



Government of **Western Australia**
Department of **Water**

Discussion paper Review of first-in first-served policy

September 2011

Discussion paper

Review of first-in first-served policy

Looking after all our water needs

September 2011

Department of Water

168 St Georges Terrace
Perth Western Australia 6000
Telephone +61 8 6364 7600
Facsimile +61 8 6364 7601
National Relay Service 13 36 77
www.water.wa.gov.au

© Government of Western Australia 2011

September 2011

This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use or use within your organisation. Apart from any use as permitted under the *Copyright Act 1968*, all other rights are reserved. Requests and inquiries concerning reproduction and rights should be addressed to the Department of Water.

ISBN 978-1-921992-28-5 (online)

The recommended reference for this publication is: Department of Water 2011, *Discussion paper. Review of first in first served policy*, Department of Water, Perth.

Acknowledgements

This document has been prepared by the Strategic Policy Division of the Policy and Innovation Directorate of the Department of Water.

The Department of Water would like to thank the following for their contribution to this publication Chris Ryan, Iqbal Samnakay and Marnie Leybourne.

For more information about this report, contact:
Director Strategic Policy, Iqbal Samnakay

Disclaimer

This document has been published by the Department of Water. Any representation, statement, opinion or advice expressed or implied in this publication is made in good faith and on the basis that the Department of Water and its employees are not liable for any damage or loss whatsoever which may occur as a result of action taken or not taken, as the case may be in respect of any representation, statement, opinion or advice referred to herein. Professional advice should be obtained before applying the information contained in this document to particular circumstances

This publication is available at our website <www.water.wa.gov.au> or for those with special needs it can be made available in alternative formats such as audio, large print, or Braille.

Contents

Summary	V
1 Introduction.....	1
1.1 Issue	1
1.2 Background.....	2
1.3 Context.....	3
1.4 How to make a submission.....	5
2 Defining the issue.....	7
2.1 Definitions	7
2.2 Policy principles	8
2.3 Underlying assumptions: water resource management framework in Western Australia	9
2.4 Expected outcomes	12
3 Elements for discussion	13
3.1 Prioritising the allocation of water entitlements.....	13
4 Alternatives and options for allocating water	15
4.1 What are the options for allocating water.....	15
4.2 Analysis of the options.....	16
4.3 Evaluation	21
4.4 Preferred approach.....	24
5 Outstanding issues.....	27
5.1 Reserving water.....	27
5.2 Moving water out of an area.....	27
5.3 Detailed auction design	27
Appendices.....	29
Appendix A — Water allocation management in Western Australia.....	29
Appendix B — Further information about auctions	33
References	35

Summary

The Minister for Water requested the Department of Water to review its policies for managing and allocating entitlements to unallocated water. In particular, the review was to focus on how the department prioritises access to water entitlements.

The department currently uses a first-in first-served approach to prioritising applications (this means that applications for water entitlements are assessed in the order they are received). This approach works well in most circumstances, but may not produce the best outcomes as a water resource approaches full allocation. This is because it does not call for and evaluate multiple applications, nor does it direct water to the highest value use. There are a number of alternative means of prioritising how applications are assessed including auctions, merit selection, direct sale and random ballots.

A closely related issue is whether water should be reserved for specific future water uses (such as public water supply) through the water allocation planning process. This is an important mechanism if water is to be directed to certain sectors of the economy. The department is preparing a separate discussion paper on water reserving.

The department currently reserves water for future public water supply, to meet the state's obligations under State Agreement Acts and to acknowledge unlicensed (legal) water use. There have also been suggestions that water should be reserved for irrigated agriculture, public open space, state development projects and future commercial use for Indigenous groups.

Policies on water allocation are becoming significant in Western Australia as more water resources become fully-allocated. Increased competition for these limited water resources is inevitable and policies to guide water management must be carefully designed to allow Western Australia to gain the greatest benefit possible.

To achieve the best outcome for the community, the following principles guide our consideration of water allocation:

- **Efficient allocation of scarce resources**

Water resources should be allocated to the highest value uses in order to maximise the benefits of their use to Western Australia.

- **Efficient use of water**

Water resources should be used efficiently. This should be achieved by incentives and innovation rather than via regulation.

- **The process of releasing water should be fair and equitable**

Fairness and equity are important considerations that require high levels of transparency. This principle refers to the process (i.e. all people should be treated equitably) rather than the outcome (i.e. all people would receive an equal volume of water).

- **Support the operation of a market**

Market mechanisms are broadly accepted as the best mechanism available to efficiently distribute scarce resources.

- **Cost of implementation**

The costs (to government and water users) for releasing water should be minimised.

