Overallocation

Policy and Decision Support Framework

Purpose

This document provides policy principles and a structured framework for addressing overallocated water resources in South Australia. It is intended for use by Department of Environment, Water and Natural Resources (DEWNR) staff and all those involved in the preparation and review of water allocation plans (WAPs) with and on behalf of regional natural resources management boards. The framework is also consistent with moves to develop more transparent, structured, and robust decision making in water planning and management.

The framework outlines some key policies and a process for generating possible solutions to permanently address overallocation, and also mechanisms to evaluate options in order to select one final proposal for implementation. The framework is flexible enough to be useful in a range of water planning contexts, but is also designed to ensure consistency across the State in the approach to address overallocation.

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DEPARTMENT OF ENVIRONMENT, WATER AND NATURAL RESOURCES

Last Updated: June 2013

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1. INTRODUCTION

1.1 Introduction

South Australia is committed to the sustainable management of all natural resources, including water. The *State Natural Resources Management Plan 2012 – 2017* has as one of its goals, to achieve the sustainable management and productive use of water and Target 75 of *South Australia's Strategic Plan* states that '*South Australia's water resources are managed within sustainable limits by 2018*'.

Under the *Intergovernmental Agreement on a National Water Initiative* (NWI) South Australia has committed to achieving a better balance in water resource use for all river systems and groundwater resources. In the 2011 Biennial Assessment of the NWI, South Australia identified eight water systems that were overallocated or overused, although half had a pathway in place to return these systems to environmentally sustainable levels of use.

In South Australia the *Natural Resources Management Act 2004* (*NRM Act*) provides for the management and protection of water resources. If the level of water use in an area indicates that regulatory control is needed to ensure sustainable management of the resource, then the resource should be prescribed. Once prescribed, the ability to take water from the resource is controlled through a licensing regime. Exceptions to this occur where a person is authorised to take water under section 128 of the *NRM Act*, or they are authorised to take the water for stock and domestic purposes, or they are granted a permit to take water, including for commercial forestry in areas not declared a forestry area.

Once a water resource is prescribed, a WAP must be prepared for that resource. A WAP must assess the quantity and quality of water needed by ecosystems that depend on the water resource, take account of the present and future needs of the occupiers of the land, and assess the capacity of the resource to meet all those demands for water on a continuing basis.

Based on the assessment, a WAP must set out principles for the taking and use of water so that an equitable balance is achieved between environmental, social and economic needs for water and the rate of the taking and use of water is sustainable.

Addressing overallocation may also occur concurrently with the process of unbundling water rights. South Australia is currently in the process of unbundling water rights from the previous single 'bundled' licence[1].

Unbundling sees the rights for the taking and use of water to be managed as four separate and more transparent instruments. Unbundling also facilitates quicker and more efficient trade in water. The difference between bundled and unbundled licences is discussed in more detail in Section 3 under *Water Rights*. Further information can be found in the *Policy for the Implementation of Unbundling Water Rights* and *Unbundling Water Rights* factsheet[2].

1.3 Defining Overallocation

Overallocation refers to situations where, with full development of water access entitlements in a particular system, the total volume of water able to be extracted by entitlement holders at a given time exceeds the environmentally sustainable level of extraction for that system[3].

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[1] Transitional provisions in the NRM Act allow for the continuation of bundled WAPs where the relevant concept statement was prepared before 1 July 2009. Concept statements prepared after 1 July 2009 require the WAP to be unbundled.

[2] Department of Environment, Water and Natural Resources, 2012, *Policy on the implementation of unbundling water rights in South Australia* and *Unbundling Water Rights* factsheet at www.waterconnect.sa.gov.au

[3] See Glossary for the NWI definition of 'environmentally sustainable level of extraction'.

It is important to understand the distinctions between overallocation, and *overuse*, the latter occurring when the actual volume of water being extracted in a particular system exceeds the environmentally sustainable level of extraction for that system. In a South Australian context, overallocation occurs in prescribed water resources, where the total volume of water authorised to be taken under water allocations, section 128 of the *NRM Act* and for stock and domestic purposes is greater than the sustainable limit[4]. Simply put, if you add up all the volumes of water that are legally permitted to be taken in a prescribed water resource and that volume is greater than the sustainable limit, then the resource is overallocated.

Therefore it is possible for a water resource which is not prescribed to be over*used*, but it is not possible for a non-prescribed water resource to be over*allocated,* because overallocation by definition relates to situations where rights or other authorisations to extract water have been issued.

There are a range of options in the *NRM Act* to manage the taking of water in prescribed and unprescribed resources, including recent amendments to the Act to account for the impact of commercial forests on the relevant water resources[5]. This framework is focused on managing the taking of water in prescribed resources. For unprescribed resources, the *NRM Act* includes powers such as restrictions on the taking of water under section 132, regulations for water conservation measures under section 169 or by-laws made by a regional NRM board under section 171. In addition, a regional NRM plan may provide rules about the taking and use of water. Which of these options is appropriate will depend on the circumstances of each case and legal advice may need to be sought. Options for managing take in prescribed resources are discussed in the following section.

1.4 Legal Basis for Addressing Overallocation

The *NRM Act* includes a number of powers to permanently reduce water allocations depending on the circumstances. This framework is focused on implementing permanent reductions to water allocations and will therefore limit discussion to relevant sections of the *NRM Act*, specifically sections 76, 155, and 164N which are explained in greater detail in Appendix A. Amendments introduced by the *NRM (Commercial Forests) Amendment Act 2011* are also aimed at managing take by requiring the manager of a commercial forest in a declared forest area to hold a forest water licence that offsets the impact of the forest on the relevant water resource. The focus of this document is to guide staff involved in the development of WAPs. The preferred method for addressing overallocation is through the review and amendment of a WAP.

Section 164N is relevant for the first time issue of water rights; however, the principles in this document can equally apply to the use of that mechanism.

Section 155 of the *NRM Act* should be used where a short-term response is required and the mechanism of amending the WAP is not considered effective. However, where section 155 is used, it is important to reflect these decisions in the next iteration of the relevant WAP.

