Used Cooking Oil Campaign Experience in São Bernardo do Campo City: Guinness World Record and Sustainable Development

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EXECUTIVE SUMMARY

Faced with the objective of carrying out environmental education campaigns and arousing the attention of Sao Bernardo do Campo's residents to the correct disposal of used cooking oil, in 2019 a cooperation agreement between the Municipality of Sao Bernardo do Campo and the Triangulo Institute aiming at recycling used cooking oil was signed. The collection execution began with the installation of the used cooking oil voluntary delivery points. Before the installation, the awareness and training of the team involved in the receiving activity was carried out; in addition, it is important after the collection to pack, transport, and dispose of the oil.

I - SAO BERNARDO DO CAMPO, TERRITORY OF CONSERVATION AREAS AND WATER RESERVOIR

The municipality of Sao Bernardo do Campo (in the State of Sao Paulo, Brazil), with a population of around 850,000 is located in the Sao Paulo City metropolitan area. It is known for all the historical tradition of furniture industry and as the *city of the automobile*, it also holds more diversity than we imagine.

With a territory of 408.45 km² (157.70 sq mi), it has one of the largest Atlantic Forest reserves in Brazil, with 118.21 km² (45,64 sq mi) in urban areas, 214.42 km² (82,79 sq mi) in rural areas, in addition to having 75.82 km² (29,27 sq mi) belonging to the *Billings* Reservoir.

The environment in its territory is very significant, since 53.7% of its territory is considered as springs protection area. Close to *Serra do Mar* Mountain Range with original Atlantic Forest vegetation and, on the banks of the reservoir, low and sparse scrub.

The municipality has 43% of its territory covered by native forests that are present in parks and in smaller areas that we call vegetation fragments. These fragments are essential for the conservation of biodiversity in the region and occupy a significant area that, integrated to the *Serra do Mar* State Park, makes up part of the Sao Paulo Green Belt Biosphere Reserve and the Atlantic Forest Biosphere Reserve (EMPRESA BRASILEIRA DE PESQUISA AGROPECUÁRIA MINISTÉRIO DA AGRICULTURA, PECUÁRIA E ABASTECIMENTO, 2021).

Among all the environmental resources, so important for guaranteeing life and development, it is essential to highlight water, because without it we cannot survive. As mentioned before, in Sao Bernardo do Campo is located most of the *Billings* Reservoir, with 75.82 km² (29,27 sq mi) within the municipality, responsible for providing water for public supply in the municipalities of *Grande* ABC (composed by 7 municipalities with around 2.5 million people) and part of Sao Paulo City, transferring water to the *Guarapiranga* Reservoir and to the system of Upper Tiete River.

The *Billings* Dam, was built in the 1920s and it began its operations in 1926, to increase the capacity to produce electricity. Given the importance of the reservoir and the concern to protect it, in 2009 State Law no. 13,579, known as the Specific *Billings* Law, was passed. This law determines areas for environmental protection and aims to guarantee the existence of vegetation that protects the rivers and the dam from pollution, as well as providing areas that can be occupied by meeting reservoir conservation criteria.

The biggest reason for water quality degradation is caused by untreated sewage disposal, but it is not the only one. Industrial and domestic effluents are also sources of pollution if not treated and disposed correctly.

II- USED COOKING OIL DISCARD

According to *Oil World*, Brazil produces about 9 billion liters (2.4 billion gallons) of vegetable oils per year. Of this volume, about 1/3 are edible oils. Per capita consumption is around 20 liters (5.3 gallons) per year, which results in a production of 3 billion liters (0.8 billion gallons) of oil per year in the country.

If we take into account the amount of used vegetable oils collected in Brazil, we have less than 1% of the total produced, about 6.5 million liters (1.7 million gallons) of used oils. What about the rest? More than 200 million liters (53 million gallons) of used oil per month goes into rivers and lakes, compromising the environment of today and the future.

Today, oil is the major polluter of fresh and salt water in the densely populated regions of Brazil. Noting the generation of a significant amount of waste from used cooking oil, which when discarded inappropriately contaminates soil, water, and causes public health problems, due to environmental pollution (COMPANHIA AMBIENTAL DO ESTADO DE SÃO PAULO, 2021).

In other words, the oil discarded for example in the kitchen sink, ends up clogging the pipes and demanding chemical products for removal. If the sewage is not well treated, the oil can spread through rivers, settling on the surface and disrupting gas exchange, affecting the entire ecosystem. To give an

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