The state's legislation requires that all applications for water entitlements be assessed to determine whether issuing a water licence is appropriate. There are a number of options to prioritise the order of assessment (that determine which applications are more likely to be approved). Each option has benefits and drawbacks.

The first-in first-served approach is appropriate at lower levels of allocation as it is cost effective and historically has broad community acceptance. As the allocation limit is reached, the deficiencies of the FIFS approach become more significant.

It is therefore recommended that market based allocation mechanisms are used once allocation levels exceed 70 per cent of the identified allocation limit. Auctions are the preferred mechanism as they directly address water scarcity by allowing competing water users to bid for the limited resources. This mechanism also addresses the issue of the value potential water users will place on water. It is also recognised that other mechanisms could be preferable in specific situations¹.

It is important to note that any process has to be consistent with the *Rights in Water and Irrigation Act 1914*. Therefore, allocations can only be made to those water users who can meet the conditions of the licence allocation process. It does not allow, for example, a speculator to buy and hold water without a legitimate purpose for that water.

The department is seeking comments on this discussion paper before 28 October 2011. The comments will be considered in the preparation and finalisation of the policy on managing unallocated water in Western Australia.

¹ Tenders could be considered where there are significant social issues that cannot be addressed through auctions. Direct sale of water may be appropriate where it is clear what value potential water users place on water, and only a limited need to allow users to directly compete against each other.

1 Introduction

The Department of Water is responsible for the management, development and protection of Western Australia's water resources. It provides access to water resources for consumptive use through its allocation and licensing process. It also protects water resources through a number of mechanisms that are consistent with national and state strategies.

The Minister for Water has asked the department to review its policies for managing and allocating entitlements to unallocated water, particularly its use of a first-in first-served approach. Under this approach, applications for water entitlements are assessed in the order they were received. This is a well established approach to managing multiple applications in many areas of government. However, there are concerns that this approach can result in unfair or suboptimal outcomes as water resources approach full allocation because it does not involve calling for and evaluating multiple applications, nor directing water to the highest value use.

The policy for water allocation is becoming more important as more water resources approach their sustainable limit, a point at which further access to water becomes limited to the transfer of existing water entitlements.

The review will be informed by the following public consultation process:

- This discussion paper invites submissions from stakeholder groups, industry, government and the general community. Submissions are due by 28 October 2011.
- Following consideration of submissions, the department will develop a policy in early in 2012 for the approval of the Minister for Water.

1.1 Issue

An increasing number of Western Australia's water resources are approaching (or have reached) the limit of how much water can be sustainably taken (the allocation limit). When this level is reached, further water entitlements should not be issued, as taking further water will increase the risk of adverse effects to unacceptable levels².

This discussion paper looks at how the priority order for assessing applications under the *Rights in Water and Irrigation Act 1914* for unallocated water should be established.

² Adverse effects include compromising existing water users' rights, degrading the capacity of the resource to provide water and/or causing environmental degradation.

There are often significant community concerns as the allocation limit is reached and water entitlements are no longer freely available. These include concerns that:

- the FIFS mechanism of allocating water creates unfair and/or undesirable outcomes:
 - applications are assessed in the order received, so water may be allocated to a lower value proposal just because of the timing of application
 - there is no mechanism to:
 - notify stakeholders that a water resource is approaching full allocation
 - call for stakeholders to apply for the remaining water entitlements
 - allow comparison and evaluation of those applications to direct water entitlements towards the highest value uses
- the local community's future has not been adequately considered
- allocating the water will result in environmental degradation
- existing water users' entitlements will be compromised.

Such concerns are magnified where much of the water is allocated to a single entity, particularly if that entity is not local.

There is general agreement that where water is limited, it should be allocated to the highest value uses. There is less agreement about what 'highest value use' means, and how to evaluate applications against the term. The term is discussed in Section 2, while the question of how to direct water to the highest value use is central to this paper.

The department is not seeking comment at this time about water resource management issues beyond the policy issue of allocating water. The department notes that there has been extensive public consultation on several high profile water resource issues recently, including proposed legislative reforms and water resource management charges. Other water resource management issues are also being debated, including matters related to water allocation, such as reserving water for future uses and moving water out of an area. Consultation on these issues will occur through separate processes.

1.2 Background

The *Rights in Water and Irrigation Act 1914*, provides the legislation for the management and allocation of all terrestrial water resources in Western Australia.

The Act's objectives include:

- to provide for the management of water resources, and in particular –
 - for their sustainable use and development to meet the needs of current and future users
 - for the protection of their ecosystems and the environment in which water resources are situated, including by the regulation of activities detrimental to them
- to promote the orderly, equitable and efficient use of water resources.

