

## CONCEPT NOTE FOR INVESTMENT FOR POTABLE WATER TREATMENT PLANT

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1. Presented by Rotary Bogotá, Chico Club in Colombia. The Bogotá Chico RC has been working with the Niña María Foundation since 2014. We developed a "Matching Grant" with the Key Biscayne Rotary Club of Florida and the "Manos Del Sur Foundation", worth approximately US\$45,000, for the provision of rehabilitation and physical therapy equipment and a double-decker elevator for meals. Subsequently, 4 "Tree Planting Days" have been carried out by the Bogotá Chicó with Santa Bárbara RC and the Rotaracs of both Clubs in the field of Niña María Foundation. The district program of district 4281 "Rotary paints Colombia" has been carried out by the Bogotá Chicó in several of the buildings of Niña María Foundation, A music school is being held, on a weekly basis, with a duration of two hours, since year 2021, with the young inmates of this institution who are in less affected mental and or physical conditions, including the donation of all the required basic instruments by the Bogotá Chicó RC. The Rotary Club Bogotá Chicó gave to the Niña María Foundation a soybean processing plant for the production of soy-based foods, such as soy milk, soybean flour, tempeh, whole soybean seed, tofu, soy sausages, biscuits and nougat, chocolates, for the consumption of the same children and young inmates. We have presented its director for the "CAFAM Woman contest" and she was awarded as Cafam Cundinamarca, (a region of Colombia) Woman. During 2024-2025 the RC Bogotá Chicó together with RC Bellevue Breakfast carry out the development of a domestic wastewater treatment plant, through GG 2571150, right now in the implementation stage.

### 2. Project Name:

Safe and Sustainable Sanitation: Potable water Treatment Plant for Inability Kids of the Fundación Niña María.

### 3. Background:

The Niña María Foundation is a private organization established as a Non-Profit Entity, committed to recognizing, guaranteeing, and restoring the fundamental rights of children, adolescents, and adults with cognitive and psychosocial disabilities. It provides comprehensive interdisciplinary care and rehabilitation using a biopsychosocial approach, extending support to families, support networks, and emotional caregivers, fostering full and effective inclusion in society through the humanization of its services.

The foundation provides various essential services, including health, education, and social support to its beneficiaries. However, due to the lack of proper wastewater treatment facilities, the foundation faces challenges in managing domestic wastewater effectively. Currently, untreated wastewater poses risks to the health of the residents, surrounding environment, and community, leading to contamination of local water bodies and public

health issues. **This problem is being solved with the installation of the waste treatment plant through global grant 2571150.**

To address this critical issue, a potable water treatment plant is necessary to ensure a safe, sustainable, and healthy environment for the foundation's residents and the broader community.

#### **4. Project Description:**

The proposed project involves the design, construction, transport and operation of a potable water treatment plant, to be installed in the Niña María Foundation, near the Municipality of Alban - Cundinamarca. The treatment plant will be built entirely of Glass Fiber Reinforced Polyester (GFRP) at the AGUACOL S.A.S. production facility, to be installed in the vicinity of the municipality of Albán, Cundinamarca.

Advantages of the potable water treatment plant

- Technological: Extremely lightweight compared to other treatment plants. (If it were built in steel, its weight would be five times greater.) Easily transportable; it can be relocated by simply disassembling, transporting, and reassembling it at the new site

The plant is fully hydraulic and does not require energy for its operation. It features a self-cleaning hydraulic filter, which eliminates pumping costs. Additionally, it includes a treated water storage tank. It is so easy to operate that it only requires one operator to verify proper functioning, and the operator does not need to be present at the plant for more than 4 hours a day.

- Efficiency: It has a **Self-cleaning hydraulic filter system**: One of the plant's most efficient features is its fully automatic, self-cleaning filter. It operates without energy consumption or pumping equipment, thanks to a built-in treated water tank that enables backwashing through hydraulic pressure. This not only minimizes operational costs and maintenance but also extends filtration cycles (15–18 hours), enhancing overall system efficiency. The filter is **self-cleaning** and operates **automatically**, reversing the flow without the need for pumping equipment. When the media becomes clogged, the filter is designed to automatically reverse the flow without operator intervention.

It also includes an **internal treated water storage tank**, which is designed to hold the exact volume of water required to backwash the sand media over approximately 10 minutes, using a flow rate three times higher than the operational flow. This ensures a uniform and efficient wash. Depending on proper chemical dosing, the typical filter cycle lasts between 15 to 18 hours before the next backwash cycle is triggered.