Permanent reductions result in a change to the long-term average volume of water that can be taken. This is in contrast with annual variability in water allocations based on policies set out in a water allocation plan, which are designed to manage short-term variability in a water resource, due to rainfall or water levels etc.

The mechanisms for introducing annual variability in water allocations are not considered in this document. If that mechanism is altered, because of a change in policy to address overallocation, resulting in a change in long-term average volume of water allocation, then it is within the scope of this policy and framework.

[4] In South Australian WAPs, a range of terms are used in reference to the sustainable limit, for example: the acceptable level of extraction, target management level, permissible annual volume, or consumptive use limit.

[5] *Natural Resources Management (Commercial Forests) Amendment Act 2011*.

Section 76 provides power for a WAP to effect reductions when the WAP is adopted or at a later stage depending on, for example, resource condition triggers. A WAP also determines or provides a mechanism for determining the consumptive pool from time to time, and a change in this determination or mechanism can be a tool to address overallocation.

Sections 155 and 164N allow the Minister to take immediate action to reduce entitlements or allocations as an issue is identified. For example, the Minister can act to reduce allocations to a particular part of a water resource via a scheme pursuant to s155. These powers of the *NRM Act* are discussed in more detail in Attachment 1; however, advice should be sought from the Crown Solicitor's Office on any proposal to reduce water allocations under these sections.

Regardless of the mechanism used, the evidence base for determining that a resource is overallocated is going to be very important, as well as a transparent and robust decision making process around the method to be used to address overallocation and consultation with all relevant stakeholders.

Section 3 of this document outlines issues and evidence that should be considered and compiled in the process of developing proposals for addressing overallocation.

1.5 Guiding Policies and Principles

This overallocation framework is underpinned by the following four key principles which are broadly consistent with the objects of the *NRM Act*, the *State NRM Plan 2012 – 2017* and *South Australia's Strategic Plan*:

Sustainability: Water resources will be managed within sustainable limits with the aim to achieve an equitable balance between environmental, social and economic needs and to protect the resources for existing and future users.

Knowledge base: It is essential to develop and share knowledge for water management. Knowledge can be acquired from a wide range of sources including rural, urban, Aboriginal and scientific communities. It is important to ensure that people and organisations are better informed about NRM and sustainable management in order to make informed decisions.

Adaptive management: Water resources management often occurs in an environment of limited information and/or a lot of complexity which requires an adaptive approach to use the best available information for the first actions, regular evaluation and review, and continually improving in response to expanding knowledge. The NWI calls for planning frameworks to provide for adaptive management of surface and groundwater systems in order to meet productive, environmental and other public benefit outcomes. For an example of adaptive management principles based on resource condition triggers, refer to the principles in the Tatiara and Tintinara-Coonalpyn WAPs at: http://www.senrm.sa.gov.au/Water.aspx.

Precautionary approach: Recognising that uncertainty will often exist, best available information should be used to inform a precautionary approach to managing water resources. For example, if there is limited available knowledge about the capacity of a water resource, a precautionary approach should be taken when calculating the sustainable yield. This is consistent with the objects of the *NRM Act* and the risk management approach to water resources management. (See DEWNR's *Risk Management Framework for Water Planning and Management* and the *Risk Management Policy and Guidelines for Water Allocation Plans* on WaterConnect http://www.waterconnect.sa.gov.au/WaterManagement/WaterPlanning/Pages/PoliciesGuidelinesToolsAndFactSheets.aspx).

The 2011 Biennial Assessment of progress against the NWI shows that South Australia has made solid progress to identify overallocated and overused resources and implemented pathways to adjust these to sustainable levels of extraction. To maintain this effort and develop a consistent approach to addressing overallocated resources, the following policies should be adhered to:

Policies to Address Overallocation

POLICY 1: *The preferred mechanism to deal with overallocation of a water resource, where water rights already exist, is through the review and amendment of a WAP.*

Where rights are issued for the first time and entitlements assigned to existing users exceed the capacity of the resource, section 164N mechanisms should be used. Section 155 of the NRM Act will be used where there is an immediate need to address overallocation and alignment with development of an amended WAP or the use of section 164N is not feasible.

POLICY 2: *If a resource is identified to be overallocated during the development of a revised water allocation plan (WAP) then that WAP should establish a transparent pathway that ensures the overallocation is addressed in accordance with this Framework.*

NB. *In the case of plantation forests, acknowledgement will be given to the longer timeframes of forest rotations and these will be taken into consideration when assessing the contribution of plantation forests in addressing overallocation.*

2. FRAMEWORK - OVERVIEW

Addressing overallocation is a significant water management issue. Overallocation is a potential source of risk to achieving the objectives of the WAP and ultimately to the long-term sustainability and ecological integrity of the resource as well as the long term economic sustainability of any enterprise dependant on the resource. Under the Council of Australian Governments (COAG) water reform agenda, addressing overallocation has been identified as a key priority. In order to demonstrate its achievements consistent with the water reform agenda, it will be necessary for the State to clearly document the processes it undertakes to address overallocation. In addition, it will be important for the Minister for Sustainability, Environment and Conservation ("the Minister") to be well-informed regarding progress and milestones in addressing overallocation. The same information may be required for Water Resource Plans that need to be accredited under the proposed Basin Plan.

This framework can be used in the preparation of a WAP in order to identify proposals for addressing overallocation. The outcomes of this process should be provided as a background report to the WAP and provided separately to the Minister.

2.1 Framework Scope

This framework has been developed to provide a process for implementing permanent reductions to water allocations in overallocated resources. This framework does not provide discussion of what science or information is required to determine a sustainable extraction limit and the extent of overallocation. The framework is based on the assumption that either:

The sustainable extraction regime has been determined and the extent of overallocation is known. Therefore the total reduction (volume) that may need to be made is known;

or

Changes to the resource condition indicate that the resource is overused and/or overallocated, and there is a medium to high-level risk to the ongoing sustainability of the resource. However, because the resource may not be well understood, a sustainable extraction regime may only be able to be set with a low level of confidence or it may not be possible to confidently establish the sustainable extraction limit. Consistent with the use of the precautionary approach, an initial target for reducing the volume of extraction may be adopted as a 'first step'.

Also, there may be instances where the sustainable extraction limit has been determined but the WAP also contains, as part of its adaptive management framework, provisions to reduce allocations when resource condition triggers are exceeded.

