

## **RioAzul biothermal project**

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### **Location of the project**

The project is developed in Rio Azul land field site, the largest waste deposit in the country.

### **Background**

The sanitary landfill of Rio Azul started operations in 1973. Since then, 4 million metric tons of solid residues have been deposited there. During an important part of the operation period (more than 60%) of the placement of residues was done without any type of technical criteria, without respirators for the biogas produced and without treatments for the lixiviates generated.

Currently, the landfill is in the process of closing down and it has a passive ventilation system, and conduction of lixiviates. For this reason it is necessary to create the structures (in general it deals with active extraction wells) which allow the outflow of these gases, and a safe disposition, these will later be used for the extraction of the biogas until they reach the generation plant.

The generation of electricity through the combustion of methane, in internal combustion engines, is profiled as an option which also allows to provide an adequate maintenance of the park being created in the Sanitary Landfill of Rio Azul.

### **Project Proposed**

The technical proposal of the development, proposes mitigation works using methane as fuel, to minimize the environmental impact caused by the wastes from the Sanitary Landfill of Rio Azul. It is estimated that the Sanitary Landfill Rio Azul may generate up to 5000 kilowatts of electricity for a sustained period, reducing at the same time the danger implied in the migration of accumulated methane.

The project is located within the area of the Sanitary Landfill Rio Azul, which has an extension of approximately 45 hectares.

This Landfill constitutes a source of supply of biogas for the project. The project will take advantage of the biogas of the landfill, as well as the existing works for the conduction of lixiviates and draw holes and roads.

### **The project has:**

**A gas recollection system:** constituted by a combination of deep wells, the lateral and main head pipe to transport gas, blowers to create a vacuum in the sanitary landfill, refrigeration and filtration equipment to remove the humidity and the gas particles.

**Operation Plant.** Has 2 to 3 motor/generator units, modular type placed on a steel covers. The minimum outflow expected for each generator may be 750 kilowatts.

**Electricity Distribution System.**

Gas monitoring drills.

**Monitoring System.** The lixiviates and the water quality, in 4 sites of Rio Azul, with a quarterly sampling system (responsibility of the Executing Unit of the Landfill). All the works for the management of the lixiviates and rainfall are under construction and are a responsibility of the Executing Unit of Technical Closing of the Sanitary Landfill Rio Azul.

Operation and maintenance of the Generation Plant. These activities would be done by the successful bidding company, under the contractual guidelines of mutual agreement, resulting from this contracting process.

Operation and maintenance of the Sanitary Landfill. The technical closing and the management of lixiviates and rainfall is responsibility of the Executing Unit of the Landfill, they have to manage and operate:

A retention and oxidation pond combined with lixiviates and rainfall.

Channel system, pipes and drainages, installed by the current operator of the landfill (responsibility of the Executing Unit of the Landfill).

**Other characteristics**

The technical development proposal, proposes mitigation works using methane gas as fuel, to minimize the environmental and social impact caused by the wastes of the Sanitary Landfill Rio Azul.

**Status of the project**

A public tender process related to develop the project under a BOO contract including a PPA is finish now and a contractor will star the construction in july 2001. Perharps the greenhouse gases reduction related the energy egeneration burning methane is already propose to the Prototipe Carbon Fund in order to sale the CRES.

**TOTAL ESTIMATED COST: Investment: US\$ 3.7 mill**

**Energy Production: 25 Gwhr per year**

**Project scheme : BOT**