WATER SHARING PLAN

NSW Great Artesian Basin
Groundwater Sources

Guide
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Introduction

This guide provides an explanation of the Water Sharing Plan for the NSW Great Artesian Basin (GAB) Groundwater Sources 2008 (the Plan) which commenced on 1 July 2008. The Plan is written in its legal format so this guide has been provided to assist in understanding the proposed rules and in providing comments on the Plan. The guide, however, should be read in conjunction with the Plan, which is available from the Department’s website.

A draft Plan was placed on public exhibition in late 2007. A Review Panel consisting of members of the Great Artesian Basin Advisory Group (GABAG) and representatives of the Department of Water and Energy (DWE), the Department of Environment and Climate Change (DECC) and the Department of Primary Industries (DPI) reviewed the submissions made by the public and made recommendations to the Minister. This Minister then approved the plan with amendments and gazetted it.

Effective 1 July 2008, the licensing provisions of the Water Management Act 2000 commenced for the water sources covered by the Plan. On commencement of the Plan existing Water Act 1912 licences were converted to Water Management Act 2000 water access licences and approvals.

The Water Management Act 2000 also introduces new terminology and some new management arrangements. These new terms are highlighted in the text and explained in a glossary of terms at the end of this guide.

Purpose of a water sharing plan

A water sharing plan is a legal document made under the Water Management Act 2000 which applies for a period of 10 years. The rules in a water sharing plan determine how water is to be shared between the environment and water users as well as between different types of water users such as towns, stock and domestic users and irrigators.

In accordance with the Water Management Act 2000, a water sharing plan for groundwater sources must:

- protect the groundwater source and its dependent ecosystems;
- establish environmental water rules;
- set a limit on water extractions;
- protect basic landholder rights to access groundwater; and
- minimise impacts of groundwater extraction.
Development of the Plan

This Plan was prepared by the Department of Water and Energy (DWE) based on the advice and recommendations of the NSW Great Artesian Basin Advisory Committee. The Committee had members whose skills and knowledge allowed them to consider a wide range of issues and interests including those of the grazing, irrigation, and industry groups; environmental concerns; and local Indigenous culture and heritage. Pastoralists; environmentalists; irrigators; the Aboriginal community; the Border Rivers-Gwydir, Namoi, Central West and Western Catchment Management Authorities (CMA); and local, State and Commonwealth government agencies were represented on the Committee. The Committee’s Independent Chairman and members have consulted with water users and other groups in the developing the Committees recommendations.

Area of the Plan

The NSW GAB Groundwater Sources comprise all water contained in the sandstone aquifers of the GAB. These are described as the geological formations of the Cretaceous and Jurassic age, 65 to 210 million years old, belonging to the GAB, and the intake beds of the GAB.

The GAB has been divided into five groundwater sources, for management purposes. Two of these (the Eastern and Southern Recharge Groundwater Sources) are in the non artesian part of Basin. The remaining three (Surat, Warrego and Central Groundwater Sources) are in the artesian part of the Basin, where water in bores flows naturally to the surface.

Figure 1: NSW GAB Groundwater Sources that are subject to this Plan
HOW IS WATER SHARED IN THE NSW GREAT ARTESIAN BASIN?

This chart shows how the rules of a water sharing plan are put into effect and relates these 8 key steps to the relevant section in the Plan.

**STEP 1 – DEFINE THE SUSTAINABLE PRESSURE ESTIMATE EQUIVALENT**
Based on historical records of rainfall, surface water/groundwater linkages and hydrogeology, assess the amount of annual net recharge on a long-term average basis in the Eastern and Southern Recharge Water Sources. Based on pressure levels experienced under water management and infrastructure in place at 1990, assess the sustainable volume of water in the Central Warrego and Surat Water Sources.

*Part 3 – basis for water sharing*

**STEP 2 – PROVIDE WATER FOR THE ENVIRONMENT**
Reserve the storage component plus a portion of the annual net recharge of the Eastern and Southern Recharge Water Sources for the environment. The remaining annual net recharge is the water that may be available for extraction. Reserve the storage component required to maintain the pressure experienced in 1990 plus the majority of water savings made under the Cap and Pipe the Bores Program since this time for the environment in the Central Warrego and Surat Water Sources.

*Part 4 – environmental water provisions*

**STEP 3 – PROVIDE WATER FOR BASIC LANDHOLDER RIGHTS**
Estimate total requirements for domestic and stock rights and native title rights in these groundwater sources.