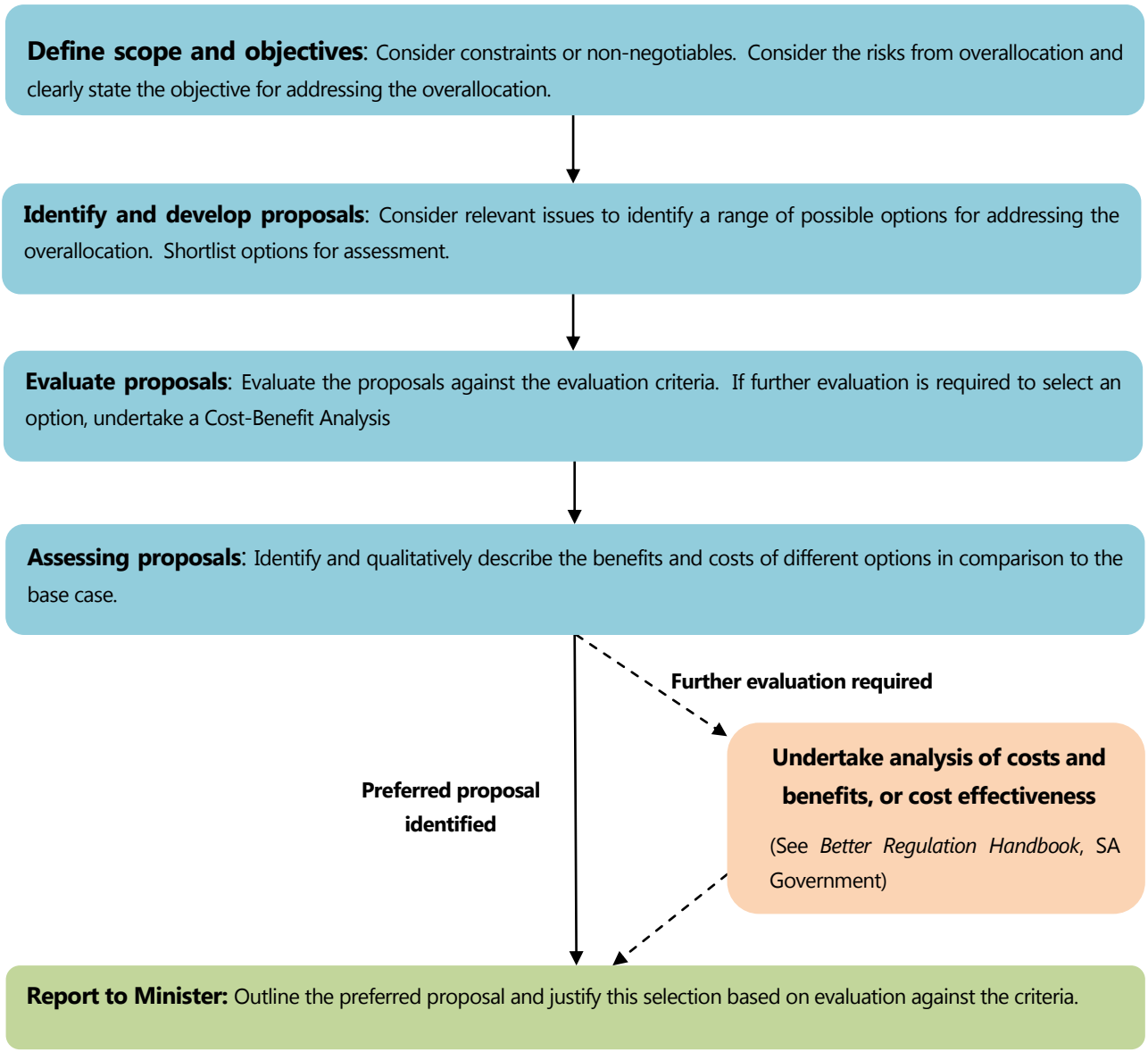
The framework also operates under the assumption that any existing allocations are expressed in volumetric form. While some prescribed water resources in South Australia currently have area based allocations, work is underway to convert all allocations to volumes. Even if the process of volumetric conversion is undertaken as part of the same WAP review in which overallocation will be addressed, the volumetric conversion is a separate process that should be undertaken prior to considering overallocation[6]. Thus, this framework assumes that volumetric conversion will have taken place prior to addressing any overallocation issues.

In addition to addressing known overallocation in prescribed water resources, the principles of the framework could also be applied when undertaking the first issue of licences in a prescribed resource. The *NRM Act* establishes a framework for issuing licences to existing users when a water resource is prescribed. If the entitlements of existing users exceed the capacity of the resource, steps must be taken to ensure that entitlements are reduced so as not to exceed the capacity of the resource (i.e. so that issuing licences does not result in overallocation). This framework should be used to support decision-making in that context.

[6] The Minister does not have to wait until a review of the WAP occurs to reduce allocations.

Finally, this framework does not consider the assignment of risk associated with any reductions to the volume authorised to be taken under the terms of a water licence. The process of risk assignment determines who will bear the risk associated with any future reductions that may be required for the sustainable management of a water resource. A policy on risk assignment is available separately to this Framework[7].

Figure 2: ***Overview of the Overallocation Decision Support Framework***



[7] Department for Water 2012, *SA Policy Statement: Risk Assignment Policy* www.waterconnect.sa.gov.au

2.2 Community Engagement

The water planning process in South Australia is underpinned by community input and involvement. The Government's approach to decision-making emphasises the importance of community engagement and discussion in order to reach a decision.

This framework has been developed with the assumption that community engagement will take place as part of the process of addressing overallocation. However the framework does not provide prescriptive directions on how often or at which stages of the process community input should be sought. The responsibility lies with the NRM Boards, supported by DEWNR staff involved in water planning, to develop appropriate consultation plans to ensure community engagement, consistent with the requirements of the *NRM Act* and the common law rule of procedural fairness.

There are minimum statutory consultation requirements outlined in the *NRM Act* when addressing overallocation in accordance with the legal provisions outlined above. It is also important to be aware that there is a common law duty to observe procedural fairness in the exercise of a statutory power which is likely to affect a person's rights. Therefore, before a person's interests are affected, they should be given notice of any relevant matters and have the opportunity to respond to those matters.