The Act vests the rights to manage the use and flow, and the rights to control any ground or surface water resource in the Crown. It requires the licensing of all artesian wells throughout the state, and of non-artesian wells and surface water located within proclaimed areas. These water licences provide an entitlement to take water subject to conditions.

There has to be a mechanism to allocate available water entitlements to people who wish to use water. To support the legislative requirements, this mechanism must be transparent, fair, orderly and understood by people who want to use water.

Historically, the first-in first-served approach was widely used to allow immediate development of available water. The Department of Water, as the state's water resource manager, also reserved water for future public water supply in many areas of the state to ensure the government could supply this critical service as Western Australia's population and economy grew.

This approach was appropriate where water was plentiful and there was little competition. With competition for scarce water increasing, it is an opportune time to reconsider this approach.

1.3 Context

While Western Australia has extensive high quality water resources, these resources are limited.

Western Australia's demand for water continues to grow, as shown in Figure 1.

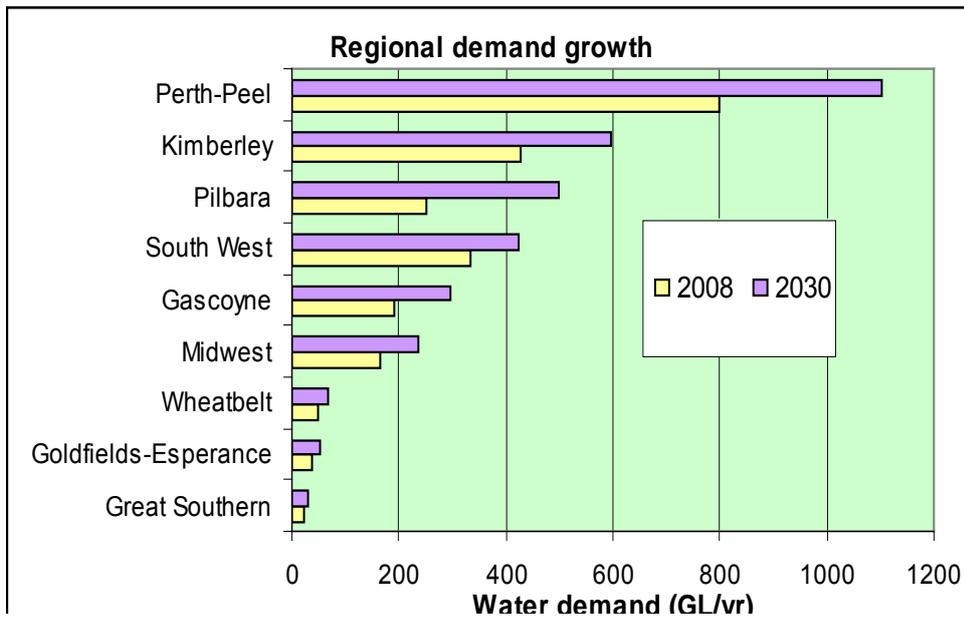


Figure 1 Western Australia’s water demand (Resource Economics Unit 2011)

At the same time, rainfall in the south-west of the state has declined during the past 30 years, and more noticeably during the past decade (Figure 2).

