

Abstract of Presentation

Presentation Title:

India-Japan International Collaboration for an Innovative Sewage Treatment Technology with Cost-effective and Minimum-energy Requirement

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Abstract:

A cost-effective and minimum-energy required sewage treatment system for developing countries, which consists of UASB reactor and DHS (Down-flow Hanging Sponge) reactor was originally proposed in 1996 by H. Harada's research group of Nagaoka University of Technology, Japan. Demonstration scale DHS plant with a treatment capacity of 500 m³ per day (equivalent to 3,600 population) was constructed in India under Yamuna Action Plan in 2002, and since then has been in operation over six years by India-Japan collaboration to treat an existing practical-scale UASB plant effluent. The UASB/DHS combined system achieved 96 % and 91 %, respectively for unfiltered BOD removal and unfiltered COD removal throughout non-stop continuous operation of 1800 days.

Moreover, the system exhibited satisfactory performance in terms of pathogen removal and nitrification. The UASB/DHS combined system is proved a promising self-sustainable sewage treatment technology for developing region, since it has distinctive advantages such as no need of external forced aeration, low maintenance and less excess sludge production and compactness (less land requirement).