- Regulatory Compliance: The compact plant carry out all treatment processes in a single module, guaranteeing water suitable for human consumption, in accordance

with Decree 1575/07 – Resolution 2115 – Ministry of Social Protection which establishes the **Regime for the Quality of Water for Human Consumption**. It outlines the general responsibilities of authorities and service providers to ensure that drinking water is safe, of high quality, and accessible. The plant also complies with global standards such as those of the EPA or WHO. Economical: It currently possesses technology developed by AGUACOL itself, through its own Research and Development processes. It offers the smallest area occupied per liter/second in the Colombian market and worldwide, with a footprint of 1.0 m<sup>2</sup>/LPS, regardless of the size, ranging from 1.0 to 60.0 LPS. The system consists of:

- Rapid Mixing
- Flocculation
- Accelerated Sedimentation
- Filtration
- Filter Backwash Tank

All components are internally integrated, properly connected, and assembled in a tower-type structure that optimizes space and volume, allowing for material savings and the smallest possible area for this type of process available in the market.

- Environmental: the environmental benefits are as follows:
  - Reduces Pollution of Natural Water Bodies by proper treatment of untreated or partially treated water into rivers, lakes, and groundwater sources. It also minimizes contamination from pathogens, chemicals, and sediments.
  - Promotes Sustainable Water Use by encouraging efficient use of water resources through recycling and reuse options in advanced systems. Reduces pressure on overexploited sources by enabling the use of surface or even slightly contaminated water, once treated.
  - Mitigates Climate Change Impacts with a resilient water treatment infrastructure that can support communities during droughts or water scarcity caused by climate change.
  - Improves Public Health (with indirect environmental benefits) by reducing waterborne diseases lowers medical waste and environmental strain from public health emergencies.
- Circular economy: Efficient treatment and water recycling systems lower overall water consumption and wastewater generation, supporting circular resource use and environmental responsibility.

## 5. Objectives:

Primary Objective: To provide a safe, reliable, and dignified source of drinking water for the children, staff, and families served by the Fundación Niña María. By delivering clean water through a compact and efficient system, the project contributes directly to the well-being, health, and development of children, supporting a safe and nurturing environment where they can thrive.

### Secondary Objectives:

- Ensure access to safe drinking water to prevent waterborne diseases, directly enhancing the quality of life of the beneficiaries.
- Minimize expenses caused by waterborne illnesses and medical treatments, allowing more resources to be allocated to other social programs.
- Increase awareness about the importance of clean water, water conservation, and protection of water resources.

## 6. Location:

Fundación Niña María, Km 13 vía Facatativá - Alban, Colombia. The foundation is situated in a semi-urban area, where there are limited wastewater management facilities.

## 7. Impact:

The installation of a potable water treatment plant will have significant positive impacts on the foundation itself with 335 people, including young patients and children and medical staff and care workers,) and the surrounding community, 2 Villages, (Platanillo with 330 inhabitants and Las Marias, with 470 inhabitants, including children and the elderly):

- Improvement in Mental and Social Well-being: Reliable access to clean water reduces stress and anxiety linked to water insecurity, fostering a healthier, more stable environment that supports social inclusion and dignity for people with disabilities.
- Encouragement of Holistic Community Development: Water access improvements often act as a foundation for other infrastructure and social services (like hygiene education, nutrition programs), multiplying positive social impacts.
- Improved Cognitive Development and Learning Outcomes: Access to safe drinking water reduces illnesses like diarrhea and parasitic infections that impair concentration and school attendance, helping children perform better in education and therapy sessions.
- Enhanced Hygiene and Personal Care: Clean water availability supports daily hygiene routines such as handwashing and bathing, which are essential for children's comfort, dignity, and prevention of infections..

## 8. Measurement & Evaluation:

Key Performance Indicators (KPIs) will be established to evaluate the project's success:

- Water Quality Compliance Rate (%): Percentage of water samples meeting national/international potable water standards.
- Reduction in Waterborne Illness Incidence (%): Percentage decrease in reported cases of water-related illnesses (e.g., diarrhea, skin infections) among the beneficiaries.
- Operational Uptime (%): Percentage of time the treatment plant is fully functional and delivering treated water without interruptions.
- Water Consumption per Capita (liters/day): Average amount of treated water used per person daily, indicating access and usage patterns.

## 9. Sustainability Plan:

The sustainability of the potable water treatment plant will be ensured through:

- Local Training: Training foundation staff and technicians on plant operation, monitoring, and maintenance.
- Long-term Maintenance: Establishing a schedule for regular system checks, maintenance, and repair.

