (FAO) developed a study on various types of crops growing in different climates and soil types around the world, and determined estimated minimum and maximum values of water needs by crop type.¹⁷ Figure 4 shows these reference values.

¹⁶ Source: CONAGUA, Updated Report on the Average Annual Availability of Water in the Costa de Hermosillo Aquifer (2619), State of Sonora, 2024
https://sigagis.conagua.gob.mx/gas1/Edos_Acuiferos_18/sonora/DR_2619.pdf.

¹⁷ Source: FAO, Irrigation Water Management: Irrigation Water Needs,
<https://www.fao.org/3/s2022e/s2022e00.htm#Contents>

Figure 4
MIMINIM AND MAXIMUM REFERENCE VALUES OF WATER NEEDS BY CROP TYPE
 (mm/year)



Source: FAO.

In addition to climate and type of crop, another key factor that directly impacts water use in the agricultural sector is the efficiency of irrigation systems. Table 2 shows the different efficiency values for each type of system.

Table 2
IRRIGATION SYSTEM EFFICIENCY

Irrigation Method	Efficiency
Surface irrigation (border, furrow, basin)	60%
Sprinkler irrigation	75%
Drip irrigation	90%

Source: FAO.

Not only is agriculture the largest consumer of freshwater resources worldwide, but more than a quarter of the energy used globally is used for food production and supply.¹⁸ Consequently, resource efficiency is essential throughout the food value chain, including agriculture.

¹⁸ Source: FAO, The Energy and Agriculture Nexus. https://www.fao.org/3/x8054e/x8054e00.htm#P-1_0

The efficient use of water and energy proposed by the Project will allow for less depletion of natural resources, compared to other conventional products or processes. In addition, the Project will also promote the use of organic pesticides and fertilizers for farming. Section 3.1.5 details the estimated water requirements and conservation.

3.1.3. Project Scope

The Project consists of the transformation of agricultural operations from higher water consumption and less economic value crops to organic lemon and orange, as well as chickpea farming, which will result in an increased food production, reduced water requirements and a larger market value. The Project will incorporate practices that promote the efficient use water and energy, through efficient irrigation systems, recirculation of irrigation water, and the installation of a solar photovoltaic system to supply a portion of the electricity that will be used by the packaging facility, as well as generation of organic fertilizers in situ.

The main Project components include:

- Lemon farming area: Consists of a total of 104 hectares (257 acres) (26,000 trees) growing the Eureka and Lisbon lemon varieties. These trees were planted in 2022 in La Tinajita. It is estimated that this area can produce up to 40 tons/hectare/year once the crops are established, starting in year 7.
- Orange farming area: Consists of a total of 150 hectares (371 acres) (37,500 trees) of the Valencia variety. These trees will be planted in 2025 in La Tinajita. It is estimated that the area can produce up to 55 tons/hectare/year once the crop is established, starting in year 7.
- Chickpea farming area: During 2023, MS La Pitaya planted 260 hectares (642 acres) of chickpeas (120 hectares in La Tinajita and 140 hectares in El Aguila) for a total expected harvest in 2024 of 910 tons. It is expected that once orange farming is established in La Tinajita, all chickpea farming activities will be developed at El Aguila, where the Sponsor will continue to cultivate 260 hectares at least until 2029. In the future, the Sponsor intends to purchase El Aguila property and continue chickpea production even after 2029.
- Water wells, pumps, and irrigation system: The Project has a total of 4 water wells, 2 in La Tinajita and 2 in El Aguila; each well has an electric motor pump, with capacities between 100 and 120 liters per second (2.28 to 2.74 mgd). All crops will be irrigated with drip tape irrigation which will allow optimum water and organic fertilizer application. This system consists of a series of pumps, pipes, and PVC valves, connected to the fertilization system. The lines are interconnected to a drip tape irrigation network distributed throughout the farming site. The system has water return lines to recirculate the water that has not been used for irrigation, allowing better pressure control of the system, and reducing drip tape maintenance costs related to pressure variations observed in systems without water return lines.
- Water reservoir: The Project includes the construction of a water reservoir with capacity for 33,340 m³ (8.8 million gallons). The reservoir can store the water required

to irrigate La Tinajita crops for up to 5 days and will be connected to the irrigation system's water return lines.

