



www.artificialrecharge.co.za

DWA Resources

The following DWA resources (plus a whole lot more) are available on the website:

- Artificial Recharge Strategy: Version 1.3.
- Artificial Recharge Strategy: Version 2.
- Potential artificial recharge areas in South Africa.
- A checklist for implementing successful artificial recharge projects.
- Lecture notes on artificial recharge.
- The Atlantis Water Resource Management Scheme: 30 years of Artificial Groundwater Recharge.
- Water Banking – A practical guide to using Artificial Groundwater Recharge.
- Potential Artificial Recharge schemes: Planning for Implementation.
- Planning and Authorising Artificial Recharge Schemes.

This brochure was compiled by Dr R Murray, Groundwater Africa for the Department of Water Affairs. The resources listed above emanate from the DWA project *Strategy and Guideline Development for National Groundwater Planning Requirement* (DWA Contract No WP 9390).

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What you need to know about artificial groundwater recharge



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Do you need to guide someone on how to implement an artificial recharge scheme?

This brochure points you to appropriate resources on where artificial recharge will work and what's needed for feasibility studies and authorisation.

All relevant resources are available on DWA's artificial recharge information centre:

www.artificialrecharge.co.za

What is artificial recharge?

Artificial recharge is the process whereby surface water is transferred underground to be stored in an aquifer. The most common methods used involve injecting water into boreholes and transferring water into spreading basins where it infiltrates the subsurface. Underground water storage is an efficient way to store water because it is not vulnerable to evaporation losses and it is relatively safe from contamination.

Have a look at the *animation* on the Home Page of the website

....and the booklet....

Water Banking - A practical guide to using Artificial Groundwater Recharge



What you need to know about artificial groundwater recharge

Where can artificial recharge be implemented?

Artificial recharge can be implemented virtually everywhere where groundwater is being used or being planned for use. It can augment supplies on a large scale such as in Atlantis near Cape Town, or Windhoek in Namibia, or it can be used to boost single borehole schemes like at Kharkhams in Namaqualand or irrigation supplies for individual households such as in Hermanus in the Southern Cape.

Have a look at the *Case Studies* page on the website.

Areas potentially suitable for artificial recharge have been identified using a GIS process and are presented on WMA-scale maps.

Have a look at the *AR Potential* page on the website.

Examples of feasibility studies and case studies taken to project readiness state can be found in *Potential Artificial Recharge schemes: Planning for Implementation* on the website.

Criteria for success

The two key questions to ask are:

- Can the aquifer accept artificially recharged water?
- Is there a water source available for recharging the aquifer?

Ten "Success Criteria" are described in DWA's *Artificial Recharge Strategy (Version 1.3)* on the *DWA AR Strategy* page on the website. They are also summarised in the booklet *A check-list for implementing successful artificial recharge projects*.

Have a look at the *Implementation check-list* page on the website.

What you need to know about artificial groundwater recharge

Start monitoring now!

The best advice you can give anyone who is considering artificial recharge is to start monitoring groundwater levels immediately. This will give you a good indication of the aquifer's potential to accept water. Electronic data loggers are easy to use and affordable – start collecting data! Other time-series data to start collecting is the quality, reliability and volume of water available for recharge, and groundwater abstraction from the aquifer.

DWA Authorisation

All Artificial recharge schemes need to be licensed. Typically an artificial recharge project would include these activities that require authorization:

1. Abstraction of the source water from a water resource (DW760 NWA Section 21a)
2. Storing of water (DW762 NWA Section 21b)
3. Re-abstracting the water from the aquifer (DW760 NWA Section 21a)

In addition, if the intention is to recharge with waste water, one or both of the following would apply:

1. Waste discharge (controlled activities): DW765 NWA Section 21e, although this form is mainly geared to irrigation using waste.
2. Water Discharge (into a water resource): DW766 NWA Section 21f. This form specifically requests information about the receiving water resource and the quality of the discharge.

Environmental authorisation will also be needed where project activities trigger a basic assessment or full EIA in terms of NEMA (2010) regulations.

Have a look at *Planning and Authorising Artificial Recharge Schemes* on the website.

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