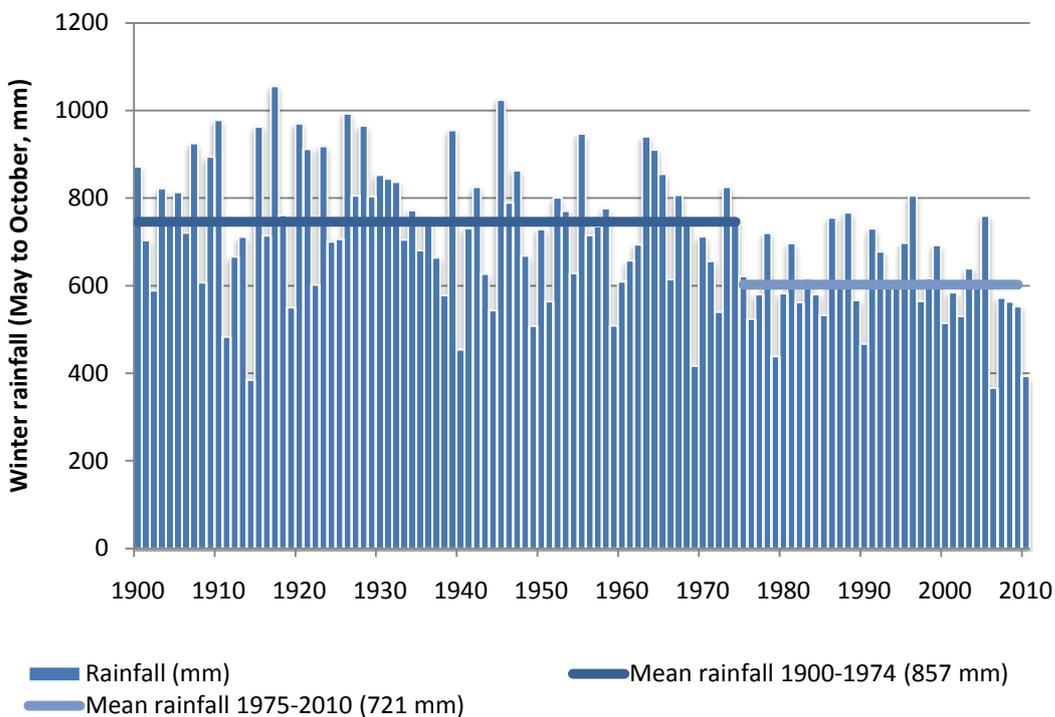


Figure 2 Rainfall in the south-west of Western Australia (Department of Water, 2011)

These two facts mean that an increasing number of water resources will reach their allocation limit – their capacity to sustainably provide water. This is already occurring,

particularly in the south-west of the state. Approximately 33 per cent of the state's groundwater resources have reached their allocation limit.

When the allocation limit is reached, water becomes a limited resource. This has significant economic implications, as the limitations in water resources that become apparent will lead to economic constraints if not carefully managed. Increased competition for those limited water resources is inevitable.

It is vital to establish water management systems that can manage this competition, maximise the benefit Western Australia can obtain from these resources, and promote water use efficiency. The National Water Initiative (NWI) was designed to provide a more effective management framework where there is competition for limited water resources. An overview of the NWI is provided in Section 3.2, as is a discussion of Western Australia's current water management arrangements.

The government is contemplating broader reforms to Western Australia's water resource management legislation to manage the competition that comes from water scarcity. This discussion paper is intended to progress policy reforms that are possible under current legislation that will also be relevant should further legislative reforms occur.

1.4 How to make a submission

The Department of Water encourages you to provide comment on this discussion paper. Written submissions should be:

emailed to:

policy@water.wa.gov.au

or

mailed to:

Discussion paper: Review of first-in first-served policy
Strategic Policy Division
Department of Water
PO Box K822
Perth WA 6842

or

faxed to:

08 6364 7601

The paper will be available for public comment until 28 October 2011.

All submissions are public documents unless clearly marked 'confidential'. Documents marked confidential could become public if access is sought under the *Freedom of Information Act 1992*.

General enquiries about this paper should be directed to:

Iqbal Samnakay
Director, Strategic Policy Division
Department of Water
Telephone 08 6364 6872.

To allow for ease of photocopying, hardcopy submissions should be unbound. Electronic submissions should preferably be provided in Microsoft Word format.

In making comments, please set out the basis for your views and conclusions and indicate the relevant page numbers and/or section titles.

It would be helpful if you could indicate whether you agree with the suggested approaches or prefer alternative approaches, either those discussed in the paper or other options. If proposing other options, please provide the basis for those options.

2 Defining the issue

This discussion paper is intended to encourage input about the management of unallocated water. It focuses on the question of what the method of allocating water entitlements should be.

Some water management terms necessary for discussing this issue are defined below.

The paper then considers the underlying assumptions. This places the issues of allocating water entitlements into the broader context of water resource management.

2.1 Definitions

Highest value use

One of the desired outcomes of water allocation is to direct water entitlements towards the highest value uses, as this will maximise the benefit that Western Australia can gain from the use of its water resources.

'Highest value use' typically has economic and social aspects to it.

'Highest economic value use' includes those uses generating the highest economic return from water. Considerations can be relatively simple (i.e. all economic activity is broadly equivalent), or more complex (considering downstream economic effects and multiplier effects into the broader economy). For the purposes of this paper, simple assumptions are adequate to provide the conceptual analysis.

'Highest social value use' has a wider variety of potential connotations.

It is generally accepted to include uses critical to community wellbeing (such as a high quality public water supply). It can also include issues such as support for activities that the state supports as a matter of policy (e.g. water for irrigated agriculture in the Ord Irrigation Area), community preferences for certain types of activities (e.g. family run farms), the effects of economic activity on the state's (or an area's) social fabric, and where the water is used (i.e. where the economic benefits are created).

There will often be different views about what are the highest social value uses.