- Vermiculture area: The Project includes thirteen 18x2 meter (59x6 feet) concrete pools that will be used to generate leachate resulting from the breakdown of organic waste by worms at the La Tinajita site.
- Packaging plant: The Project will have packaging lines to process the produce. The facility will include walk-in refrigerators, offices, a shipping area, etc., and will have the ability to provide packaging services to local farmers who may request them.
- Dormitory area: The Project includes a dormitory area, an administrative building, a dining hall, an infirmary, showers, and playing courts to provide accommodations, health care services, food, and recreation for workers. These areas are mostly used during the harvest and weeding seasons. In addition, there will be social workers and nurses to provide services on site.
- Solar photovoltaic system: The Project includes the installation of a solar photovoltaic system with 120 kW capacity to generate approximately 160 MWh during the first year of operation. The system will be made up of 266 modules with 455W solar panels and three 40kW inverters.
- Electrical substation: La Tinajita has a 500 kVA three-phase transformer with 13.2 kV supply voltage, which converts the energy to 440/277 V. The electrical substation has the necessary capacity to support the implementation of the Project and the interconnection with the photovoltaic system.

Figures 5 and 6 show the general layout of the main Project components.

Figure 5
MAIN PROJECT COMPONENTS (LA TINAJITA)

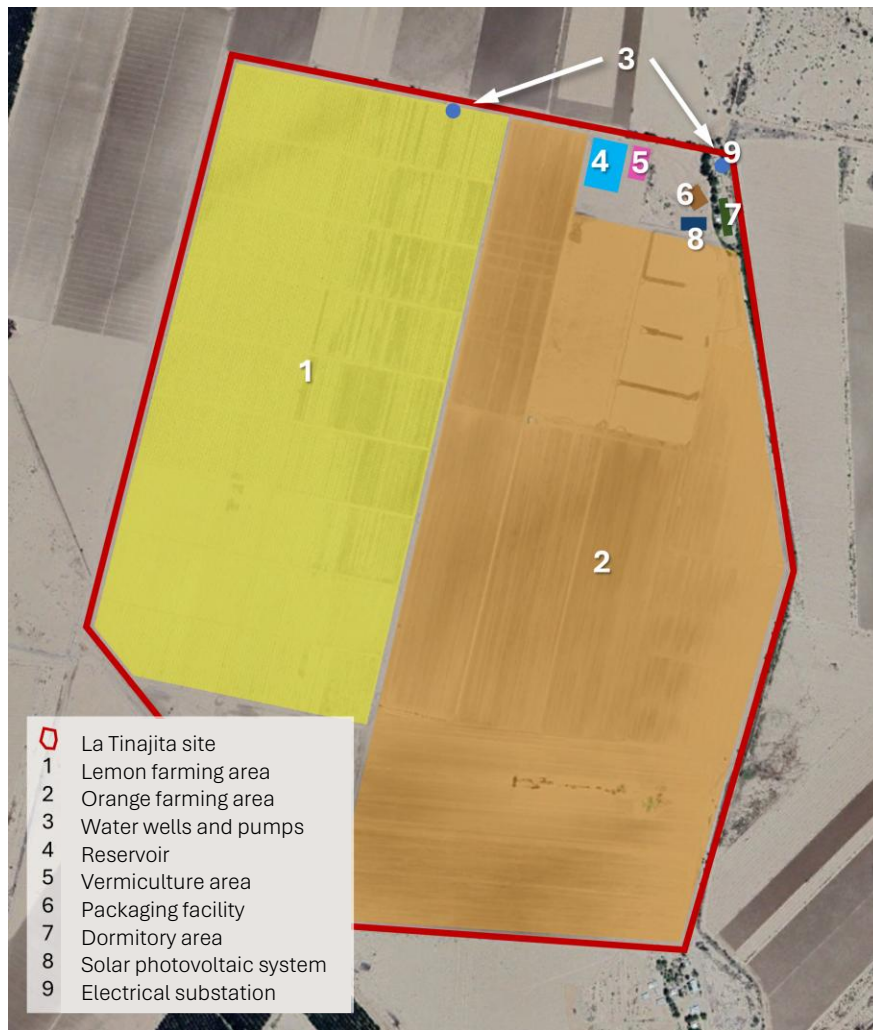


Figure 6
MAIN PROJECT COMPONENTS (EL ÁGUILA)



As part of the Project scope, the Sponsor will secure additional water rights to supplement those it currently has. All water concessions obtained by the Project will be purchases of existing concessions (transfer of rights), so none of them represent additional withdrawals from the aquifer; consequently, the volume of water currently withdrawn from the aquifer will not increase with the Project. More information on the status of the aquifer is presented in Section 3.2.1.

According to Articles 51, 52 and 67 of Mexico's National Water Law, water rights for irrigation at the Project sites are granted by the Association of Users of Irrigation District Number 051-Costa de Hermosillo (ASUDIR), which is the legal entity responsible for water management in the region as holder of the concession to exploit national groundwater, pursuant to Concession Title 02SON405101/09ATOC12 issued by CONAGUA's Regional Office in the Northwest Basin in Hermosillo , Sonora.