*Part 5 – basic landholder rights*

**STEP 4 – DETERMINE REQUIREMENTS FOR WATER EXTRACTION**
Assess the total requirements of all access licences in these groundwater sources and rules for granting additional access licences. Define rules for reducing the access licence shares closer to the extraction limit in the Eastern Recharge Groundwater Source and if necessary in the Southern Recharge Groundwater Source.

*Part 7 – requirements for water under access licence; and Part 8 – rules for granting access licences*

**STEP 5 – SET LIMITS ON WATER FOR EXTRACTION AND SHARE THAT BETWEEN DIFFERENT WATER USERS**
Set the annual extraction limit for these groundwater sources and share that between all access licences. Provide for local extraction limits, if necessary, to protect water supplies, water quality and dependent ecosystems.

*Part 9 – long-term average extraction limit and available water determinations; and Part 10 (Division 3) – management of local impacts*

**STEP 6 – PROVIDE FLEXIBILITY FOR ACCESS LICENCE HOLDERS**
Set rules to provide flexibility in how water accounts are managed, and define the trading rules.

*Part 10 (Division 2) – water allocation account management; and Part 11 – access licence dealing rules*

**STEP 7 – PROVIDE CLEAR LICENSED RIGHTS**
Translate Steps 4 to 6 into mandatory conditions on individual access licences and approvals.

*Part 12 – mandatory conditions*

**STEP 8 – MONITOR PLAN**
Review the implementation of the Plan each year and audit performance of the Plan from year 5.

*Part 2 – performance indicators*
Vision

The vision for the Plan is to achieve equitable, viable and sustainable management of the GAB in NSW for the benefit of the community and the biodiversity of the region.

This will be achieved through the phasing out the use of bore drains thus maintaining and improving pressures and flows in the artesian portion of the basin. The majority of the water savings achieved through the Cap and Pipe the Bores Program will be retained in the aquifer to improve the environmental and cultural assets of the Basin.

Basis for sharing water

The basis for determining how water is to be shared in the Eastern and Southern Recharge Groundwater Sources is the average annual net recharge. The average annual net recharge is the volume added to the groundwater source, usually by infiltration from rainfall and river flows, on a long-term average basis minus an allowance for groundwater outflow to adjacent groundwater sources. An average figure is used as the level of recharge to a groundwater source varies from year to year.

To ensure that long-term depletion and damage to the aquifer do not occur, it is essential that groundwater extractions do not exceed the average annual net recharge. The average annual net recharge is assessed at 19,000 megalitres per year (ML/yr) for the Eastern Recharge Groundwater Source and 42,400 ML/yr for the Southern Recharge Groundwater Source.

With total entitlements in the Eastern Recharge Groundwater Source currently exceeding 32,000 ML/yr, the Eastern Recharge Groundwater Source is classified as a high risk of over-extraction. If everyone extracted water to the level of their licensed entitlement, there would not be enough water for all existing water users and to protect the groundwater source in the medium to long term.

Further studies of the recharge will be undertaken, and the recharge estimates may be varied after year 5 of the Plan.

The basis for determining how water is to be shared in the Surat, Warrego and Central Groundwater Sources is the sustainable pressure estimate equivalent. The sustainable pressure estimate equivalent is the volume of water required to maintain pressure levels experienced under the water management regime and infrastructure in place in 1990. For the Surat Groundwater Source the sustainable pressure estimate equivalent is 75,000 ML/yr, for the Warrego Groundwater Source it is 22,400 ML/yr and for the Central Groundwater Source it is 7,900 ML/yr.
Environmental water provisions

The Water Management Act 2000 requires that water be allocated for the fundamental health of a water source and its dependent ecosystems as a first priority.

The Plan therefore reserves the long-term storage component of the Eastern and Southern Recharge Groundwater Sources for the environment. In addition 30% of the average annual net recharge is set aside for the environment to provide for the needs of groundwater dependent ecosystems.

In the Surat, Warrego and Central Groundwater Sources the volume of water required to maintain 1990 pressure levels, plus water savings made under the Cap and Pipe the Bores Program between 1990 and 1999, plus 70% of water savings made under that program since 1999, are set aside for the environment.

Basic landholder rights

Under the Water Management Act 2000, extraction of water for domestic and stock purposes from the aquifer underlying the landholder’s property and for native title rights (known collectively as basic landholder rights) does not require a water access licence. A water supply works approval for the bore is required.