DEWNR's *Risk Management Framework for Water Planning and Management* (DEWNR 2012) offers guidance on communication and consultation as part of the risk management process. Departmental corporate communication templates also offer guidance on implementing communications strategies (see the DEWNR intranet site or contact DEWNR for access to these strategies). In addition, the State Government's guide for engaging communities and stakeholders in decisions *Better together: Principles of engagement* is a useful document containing high-level principles for community engagement.

3. FRAMEWORK - IN DETAIL

This framework is set out in five steps as follows and is discussed in detail below:

1. **Define Scope and Objectives**
2. **Identify and Develop Proposals**
3. **Evaluate Proposals**
4. **Assessing Proposals**
5. **Consultation and Documentation**

3.1 Define Scope and Objectives

Before approaching any task or problem, it is important to have a clearly defined objective which will assist in defining the scope of the work. Defining the scope of work includes identifying the risks, constraints and/or non-negotiable elements, as well as identifying issues that are out of scope.

As noted in the discussion in Section 2.1, this framework starts from a position where the science to determine the resource capacity has been completed, a sustainable extraction limit has been determined and the extent of overallocation is known or there is sufficient evidence in terms of resource condition triggers that a reduction in allocations and/or use is required. It is important to ensure that there is a robust evidence base on which to base decisions and recommendations to the Minister to justify why a particular course of action should or could be taken. This gathering of evidence or information about the resource can be time consuming and allowance needs to be built into the planning and management process.

Issues and constraints that should be considered when defining the scope include:

- The statutory framework for water planning. Other than the *NRM Act* other legislation, plans, or agreements may also be relevant to water planning and management in certain resources. These could include the *Groundwater (Border Agreement) Act 1985*; *Water Act 2007* (Cth); Inter-Governmental Agreement on a National Water Initiative; and the Basin Plan.
- An assessment of the risks and consequences of overallocation needs to be considered.
- Key policy positions such as policies for unbundling, risk assignment and unallocated water.
- Trade mechanisms, whilst not entirely effective tools for addressing overallocation, still serve as an important mechanism for facilitating adaptation and adjustment to reduced water availability[8].
- Key environmental assets reliant on the prescribed resource and specific management objectives for them.
- Other objectives or targets for resource condition such as those associated with managing salinity, flow rates, or drawdown.
- The risk posed by the taking of water which does not require authorisation by a water licence, and whether the licensing of those will be considered (for example Forestry, see Box 1 below), noting that the prescription of stock and domestic use should occur at the time the resource is first prescribed.
- Quarantining certain categories of use from potential reductions, such as public water supply, bearing in mind the consequences and impacts of those exemptions.
- The staff resources available to generate a proposal for addressing overallocation and for implementing any selected proposal relative to the expected benefits.

[8] Note that any trading arrangements to facilitate adjustment to reductions need to be consistent with the NWI and limit impediments or restrictions on trade in entitlements.

- Timelines or deadlines. For example is there a deadline by which the WAP must be prepared? Are there any national water reform commitments that specify a deadline for addressing overallocated resources? Is the water resource in a critical condition and does this mean that overallocation must be addressed by a certain deadline to avoid irreparable damage?

Unbundling of water rights

A key consideration in identifying the scope of addressing overallocation in a particular circumstance will be whether water rights have been 'unbundled'. In general terms, unbundling means that the rights and approvals for taking and using water will be managed as four separate and more transparent instruments. Unbundling also facilitates quicker and more efficient water trading. The four instruments are:

(i) water access entitlement (WAE) – ongoing right to a specified share of water available in the relevant consumptive pool

(ii) water allocation –the right to take a specific volume of water for a given period of time, not exceeding 12 months, based on the volume of water available for allocation in that period

(iii) water resource works approval – authorisation to construct, operate or maintain works for the purposes of taking water

(iv) site use approval – authorisation to use water taken from a water resource on a particular site.

In a bundled water rights scenario, a single water licence provides the right to take and use a volume of water, subject to conditions endorsed on the licence.

The NRM Act and associated Regulations provide for the staged implementation of unbundling water rights across the State. These transitional arrangements allow for the adoption of 'bundled' WAPs that commenced development prior to 1 July 2009.

The fundamental differences between bundled and unbundled water rights are outlined in Table 1. For further guidance on unbundling, refer to Department of Environment, Water and Natural Resources' *Policy on the Implementation of Unbundling Water Rights in South Australia* and Unbundling Water Rights factsheet available on the WaterConnect website. (www.waterconnect.sa.gov.au)

TABLE 1: *Comparison of bundled and unbundled water rights*

Bundled	• A water licence includes a quantity of water (which is taken to be a water access entitlement). • Principles in the WAP determine the sustainable limits and licences are issued to be consistent with the WAP. • The holder of the water licence obtains a water allocation equal to the amount specified on the licence. • Conditions that relate to the taking and use of water are included on the licence.
Unbundled	• The water access entitlement provided on a water licence may be expressed as an ongoing right to a specified share of the water available in a consumptive pool[9]. • A water allocation is obtained on account of a water access entitlement. The water allocation relates to a period not exceeding 12 months. • The WAP needs to determine or provide a mechanism to determine the consumptive pool from time to time (NRM Act 2004: s146(4)). • Minister is required to determine the volume of water that is to be made available for allocation from a consumptive pool. • Conditions that relate to the taking and use of water are included on separate approvals (e.g. water resource works approval and site use approval).

Factors to consider in bundled and unbundled water rights frameworks, though these are not mutually exclusive, include:

If operating in a bundled water rights framework:

- What categories of use are there? What volumes of water are allocated to the different categories of use?
- What would be the impact of a reduction in water availability on different types of use?