MS La Pitaya is included in the user registry of Irrigation District Number 51 and currently, along with one of its shareholders, has concessions for 904,800 m³ (733 acre-feet) and 300,000 m³ (243 acre-feet) obtained in 2019 and 2023, respectively, for irrigation. The lease agreement for the El Águila agricultural field includes 965,000 m³ (782 acre-feet) of water rights. Additionally, the Sponsor will purchase 1,636,000 m³ (1,326 acre-feet) of water rights in 2024 as part of the Project, for a total of 3,805,800 m³ (3,085 acre-feet) to irrigate the Project's crops.

3.1.4. Technical Feasibility

Established as Agrícola MS La Pitaya S.A. de C.V, the Sponsor began operations in 2018 at the La Tinajita site, consisting of 299 hectares (739 acres). As mentioned above, MS La Pitaya grows and distributes citrus fruits and other crops such as chickpeas for the Mexican and foreign

markets and has strategically evolved from vegetable farming to growing perennial (permanent) crops.

Between 2019 and 2022, MS La Pitaya grew vegetables such as watermelon, squash, and green beans, and began a transition towards crops that use lower volumes of water in 2022 by planting 104 hectares (257 acres) of lemon trees and 260 hectares (642 acres) of chickpeas. Starting in 2025, the 260 hectares of chickpeas will be grown only at the El Aguila site. La Tinajita has 104 hectares of lemon trees and will also house 150 hectares (371 acres) of orange trees that will be planted during 2025. Although additional water rights will be required, the Project will continue the use of a drip tape irrigation system, which is the most efficient irrigation method.

For several years, the Costa de Hermosillo region has been known to be a suitable area for growing citrus fruits, given its weather conditions and soil quality. Of the 26,000 lemon trees planted in 2022, only 1% has needed to be replanted.

In addition to the implementation of agricultural technologies through the Project's irrigation system, the Sponsor has implemented sustainable practices over the years that will enable it to certify its crops as organic produce. These practices include fertilization through the injection of leachate from the vermiculture system, the use of organic pesticides and fungicides, strict sanitization processes in the vehicle access area, as well as the future planting of Indian nimbus trees around the perimeter of the La Tinajita site, which will naturally combat pests, fungi and some invasive insects.