The water requirements for basic landholder rights for domestic and stock purposes are estimated to total 41,600 ML/year. There are currently no extractions for native title rights from this groundwater source. However, both forms of right may increase during the ten-year term of the Plan.

Domestic and stock rights can be restricted by the Minister to protect the environment, for reasons of public health, or to preserve existing basic landholder rights.

Licensed water entitlements and water use

Under the Water Management Act 2000, all other water extraction, except for basic landholder rights, must be authorised under a water access licence. There are a number of different categories of water access licences within the Plan area. These include:

- domestic and stock (conveyance) access licences, for the extraction of water subsequently lost in bore drains used to supply domestic and stock water;
- local water utility access licences, for town water supply;
- aquifer (interference) access licences, for interference with the aquifer;
- aquifer access licences, for general uses; and
- supplementary water access licences (for the purposes as discussed in the following section).

Former Water Act 1912 licences were replaced with licences and approvals under the Water Management Act when the Plan commenced. Table 1 summarises the status of aquifer access licences and entitlements in the GAB. Table 2 summarises works approvals issued for domestic and stock basic rights bores.
Table 1: Aquifer access licences and entitlements*

<table>
<thead>
<tr>
<th></th>
<th>Eastern Recharge</th>
<th>Southern Recharge</th>
<th>Surat</th>
<th>Warrego</th>
<th>Central</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licences (no.)</td>
<td>70</td>
<td>68</td>
<td>32</td>
<td>5</td>
<td>3</td>
<td>178</td>
</tr>
<tr>
<td>Entitlement (unit shares)</td>
<td>32,121</td>
<td>15,533</td>
<td>6,614</td>
<td>493</td>
<td>12</td>
<td>54,951</td>
</tr>
</tbody>
</table>

* Includes local water utility licences

Note: The above figures are estimates only.

Table 2: Works approvals issued for domestic and stock basic rights bores

<table>
<thead>
<tr>
<th></th>
<th>Eastern Recharge</th>
<th>Southern Recharge</th>
<th>Surat</th>
<th>Warrego</th>
<th>Central</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works approvals (no.)</td>
<td>465</td>
<td>274</td>
<td>838</td>
<td>602</td>
<td>480</td>
<td>5,318</td>
</tr>
</tbody>
</table>

Note: The above figures are estimates only.

All access licences include a share component which entitles the holder to the specified shares of the available water. Domestic and stock, local water utility and aquifer (interference) access licences are issued with their share components expressed as a number of megalitres per year. Aquifer and supplementary water access licences have their share components expressed as a number of unit shares. Table 1 provides estimated total share components for each licence category at the commencement of the Plan.

**Bringing total water extractions within long-term extraction limits**

To ensure the long-term sustainability of groundwater resources, the Government's policy is to either reduce entitlements or water allocations such that total water extractions do not exceed the Plan’s long-term annual extraction limits.

The Plan provides for the share components (entitlements) of or water allocations to aquifer access licences to be reduced in the Eastern and Southern Recharge Groundwater Sources so that future extractions are within the sustainable yield of the water source. If used, the share component reduction process will recognise: water dependent investment made by licence holders prior to 1 July 2007, and that all groundwater entitlements, whether or not they have been used to extract water, have a value.

Since commencement of the Plan and replacement of the former Water Act 1912 licences it has been determined that entitlement reductions will not be required in the Southern Recharge Groundwater Source.

If entitlements are reduced supplementary water access licences will be issued to those with a history of use greater than the amended share component of their aquifer access licence. Supplementary licences are issued to assist adjustment to reduced water availability. Over the term of the Plan, the water available under supplementary water access licences will be reduced so that by year 10 of the Plan no water will be made available and the licences will be cancelled.
Granting access licences

An application for an access licence will only be accepted where the application is for an aquifer access licence of the subcategory Aboriginal cultural or community development; an access licence that may be granted in accordance with a dealing; an aquifer (interference) access licence in the Central, Warrego or Surat Groundwater Sources; a local water utility access licence or an access licence with zero shares. The share component of aquifer (interference) access and local water utility access licence will be the minimum required to meet the purpose for which the water is to be used. The share component for an Aboriginal cultural and an Aboriginal community access licences are limited to 10 ML/year and 50 ML/year, respectively.

Water access licences or share components may be acquired from existing access licence holders or purchased from the 30% of water savings generated from the Cap and Pipe the Bores Program.

Applications for the granting of additional shares in the water source will only be considered for local water utility, aquifer interference or domestic and stock conveyance purposes.

