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Typology of Municipal Wastewater Treatment Technologies in Latin America

Abstract

This paper presents an analysis of the wastewater treatment plants in six Latin American and Caribbean countries. Based on a sample of 2734 municipal treatment facilities, the applied processes are classified by sizes (influent flow) and type of technologies. The distribution of the technologies is also presented for each of the six countries. In addition, a representative municipal wastewater characterization, based on influent data from 174 treatment plants, is proposed. Results show that stabilization ponds, activated sludge, and the upflow anaerobic sludge blanket reactors represent 80% of the treatment facilities of the sample, providing treatment to 81% of the total flow considered. Moreover, 67% of the plants in the sample are small (flow <25 L/s) and the very small facilities (influent flow <5 L/s) are extensively applied in the region (34% of the sample), especially in Mexico and Brazil. The use of very small treatment plants may result in low energy efficiency systems and on possible incompliance of the discharge standards. This common practice in several countries in Latin America should be revised in order to improve the environmental performance of such facilities.

Keywords: Energy consumption; Operational costs; Small wastewater treatment plants; Wastewater characterization; Wastewater infrastructure

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