Water management definitions

Water licence: a licence (issued under s5C of the *Rights in Water and Irrigation Act 1914*) to authorise the taking and use of water. A water licence is required to take

water from artesian aquifers and areas proclaimed under the *Rights in Water and Irrigation Act 1914*.

Water entitlements: the quantity of water that may be taken annually under a water licence.

Allocate: to authorise water use through a water licence.

Allocation limit: annual volume of water that is sustainably available for licensed and unlicensed use from a water resource.

Unallocated water: water within the allocation limit that can be made available for future consumptive use by urban, rural or industrial sectors without compromising the environment or the security of supply to existing water users.

Unlicensed (legal) water uses: water uses that are not or cannot be licensed under the *Rights in Water and Irrigation Act 1914*, but are legal. These include domestic bores, water for stock use, riparian rights and water intercepted by plantations.

Reserve: to identify and set aside a volume of water, from the allocation limit, to supply water for a particular purpose in the future (currently water is reserved for public water supply only).

2.2 Policy principles

The following policy principles will guide the design of policy options in this discussion paper.

Efficient allocation of scarce resources

Water resources should be allocated to the highest value uses in order to maximise the benefits of their use to Western Australia. Water resource management should facilitate allocation and reallocation to higher value uses.

Efficient use of water

Water resources should be used efficiently. Contemporary water resource management seeks to create incentives for businesses to use water efficiently, rather than to regulate.

The process of releasing water should be fair and equitable

Fairness and equity are important considerations that are supported by high levels of transparency. This principle refers to the process (i.e. all people should be treated equitably) rather than the outcome (i.e. all people would receive an equal volume of water).

Supporting the operation of a market

Market mechanisms are broadly accepted as the best mechanism available to efficiently distribute scarce resources. Water markets are being used successfully in many part of Australia (including Western Australia) to allow current and prospective water users to address their water needs. Water management policy should support the formation and operation of water markets once competition for water becomes apparent.

Cost of implementation

The costs (to government and water users) for releasing water should be minimised. Generally this means that simple approaches will be preferred.

2.3 Underlying assumptions: water resource management framework in Western Australia

Overview of the allocation framework and processes

The department manages water extraction from groundwater and surface water systems by licensing up to water allocation limits. A simplified representation of the water resource allocation process is presented in Figure 3. This is discussed in greater detail in Appendix A.

Important aspects to note include:

- Water allocation planning determines the allocation limit and how much water needs to be left in the system to maintain its integrity and associated values. If water is to be reserved for future uses, this will be determined through the water allocation planning process.
- The water licensing assessment process is guided by water allocation plans. The process considers possible effects upon other water users and on the environment in order to manage them.
- Water entitlements are transferable in Western Australia. This allows prospective water users to acquire water entitlements once the allocation limit is reached (when no further water entitlements can be released).

These arrangements will not be affected by this policy.