As for the packaging plant, it will include energy efficient equipment with sufficient capacity to provide packaging services to the Project and to other local farmers that might require this service. The Sponsor is currently in the process of evaluating equipment and components from various suppliers with the purpose of selecting those that best adapt to the characteristics and requirements of the packaging plant. The technology and equipment evaluation process will consider elements such as technical performance, commercial supply, and guarantees. In addition, feasibility will be evaluated based on cost effectiveness, energy efficiency and reliability of the different components.

Currently, La Tinajita site has electricity service and will have a power generation system through a 120-kW photovoltaic system which will supply up to 80% of electric power requirements of the packaging plant.

3.1.5. Land Acquisition and Right-of-Way Requirements

The Project will be developed in two different sites located in the municipality of Hermosillo, Sonora:

- La Tinajita: An agricultural tract of land covering a total of 299 hectares (739 acres), owned by shareholders of MS La Pitaya since July 5, 2019.
- El Aguila: An agricultural tract of land covering 354 hectares (875 acres) leased by MS La Pitaya, of which 260 (642 acres) are cultivated. The agreement executed on October 1, 2019, established a 5-year lease period, and included a clause for a potential extension of an additional 5 years. The extension provision was recently exercised

adjusting the lease period to end in 2029. The Sponsor has plans to purchase this land in the future.

The Sponsor has provided documentation regarding land title and lease agreements. No additional rights-of-way or land acquisition are anticipated for Project implementation.

3.1.6. Project Milestones

Financial closing is expected in the third quarter of 2024. The site had 104 hectares (257 acres) of lemon trees planted in 2022, and 150 hectares (371 acres) of orange trees are expected to be planted in 2025. Construction of the packaging plant is expected to be completed in 2025 and the solar system installation completed during the first quarter of 2026. Table 3 shows the status of the activities that are key to the implementation of the Project.

Table 3
PROJECT MILESTONES

Key Milestone	Status
Project site purchase agreement (La Tinajita)	Executed (July 2019)
Registration certificate for 904,800 m ³ (733 acre-feet) of water rights	Obtained (July 2019)
Project site lease agreement (El Aguila)	Executed (October 2019)
Registration certificate for 965,000 m ³ (782 acre-feet) of water rights	Obtained (October 2019)
104 hectares of lemon trees planted	Completed in 2022 cycle
Confirmation of registration in the registry of users and private (non-community) lands, issued by ASUDIR 051	Obtained (April 2024)
Registration certificate for 300,000 m ³ (243 acre-feet) of water rights	Obtained (May 2024)
Construction permit for packaging plant	Expected 4th Quarter 2024
Registration certificate for 1,636,000 m ³ (1,326 acre-feet) of water rights	Expected 4th Quarter 2024
Construction of packaging plant completed	Expected 4th Quarter 2025
150 hectares of orange trees planted	Expected in 2025 cycle

The following critical tasks for Project implementation are pending:

- The Sponsor will purchase 1,636,000 m³ (1,326 acre-feet) of water rights in 2024.
- Prior to the start of construction tasks, the contractor in charge will obtain a construction permit for the packaging facility.
- Additionally, the contractor in charge of installing the photovoltaic system will submit a request for an interconnection agreement to the Federal Electricity Commission. An interconnection permit does not need to be obtained, as the system is exempt from this requirement (less than 500 kW).

3.1.7. Management and Operation

Established in 2018 and with 5 years of experience in the farming market, MS La Pitaya will be responsible for the management, operation, and maintenance of both the farmland and the packaging plant. Typical maintenance tasks for the farming area include weeding, pruning, and repairing sections of irrigation tape that may be damaged.

The packaging plant and its components will be subcontracted to a construction company with experience in developing these types of facilities. Based on the Project, the produce may be packaged within the same facilities, providing not only a commercial advantage, but also ensuring the quality and good management of the organic products grown at the Project sites. The Sponsor will implement a maintenance program that will include preventive and corrective procedures.

Additionally, the Project will include facilities to accommodate workers during the planting, harvesting and weeding seasons, and will also provide lodging and food services, and the on-site services of a social worker and a nurse.