[9] The State's Unbundling Policy statement

- What is the capacity of different categories of use to change or adapt to a reduction in water availability in both the short- and long-term? (Factors to consider may include capacity to improve efficiency of use, or access to water trade and markets)
- Does unmetered (but licensed) use pose a significant risk to the sustainability of the water resource?
- Does unlicensed use pose a potential future risk to the water resource?[10]

If operating in an unbundled water rights framework:

- Do multiple consumptive pools need to be created to reflect the different purposes or characteristics of the resource? Accordingly, is the current process for determining the allocation against a share appropriate?
- Is there a need for deliberate constraints on certain consumptive pools? i.e. entitlements for the environment, or for critical human water needs? Note that shares in a consumptive pool are set for the life of the WAP.
- Could unlicensed uses pose a significant risk to the water resource?

3.2 Identify and Develop Proposals

In the course of identifying the objective for addressing overallocation, it may be useful to understand 'how' and 'why' the resource came to be overallocated as the reasons may offer useful context when developing solutions to the problem. It is also important to assess the consequences and risks of overallocation to inform the approach to addressing the problem. After identifying the objective(s), a brainstorming process to identify a broad range of potential proposals for meeting the objective should then be undertaken. It is important to develop these proposals so they provide a clear description of the proposed scenario considering the factors influencing the water rights framework discussed above.

[10] Note that the decision to licence stock and domestic use should be made at the time the resource is first prescribed.

Table 2: ***Potential options for addressing overallocation include***

Bundled	• Proportional reductions (Note. Any reduction options other than this will require a regulation to be made). • Apportion different percentage reductions based on purpose of use. • Apportioned reductions to inactive (or 'sleeper') licences before making reductions to active licences. (see Mallee WAP 2012 at http://www.naturalresources.sa.gov.au/samurraydarlingbasin/water). • 'Quarantine' certain purposes of use from reductions. • Responsive policies where there is uncertainty – e.g. stepped reductions in concert with resource condition monitoring (triggers) to determine further cuts, or if cuts can be discontinued. • Consider alternative methods to achieve water savings to reduce demand from licence holders – e.g. infrastructure upgrades (noting that the State's Risk Assignment Policy means that no compensation is payable). • Import water from sources external to the prescribed resource. • Facilitate trading of water to highest value uses and to assist adjustment. These options could be implemented as transitional or phased-in reductions but this could increase the administrative complexity of the option.
Unbundled	• Amend the allocation (or 'value') against a share. This may involve including resource condition triggers when determining the consumptive pool in the WAP process that influences the reliability profile of shares in the resource. • Proportional or differential reductions across different consumptive pools, for example, there could be a 10% reduction within a prescribed wells area and 15% reduction in a surface water area without making a regulation. Note. Shares within a consumptive pool need to be treated equally/consistently). • Import water from sources external to the prescribed resource. • Facilitating trade that may assist adjustment to the reductions[11]. • Determine a mechanism that provides for a certain base allocation that is highly reliable and a more variable allocation on top. These options could be implemented as transitional or phased-in reductions but this could increase the administrative complexity of the option.

The above lists of potential options are by no means mutually exclusive nor exhaustive. Once the decision is made that the prescribed resource is overallocated and entitlements and/or allocations must be reduced, then *any* pathway to a more sustainable regime proposed by any stakeholder, provided it is legally robust and equitable from a local community perspective, should be considered.

For prescribed water resources that have not been unbundled, it is likely that addressing overallocation will occur concurrently with transitioning that prescribed water resource to an unbundled environment which may also include volumetric conversion. Within this context, two options emerge for addressing overallocation in conjunction with the water rights transition:

(i) Convert existing water rights from bundled to unbundled. Then work through decision-making processes to address overallocation within the unbundled framework.

Example: Bundled licences with 100 ML and sustainable extraction regime is 90 ML. Unbundle to 100,000 shares, then work through a process to determine the mechanism to allocate against the 100,000 shares in a manner that ensures the 90 ML is not exceeded.[12]

[11] See Note 9

(ii) Work through decision-making processes to address overallocation within the existing bundled framework, and once the calculations of reductions have been made to bundled licences, convert those to the unbundled water rights system. Note that further reductions could be achieved if necessary by varying the amount allocated to each share once unbundled.

Example: Reduce bundled licences from 100 ML to the sustainable limit, say 90 ML, then unbundle to 90,000 shares.

Implementing a phased reduction in unbundled systems may involve issuing additional shares to licence holders then progressively reducing allocations until the sustainable limit is reached.

In November 2011, amendments were made to the *NRM Act* to provide two legislative tools to help manage the impact of commercial forestry; forest water licences and an expanded forest permit system. These amendments introduced by the *NRM (Commercial Forests) Amendment Act 2011* provide the legislative powers to the State Government's policy framework; *Managing the water resource impacts of plantation forests* (http://www.environment.sa.gov.au/managing-natural-resources/water-use/water-planning/water-for-commercial-forestry).

The framework sets high-level principles and provides guidance to agencies to ensure that the water resource impacts of plantation forests are identified and managed within sustainable limits. The policy framework promotes the use of appropriate management tools and provides a decision support tool to help planners and decision-makers work out the best option to manage the water resource impacts of forests in a specific set of circumstances, recognising that forests use water differently to irrigated agriculture and other water uses.

The framework acknowledges the need to address overallocation, and to prevent overallocation arising in the future. In overallocated areas where plantation forests are considered to have a significant impact on the water resource, settling trade-offs between competing outcomes for water systems will involve judgements informed by the best available science, socio-economic analysis and community input. These judgements and recommendations about which legislative tool to apply, will be made by regional NRM Boards in future NRM plans and water allocation plans.

The *NRM Act*, forestry policy framework, and this overallocation decision support framework should be used together to help address the impacts of forestry in overallocated water resources.

3.3 Evaluate Proposals

Once clearly defined proposals have been generated, a qualitative evaluation of the proposals against the eight criteria (Box 2) should take place. The evaluation spectrum (Table 3) on Page 16 can be used as a tool to undertake a qualitative, yet structured, evaluation of the criteria listed in Box 2.

It is likely that different evaluation criteria will be viewed as more important than others. Thus, it may also be useful to prioritise or weight the evaluation criteria according to their relative importance. This may help to guide the evaluation and assist in identifying preferred proposals later. It may not be necessary to rank all criteria, but instead to identify one or two that are key priorities or that must be met in order to achieve the appropriate objective. Following this evaluation, if no options measure up well against any of the criteria then the options may need to be reviewed and further brainstorming undertaken to generate new options.

