Wastewater Production, Treatment, and Use in Namibia

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Wastewater production and treatment

•Production and treatment in two cities of Windhoek and Walvisbay

Town	Source of wastewater	Volume (Mm^3/yr)	Treatment
Windhoek (Capital city)	Domestic	approx 12.8	Primary Secondary Tertiary
	Industrial	approx 0.3	Anaerobic & Aerobic ponds
Walvisbay (2^{nd} largest city)	Domestic	approx 0.66	Primary Secondary Tertiary

Wastewater use and/or disposal

- Direct reclamation to portable standards (about 30% blended with freshwater) for Windhoek.
- Irrigation of parks, golf course, sports fields and lawns.
- Irrigation of horticultural crops like spinach, cabbages and onions on about 1.5ha in Windhoek.
- Remainder is discharged into the environment.

Regulations and implementation of guidelines

- Treatment of water meets the WHO guidelines and National standards which are more stringent because of reclamation.
- Wastewater National guidelines are for disposal of effluent .

Challenges

- Increasing demand of freshwater in a semi-arid environment.
- Pollution of one of the fresh water source for the capital city (Swaakport dam) downstream of Windhoek.
- Odour problems from the ponds treating industrial effluent.
- Lack of knowledge on wastewater re-use for agricultural purposes (e.g. selection of appropriate irrigation methods).
  - Flood irrigation is used on vegetables used to make salads

Government's approach to wastewater management

- Government has set minimum effluent standards for discharge through the Ministry of Agriculture Water and Forestry.
- Polluter pays principle is enforced.
- Namibia sanitation strategy identifies re-use of wastewater for irrigation as a selection criterion for sanitation systems.

Possible solutions

- Exploring Agricultural tradeoffs of wastewater irrigation to reduce pollution of fresh water sources.
- Awareness raising to dispel the negative perceptions about irrigation with wastewater.
  - Crop production using water has not been fully explored.
- Capacity building on waste water re-use.