In terms of job creation, the Project is expected to benefit the community of Hermosillo and its adjacent areas by creating employment opportunities. The Project is expected to generate approximately 50 jobs in the packaging area, 200 jobs during the harvest season and 100 jobs during the non-harvest season (weeding and maintenance).

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

Resources such as water and energy are used in the agricultural sector for food production activities. Water is a fundamental input for farming and plays a critical role in food security. Given that the lemon, orange, and chickpea crops proposed by the Project consume lower amounts of water per year than previous crops, a more efficient use of the available water is expected, which will result in higher crop yields in the Project sites. On the other hand, an increase in electricity demand is expected due to the construction of the packaging plant; however, the Project includes the installation of a photovoltaic system to supply at least 80% of the energy necessary for its operation.

A. Existing Conditions

According to the 2024 Updated Report on the Average Annual Availability of Water in the Costa de Hermosillo Aquifer published by CONAGUA, the volume of groundwater withdrawals in the Costa de Hermosillo irrigation district was 349,453,541 m³ (283,307 acre-feet) in 2022.¹⁹ The aquifer's average annual recharge is 275,200,000 m³ (223,108 acre-feet), so there is a deficit of 74,253,541 m³ (60,199 acre-feet) per year in the average annual availability of groundwater.²⁰ However, the purchase of water rights by the Project does not refer to new rights or new withdrawals; the Sponsor will obtain water rights from other farmers in the region who have

¹⁹ Source: CONAGUA, Updated Report on the Average Annual Availability of Water in the Costa de Hermosillo Aquifer (2619), State of Sonora, 2024, (https://sigagis.conagua.gob.mx/gas1/Edos_Acuiferos_18/sonora/DR_2619.pdf).

²⁰ Ibid.

existing and active rights, so the Project will not increase the volume of authorized groundwater withdrawals from the aquifer.

To achieve a reduction in water consumption and align it with the sustainable recharge of the aquifer, there are three options: a) reduce water consumption with the use of more efficient irrigation methods, b) reduce the total area planted and irrigated and c) change crops and establish those that require less water. Strategies that combine these options could also be used. The Project uses efficient irrigation through drip tape systems and produces crops that require less water per hectare and with this increases the value of production.

Between 2019 and 2022, MS La Pitaya grew different crops in the Project area, including grapes and watermelon, and vegetables such as green beans and squash. The production of these crops requires substantial amounts of water each year. Due to the climate conditions of the Hermosillo region, crops such as watermelon and squash are grown in 2 cycles per year, while green beans are only grown in one yearly cycle. Table 4 shows information on the crops grown in the Project area from 2019 to 2022 and their water requirements.

Table 4
CROP DISTRIBUTION AT THE PROJECT SITES - 2019 TO 2022

Product	Percentage of harvested area	Cycles per year	Water required by cycle (mm)*	Water required per hectare/year (m ³)
Grapes	42%	1	1,140	11,400
Watermelon	35%	2	520	10,400
Squash	8%	2	520	10,400
Green beans	16%	1	475	4,750

*The water requirement per crop cycle is consistent with FAO publications (See Fig. 4 in Section 3.1.2).

Between 2019 and 2022, the annual water requirements per hectare in the Project farming sites were equivalent to 9,937 m³/hectare/year (1.06 million gallons/acre/year). In terms of production, 348 m³ (91,931 gallons) of water was required to yield 1 ton of produce.

In 2023, MS La Pitaya began a process of transition or reconversion from annual and semi-annual crops to organic perennials that use a smaller amount of water per hectare, such as lemon, orange, and chickpea.

The Project includes the acquisition of additional water rights. However, this will not correspond to new rights or new extractions, but Sponsor's acquisition of existing and active water rights from other producers in the region; thus, the Project will not increase the volume of underground water being extracted from the aquifer.