[12] It is generally accepted that in order to convert bundled volumetric licences to unbundled shares, a share will be 'valued' at 1 kilolitre (kL) initially. This is only to facilitate the conversion process, and does not indicate or guarantee that a share will be 'worth' 1kL at any point in the future.

BOX 2: *Criteria for evaluating proposals* (Note. There are certain criteria that are non-negotiable or should rank or be weighted higher than other criteria)

- *Legality*: [Non-negotiable]. Is there power in the *NRM Act* to take the proposed action and is the proposal consistent with the objects of the *NRM Act*? Advice should be sought from the Crown Solicitor's Office at the earliest possible stage. Other legislation, plans and policies may also be relevant, such as the *Groundwater (Border Agreement) Act 1985*, *Water Act 2007* (Cth), and *Intergovernmental Agreement on a National Water Initiative 2004*.
- *Effectiveness*: [High weighting]. Will the proposal achieve the objectives without leading to perverse outcomes? Will the proposal result in the desired outcome to achieve a 'real' reduction in metered use or a reduction in WAEs to reach the sustainable limit.
- *Administrative simplicity*: Does the proposal require complex administrative processes and structures in order to implement, noting that this should not be overly weighted relative to the other criteria? Considerations include staffing requirements, legislative amendments, the capacity of the licensing and administrative systems and metering systems, or the skill base required to calculate or implement the proposal.
- *Appropriateness*: Is the proposal based on sound environmental, economic, and/or social rationales?
- *Community Acceptance*: Is the proposal supported by a majority of the community and a broad representation of different sectors or interest groups?
- *Efficiency*: Is the proposal economically efficient? i.e. is the cost of achieving the objective as low as possible.
- *Equity*: Does the proposal treat all affected parties in an equitable manner? Equity can be assessed from two perspectives: process and outcome. Process equity assesses if the process used to determine potential changes to water extraction has treated all affected parties equitably. Outcome equity assesses if the outcome of a process or proposal results in equitable changes to all affected parties. It is possible for a process to be equitable, but for that process to result in outcomes that are perceived to be inequitable. This needs to be carefully explained in the consultation process to help the community understand this concept.
- *Transparency*: Will the proposal allow the community to have ready access, ease of understanding, and a capacity to audit information and processes? Does the proposal provide for openness, communication, and accountability with the community?

TABLE 3: ***Evaluation spectrum for assessment of proposals***

Criteria	**Evaluation spectrum**		
Administrative simplicity	Proposal requires large administrative effort to implement, and/or major changes to current administrative arrangements	Proposal requires moderate administrative effort to implement, and/or minor changes to current administrative arrangements	Proposal could be implemented with minimal administrative effort, and/or without changes to current administrative arrangements
Appropriateness	None of the rationales underpinning the proposal are practical and rigorous	Some of the rationales underpinning the proposal are sensible and rigorous	All of the rationales underpinning the proposal are sensible and rigorous
Community Acceptance	The proposal is likely to have support from only a small proportion of the community	The proposal is likely to have support from some of the community	The proposal is likely to have support from a broad, representative majority of the community
Effectiveness [High weighting]	The proposal will achieve the objective with many perverse outcomes	The proposal will achieve the objective with some perverse outcomes	The proposal will achieve the objective without any perverse outcomes
Equity (Outcome)	The outcomes resulting from the proposal have unequal impact across all users, with some groups greatly favoured or disadvantaged.	The outcomes resulting from the proposal have equal impact across most users, but favour or disadvantage a small number of groups	The outcomes resulting from the proposal have equal impact across all users
Equity (Process)	The process of the proposal treats no one equitably and displays large biases	The process of the proposal treats some users equitably, display bias to one or more groups	The process of the proposal treats all users equitably
Legality [Non-negotiable]	Inconsistent with current legislation, requires major legislative amendment	Inconsistent with current legislation, requires minor legislative amendment	Consistent with legislative framework
Transparency	No one will be able to understand the proposal except a small group of 'experts' or 'insiders'	A minority of the community will be able to understand the proposal	The majority of the community will be able to understand the proposal
Efficiency	Economic efficiency is best analysed through assessing relevant costs and benefits (see section 3.4.)		

Selection of preferred proposal or shortlist

After undertaking this evaluation, one proposal may emerge as suitable for implementation. Alternatively, after undertaking this evaluation a shortlist of proposals may emerge as suitable options for implementation. If this is the case, further evaluation of this shortlist could be progressed by examining the relative costs and benefits of the proposals to compare their economic efficiencies. In cases with community concerns or significant impacts to business, a review of the costs and benefits of proposals provides a further tool that enables more transparent and robust decision making.

In a further attempt to narrow the range of suitable options, it may be useful to seek community input and feedback on the shortlist of proposals. This encourages community 'ownership' of the final decision and can facilitate implementation of the proposal.

3.4 Assessing Proposals

An assessment of costs and benefits when addressing overallocation is a valuable exercise for gathering the vital evidence base that underpins sound decision-making. This evidence-base ranges from having the scientific data that underpins decisions about environmentally sustainable levels of use through to data on the benefits and potential impacts on users from changes to consumptive use. Without a solid evidence base, decision-makers may be tempted to rely on intuition, ideology or conventional wisdom which, if challenged sometime in the future, can be difficult to justify and remedy.

The South Australian Government has a commitment through COAG to apply best practice regulatory principles when designing new regulation and reviewing existing regulation (regulation defined as including measures such as codes, standards or accreditation schemes, agreements with industry bodies, etc). Permanent or ongoing changes to the volume of water made available to holders of water licences through amendments to statutory WAPs are impacts that warrant a closer assessment of benefits and costs of changes to regulation.

The South Australian Department of Treasury and Finance has prepared a *Better Regulation Handbook* which provides a guide to regulatory impact analysis and outlines a stepped process for undertaking a cost benefit analysis (see www.competitivesa.biz/documents/BetterRegulationHandbook_Jan2011.pdf). A more detailed guide to undertaking a cost-benefit analysis exists in the *Handbook of Cost-Benefit Analysis* produced by the Commonwealth Department of Finance and Administration (see www.finance.gov.au/publications/finance-circulars/2006/docs/Handbook_of_CB_analysis.pdf).

