

Fact Sheet 4: Desalination Plant for the North

Proposed 3 to 12 ML per day desalination plant near Tongaat / La Mercy

The severe drought conditions in eThekweni have had a significant impact on the available water resources in the northern areas of the province. Hazelmere Dam (which supplies 4 reservoirs) is at its lowest level in recent years (see FIG 1).

A review of the demands on each of the reservoirs (Table 1), shows that the LaMercy airport (LMA) is not going to be able to meet the predicted increase of 13ML per day.

Various options are being investigated in an attempt to augment the water supply from Hazelmere Dam and this includes the feasibility of implementing desalination plants.

Desalination is the process by which salts and minerals are removed from salt water to produce water suitable for human consumption, irrigation or industrial process water. It is achieved by the use of technologies such as membranes (nanofiltration and reverse osmosis) and thermal processes (multi-effect distillation, evaporation and crystallisation). The type of system selected will depend on the quality of water required.

In Sea Water RO systems, pressure is applied to the sea water, forcing fresh water through a semi-permeable membrane while most salts, bacteria, colloids and other impurities are rejected by the membrane. The system is provided in FIG 2.

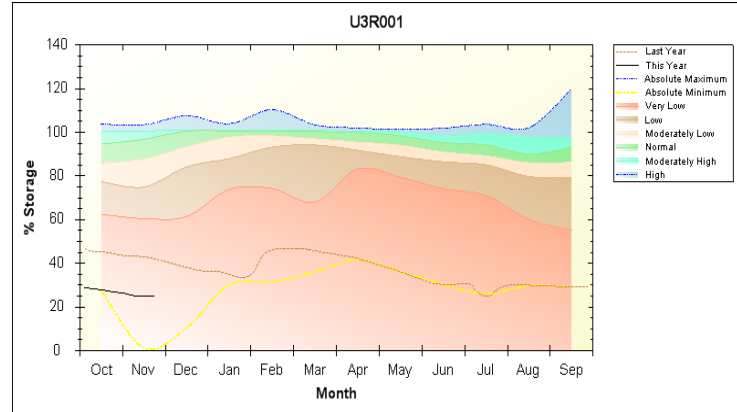


FIG 1: Hazelmere Dam water level for 2015/2016

Table 1: Water demand for reservoirs serviced by Hazelmere Dam

RESERVOIR	CURRENT DEMAND (ML/DAY)	FUTURE DEMANDS (ML/DAY)	TOTAL DEMAND (ML/DAY)
LA MERCY AIRPORT (LMA)	2.900	13.200	16.100
WESTBROOK	0.600	0.000	0.600
DESAINAGAR	0.128	0.000	0.128
LA MERCY	2.172	0.000	2.172

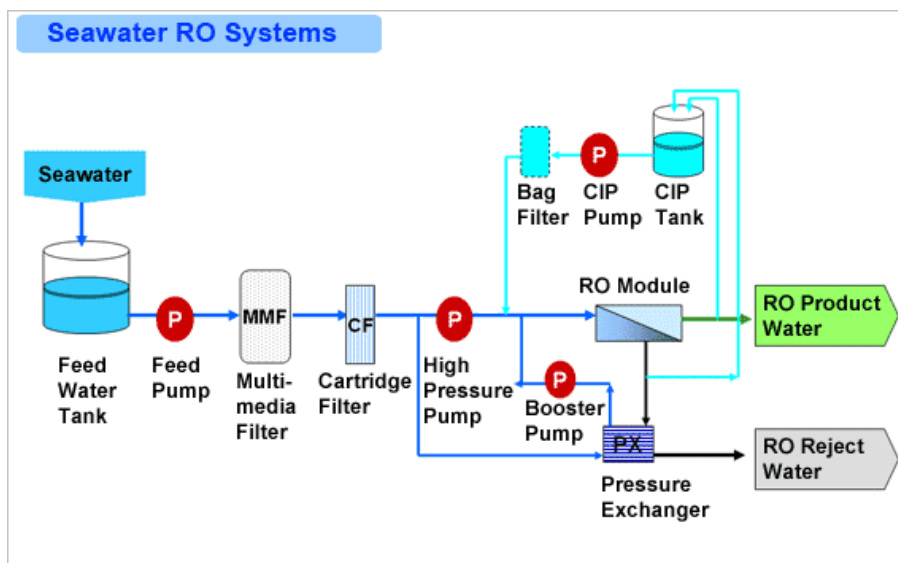


FIG 2: Seawater RO system



Feasibility studies for the implementation of desalination plants have been undertaken for the following areas:

- North Coast desalination Plant (150MI) – Desainagar. Feasibility complete, public participation in progress. Can be commissioned in 3 years. Cost of R2 billion. Implementation by Umgeni Water.
- Tongaat Pilot desalination Plant (3 MI) – Tongaat/La Mercy beach - Under investigation. Can be commissioned in 30 weeks excluding procurement processes. Cost of R64 million. Possibility of upgrading to 12 MI.

EWS would be responsible for the implementation of the second option with Umgeni Water taking the lead on the first option. The following actions have been undertaken:

- Identification of the type of plant
- Identification of the location of the plant - Gennazano WWTW site

Further work to be undertaken includes:

- Gennazano WWTW site land needs to be secured. This WWTW is planned to be decommissioned but there are some studies underway by Iliso Consulting on behalf of THD to utilise/expand the works/site for future La Mercy Development.
- Detailed feasibility still to be commissioned for proposed containerised desalination plant and associated extraction wells & pumps at this location.
- Supply to LMA reservoir to be initiated – potential delay of rising main stream crossing.
- Funding availability for desalination system and supply to LMA reservoir to be confirmed
- Supply to LMA reservoir dependent on transfer of LMA reservoir to EWS. UW currently obtaining board approval for this.