



BIOLEACH: Coupled modeling of leachate and biogas production on solid waste landfills

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One of the most important factors to address when performing the environmental impact assessment of urban solid waste landfills is to evaluate the leachate production. Leachate management (collection and treatment) is also one of the most relevant economical aspects to take into account during the landfill life.

Leachate is formed as a solution of biological and chemical components during operational and post-operational phases on urban solid waste landfills as a combination of different processes that involve water gains and losses inside the solid waste mass.

Infiltration of external water coming from precipitation is the most important component on this water balance. However, anaerobic waste decomposition and biogas formation processes play also a role on the balance as water-consuming processes. The production of leachate and biogas is therefore a coupled process.

Biogas production models usually consider optimal conditions of water content on the solid waste mass. However, real conditions during the operational phase of the landfill may greatly differ from these optimal conditions.

In this work, the first results obtained to predict both the leachate and the biogas production as a single coupled phenomenon on real solid waste landfills are shown.

The model is applied on a synthetic case considering typical climatological conditions of Mediterranean catchments.