The identification of costs and benefits of various proposals allows a comparison with the 'base case' or current situation where the resource is overallocated. A 'do nothing' scenario would see water users continue to utilise the resource without incurring costs of adjusting to the sustainable limit although, if the overallocation leads to overuse, increased costs may be borne by both water users through additional pumping costs and costs of adapting to increasing salinisation of the resource, and the environment through the decline of groundwater dependent ecosystems or increased salinity that affects downstream water users.

Assigning values to environmental assets and economic activities can be a complex and time consuming process, however, the process of attempting to identify impacts on various stakeholder groups and the environment is in itself a valuable exercise that can inform a qualitative assessment of costs and benefits. This is consistent with the principle of using a precautionary approach when there is a high level of uncertainty about values to be derived on addressing overallocation versus a 'no change' scenario.

The level of detail and depth required to undertake an assessment of costs and benefits should be proportional to the degree of risk to the resource and the potential impacts on stakeholders. That is, if addressing overallocation is likely to have significant socio-economic impacts on a region, there is a strong case for developing a sound evidence base using some of the techniques from cost-benefit analysis to inform decision-making.

Distributional Analysis

Conventional cost-benefit analysis tends to treat all groups equally when assessing the impact of a proposal whereas many people would accept that different sectors or groups of people value different costs and benefits differently. In evaluating the

criteria of 'equity', it may be useful to construct a distributional incidence matrix that shows the gains and losses of a proposal across different sectors or groups of the community. Constructing a distributional incidence matrix can be helpful in understanding the gains and losses as a result of a proposal. The typical basic layout of a distributional incidence table is shown below.

Table 4: Example layout for a distributional incidence table

	Group 1	Group 2	Group 3
Gains			
Losses			

The Commonwealth's *Handbook of Cost-Benefit Analysis* contains a useful section on analysing distributional effects including an outline of how benefits might be weighted amongst different groups.

Cost-Effectiveness Analysis

An alternative approach to the standard cost-benefit analysis technique is cost-effectiveness analysis which can be used when the quantification of impacts is difficult to objectively measure. This approach compares the cost of a range of options that could be implemented to achieve a similar outcome or benefit. In an environmental context, the benefit might be returning a resource to an environmentally sustainable level or restoring a wetland to a healthy, resilient state.

It is important to remember that cost-effectiveness analysis does not determine whether there is an overall net benefit for the community and also assumes that all groups in the community place similar values on the impacts (costs or benefits).

The Commonwealth *Handbook of Cost-Benefit Analysis* provides some useful discussion on the use of cost-effectiveness analysis and provides a case study on the use of this technique.

3.5 Consultation and Documentation

Addressing overallocation is a complex and sensitive process which is more likely to be challenged by individuals or communities impacted by reductions. The WAP planning process sets out specific statutory requirements outlining the obligations to consult with public and interest groups in relation to the WAP. An NRM Board's WAP advisory committee should be a useful resource for obtaining community views on proposed reductions. Even where there is no statutory requirement to consult, a person whose interests may be affected by the exercise of a power to reduce allocations should be given an opportunity to comment on the proposal (in accordance with the common law rule of procedural fairness). The community could also be invited to submit their own proposals.

It is important that this input and the evidence gathered in the process of addressing overallocation is well documented, consistent with the principles in DEWNR's *Risk Management Framework for Water Planning and Management*, particularly the principles of *transparency* and use of *best available information (and science)*.

4. GLOSSARY

Consumptive pool	The water that will from time to time be taken to constitute the resource within a particular part of a prescribed water resource for the purposes of Chapter 7 of the *NRM Act*.
Consumptive use	Use of water for private benefit consumptive purposes including irrigation, industry, urban and stock and domestic use.
Existing users (licences)	The licences issued to existing users pursuant to Section 164N of the *NRM Act*. This is a once-off process that occurs after the relevant water resource is prescribed. Following the introduction of the NRM (Commercial Forests) Amendment Act 2011, a similar facility will exist under Section 168I to issue a forest water licence for existing commercial forests in relevant declared forest areas.
Environmentally sustainable level of extraction	The maximum level of water extraction allowable in a particular water resource (including the volume, timing, location and management of flows and extraction) that ensures that the environmental and other public benefit outcomes of the water plan can be met at an acceptable level of risk. *Source: NWI Policy Guidelines for Water Planning and Management.*
'Sleeper licences'	An unofficial term used to describe licences where the volume of water allocated on a water licence is not being used at all.
National Water Initiative (NWI)	An agreement signed in 2004 by the Council of Australian Governments outlining a shared commitment by governments to increase efficiency of Australia's water use leading to greater certainty for investment and productivity, for rural and urban communities, and for the environment.
Overallocation	With full development of water access entitlements in a particular system, the total volume of water able to be extracted by entitlement holders at a given time exceeds the environmentally sustainable level of extraction for that system. (Schedule B, NWI) In a South Australian context, overallocation occurs in prescribed water resources, where the total volume of water authorised to be taken under water allocations, section 128 of the *NRM Act* and for stock and domestic purposes is greater than the sustainable limit.
Overuse	There is an overuse for a water resource plan area if the total volume of water actually taken for consumptive use from the water resources of the area at a given time exceeds the environmentally sustainable level of take for those water resources.
Prescribed Water Resource	A watercourse lake or well, or a surface water area, that is declared by the Governor to be prescribed under section 125 of the *NRM Act*.

Reliability	The frequency with which water allocated under a water access entitlement is able to be supplied in full.
Risk assignment	The term used to describe who bears the risk if the volume of water made available to holders of water licences is permanently reduced or becomes less reliable on an ongoing basis.
Unbundling	The separating of former water entitlements which bundled water, water use, delivery and works approvals, into separate instruments.
Water Access Entitlement	The ongoing rights to gain access to a share of water available in a consumptive pool or pools.
Water Allocation Plan	A statutory document that provides for the allocation of water, and for the administration and management of a prescribed water resource.
Water allocation	The volume of water able to be taken in a specified period under the terms of the relevant water licence (generally a water use year, commencing on 1 July).

