

EXISTING DEWATS IN NEPAL

S.N.	Location	Type	Year Built
1	Dhulikhel Hospital	Hospital	1997
2	Dallu, Private House	Domestic	1998
3	Kathmandu University	Institutional	2001
4	ENPHO Laboratory	Institutional	2002
5	Malpi International School	Institutional	2002
6	Sushma Koirala Memorial Plastic & Reconstructive Surgery Hospital	Hospital	2002
7	Kapan Monastery	Institutional	2002
8	Private House at Dallu	Domestic	2002
9	Septage Treatment, Pokhara	Community	2003
10	Shuvatara School, Lamatar	Institutional	2004
11	Surya Tobacco	Industrial	2005
12	Private House, Bishal Nagar	Domestic	2005
13	Sunga, Thimi	Municipal	2006
14	Kirtipur Housing Community	Community	2006
15	Kusunti Housing	Community	2007
16	Ilam Polyclinic	Hospital	2007
17	Sano Khokana Community	Community	2008
18	Srikhandapur	Community	2008
19	Monastery in Pharping, Dakshinkali	Institutional	2009
20	Private House at Kirtipur	Domestic	2010

NEPAL DISCHARGE STANDARDS FOR TREATED WASTEWATER

Nepal Population and Environment, 2003

Parameter	Limit	Parameter	Limit
BOD ₅	50mg/L	TSS	50 mg/L
COD	250mg/L	pH	5.5-9.0
NH ₄	50mg/L	Oil & Grease	10mg/L

Future DEWATS projects opportunities in Nepal:

- Small to large scale community/municipality;
- Private houses;
- Institutions, Offices, Hospitals, Schools;
- SMEs, Hotels, Restaurants;



DEWATS IN NEPAL

Decentralised Wastewater Treatment System



BORDA
Bremen Overseas Research and Development Association



Environment and Public Health Organisation

A simple and effective solution to improve sanitation in Nepal

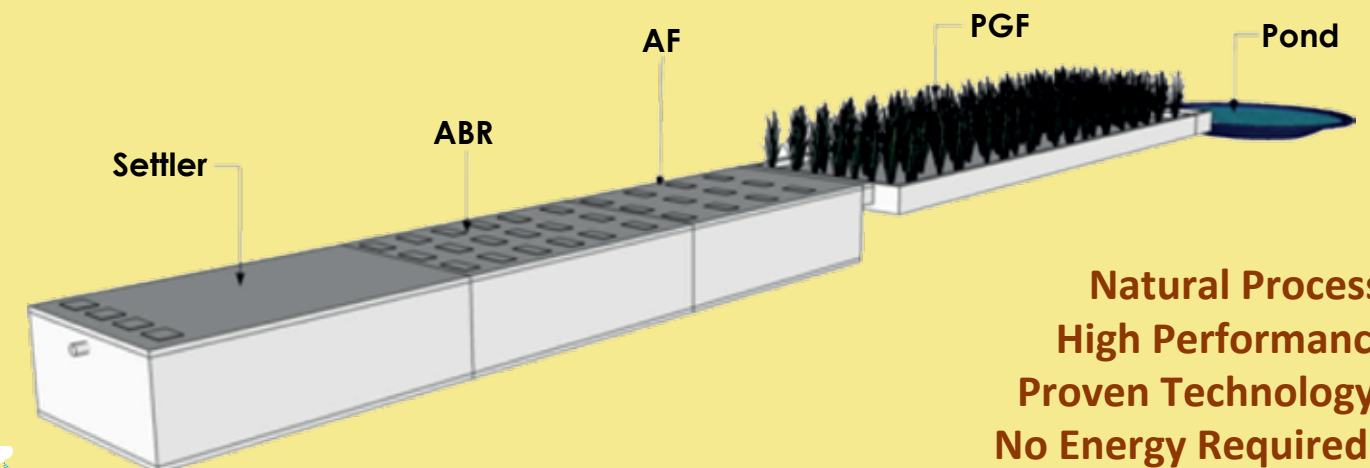
The **Consortium for DEWATS Dissemination (CDD) Society** is a not-for-profit organisation which aims to promote and improve the social, economic and environmental conditions of the less privileged, disadvantaged and marginalised people in South Asia through the provision of decentralised basic needs services (DBNS). The Society works through its network of likeminded partners across India, Nepal and Pakistan.

Bremen Overseas Research & Development Association (BORDA) works with local partners to facilitate implementation of sustainable solutions for poverty alleviation and environmental protection.

Environment and Public Health Organisation (ENPHO) established in 1990 in Nepal as a service oriented NGO that contributes in sustainable community development by combining research and actions through the integrated programs in environment and public health. For over a decade, ENPHO has been promoting sustainable sanitation options such as DEWATS and ECOSAN toilets as well as hosting the Nepal Node for Sustainable Sanitation. ENPHO has been constructing and promoting DEWATS in Nepal since 1997. ENPHO has been a member of the CDD Society since 2008 and continues to work with BORDA, UN HABITAT and other organisations to improve sanitation in Nepal.

