

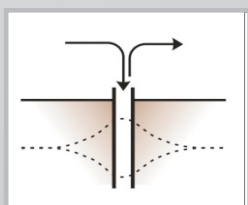
Artificial Recharge

A cost-effective way of storing and conserving water

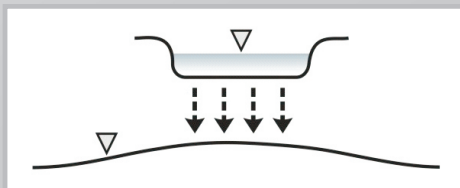
Slides and notes presented in the course on developing
Catchment Management Strategies, March 2009

Artificial Recharge of Groundwater

The intentional banking and treating water in aquifers



**Borehole injection
and recovery**



Infiltration basin



Artificial recharge is a water storage and treatment option that DWAF is promoting and which Catchment Managers should be aware of. It involves transferring water underground to be stored in aquifers for later use. It is a cheap form of storage because the infrastructure costs are relatively low. In some cases it is

also used as a natural sand filter for treating water. The two most common methods are borehole injection where water is pumped into boreholes (eg Windhoek, Namibia, 2 years operation), and infiltration basins, where water infiltrates through sandy soils to the aquifer (eg Atlantis, Cape Town, >20 years operation).

South African examples

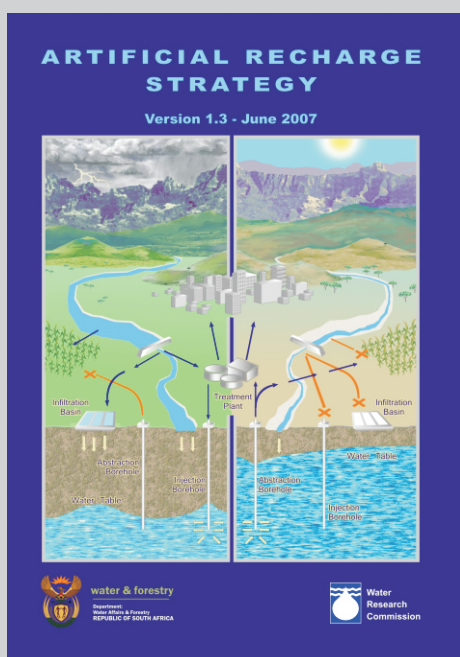
Town	Artificial recharge rate	Artificial recharge volume as a proportion of total requirements
<i>Atlantis: Basin infiltration of waste water and storm runoff</i>	1.5 – 2.5 Mm ³ /a (one basin)	25 - 40%
<i>Polokwane: River bed infiltration of waste water</i>	3 – 4 Mm ³ /a	25 – 30%
<i>Omdel (Namibia): Basin infiltration of flood runoff</i>	9 Mm ³ per flood event	2 flood events since 1997
<i>Kharkams (Namaqualand): Borehole injection of irregular river flows</i>	40 m ³ /day (when river flows)	~ 18% of daily requirements
<i>Windhoek: Borehole injection with dam water</i>	Current: 2 Mm ³ /a Potential: 13 Mm ³ /a	Current: 10% Potential: 40% (From 2010)



water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DWAF's Artificial Recharge Strategy



The report includes:

- Estimates of the additional storage potential per sub-WMA
- Criteria for successful implementation
- Authorisation process
- Project implementation stages
- Local & international examples

Obtain all relevant information and download
DWAF's Artificial Recharge Strategy from:

www.artificialrecharge.co.za

Or download the strategy from:

- www.dwaf.gov.za
- Documents
- Other: Integrated Water Resource Planning – National Documents

Contact: Mr F Fourie, DWAF, Pretoria

Useful information on artificial recharge is contained in DWAF's Artificial Recharge Strategy (see the Table of Contents below). It provides a first estimate of the additional sub-surface storage potential per sub-WMA with artificial recharge. The website www.artificialrecharge.co.za contains the Artificial Recharge Strategy and other useful information. It is also available for downloading from DWAF's website. Artificial recharge is mentioned in some ISPs.

Artificial Recharge Strategy

Version 1.3 – June 2007

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Appendix 1 Theoretical artificial recharge storage potential per Water Management Area

Information on the roll-out of the artificial recharge strategy can be obtained from:

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