Managing Wastewater and Septage/Faecal Sudge with Distributed, Modular & Small-scale Treatment Systems

The Potential for Africa:
Learning from the Indian Journey
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Improving outreach and membership mobilisation:
4 Regional Implementation Partners
5 Regional Vice-Presidents

- **North (7 countries):** Algeria, Egypt, Libya, Mauritania, Morocco, Sahrawi Arab Democratic Republic and Tunisia
- **South (10 countries):** Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe
- **West (15 countries):** Benin, Burkina Faso, Cabo Verde, Côte d’Ivoire, Gambia, Ghana, Guinea-Bissau, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo
- **East (14 countries):** Comoros, Djibouti, Ethiopia, Eritrea, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, South Sudan, Sudan, Tanzania and Uganda
- **Central (9 countries):** Burundi, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon and São Tomé-and-Príncipe

**Getting Involved:**
- [https://eracameroun.org](https://eracameroun.org) Yaoundé/CAM
- [https://oneabf.com](https://oneabf.com) Ouagadougou/BFA
- [https://eracameroun.org](https://eracameroun.org) Yaoundé/CAM
- [www.nwsc.co.ug/](http://www.nwsc.co.ug/) Kampala/UGA
- [www.durban.gov.za](http://www.durban.gov.za) eThekwini/ZAF

**Contact Information:**
- **AWASA Academy:**
  - **AFWASA HQ:**
  - **AFWASA Academy:**
1960’s-80’s Biogas for Energy & Sanitation in rural and peri-urban India
LOMWATS - an Attempt to Treat More Waste Waters in Developing Countries

LOMWATS stands for “Low Maintenance Waste Water Treatment Systems” and describes more a concept than a technology. And it describes more a need than a solution. Until now, LOMWATS describes first of all a project financed by the Commission of the European Union and the State Office for Development Co-operation of the Federal Republic of Germany (BRD) to the development of a small- to medium-sized treatment plant for the treatment of wastewater from domestic and light industrial processes. This project started in 1994 and will last until 1996.

Great attention was paid to the simplified and naturalised plant to make it accessible to the private boundary and the rural sector. It shall be a forgotten technology.

Hundred plants with 30% efficiency
are more effective than
10 plants with 90% efficiency

any waste water treatment plant should require as little maintenance as possible. Still,

- there is little, if none, knowledge about even the simplest waste water treatment technology. As a consequence there is no proper treatment and discharge of waste waters.
- a legal framework for waste water management is either not functioning or not at all existing and as a consequence of it, there is no consciousness about the existing malpractice at the side of the polluter;
- there is no social pressure - which means that there is no social awareness about the problem or no power with the people who suffer from polluted water.
The only realistic approach for the time being is the use of low maintenance technology.

Its abbreviation **LOMWATS**, carries unjustly an image of low standard – nobody wants that.

Therefore, the name **DEWATS** was selected, for „Decentralised Wastewater Treatment Systems“.

**DEWATS** includes only such systems which are considered suitable for decentralised application and where qualified operation and maintenance cannot be expected.

What will not be maintained, does not need to be built.
1. Prefer gravity flow and prevent electro-mechanical equipment – that cannot be switched off.

2. Go for anaerobic digestion – under tropical conditions, up to 90% of the organic load can be removed; underground tanks allow for dual use (roads, car parking,...).

3. Add nature based systems (planted gravel filters, polishing ponds) where appropriate.

4. Reuse water, energy and nutrients.

5. Select and combine treatment modules according to the end-use.
Since 2001: a Consortium of 17 Indian Organisations Started CDD Society

www.youtube.com/watch?v=CXtXAFvMOBw 1:08-1:22

Webinar on Decentralized Wastewater Treatment and Local Reuse for Citywide...
...and since 2012:

- Integrated in CPHEEO’s Manuals on Sewarage and Sewage Treatment

...essential for DPR’s, public tendering and procurement!
The Ongoing Scale-Up Process of Small-Scale Sewage Treatment and Reuse Systems in India: Taking the Lead through Effective Governance Interventions

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Lukas Ulrich, Project Coordinator 4S Project, Independent Consultant, lukas.ulrich@eawag.ch

CSE Webinar “Decentralized Wastewater Treatment and Local Reuse for Citywide Sanitation and Improved River Health” 13 August 2020
Conclusion: increasing role, high potential
Decentralised wastewater treatment
Key take-aways

- Recognition & Legitimation
- Coordination
- Professional Operation & Maintenance
- Digitalisation & Monitoring
- Technology Selection Based on Sustainability Criteria
- Matching Supply & Demand
2016-19: Small-Scale Sanitation Scaling-Up (4s)

Small-Scale Sanitation Scaling-Up (4S) in South Asia

Inspecting a small-scale sewage treatment and reuse system in Chennai, Tamil Nadu (Photo: Milan Basil)

Evidence-based recommendations for small-scale sewage treatment and reuse through the assessment of more than 300 sanitation units

Contact

- Lukas Ulrich (Project Coordinator)
- Dr. Christoph Lüthi (Principal Investigator, Eawag)
- Prof. Dr. Ligy Philip (Principal Investigator, IIT Madras)

Key 4S Documents Highlighted
Governance Arrangements for the Scaling Up of Small-Scale Wastewater Treatment and Reuse Systems – Lessons From India

Philippe Reymond1,2*, Rohit Chandragiri3 and Lukas Ulrich1

1 Eawag: Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland, 2 Vuna GmbH – Spin-off of Eawag, Dübendorf, Switzerland, 3 Independent Consultant, Bangalore, India

Environmental pollution and increasing water scarcity are key features of the urban landscape of India today. The extension of centralized sewerage networks cannot keep up with city growth, and alternative sanitation systems are needed for citywide inclusive sanitation (CWIS). The government of India mandated larger buildings to be equipped with small-scale wastewater treatment plants (SSTP). This resulted in the emergence of new actors in the SSTP market, which1
**4S-Study:** 9,497 SSTPs surveyed, 300 inspected, 30 in-depth analysis

- MoHUA must spearhead the policy framework for small scale sanitation.
- The creation of a centralised online data platform.
- ULBs and WSSB should be able to access and update the database of SSTPs, be involved in their planning.
- Better enforcement mechanisms.
- A clear, standardised procedure for plant handover to long-term owners.
- Systematic training and licensing of operating personnel, benchmarking.
- Lifecycle costs = key factor when comparing the cost of different STPs: O&M, trained manpower and electricity costs.
4S analysis framework

www.sandec.ch/4S
What can be done?

Efficient governance requires:

- An online platform
  collating all databases, streamlining & supporting processes from establishment to monitoring

- Dedicated SSS departments in relevant state and city level government agencies
4S-Study: Key Messages ...

...where are we today?

1. MoHUA must spearhead the policy framework for small scale sanitation.
2. The creation of a centralised online data platform.
3. ULBs and WSSB should be able to access and update the database of SSTPs, be involved in their planning.
5. A clear, standardised procedure for plant-handover to long-term owners.
6. Systematic training and licensing of operating personnel, benchmarking.
7. Lifecycle costs = key factor when comparing the cost of different STPs: O&M, trained manpower and electricity costs.
Fostering South-South Learning: Join us in fast-tracking adoption of appropriate procedures for safely managed services along the sanitation value chain!

Exchange started at 1st NSS Conference in Jo‘burg, Join us during 22nd AfWASA International Congress & Exhibition from February 18-22 2024 in Conakry, Guinea!

Thank you!