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Natural Processes
High Performance
Proven Technology
No Energy Required
Alternative Water Supply
Low Operation Requirements
Minimising Environmental Impact



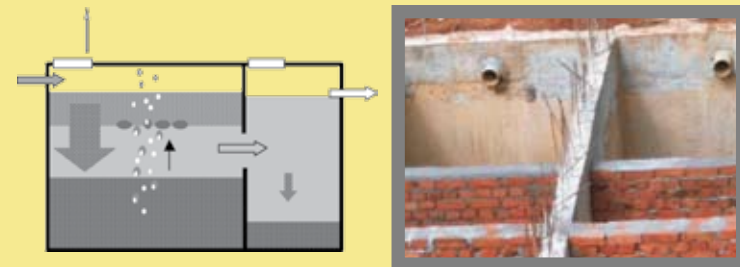
Environment and Public Health Organisation

Components of DEWATS

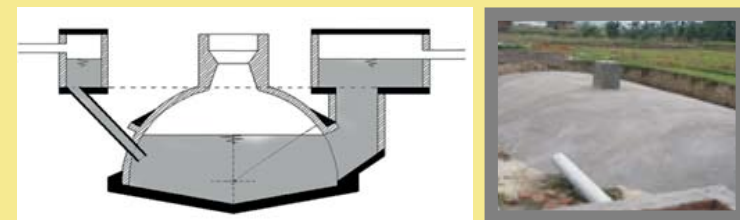
Decentralized Wastewater Treatment System (DEWATS) can be described as a low maintenance treatment system, treating small volumes of wastewater for reuse or discharge within National Standards. DEWATS generally treats domestic wastewater originating from individual or groups of dwellings, business or institutions that are located in close proximity to each other and the DEWATS site. Typical DEWATS combine the following technical treatment steps in a modular manner.

(1) Primary Treatment

- The primary treatment phase retains all settable solids and allow only dissolved solids to discharge.
- In settler, sedimentation tank, septic tank or biogas settler.
- Another type of primary treatment is sedimentation tank for collection and use of biogas generated from decomposition of settled organic particles.



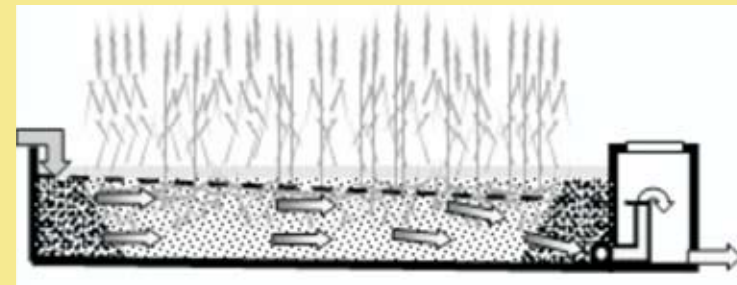
Simple Settler



Biogas Settler

(3) Tertiary Treatment

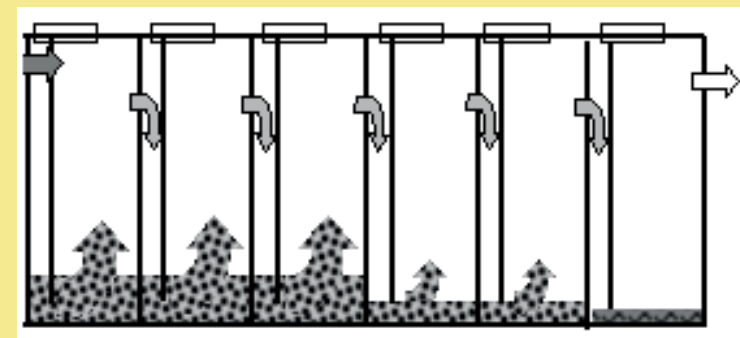
- It is the secondary and/or tertiary treatment phase and cleans the wastewater by biological conversion, physical filtration and chemical adsorption.



Constructed Wetland (CW)

(2) Secondary Treatment

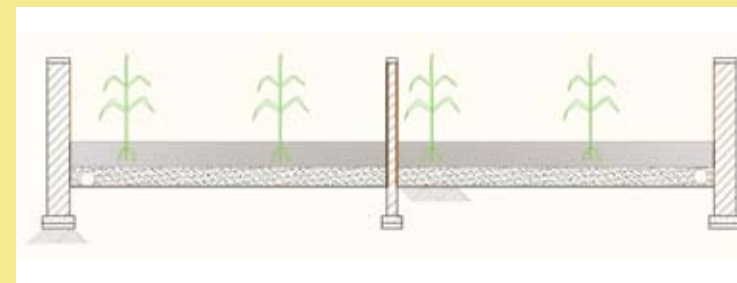
- Suspended and dissolved solids in the wastewater undergo anaerobic degradation due to contact with an active sludge blanket on the bottom of each chamber.



Anaerobic Baffled Reactor (ABR)

(4) Sludge Treatment

- Sludge generated from primary and secondary treatment units can be dried applying on sand beds, which is also called sludge drying beds. De-sludging intervals can be set to coincide with the dry season in order speed up the drying process.



Sludge Drying Bed (SDB)