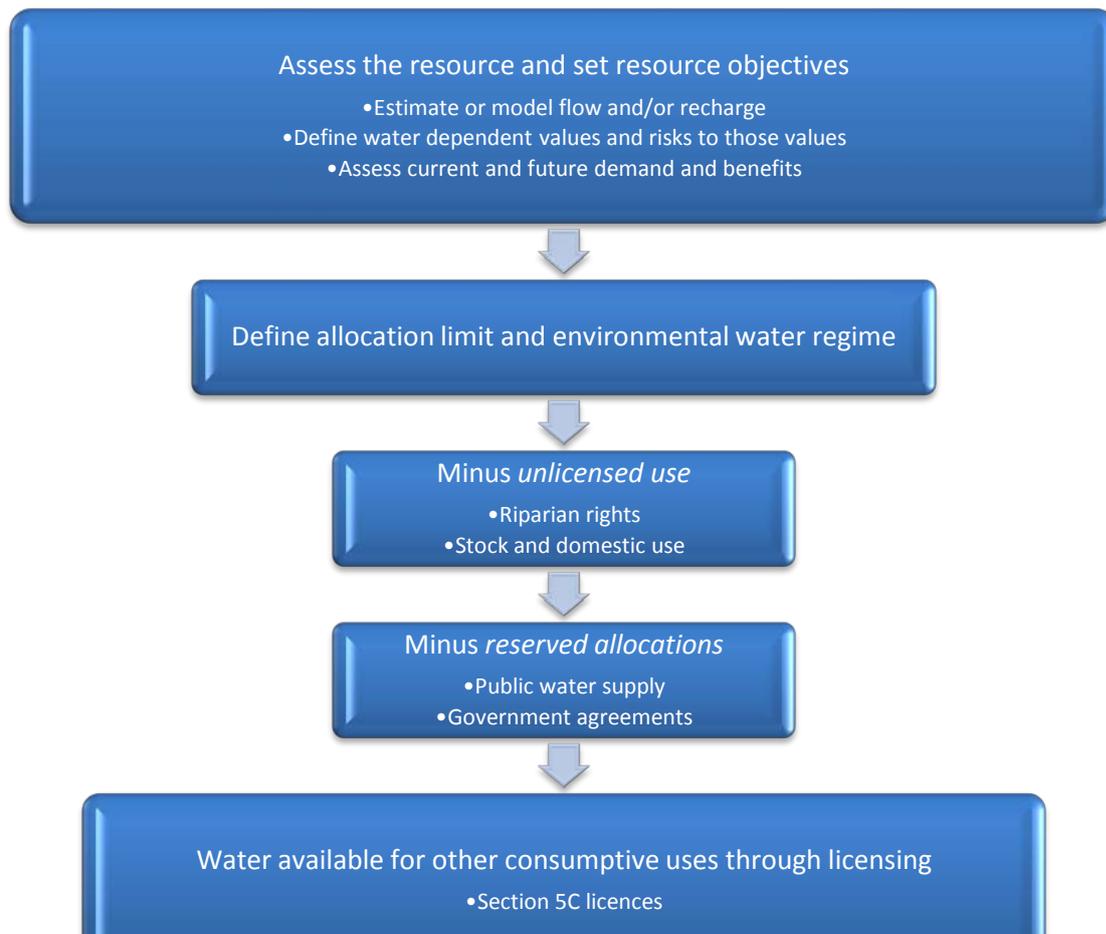


Figure 3 Reservations in the water resource allocation process

Reserving water through the water allocation planning process

The reservation of water will be considered as a separate policy issue by the Department of Water. The information in this section is provided to express the department's view that reserving water is a preferable mechanism for managing social equity issues (rather than the mechanism for prioritising licence applications). Reservation decisions are made through the water allocation planning process to support the state government's development and planning strategies.

While an increasing number of water resources have reached their allocation limits, many are not yet fully-allocated. Water could be reserved from those resources through the water allocation planning process for future uses.

To ensure that high quality water is available for the community's drinking water supplies, the department (and its predecessors) have set aside or reserved volumes of water for public water supply purposes. The department has also reserved water where required to meet the State's obligations under State Agreement Acts, and to acknowledge the water that is used for purposes that do not require a licence.

There have been suggestions in various forums that water should be reserved for additional water uses including irrigated agriculture, public open space, state development projects and future commercial use for Indigenous groups.

Reserving water can be an effective and transparent mechanism of allocating water to high value uses (which may include social rather than economic values). If the available water is to be partitioned for different water uses, the water allocation planning process is the most appropriate mechanism.

However, reserving water limits access to the water resource, restricting alternative development options. If water is reserved, the benefits of making that water available on a temporary basis (before it is allocated to that final use) should be considered.

Several issues about how the water should be allocated will require consideration. Issues include who should be able to access the reserve, should the timing of this be managed (and if so, how), how should competition between applicants be addressed, and how should the potential to produce distortions in any market that is forming be managed?

The National Water Initiative does not specifically contemplate reserving water for future uses as the National Water Commission prefers that water is not reserved (arguing that reservations delay market development, and that a functioning market could provide the necessary water entitlements). However, several Australian jurisdictions have reserving policies and this policy issue in relation to Western Australia will be considered in a separate discussion paper.

National Water Initiative

Western Australia became a signatory to the NWI, Australia's blueprint for water management reform, in 2006. The NWI is broadly consistent with Western Australia's water management requirements, encouraging the sustainable and efficient use of scarce water resources.

To ensure that water resources are managed sustainably, the NWI sought to establish robust water management planning as the principal means of determining how much water could be taken from a water resource, and providing the necessary management rules.

The NWI adopted tested economic principles to promote the efficient allocation and use of water. The NWI's framework of entitlement and allocation specifications and water trading is intended to allow a market to form. This allows individual water users to purchase or sell water entitlements, providing them with flexibility to design their own water solutions. Such a market must operate within a regulatory framework to manage possible adverse effects upon water users, other parties and the environment.

A water market establishes clear price signals about the value of water, thus promoting more efficient allocation and use.

Several sections of the NWI refer to the release of unallocated water, the most significant being paragraphs 70 to 72, as detailed below.

Release of unallocated water

70. Release of unallocated water will be a matter for States and Territories to determine. Any release of unallocated water should be managed in the context of encouraging the sustainable and efficient use of scarce water resources.