5. Appendix A: Legal basis for addressing overallocation

The *NRM Act* includes a number of powers to permanently reduce water allocations to protect the resource. The key sections for implementing long-term, permanent reductions to use are presented below. Whilst there are other powers within the *NRM Act* to restrict use (for example, section 132) these tend to be used for short-term purposes. Advice should be sought from the Crown Solicitor's Office on any proposal to reduce water allocations under these sections or any other sections of the *NRM Act*.

Section 76:

Section 76(4) sets out the information that must be included in a WAP.

This includes the mechanism for determining, from time to time, a consumptive pool or pools (s76(4)(ab), which is consistent with the NWI and proposed Basin Plan requiring that the mechanism for allocating against shares needs to be documented in the WAP.

Section 76(4)(b) provides that a WAP must:

(b) set out principles associated with the determination of water access entitlements and for the taking and use of water so that –

(i) an equitable balance is achieved between environmental, social and economic needs for the water; and

(ii) the rate of the taking and use of the water is sustainable.

Section 76(4)(b) allows a WAP to set out principles that provide how and when water allocations are to be reduced so that the sustainable extraction limit in the WAP is not exceeded. This allows a WAP to provide an immediate response to concerns about the sustainability of a water resource by providing for the reduction of allocations on the adoption or amendment of the WAP. It also allows a WAP to adopt an adaptive management framework by providing for measures to be taken to reduce allocations in the future, for example if a resource condition trigger is exceeded. The WAP could specify reductions proportionately or on some other basis.

Section 76(8) of the *NRM Act* provides as follows:

> *A water allocation plan may, in order to improve the management of a water resource, change the basis on which water is allocated from the resource notwithstanding that a consequential variation of a water licence to maintain consistency with the plan results in a reduction or increase in the quantity of water allocated in relation to the licence.*

Section 76(8) allows a WAP to effect a change in allocation policy to improve the management of the water resource. For example, this could include a principle that changes the total amount of water that might be sustainably allocated from a water resource. The WAP could then set out principles for giving effect to reductions that are necessary as a consequence of the change to the sustainable allocation level. The WAP could specify reductions proportionately or on some other basis. There would need to be a policy explanation in the WAP that demonstrates why the change is considered to be necessary and that it is being made to improve the management of the relevant water resource.

Section 155:

Section 155(1) provides that the Minister may reduce water allocations if the Minister is of the opinion that it is necessary or desirable to do so to:

(a) to prevent a reduction, or further reduction, in the quality of the water in the resource or in a water resource that is affected by the taking of water from the firstmentioned resource; or

(b) to prevent damage, or further damage, to an ecosystem that depends on that water or on the water from a resource that is affected by the taking of water from the firstmentioned resource; or

(c) because there is insufficient water to meet the existing demand or expected future demand for water from that resource or from a water resource that is affected by the taking of water from the firstmentioned resource; or

(d) because there has been, or is to be, a reduction in the quantity of water available—

(i) under or by virtue of the Groundwater (Border Agreement) Act 1985; or

(ii) on account of the operation of the Murray-Darling Basin Agreement, the operation or effect of a resolution of the Ministerial Council under that agreement, or the operation or effect of the Basin Plan under the Water Act 2007 of the Commonwealth.

One or more of these criteria must be met before the Minister can reduce allocations under s.155. Allocations can be reduced by the Minister proportionately or pursuant to a scheme set out in regulations (s.155(2) and (3)). The Minister may introduce a scheme for the reduction of allocations in only a part of a particular prescribed water resource once satisfied that it is necessary or desirable to reduce allocations in accordance with the requirements set out in s.155(1).

Before making a recommendation to the Governor to make regulations to reduce allocations pursuant to a scheme, the Minister must:

- Consult the relevant regional NRM board;
- Publish a notice in the Gazette, and in a newspaper circulating generally throughout the State and in a local newspaper, outlining the proposed recommendation, stating the reason for it and inviting interested persons to make written submissions to the Minister within a period stated in the notice (being at least 3 months); and
- Have regard to the views of the regional NRM board and all submissions received (s.155(5)).

The Minister may, in taking action under s.155 make corresponding variations to water access entitlements and delivery capacity entitlements that relate to relevant water allocations reduced under this section (s.155(6)).

Section 164N(3):

Section 164N provides for the allocation of water to existing users.

The Minister is required to initially determine the water access entitlement (being a share of a consumptive pool) to which each existing user is entitled. This requires the Minister to determine each applicant's future requirements having regard to the tests in s.164N(2)(a) and (b) that is:

- Based on his or her reasonable requirements during the establishment period (s.164N(2)(a)); or
- For water for a development project or other undertaking to which he or she was legally committed or in respect of which he or she had committed significant financial or other resources during the establishment period (s.164N(2)(b)).

If the aggregate of the water access entitlements assigned to existing users exceeds, in the opinion of the Minister, the capacity of the resource[13], the Minister ought to exercise power under s164N(3) to reduce each water access entitlement proportionately or pursuant to a scheme set out in the regulations. In assessing the capacity of the resource, it is appropriate to have regard to both qualitative (e.g.

[13] Before determining the capacity of the resource, the Minister must prepare a report assessing the need for water of ecosystems that depend on the resource for water (s.164N(4)). The Minister must make the report publicly available (s.164N(5)). After preparing the report, the Minister may formally assess and determine the capacity of the resource. In assessing the capacity of the resource, the Minister is required to have regard to the need for water of water-dependent ecosystems.

salinity) and quantitative (e.g. volume of water in the aquifer) issues. The test of the Minister's ability to implement reductions in only part of the resource will vary depending on whether the matter concerns groundwater or surface water and legal advice should be sought on what options are available to reduce in only part of a resource if the resource as a whole is not overallocated.

Natural Resource Management (Commercial Forests) Amendment Act 2011

The NRM (Commercial Forests) Amendment Act 2011 provides two legislative tools to manage forest water impacts; an improved forest permit system and a forest water licence scheme.

The Amendment Act allows for the declaration of declared forest areas which requires the forest manager of a commercial forest within the area to hold a forest water licence. Section 169E of the Amendment Act allows for a water allocation attached to a forest water licence to be varied by the Minister as long as that decision is consistent with the relevant water allocation plan.