

Conference Proceedings Abstract

**FROM WASTE TO RESOURCE - RESEARCH ON FS DRYING BEDS IN DAKAR, SENEGAL
(DAR - DE DECHETS À RESSOURCES)**

S. Niang*, A. Gueye, A. Seck**, H. Dione**, M. Sonko**, J.B. Gning**, M. Mbéguéré***, L. Strande******

* Laboratory of Wastewater Treatment, IFAN Ch.A.Diop, University Cheikh Anta Diop, Dakar/Sandec

** ISE, University Cheikh Anta Diop/Sandec

*** ONAS, Dakar

**** Eawag: Swiss Federal Institute of Aquatic Science and Technology, Sandec: Department of Water and Sanitation in Developing Countries, Dübendorf, Switzerland

Abstract

Onsite sanitation systems are used by 65-100% of residents in urban areas of low-income countries, and can provide a sustainable option for achieving complete sanitation coverage over the coming decades. However, managing the faecal sludge from these systems is a critical link in the service chain. In Senegal, to reach the millennium development goals in 2015 for sanitation, targets are to achieve 92 000 connections to sewerage systems and an additional 453 000 onsite systems in both rural and urban areas. Achieving this goal will also greatly increase the volume of sludge that needs to be managed. To ensure these goals are sustainably implemented, plans for sludge enduse or disposal must be undertaken long before the systems become operational. Current strategies that are being researched in Dakar by the DAR research programme include the use of sludge as a fuel in industry, and as a medium to grow fodder plants. Creating added value during treatment processes are expected to help reduce the cost of emptying, transport, and treatment, providing a financial driver to help ensure that the entire faecal sludge service chain is functioning. Initial results from using locally built ventilated greenhouses to enhance drying are promising. Over 14 days, in drying beds covered with greenhouses, 60% dryness was achieved for a load of 300 kgTS/m²/Y loads, while during the same time, non-covered beds reached only 40% dryness. Current trials for growing fodder with faecal sludge have been focused on the optimal selection of local plants. Seven plants that are commonly used for fodder in Senegal were submitted to 12m³/m²/Y of raw faecal sludge. Five of them grew well; *Echinochloa pyramidalis*, *Echinochloa crus-galli*, *Paspalidium geminatum*, *Echinochloa Colona*, *Paspalum vaginatu*, while two of them; *Imperata cylindrica*, *Eleusine indica* did not grow well at all. Currently, tests are being conducted to select three species that show the most potential for use in planted drying beds, and then to further optimize this application.