B. Project Impacts

The Project will receive its water supply from 4 wells located on both properties and will have a 33,340 m³ (8.8 million gallons) water reservoir to store the water necessary to irrigate the crops in La Tinajita for up to 5 days. This will promote energy-efficient water pumping during

peak electricity hours. The drip tape irrigation system proposed for the Project includes a return system that allows up to 10% of the water injected into the system to be recirculated.

Lemon, orange, and chickpea crops considered for the Project will replace the crops that were previously grown. To calculate water consumption efficiency improvements on the Project sites, Table 5 shows the analysis of estimated water consumption of the Project crops.

Table 5
WATER USE BY CROP

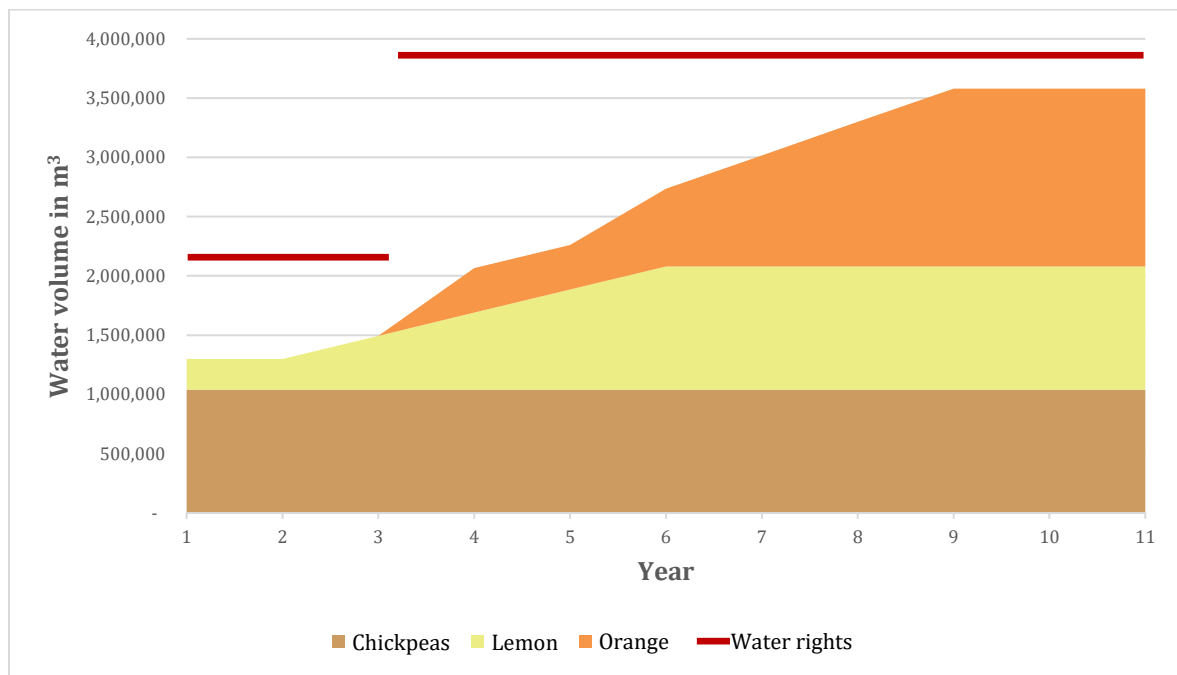
Product	Number of hectares	Cycles per year	Water required by cycle (mm)	Water required per hectare/year (m ³)
Lemon	104	1	1,000	10,000
Orange	150	1	1,000	10,000
Chickpeas	260	1	400	4,000
TOTAL	514			

*The water requirements per crop cycle are consistent with FAO publications (See Fig. 4 in section 3.1.2).

The annual water consumption of the Project's crops is estimated to be approximately 3,580,000 m³ (2,902 acre-feet) per year. The annual water requirements per hectare once the lemon, orange and chickpea crops are established, will be 6,965 m³/hectare/year (0.74 million gallons/acre/year), that is, 30% less than with the previous crops. In terms of production, 269 m³ (71,062 gallons) of water will be required to yield 1 ton of produce, that is, 22.7% less than with previous crops.

