

# RESan | Sanitation for Institutions, Real Estate and Households

## Poor sewerage for residential areas

Densely populated urban areas, institutions, individual houses, residential enclaves and apartment blocks are confronted with particular challenges related to wastewater collection and treatment. These include:

- o Legal requirements for wastewater treatment.
- o No opportunity to connect to a centralized sewer system.
- o Space constraints on installing new wastewater treatment systems.
- o Underground infiltration through soak-away does not work.
- o Over-flowing of the septic system during rain seasons.
- o Lack of adequate technologies and knowledge.

As a result, most urban real estate with on-site facilities has only a small septic tank for each household. In the majority of cases this solution does not meet governmental guidelines on wastewater effluent.

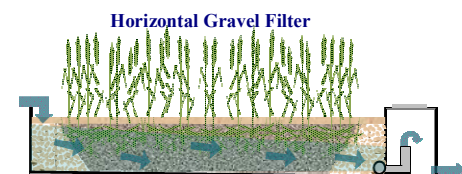
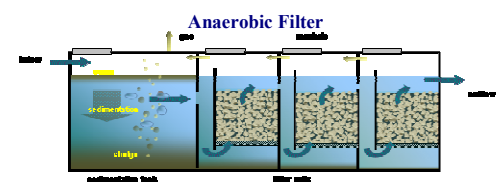
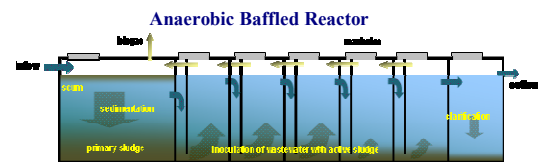
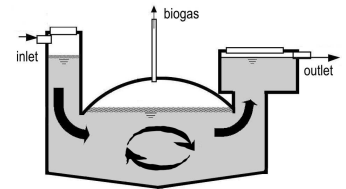
The effluent from insufficient or faulty septic tanks contaminates groundwater or even bore wells that are used for household water supply. In other cases wastewater is not treated at all, but discharged directly into an open drain or river. This practise leads to high environmental pollution rates that affect local neighbourhoods.

## Borda BNS Network Mission

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

## DEWATS Service Packages

One BNS is DEWATS, an effective, efficient, affordable and proven wastewater treatment solution for subtropical and tropical regions and low-income countries. DEWATS stands for "Decentralized Wastewater Treatment Solutions", but it is much more than just a technical approach. DEWATS Service Packages include not simply the design and construction of hardware but a whole set of integrated social and technical interventions which are combined according to demand. DEWATS RESan (Sanitation for Real Estate) is one of these Service Packages that aims to overcome real estate sanitation problems.



**A powerful solution to overcoming sanitation problems and improving environmental health**

RESan |  
DEWATS Service Package

Developed and disseminated by  
BORDA & BORDA BNS Network

# On-site wastewater management gives independence from public sewer service and stimulates local job-creation and cost saving

## DEWATS for Real Estate

RESan is an affordable solution to fill gaps in urban wastewater treatment services for individual houses, residential enclaves and apartment blocks of every income-level. With regard to legal regulations and space constraints, an on-site underground wastewater treatment plant (DEWATS) provides state-of-the-art-technology when constructed and installed. The design and capacity of the system are adaptable according to demand. A DEWATS can be applied to both new constructions and existing real estate structures. The interests of all stakeholders are reconciled throughout the whole implementation process. Routine operation and maintenance, to ensure the sustainability of the plant, can be done by trained local staff.

## Key RESan features

In order to combat the impact of poor sanitation in real estate, in particular groundwater pollution and pollution loads due to insufficient treated surface run-off, the following measures are taken during RESan implementation:

- Technical solutions for single houses up to 200 houses.
- **Design** of a system that is most beneficial to users while using locally available materials or prefabricated modules.

- Optional biogas for cooking and re-use of treated wastewater for irrigation.
- No energy or chemicals require.
- Proper **Operation and Maintenance Training** for local staff (e.g. maintenance department, gardener).
- Optional (for existing housing complexes): **Health Impact Assessment and Hygiene Education (HIA&HE)** for evaluation and educational purposes.

## Resulting benefits

The listed features of RESan, which are coordinated by BORDA's regional offices and implemented with local BORDA BNS Partner Organizations, provide a multiplicity of benefits:

- One custom-designed **treatment plant replaces** hundreds of **septic tanks**, which can significantly reduce costs.
- **On-site treatment** of wastewater that meets **legal regulations** and standard disposal criteria set by pollution control authorities.
- **Reduction of health risks** for real estate inhabitants and their neighbourhoods by **avoiding contamination of groundwater, bore wells and open water sources.**

- **Space efficiency:** the surface of the anaerobic units can be used for other purposes (e.g. playground), the aerobic parts can be aesthetically incorporated into local surroundings (e.g. gardens, water forms)
- **Cost efficiency** because piping to the central sewer system is avoided, no or little energy supply is needed and treatment by-products can be re-used.

## Implementation costs & duration

DEWATS RESan implementation costs are dependent on:

- Design & concept
- Number of connected households
- Prices of local building materials
- Reuse requirements

There are only a few required major maintenance tasks (e.g. desludging every two-three years) that can be outsourced to professional organizations. Compulsory effluent monitoring is carried out during the start-up phase and can be done whenever there is an assumption that the system is not working correctly.

**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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