

## **PROJECT: WASTE PICKERS ACQUISITION AND DISTRIBUTION OF CLAY FILTERS**



### **1. OVERVIEW OF THE PROJECT AND HISTORICAL**

This Project is a part of a multidisciplinary Project of the University of Brasília supported by the Rotary Club of Taguatinga, since 2007.

The Project was designed to evaluate and address health, social, and economic issues for recyclable waste pickers and their families in the Estrutural dumping ground near Brasília, the largest dump in Latin America.

The project covers areas such as Water Surveillance, Environmental Education in Health, Worker's Health, Environmental Monitoring, Epidemiology and Social Inclusion related to solid waste management.

### **2. PURPOSE**

Acquisition of 1,101 Water, clay and domestic filters to be delivered to the waste pickers' families who live in the City of Estrutural in Brasília – DF.

### **3. OBJECTIVES**

Main objectives of this proposal:

- Work in Rotary focus areas;
- Improve the quality and access to drinking water;
- Reduce levels of waterborne diseases;
- Subsidize decision-making concerns regarding solutions addressed to the UN Sustainable Development Goal 6 - ODS 6 - Clean water and sanitation of the Agenda 2030;
- Enable the filtration and storage of potable drinking water for the local community.

### **4. JUSTIFICATION**

One of the main advantages of using clay filters is the gravity filtration process (where the water from the upper reservoir passes to the lower reservoir through the filter element). This process is one of the most efficient in the elimination of dirt and bacteria, reaching almost 100% efficiency.

The clay filter has several advantages, such as keeping the water cleaner and clearer. Below we separate a list with the main ones:

- Health - It is essential to basic survival and good health.
- Quality - Eliminates up to 99% of the bacteria in the water providing water virtually free of impurities.

- Maintains a pleasant temperature for the consumption, since the exchange of heat (evaporative cooling) with the external space causes you to always have cool fresh water.



## Focus areas this Project supports

Water and Sanitation, Prevention and Treatment of Diseases, and Maternal and Child Health.

## Needs

The Rotary Club of Taguatinga in partnership with the Stop, Think and Disposal Project of the University of Brasilia - UnB, has been working in the areas of Disease Prevention and Treatment, Water Resources and Sanitation and Maternal and Child Health.

Rotary's work begins in communities, each with unique characteristics and needs. Although we operate in many fields, we focus on six areas to maximize the impact we have. Such areas of focus address the most urgent human needs, in which we have a high level of excellence. They are:

- Peace and conflict prevention and resolution
- Prevention and treatment of diseases
- Water resources and sanitation
- Maternal and child health
- Basic education and literacy
- Economic and community development

Since 2007, this partnership with the University of Brasilia - UnB, seeks to bring better conditions in the quality of life of residents of the Estrutural City, especially the families of waste pickers, who suffer, not only with garbage and rubble thrown in any place and the bad smell that emanates from all organic material and dead animals in decomposition, but also, with complete lack of basic sanitation.

The 2010 Brazilian Institute of Geography and Statistics (IBGE) census

showed that only 1% of the population of the Federal District lives without an efficient sewage collection system, but in relation to water supply this coefficient increases a lot, especially in Estrutural City which has a big slum area named Santa Luzia where 7000 people live without sewage and water sanitation. According to the United Nations, ensuring the availability and sustainable management of water and sanitation for all is one of the world's 17 goals to be met by 2030.



According to the World Health Organization (WHO), more than 20,000 people die each year in Brazil due to water contamination. Worldwide, about 1,400 children die daily from illnesses caused by lack of sanitation and clean water.

The residents' association surveyed these residents and realized that many still consumed dirty, unfit drinking water, causing harm to their health, especially to children who were constantly sick. The concern with the water that the population uses is within the public health objectives of health and improvement of quality of life of our people.

## Why Clay Filters

A search has shown that candle filters, which are more like ceramic plaques, are the best at filtering chlorine, pesticides, iron, aluminum, lead (95% retention) and still filter 99% of Cryptosporidiosis, a parasite which causes diseases in the digestive system.

Clay filters are great sources of benefits and are easy to handle and maintain, are not complicated and do not require electricity. They eliminate the need for boiling water or adding chemicals \*.

The Clay Filter has a traditional design and can be used in many places. In addition, the tube offers easy installation, refreshing the water and offering purity and quality without generating higher monthly costs. The quality and efficiency in its water treatment process has already been proven internationally.

Recent US survey results published in The Drinking Water Book stated that a clay water filter had the highest ceramic capacity, and is the most efficient in the world.

## Where will the project be carried out?

### At Estrutural City:

The Estrutural city (a city that arose due to the settlement of individuals working in the handling or collection of solid waste) has an estimated population of 47.2 thousand inhabitants, and has the lowest Human Development Index in Brasília, Federal District. The city "Estrutural" and its environs contains precarious dwellings inhabited by recyclable waste pickers and street dwellers. It is a place of great environmental degradation, with a precarious supply of treated water and limited collection and treatment of sewage. In some areas there is makeshift housing without basic sanitation, with water supply from cisterns subject to contamination, creating precarious conditions of water storage at home. The Community of Santa Luzia (the poorest area) is an expansion of the Structural City.



