

# SUSTAINABLE TREATMENT OF MEDICAL WASTES USING LANDFILL GAS

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# Characteristics of the Project

- Full-scale project
- Biocell, boiler and hydroclave
- Powered by landfill gas (LFG)
- Sterilizes medical wastes
- Located in Argentina
- Funded by CCCDF and several partners
- Community-based component

- The sterilization system is completed and was inaugurated in November/2003
- The 1<sup>st</sup> biocell is completed
- The 2<sup>nd</sup> biocell is under construction
- Technology is been transferred

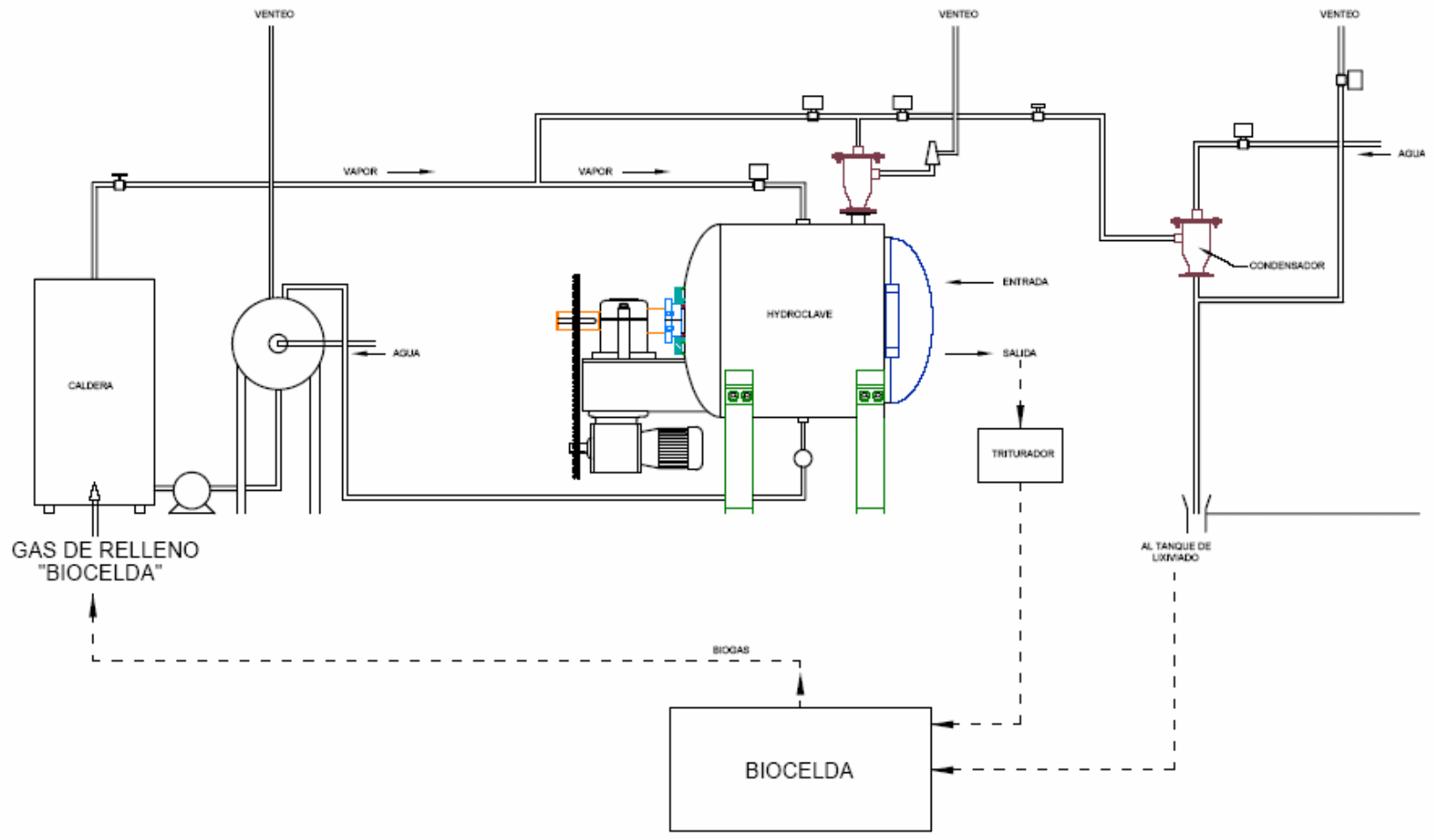


# General Process Description

- Biogases generated from a biocell containing municipal solid waste is collected and piped to a boiler
- The boiler is powered by the biogas and generating low-pressure steam
- The steam is piped to the hydroclave
- The hydroclave indirectly heats and sterilizes the medical waste
- A bioindicator certifies the effectiveness of each 'batch'

# Flowchart Schematic

BIOCELDA-HYDROCLAVE  
ESQUEMA



- Biocell: 30 x 30 metres; 6,000 tonnes of MSW
- Total biogas generation: 90 ft<sup>3</sup>/min
- Biogas diverted to the boiler: 20 ft<sup>3</sup>/min
- The remaining 70 ft<sup>3</sup>/min is flared
- Each 'batch' sterilizes 68 Kg of medical wastes
- Each cycle: 60 min
- Temperature: 121 °C
- Pressure: 15 lb/in<sup>2</sup>

