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Abstract Book

SUPPORTING OWSSB (INDIA) IN UPGRADING CAPACITIES IN WASTEWATER AND FAECAL SLUDGE MANAGEMENT

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POLITO

This work is a presentation of the project called "Supporting OWSSB (India) in upgrading Capacities in Wastewater and faecal Sludge Management (SO-WOP)". The project is funded by the United Nations Human Settlements Programme. The water operator partnership (WOP) aims to improve the capacity of the mentee, OWSSB, to effectively manage wastewater and septage, improve wastewater treatment, introduce low-cost technologies, perform pilot interventions, and explore reuse options for treated wastewater and sludge. The WOP adopts the "capacity development approach" as the basis for cooperation. The technical activity has been focusing on a benchmark case study, i.e. the faecal sludge treatment plant (FSTP) in Jatni, Odisha. This FSTP has a treatment capacity of 20,000 l/d. The process is based on the following sections: anaerobic baffled reactor, constructed wetland, aeration pond, sludge solar drying beds. Technical assessment of Jatni SeTP is going on from 2022. Two field visits (held in November 2022 and May 2024) helped in the technical and cultural exchange among parterns. The work focused on the improvement of the treatment process in view of possible water and sludge reuse options. The activities completed so far included data collection, calculation of the hydraulic balance, and characterization of the faecal sludge quality throughout the whole process. Regarding treated water, the focus was addressed to nutrients removal. Two low-cost solutions were evaluated: the first is process modifications, e.g. the introduction of water recirculation to improve nitrification; the second is the introduction of an additional filtering stage for ammonium adsorption. Experimental measurements were conducted in our laboratories to design the filtering stage. Zeolites and biochar were evaluated as possible filtering materials. The application of the above innovations in Jatni FSTP will certainly improve the quality of treated water. Partnership is presently going on and it will end in 2024.

GO TO INDEX