The extraction limit and available water determinations

The Plan sets the extraction limit for the Eastern Recharge Groundwater Source at 13,300 ML/yr, plus any water made available to supplementary water access and for the Southern Recharge Groundwater Source at 29,700 ML/yr, plus any water made available to supplementary water access.

For the Surat, Warrego and Central Groundwater Sources the extraction limit will be equal to the 1990 discharge plus entitlements issued between 1990 and end of 1999, minus the water savings made under the Cap and Pipe the Bores Program up to 1999 and minus 70% of the savings made under the Cap and Pipe the Bores Program after 1999.

Annual extractions in each groundwater source will be monitored and if the average extraction over the previous three years exceeded the extraction limit by 5% or more, then the volume made available for extraction through the annual water allocations (known as available water determinations) will be reduced by an amount that is assessed necessary to return total water extraction to the long-term average extraction limit.

Available water determinations (AWDs) will be made at the start of each water year specifying the water allocated for each category of licence.

AWD for local water utility and domestic and stock access licences will be 100% of the share component.

Initially the AWD for aquifer access licences will be 1 ML per unit share in the for Central, Warrego, Surat and Southern Recharge Groundwater Sources and 0.8 ML per share unit in the Eastern Recharge Groundwater Sources.

The AWD for supplementary water access licences, if granted, will be 1 ML per unit share until year five of the plan after which it will be progressively reduced until year 10 when it will be 0 ML per share unit.
Water allocation accounts

A water allocation account is established for each access licence. Where both an aquifer access licence and a supplementary licence are held, there are separate accounts for each licence. Water is credited to the account each year in accordance with the AWD and debited when water is extracted. Accounts are not permitted to go into debit.

To provide flexibility in the management of water allocation accounts, the Plan allows unused water remaining in an aquifer access licence water allocation account to be carried over from one water year to the next provided the volume of water in the account does not exceed a volume that is equal to the share component multiplied by 1.6 ML. However, extraction in any one water year is limited to the volume equal to the share component multiplied by 1.3 ML.

Allocations in all other water allocation accounts cannot be carried over from one water year to the next, and water remaining in an account at the end of the water year will be forfeited.

Management of local impacts

Groundwater extractions may cause problems in a localised area even though total extraction from the groundwater source is within the extraction limit. For example, there may be impacts on groundwater dependent ecosystems, water levels, water quality, aquifer integrity or interference between groundwater users. Many of these impacts may lead to permanent damage to the ecosystems or aquifers.

In order to stop or mitigate local impact of extraction the Minister may declare a defined area to be known as a local impact area in order to:

a) protect pressures in the Surat, Warrego and Central Groundwater Sources;
b) protect water levels in the Eastern and Southern Recharge Groundwater Sources;
c) protect water quality within a groundwater source; or
d) protect groundwater-dependent ecosystems through the protection of water quality and/or water levels.

Local impact management rules may limit extraction on a yearly, monthly or even weekly basis. In addition a salinity baseline ratio will be established to determine if water quality decline is occurring.

In order to help prevent local impacts occurring, the Plan also sets distance limits from any identified groundwater dependent ecosystems and other bores.

Group registration

Group registration is available in areas where there are restrictions on pumping because of local impacts. This provides licence holders with more flexibility in the way they can manage the restrictions. An individual may exceed the restricted extraction condition provided the group as a whole does not, and provided the water is available in the individual’s water account.
Access licence dealing rules

Under the Water Management Act 2000, a greater range of water trading and other types of water dealings are possible. These include:

- transfer of ownership or sale or of a licence;
- term transfer or lease of a licence;
- subdivision and consolidation of licences;
- assignment of rights (share assignment) or transfer of shares from one licence to another;
- amendment of share component to effect a change of water source;
- assignment or transfer of water allocations from one licence to another;
- interstate transfer of shares or water allocation; and
- nomination of water supply works from which water may be extracted.

While these dealings will be generally permitted the assignment of rights, amendment of share components, assignment or transfer of water allocations and the nomination of water supply works are not permitted:

- within Eastern Recharge Groundwater Sources until entitlements are reduced or year 6 of the Plan whichever is the sooner;
- between the Eastern Recharge or the Southern Recharge Groundwater sources and any other water source;
- between the Central, Warrego and Surratt Groundwater sources if the resultant extraction limit for the water sources is cumulatively reduced by more than ten percent;
- if adverse local impacts may result; or
- for supplementary water access licences or the water in a supplementary access licence water account.