71. If a release is justified, generally, it should occur only where alternative ways of meeting water demands, such as through water trading, making use of the unused parts of existing entitlements or by increasing water use efficiency, have been fully explored.

72. To the extent practicable, releases should occur through market-based mechanisms.

Extract from the National Water Initiative (Council of Australian Governments 2004).

2.4 Expected outcomes

After considering the input sought through this discussion paper, the department will prepare a policy for the minister's consideration.

The policy will need to guide issues including:

- How should water be allocated where competition (scarcity) for water is not likely in the immediate future?
- How should water be allocated where competition (scarcity) for water is present or likely in the immediate future?

The policy and a statement of response to public comments will be made publicly available.

3 Elements for discussion

3.1 Prioritising the allocation of water entitlements

A mechanism to allocate unallocated water entitlements needs to be in place for people who wish to use water. This mechanism must be transparent, fair, orderly, understood by people who want to use water, and consistent with legislation.

In Western Australia, mechanism can be considered in three parts:

1. Establishing the appropriate rules through the water allocation planning process to guide water management and licensing decisions.
2. Prioritisation of applications for assessment (which affects who can access the water as the resource becomes fully-allocated).
3. Assessment of applications for water (required under the *Rights in Water and Irrigation Act 1914* to protect existing users' rights, ensure that the water use is environmentally sustainable, is in the public interest and aligned with the policies of other agencies³).

This discussion paper considers how to establish the priority order for assessment under the *Rights in Water and Irrigation Act 1914*.

Historically, the first-in first-served approach was widely used to allow immediate development of available water. This approach was appropriate where water was plentiful and there was little competition. The justification for the policy is basically one of equity, procedural simplicity and the absence of any clear alternative. The approach is also widely used in government approval processes e.g. mining leases and development approval.

Water is now a valuable resource and there is increasing competition between different users. In this environment, there is general agreement that the allocation mechanism should be designed to achieve the best outcomes for Western Australia, but there are different views about how to do this.

The department's view is that water should be allocated to promote the highest value use. Other views include:

- Water allocation should be guided by community interests (with a variety of views about which community / group(s) of stakeholders are relevant)
- Allocation mechanisms should be highly flexible, allowing the minister to make decisions in the public interest.

Market mechanisms are preferred by the National Water Initiative, and have been used by New South Wales, Queensland, South Australia and Victoria (which have

³ Cl 7(2) of Schedule 1 of the *Rights in Water and Irrigation Act 1914*

high levels of competition for water resources). Some of these jurisdictions restrict water entitlement releases to promote water use efficiency. Tasmania and the Northern Territory have greater levels of unallocated water, and continue to use a first-in first-served approach.

4 Alternatives and options for allocating water

4.1 What are the options for allocating water

There are a number of mechanisms that can be used to prioritise applications for unallocated water under the *Rights in Water and Irrigation Act 1914*, as outlined below⁴.

First-in first-served

First-in first-served refers to a process in which applications for water entitlements are assessed in the chronological order of their receipt. Once a resource is fully-allocated, no further entitlements are made available.

The first-in first-served approach could be complemented by application queues, in which applications are placed in a queue if they are refused because the resource is fully-allocated. If additional water becomes available at a later date (for instance, when an existing licence is cancelled) these applicants are approached on a first-in first-served basis to use any additional water.

Merit selection

Merit selection refers to a process in which criteria are developed to assess economic, social, cultural and other values. Water entitlements are awarded based on the respective merits of each application (subject to meeting any outstanding matters required through the assessment process).

Auctions and tenders

Auctions and *tenders* involve a competitive process in which bids are sought from the market. Under an auction or tender process, water would be allocated to the highest bidders. There are many variations of an auction/tender model. For example, bidders may be required to pay either their bid price or the lowest successful bid price depending on the format and objectives of the auction.

Auctions are systems in which participants actively bid against each other and may make multiple bids for the same water allocation.

In a tender process participants may only enter one bid for each water allocation in a round, although multiple rounds may be required if the full volume of water is not

⁴ Significant parts of sections 4.1 and 4.2 were informed by a report prepared by Marsden Jacobs Associates for the Department of Water (Pickering 2010).

allocated in the first round. Tenders could be designed to include criteria other than price, possibly addressing some social equity concerns.

Under both auction and tender systems, the department would have the opportunity to set a minimum or reserve price below which water would not be released to the market.

Further details about the design of these processes is included at Appendix B.

Direct sale

With a *direct sale*, the department would nominate a fixed price for water, which would be valid over a specified timeframe. Potential water users could assess the value of water for their own purposes and, if their value was sufficiently high, could obtain a water entitlement by paying the nominated price (in addition to meeting other application conditions required by the department).

