



Mathematical modeling of the joint production of leachate and biogas from municipal waste landfills. Application to the Tlalnepantla landfill (Mexico)

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Groundwater and soil quality can be strongly affected by leachate spills coming from municipal solid waste (MSW) landfills. Leachate production is a physical process linked with biogas production, being this one of the main sources of greenhouse gas emissions to the atmosphere.

BIOLEACH model, developed at IIAMA-UPV, allows for the joint prediction of leachate and biogas under known management and climate conditions.

This work shows the results obtained when applying the BIOLEACH model to estimate the leachate and biogas productions on the Tlalnepantla landfill under several scenarios. The Tlalnepantla landfill is one of the largest landfills in Mexico and receives an important mass of untreated municipal waste from the City of Mexico.

Results show the applicability of BIOLEACH to be used as a management tool on the daily operations of the landfill, minimising the leachate volume stored in the pool while ensuring optimal conditions on the MSW mass to produce maximum volume of biogas and, therefore, minimising the environmental impacts caused by the gas emissions to the atmosphere.