## 10. Budget:

The cost of the project is around US\$ 74.000. A detailed budget will be developed to cover the following expenses:

ITEM	DESCRIPCIÓN	CANT	UND	VALOR PESOS	PRECIO US
1.1	Planta de Tratamiento de Agua, sistema de bombeo, capacitacion	1	GL	\$ 216.262.448	US\$54.066
1.2	Obra civil	1	GL	\$ 56.274.460	US\$15.080
1.3	Acometidas electricas	1	GL	\$ 10.579.800	US\$2.645
1.4	Contingencia	1	GL	\$ 8.840.000	US\$2.210
				TOTAL \$ 291.956.708	US\$74.000

1.1. PLANTA DE TRATAMIENTO DE AGUA POTABLE (PTAP.)

ITEM	DESCRIPCIÓN	CANT	UNIDAD	VALOR EN PESOS	PRECIO US
1	Planta de Tratamiento de Agua Potable capacidad 1,2 LPS, Ø 1,20 x H = 4,40 mts, material PRFV (Poliester Reforzado con Fibra de Vidrio) limite de suministro, entrada y salida de la PTAP. (X / Y)	1	GL	\$ 100.352.000	US\$25.088
2	Sistema de bombeo, en PRFV Ø 8" X H = 2,0 mts, malla interna en acero inoxidable de 2,00 mm, incluye bomba tipo lapicero caudal 1,2 LPS, tubería y accesorios PVC de inercion desde el punto de captacion hasta la PTAP maximo 200 mts conexion entre el punto de Agua Cruda y el sitio de la PTAP)	1	GL	\$ 17.562.000	US\$4.391
3	Lechos de secado Ø 1,20 h = 1 mts fibra de vidrio contapa + obra civil. 0,60 mts altura lecho filtrante	1	GL	\$ 4.900.000	US\$1.225
4	Productos quimicos operación 1 mes	1	GL	\$ 3.800.000	US\$950
5	Logistica de Cargue, Transporte de Bogota a Fundacion Niña Maria y descargue	1	GL	\$ 4.160.000	US\$1.040
6	Montaje general del sistema	1	GL	\$ 13.440.000	US\$3.360
7	Puesta en marcha del sistema	1	GL	\$ 5.500.000	US\$1.375
8	Capacitación general sobre operaciones del sistema y gestión general del alcance del proyecto, incluye Manual de Operación	1	GL	\$ 14.286.000	US\$3.572
9	Equipo de laboratorio, incluye turbidimetro, ph metro, colorimetro y turbidimetro	1	GL	\$ 7.705.000	US\$1.926
9	COSTO DIRECTO			\$ 171.705.000	US\$42.926
10	ADMINISTRACION	10%		\$ 17.170.500	US\$4.293
11	IMPREVISTOS	10%		\$ 17.170.500	US\$4.293
12	UTILIDAD	5%		\$ 8.585.250	US\$2.146
13	IVA SOBRE UTILIDAD	19%		\$ 1.631.198	US\$408
14	TOTAL			\$ 216.262.448	US\$54.066

### 1.3. ACOMETIDAS ELECTRICAS

ITEM	DESCRIPCIÓN	CANT	UNIDAD	VALOR EN PESOS	PRECIO US
1	Acometida electrica desde punto de Bomba tipo lapicero en laguna, hasta planta de Tratamiento de Agua Potable (PTAP) = 150 mts	1	GL	\$ 8.400.000	US\$2.100
2	COSTO DIRECTO			\$ 8.400.000	US\$2.100
3	ADMINISTRACION	10%		\$ 840.000	US\$210
4	IMPREVISTOS	10%		\$ 840.000	US\$210
5	UTILIDAD	5%		\$ 420.000	US\$105
6	IVA 19% SOBRE UTILIDAD	19%		\$ 79.800	US\$20
7	TOTAL			\$ 10.579.800	US\$2.645

### 1.4 CONTINGENCIA

1	Costos bancarios y contingencia cambiaria	1	GL	\$ 8.840.000	US\$2.210
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### SUMMARY

We hope to finance the budget of US\$ 74.000 with the contribution of the Rotary Club Bogotá Chico, District 4281 and Rotary Club Quebec-Charlesbourg-Canada, District 7790 and RC Bellevue Breakfast District 5030, with whom we are in conversations, right now, and several other clubs in Colombia, USA and Canada.

## 11. Conclusion:

The establishment of a Potable water treatment plant at Fundación Niña María will significantly improve health and environmental outcomes for the residents and community. It will provide a sustainable, long-term solution for having drinking water, ensuring a safer and healthier living environment.