Dealings between NSW and Queensland or South Australia will only be permitted after agreements have been reached with the respective state governments regarding the management of such dealings.

Mandatory conditions

Standard conditions will be applied to all water access licences and water supply works approvals in these groundwater sources to give effect to the rules in the Plan.

The mandatory conditions that apply to water access licences include:

- extraction cannot exceed water in the account;
- extraction is subject to any local impact management rules;
- extraction is subject to the account management rules; and
- water may only be extracted through an approved water supply work.
The mandatory conditions that apply to water supply works include:

- a water supply work must be constructed by a licensed driller;
- the construction of a water supply work must comply with drilling standards;
- if contaminated water is encountered during the construction of a water supply work, then it must be sealed off;
- a water supply work used to extract water under an aquifer access licence must be fitted with a measurement device and the Minister may require measurement devices to be fitted to other water supply works;
- a water supply work constructed for basic landholder rights extraction must be at sufficient depth to minimise the potential for it to be impacted by other authorised extraction from the water source;
- the holder of an approval for a of a water supply work must notify the Minister of construction, extraction and testing details;
- the Minister must be advised when a water supply work is abandoned and the work must be decommissioned in accordance with standards specified by the Minister; and
- a water supply work is subject to local impact rules.

**Monitoring and reporting**

The Plan includes performance indicators against which the performance of the Plan is to be monitored to determine if it is meeting its objectives. The Plan will be audited every five years.

The Natural Resources Commission must undertake a review of the Plan prior to any decision to extend its term or to make a new Plan.

In addition, an Implementation Program is to be established setting out the means by which the provisions of the Plan will be achieved. This Implementation Program will be reviewed each year and the results reported in the Department’s Annual Report.

**Plan amendments**

An important aspect of a water sharing plan is that it provides certainty to water users in terms of their access to water. This is because the rules that are to apply for a ten-year period are defined and documented in the Plan.

However in some areas further studies may indicate that adjustments are necessary. The Plan provides for:

- review of the average annual net recharge estimates; and
- review of the environmental health water provisions;

either or both of which may result in amendment of the extraction limit.
Glossary of terms

**access licences** provide the licence holder with a share of the available water in the water source. The access licence is separate from the approvals required for water use, or for the water supply works, eg. bore.

**access licence dealing** refers to a range of changes to an access licence, an approval or the water held under the account for that licence (more generally known as water trading). These include a change in the ownership of all or part of an access licence, a change in the location from which water is extracted, movement of water allocations between access licences, or a change in the category of the access licence.

**available water determinations** (AWDs) are the means by which water is allocated to access licences each year. An AWD performs a similar function to the previous ‘annual allocation announcements’. An AWD for the licence category adds volumes of water (ie. water allocations) to the water accounts of all access licences in that category. The available water determination will also ensure that long-term extraction does not exceed the extraction limit.

**average annual net recharge** is the volume added to the groundwater source, usually from rainfall and river flows, and assessed on a long-term average basis. This recognises that the amount of recharge to a groundwater source can vary from year to year depending on climatic conditions.

**basic landholder rights** cover two types of rights to extract water from a groundwater source that do not require an access licence. The first allows landholders whose property overlies an aquifer to extract water for domestic household and stock watering purposes (domestic and stock rights). The second right allows Aboriginal native title holders (as determined under the Commonwealth’s Native Titles Act 1993) to extract water for a range of personal, domestic and non-commercial communal purposes (native title rights).

**extraction limit** is the maximum volume that can be extracted from a water source each year by all access licence holders.

**local impact management** is adopted when extraction from the aquifer causes the water level to drop in a particular area or causes water quality problems. Restrictions on the amount of water that can be extracted within an area for a period of time may be applied.

**long-term average storage component** is the volume of water in the aquifers less the combined average annual recharge.

**share component** of the access licence is the share of water made available in a water source. It is expressed as a volume for specific purpose licences such as local water utility access licence, but as a share for aquifer access licences. The amount of water a licence holder is allocated in any year as a result of an available water determination is based on their share component. Other rules, such as carryover, are also based on the share component.

**supplementary water access licences** is issued to those who have their share component reduced and who have in the past, have extracted more water than their amended share component. The water available under supplementary water access licences will be phased out over the term of the Plan.

**sustainable pressure estimate equivalent** is the volume of water that if extracted would result in the pressure levels experienced under water management and infrastructure in place in 1990.

**water supply works approval** permits water supply works (bores) to be built and operated at specified locations.

**water year** is the 12 months running from 1 July to 30 June.