It is worth mentioning that the amount of water needed per year by lemon and orange trees during the stabilization phase is much lower; that is, water use during the growth phase of the trees gradually increases until year 7, when the trees reach maturity and their need for irrigation stabilizes. The lemon trees were planted in 2022 and the orange trees are expected to be planted in 2025. The Sponsor and its shareholders have 2,169,800 m³ (1,759 acre-feet) of water rights and will purchase additional rights to reach 3,805,800 m³ (3,085 acre-feet) in 2025. Figure 7 shows the evolution in water use for irrigation of the different crops, compared with available water rights.

Figure 7
TOTAL VOLUME OF IRRIGATION WATER PER YEAR AND WATER RIGHTS



As stated above, the volume of groundwater withdrawals for the Costa de Hermosillo irrigation district was 349,453,541 m³ in 2022. The total volume of water concessions that the Project will have (3,805,800 m³/year) will represent 1.09 % of the total volume available per year in the irrigation district.

According to information from the preliminary design of the Project's packaging plant, the facility will consume about 200 MWh of electricity per year. A 120-kW photovoltaic power system will be installed at the Project site to generate up to 160 MWh per year, equivalent to 80% of the electricity use of the packaging plant.

This reduction in electricity use, compared to the installation of the packaging plant without a photovoltaic system, is equivalent to the elimination of the following emissions:²¹

- 73.45 metric tons/year of GHG (referred as CO₂);
- 0.22 metric tons/year of NO_x; and
- 0.58 metric tons/year of SO₂.

²¹ CO₂, NO_x, and SO₂ calculations are based on the potential emissions avoided as a result of reducing future demand on fossil fuel-based electricity through the use of solar energy equivalent to 160 MWh/year and the emission factors for the state of Sonora. The emission factors are calculated by NADBank based on the power generation portfolio of the state of Sonora and the factors reported per technology in the Mexican National Power System Development Program (PRODESEN) 2018 (emission factors for cogeneration are not reported). The resulting emission factors are: 0.45909 metric tons/MWh for CO₂; 0.00138 metric tons/MWh for NO_x, and 0.00363 metric tons/MWh for SO₂.

In addition to the intended water and energy efficiency outcomes, Project implementation includes other practices that will provide environmental and social benefits and support the proposed sustainable development approach:

- *Organic production:* The lemon and orange crops obtained will receive certification as Primus GFS organic produce, since they will be grown using natural inputs and substances, and without any pesticides or artificial fertilizers.²² For this purpose, organic leachates will be obtained by implementing a vermiculture technique developed as part of the Project, as well as by planting Indian nimbus trees around the perimeter of the La Tinajita site, among other efforts. The Indian nimbus tree has natural properties that reduce the presence of fungi, diseases and insects that could be harmful to crops.
- *Water-efficient irrigation system:* All the different crops will have a drip tape irrigation system that ensures the optimal application of water and organic fertilizers. Also, the Project will have water return lines that enable the system to reuse water not used for irrigation. This will increase the efficiency of the system, representing additional savings of up to 10%.
- *Dining hall and dormitories:* The Project includes a dormitory area, an administrative building, a dining hall, an infirmary, showers and playing courts, to provide accommodations, health care services, food, and recreation to workers. The Project has a social worker on site to ensure that there are no underage children or pregnant women working on the premises.

C. Transboundary Impacts

No negative transboundary impacts are anticipated as a result of the Project implementation.

3.2.2. Compliance with Applicable Environmental Laws and Regulations

A. Environmental Clearance

The Project sites have the correct land use designation and are duly authorized for the development of the Project; therefore, no environmental authorizations are required. The Project's irrigation system does not discharge into any water body.

