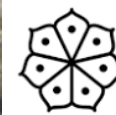




In 2015, the World Health Organization estimated that still 2.3 billion people did not have access to basic sanitation facilities. The lack of wastewater confinement and treatment are sources of disease propagations (as diarrhoea, cholera, and dysentery) which are themselves development inhibition factors. Sistema.bio has developed a sustainable anaerobic digester technology to sanitize and create valuable products. Sistema.bio is offering high-quality biodigesters, - easiness of installation & operation and affordability. This technology has been piloted and implemented under different scenarios to offer centralized and household sanitation solutions, providing energy and biofertilizer.

Centralized sanitation solution for a community center in Mexico City



Roma Verde
Espacio comunitario

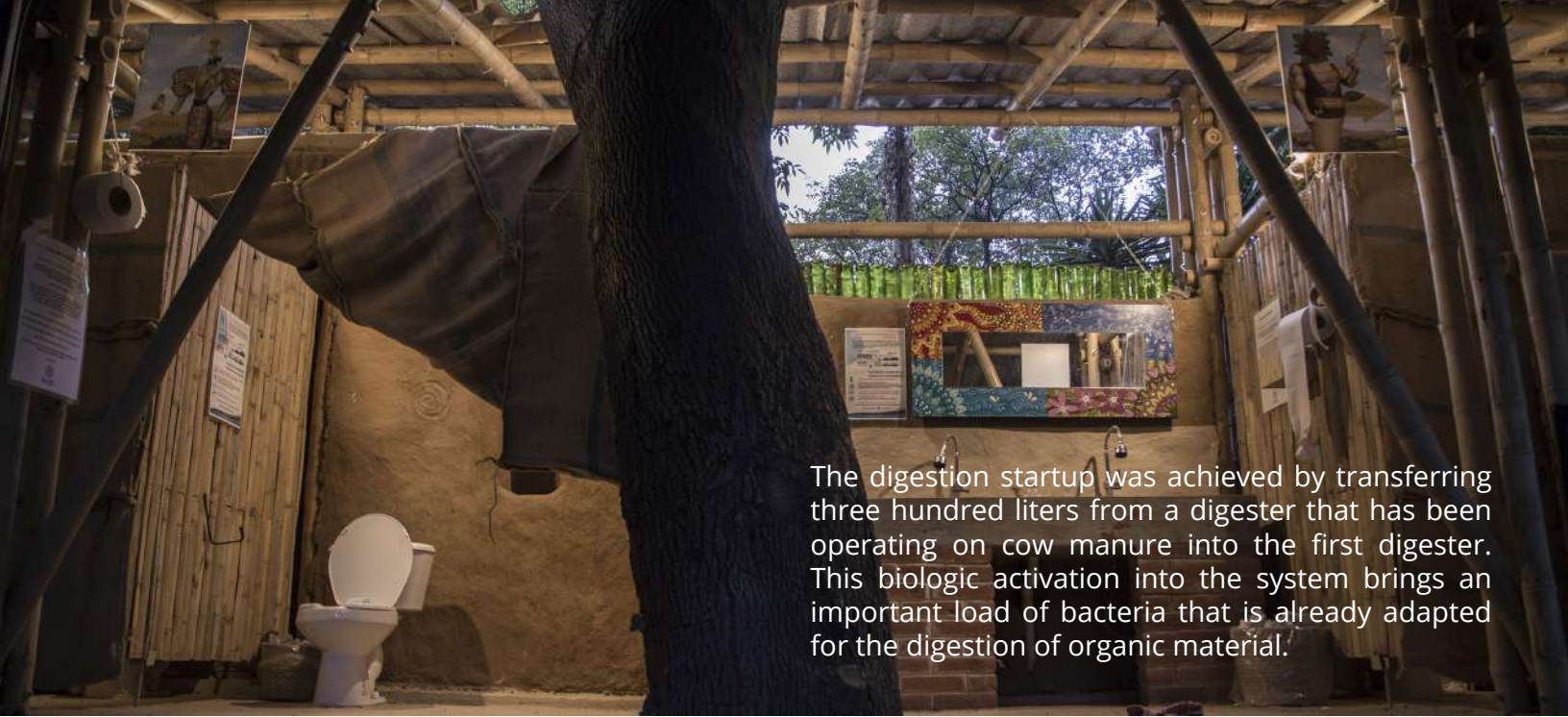
The **Huerto Roma Verde (HRV)** is a community center in Mexico City that promotes an urban sustainable model through ecotechnologies and community projects. The proposed events and activities generate a lot of interest in the city, leading to approximately 4000 visitors per week. In October 2016, the HRV and Sistema.bio worked together to implement a solution that allows to:

- Treat the wastewater generated by approximately 500 visitors per week.
- Transform the organic matter into biogas, presenting a high calorific value.
- Generate a liquid with a high nutritive value and reduced pathogen content to be used locally as a fertilizer.

The sanitary block of the community center

presents six sitting flush toilets and two urinals. Its discharge goes to a register before going to a first longitudinal anaerobic digester presenting a liquid capacity of six cubic meters. Then, the wastewater flows to a second digester of sixteen cubic meters and is then discharged to three open tanks. A pump recirculates the water from the last tank to the first one while air is being injected into different tank sections. The water from the sink of the sanitary block goes to a grease trap and then directly to the first open tank inlet. The third open tank presents an overflow where the water is spread over a gravel bed. The biogas is used for a double burner cookstove to heat water or cook meals. The easiness of installation allowed to install the full system within three working days.





The digestion startup was achieved by transferring three hundred liters from a digester that has been operating on cow manure into the first digester. This biologic activation into the system brings an important load of bacteria that is already adapted for the digestion of organic material.

The effluent recirculation and aeration in the three post treatment ponds allows a further pathogen reduction and to eradicate the odor generation from the effluent. The overall pathogen treatment was assessed through E.Coli analysis and showed an overall reduction of 91% (calculation based on inlet analysis that was over counting limit) and the absence of Helminth eggs in the effluent water. The installation achieves an overall removal of 80% of volatile solids.

The installation has been consistently producing biogas since its startup with a production that has been estimated at 0.40 Nm³ per day. The biogas analysis showed that the produced gas was of high quality with 75% of methane content, which represents an increase of 25% of the calorific value compared to the biogas produced by digesters running on cow manure

This pilot project has proven that Sistema.bio's technology is a good centralized sanitation solution for communities, offering a quick and easy installation and a very low operative cost. By providing Sistema.bio digesters to populations, we give access to a sustainable technology and offer decent sanitation conditions in addition to the extra benefits of biogas and fertilizer.



Roma Verde
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www.sistema.bio

Projects numbers



500

visitors using the bathroom every week



1700 L

of wastewater treated weekly



1.7 m

of liquid biofertilizer produced every week of high NPK content

1h

of cooking daily provided for the community center



530 kg

of firewood equivalent replaced by biogas per year

925 kg

of CO₂e mitigated