

Wastewater treatment for hotels and hospitals

Hotels and hospitals, as highly frequented institutions, play very different roles in society but have to deal with similar specific requirements concerning the adequate treatment of wastewater.

These include:

- a high fluctuation of people there-fore a usually high but unsteady wastewater load
- aesthetic and space-saving requirements
- compliance to environmental standards
- neighbourhood complaints.

In addition hospitals face the problem of how to deal with contaminated or toxic wastewater produced during normal everyday working procedures.

There are generally two main problems with common wastewater treatment technology such as centralized city sewerage systems:

- 1) high capital costs of investment and operation
- 2) natural resource-intensity (uses water to flush, convey, and dispose before and after treatment).

BORDA BNS Networks Mission

The mission of BORDA (Bremen Overseas Research and Development Association), and its Basic Needs Services (BNS) Partner Network, is to improve the livelihoods of disadvantaged groups within societies and to sustain the functioning of eco-systems through dissemination of demand-oriented BNS. BORDA and its network develop and disseminate innovative solutions to facilitate access to BNS.

DEWATS for Hotels & Hospitals

DEWATS HoSan aims to provide an affordable, efficient solution to the wastewater treatment requirements of hotels and hospitals by offering:

- efficient performance
- non-dependence on energy (most of the time a natural ground slope is sufficient)
- reliability and longevity
- tolerance to inflow fluctuation and peak loads
- minimal maintenance
- odourless operation
- flexible area requirements (underground construction)
- possibility of combination with special treatment systems for liquid waste from departments generating highly infectious, radioactive and chemical pollutants
- easy implementation.



**An adequate, integrable and
cost-effective wastewater
treatment solution for
hotels and hospitals**

HoSan |
DEWATS Service Package

Developed and disseminated by
BORDA & BORDA BNS Network

DEWATS HoSan as an affordable, aesthetically pleasing and adaptable wastewater treatment solution

Implementation steps of HoSan

HoSan implementation includes several steps that allow complete and locally adapted planning, installation and operation of the wastewater treatment plant:

- identification of wastewater characteristics, source and quantity
- evaluation of existing sanitary and wastewater infrastructure
- feasibility analysis of wastewater segregation at source
- elaboration of feasible concepts
- selection of suitable location
- preliminary estimates
- detailed design



Baffled Reactor of a large DEWATS plant next to a hospital's patient accommodation.

- construction
- operation and maintenance training
- monitoring and warranty

HoSan Benefits

DEWATS HoSan provides the following benefits:

- **aesthetic design** of the treatment plant including **integration** into the surroundings (garden, water forms)
- **cost efficiency** due to low installation and maintenance costs
- **little or no energy supply** required
- **on-site treatment** of wastewater that meets **legal regulations**
- **reduction of environmental pollution** by superseding open drainage
- **meets patients', guests' and neighbours' demands**
- **easy operation and maintenance** by local, trained staff
- **efficient management** of natural resources
- **reduction of pathogens** with integrated disinfection unit if required
- **planning, financing, implementation** and management of the project with participation of all stakeholders
- **demand-oriented approach and reconciliation** of all participants' interests
- use of **local materials** and employment of **local craftsmen** combined with optional pre-fab modules.

Digitally designed DEWATS plant including Planted Gravel Filter (PGF)

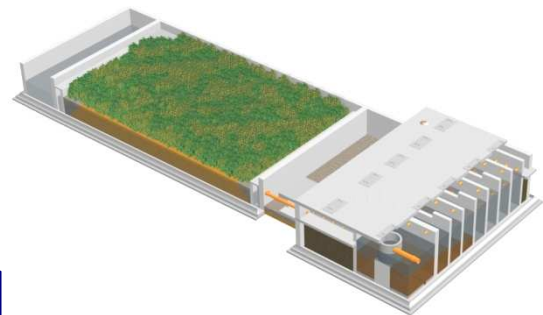
Additional benefits

Another highlight of the DEWATS system is the possibility of re-using by-products which occur during the treatment process. These include:

- **biogas** which can be used for cooking or lighting purposes
- **sludge** which can be used as fertilizer for agriculture
- **treated water** which can be used for irrigation and for creating aesthetically pleasing water features (e.g. ponds), which support treatment processes.

HoSan – a proven solution

BORDA and its BNS Partner Network have provided Basic Need Services for about 30 years. The implementation of more than 900 sustainable operating DEWATS plants offers proof of its efficiency. These include multiple HoSan projects that have been successfully completed in India, Indonesia, Vietnam, Cambodia, Lesotho and other project regions.



BNS Partner Network in SADC Region



University of Kwazulu Natal
(Pollution Research)
South Africa



Environmental Engineering and Pollution Control Organization Tanzania



Water and Sanitation Association of Zambia, Zambia



Technologies for Economic Development Lesotho

DEWATS Service Packages

- School Based Sanitation
- Community Based Sanitation
- Emergency Sanitation
- Sanitation for Hospitals & Hotels
- Wastewater Treatment for Agro-Industry
- Sanitation for Prisons
- Sanitation for Real Estate
- Sanitation Mapping
- Municipal Sludge Treatment Plant
- Health Impact Assessment & Hygiene Education
- Capacity Development
- Research & Development



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