As mentioned in Section 3.1.5, the Sponsor owns part of the water rights and is in the process of obtaining additional water rights as needed to carry out the Project.

The photovoltaic system to be installed as part of the Project will have a capacity of 120 kW, which is below the 500 kW that the Energy Regulatory Commission designates as exempt from obtaining power generation permits.

B. Mitigation Measures

²² PrimusGFS is an organic certification and auditing program recognized by the Global Food Safety Initiative (GFSI), with certification in 22 countries. Endorsed by more than 7,326 organizations worldwide, PrimusGFS provides total produce supply chain coverage, from production to storage and distribution.

The Sponsor will implement the following mitigation measures, best practices, and recommendations to reduce, mitigate and control any environmental impacts that may arise during site preparation, construction, and operation of the Project:

- Water:
 - Damaged sections of drip irrigation tape in the lemon and orange fields will be replaced when necessary and the drip irrigation tape for the chickpea field will be replaced annually.
 - There will be a water return system in place to reduce losses in the irrigation system.
- Soil:
 - Due to the implementation of the underground drip tape irrigation system, the typical impacts to the soil resulting from erosion caused by wheeled irrigation will be greatly reduced.
 - Damage to the soil caused by synthetic fertilizers will be eliminated with the implementation of fertilization by organic leachates.
- Air:
 - Energy-efficient equipment will be installed in the packaging plant, as well as a photovoltaic generation system that will prevent greenhouse gas emissions into the atmosphere.
 - The equipment used for farm operations will receive tune-ups to reduce emissions into the atmosphere.

C. Pending Environmental Tasks and Authorizations

The Project has no pending environmental authorizations.

3.2.3. Environmental and Social (E&S) Risk Analysis

A. Project E&S Risk Category

In accordance with NADBank's Environmental, Social and Governance (ESG) policy, which establishes guidelines for the assessment and categorization of potential ESG risks in its financial operations, NADBank determined that the proposed Project falls within the “B” category (medium risk), corresponding to transactions with few adverse environmental and social impacts that are generally site-specific, largely reversible and easily addressed through mitigation measures, and that follow international best practices.

B. Environmental and Social Due Diligence Conclusions

NADBank reviewed the Sponsor's organizational structure, as well as its operational processes and policies. On March 6-7, 2024, NADBank staff members visited the Project sites with the purpose of observing the general conditions of the area, facilities, operating practices, protocols, etc. Based on the review of available information and their observations during the site visits, NADBank staff concluded that MS La Pitaya has the necessary tools and resources to comply with the environmental and social obligations associated with the Project, including compliance with applicable regulations.

C. Summary of Proposed Mitigation Measures

No additional mitigation measures are required, since the measures considered as part of the Project, MS La Pitaya's current organizational structure, and its processes and use of funds, support compliance with its environmental and social obligations.

3.3 Financial Criteria

The purpose of this section is to support the issuance of authorization to complete the Project's financing requested by Agrícola MS La Pitaya, S.A. of C.V. in the form of a NADBank loan. The total cost of the project includes the purchase of land, transfer of water rights, biological assets, fixed assets, equipment, and inputs for citrus and chickpea farming.

The source of repayment will be the revenue generated by the Borrower primarily through the sale of chickpea, lemon, and orange crops, as well as any other products or services provided by the company, which will be pledged to the Project trust. The trust will be used as a payment mechanism and guarantee of the debt contracted with NADBank, since it will allow debt service obligations to be prioritized before making any disbursement to the Borrower to cover its operations or other cash needs.

Based on the Project's characteristics and the financial and risk assessments performed by NADBank, the proposed Project is considered financially feasible and presents an acceptable level of risk. Therefore, NADBank proposes providing a market rate loan for the proposed Project.

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

On July 10, 2024, NADBank published the draft certification and financing proposal for a 30-day public comment period.

4.2. Outreach Activities

NADBank conducted a media search to identify the potential public opinion about the Project. No specific references to the Project were found online. No public opposition to the Project has been detected.