



*Life Cycle Inventory of the most representative municipal wastewater treatment technologies of Latin-America and the Caribbean.
XIVth IWRA World Water Congress.*

Porto de Galinhas, Brasil, Septiembre 2011

Leonor Patricia Güereca, Adba Musharrafie, Edgar Martínez, Flor Hernández, Alejandro Padilla, Liliana Romero-Casallas, Margarita Cisneros-Ortiz, J. M. Morgan-Sagastume, Adalberto Noyola.

Instituto de Ingeniería, Universidad Nacional Autónoma de México, UNAM

Abstract

In Latin America and the Caribbean, normally, the wastewater is discharged with a partial treatment or without treatment to the water bodies, generating important pollution and health problems. The proposed conventional solution is the treatment of wastewater prior to its discharge, reducing the associated environmental impacts. However, wastewater treatment technologies generate collateral environmental impacts associated with the use of resources and energy, and the production of emissions and biosolids.

According to this, the selection of wastewater systems is a key issue in the environmentally responsible making-decision process. It is necessary to select the environmentally best technological options for wastewater treatment addressing the problem with a holistic approach; taking into account all the vectors involved (water, air, soil), all relevant environmental impact categories (global warming, eutrophication, ozone layer depletion, photo-oxidant formation and toxicity, among others) and a broad time framework. This can be achieved with the Life Cycle Assessment, which is a comprehensive methodology that consists of the following steps: 1) defining goal and scope, 2) generation of life cycle inventory, 3) impact assessment and 4) interpretation. This paper presents a preliminary Life Cycle Inventory for wastewater treatment systems in Latin America and the Caribbean. The compendium of air emissions, water discharges and waste were calculated with the use of a computational tool (simulator) designed specifically for this project and, in some cases, complemented with direct information from wastewater treatment plants.