# Photographs



Photo 1 - Energy Cell, Landfill Gas Pipes and Flare

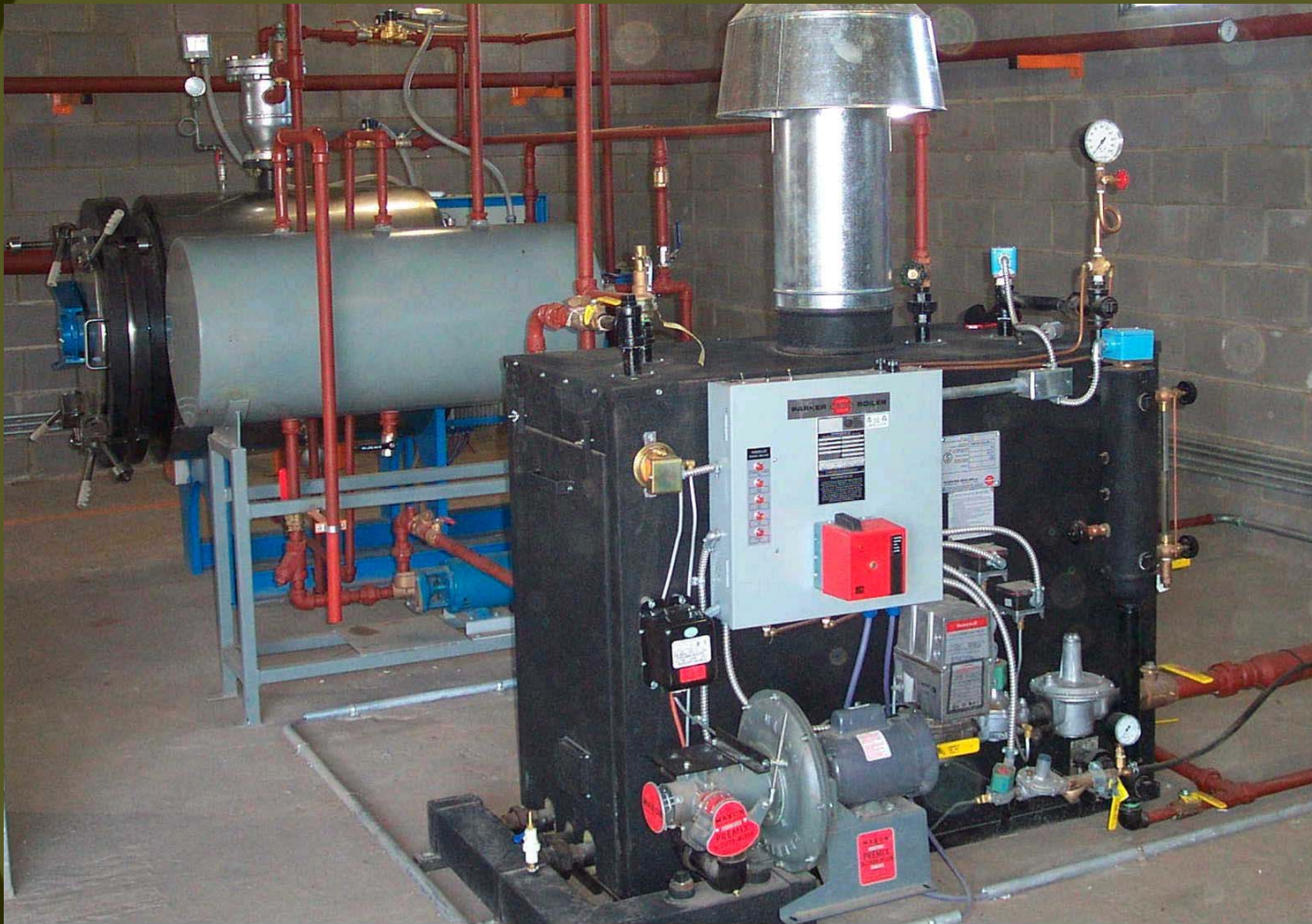
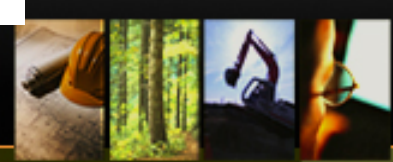
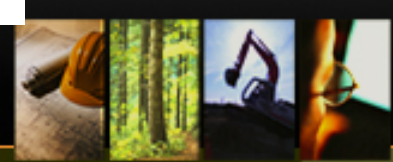


Photo 2 - Hydroclave (left hand side), Water Tank and Boiler





# Advantages

- Environmental, economic, and social benefits
- Successful integration of waste-to-energy project to a medical waste treatment facility
- Capacity building and technology exchange
- Release of methane on the atmosphere is prevented, contributing toward decreased global warming impacts
- Electrical power use is minimized
- Reduced health hazard, preventing direct contact of waste pickers with the municipal solid waste
- Transfer of Canadian expertise