## Who will benefit from this project?

The city Structural and expansion have an estimated population of 47.2 thousand inhabitants and more than 7 thousand families. Our focus is only 1,101 families of pickers who live in the community of Santa Luzia

## Where does their water come from now?

The community of Santa Luzia has a precarious system of supply and capture of treated water and lacks sewage treatment. Most of them are favelas of irregular housing, with water supply from cisterns subject to contamination, causing unreliable conditions of water storage at home.

The people who live in this community are poor people and do not have the money to buy these filters and have never used them before.

The clay filter is suitable because it is cost-effective enough to purchase, easy to handle and maintain, and does not require an electrical connection or complicated set up.

## Project Sustainability

In 2017 the Stop, Think and Disposal of the University of Brasília - UNB team carried out an epidemiological survey on the health conditions of the 1063 waste pickers who worked in the largest open dump in Latin America and

identified a high prevalence of waterborne diseases in these workers, including dengue, zika, chikungunya- (28.6%), diarrhea (24.09%), worms (11.74%), hepatitis A (1.67%) and leptospirosis (0.68%).

With the acquisition of the Water Filters, it will be possible to enlighten the inhabitants about the importance of good habits in relation to the storage of filters and water. These actions will help local governors and health councils recognize the social and health determinants involved in this process and use data and information to promote public health interventions, linking water issues and health to ensure the provision of safe drinking water and adequate sanitation for all.



This effort will help train the waste collectors, their families and the community to understand the risks they are exposed to and how to change their habits in relation to water filtration and proper storage. Community leaders will continue as local advocates to detect and report the current sanitation, health, and environmental issues at that site.

An American study, with results published in The Water Drinking Book, found that clay water filters with ceramic filtration chamber, used by Brazilians to filter water, have been the most efficient in the world.

On average, a candle filter usually lasts six months. However, to maintain its proper functioning it is necessary to carry out the preventive maintenance, with the cleaning of the candle that must be done with the hands or with a soft sponge, without the use of any type of chemical.

The price of a new one is R \$ 12.00 (US \$ 4.00). Each family that receives the filter will sign a term agreeing to replace the candles for 2 years (buy 3 new candles) and the Rotary Club will help provide replacement candles for scavengers who cannot afford with this cost.

After the filters are delivered, Professor Cruvinel's team would like to monitor the health of these families.

Finally, this project will ensure the availability and sustainable management of drinking water for all.

### Final considerations

We believe this project is interesting because we will engage with other organizations and local / regional governments and the local community in a collaborative effort between entities.


These actions focus on protecting people particularly vulnerable to waterborne diseases, especially residents and collectors of recyclable solid waste living near the landfill site.



The requested items are essential to adequacy of sanitation conditions and purity of the water ingested by the local population, in view of the health and compliance with the quality standards recommended by the filters' manufacturers and sanitary surveillance.

This action is necessary to improve the health of the population that does not have access to the drinking water. Studies have proven that the slow drip clay filtration system functions so that microorganisms do not pass, thus preventing diarrhea and other diseases.

## 5. SPECIFICATION OF THE OBJECT

AMOUNT	DESCRIPTION	IMAGE	WEBSITE
1.000	Filter for water - clay, domestic with cover, candle and faucet, divided into 02 compartments, and capacity for 4 liters, packaged in carton or carton to be transported safely. 01 year minimum warranty. Certification of Inmetro NBR 15176: 2004		<a href="https://www.leroymerlin.com.br/filtro-de-barro-4l-azul-sao-joao-advance-ceramica-stefani-86989483">https://www.leroymerlin.com.br/filtro-de-barro-4l-azul-sao-joao-advance-ceramica-stefani-86989483</a>

## 5. CUSTOS DO OBJETO

AMOUNT	DESCRIPTION	PRICE per UNIT R\$	TOTAL R\$	PRICE US\$ (Ref.3,87)
1.101	Filter for water - clay, domestic with cover, candle and faucet, divided into 02 compartments, and capacity for 4 liters,	108,90	119.898.90	31,000.00



	packaged in carton or carton to be transported safely. 01 year minimum warranty. Certification of Inmetro NBR 15176: 2004			
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## 6. SUPPLY

6.1. The company must supply the product as requested and within a maximum of twenty (20) days from the date of receipt of payment.

6.2 - The place of delivery, in the Galpão of the Cooperative of Catadores da Estrutural.

## 7. DELIVERY AND TRAINING

The selection of the beneficiaries is carried out by the Cooperative of Collectors of the Structural, through the register of the families that live in greater index of social vulnerability, with the inspection and support of the Rotary Club of Taguatinga.

The filters will be distributed in the Regional Administration of Estrutural in 5 days (Delivery of 200 filters per day). The local Rotary Club will distribute the filters supervised by the Association of Collectors and by the team of UnB Project.

The training on: Health care, filter importance, cleaning and maintenance will be carried out by the students of the University of Brasilia on the same days of delivery of the filters and coordinated by Professor Vanessa Cruvinel.

Taguatinga, april 30th 2019.

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President Gustavo Serra  
Rotary Clubede Taguatinga