Ballot

Under a *ballot*, applications would be 'drawn out of a hat' to determine who 'wins', and the water is allocated to the first winner out, the second and so on up until the water is allocated.

4.2 Analysis of the options

First-in first-served

Advantages of the first-in first-served approach include:

- It has been used for many years in Western Australia and is well tested with appropriate supporting processes and systems.
- It has relatively broad (but not universal) acceptance by the community and industry.
- Officers are well versed in implementing it.
- It is already used and requires no lead time or change to existing legislation.
- It is also used by other government agencies when granting similar approvals (e.g. mining leases, development approvals).

Disadvantages of the FIFS approach include:

- It does not take into account the economic or social consequences of allocating scarce resources to one user over another. Low value uses can effectively 'block' higher value uses that may require water after the resource has been fully allocated.
- No value is placed on water until the resource is fully-allocated. This may encourage over-investment in inefficient or low value water use applications. Water trading may occur once the resource is fully-allocated. However, the

market can be slow to redirect water to the highest value use if the initial user makes substantial capital investments to utilise the water or uses access rights to stifle the development of competitors.

- It favours those who can apply most rapidly rather than those with the highest value use for the resource.
- It has the potential to allow stockpiling of water for speculative purposes. Western Australia has a significant advantage over other jurisdictions in that the department's water allocation policies require allocated water to be used within a reasonable timeframe, thereby minimising this particular concern.
- It is not a market based mechanism and therefore will only conform with paragraph 72 of the NWI where application of a market based approach is not practicable.
- It requires adaptation to manage new water⁵ becoming available after the allocation limit is reached.

In situations where water is abundant, the FIFS approach has significant merit compared with more administratively complex approaches. In this situation, water is available for all uses and does not require a price or other selection process to direct it to the highest value use, and there are advantages in using approaches that result in the least cost to all parties.

Conversely, in situations where water availability is limited, methods that are capable of directing water to higher value uses will be preferable to the FIFS approach provided they can be feasibly and practically implemented.

If supported by well designed development conditions (where entitlements are forfeited if the proposed development does not occur), FIFS approach can manage speculative concerns.

Merit selection

Advantages of the merit selection process include:

- It is the only one of the prioritisation methods under examination that directly attempts to account for all of the social and economic consequences of allocating a water resource⁶.
- The process may be perceived as more equitable and justifiable than the first-in first-served approach or market based approaches that take into account only economic considerations.

⁵ Water that was not previously available for allocation. New water could be identified through improved knowledge (e.g. the result of additional hydrogeological investigation and allocation planning), or because reserved water is no longer required and is now available for general allocation.

⁶ Environmental issues are addressed by all options through setting allocation limits and the licence assessment required under the *Rights in Water and Irrigation Act 1914*.

Disadvantages of merit selection include:

- It is likely to be time consuming and open to interpretation. Differences in interpretation may lead to extensive appeals.
- It is necessary to identify all relevant stakeholder groups before designing the criteria if the process is to be fair and equitable.
- It could encourage speculation as people make ambit claims for water.
- The approach may in practice be perceived as inequitable if applicants disagree with the criteria or the method of assessing and ranking applications based on those criteria.
- It can encourage people to exaggerate their claims against the criteria. This further complicates the assessment task.
- To undertake this option in a robust manner could be more complex and costly than other approaches.

The merit selection approach has theoretical advantages over other approaches, as it attempts to account for all relevant factors. Unfortunately, the process suffers from numerous practical implementation problems, including the difficulty in establishing criteria and the subjective and technically complex nature of the assessments required.

Developing an agreed set of criteria that take into account all relevant factors is challenging. All relevant stakeholders must be identified and considered in determining the criteria. As a result, the criteria tend to be narrowly focused (advantaging particular stakeholder groups), or relatively broad (making evaluation highly subjective).

Evaluating applications is subjective and technically complex. The subjective nature of the evaluation makes the outcome susceptible to appeal and legal challenge, creating investment uncertainty.

Due to the difficulties in implementing the merit selection method, the approach is considered the most costly and challenging to implement. The department's experience with merit based selection confirms these practical difficulties.

Auctions and tenders

Advantages of auctions and tenders include:

- They are relatively well understood within the community, provided the process is kept simple.
- The processes have been used successfully in other states.
- The processes assist in directing water to the highest economic value use.
- The processes encourages water use efficiency and reuse where these are economically justified.

- The competitive process reveals information about the economic value of water to each user that could not be obtained by any other method.
- The use of tenders can allow social criteria or values to be included in the assessment process.
- The approach does not require significant research or knowledge about water use values, so it may be faster to administer than most other approaches (excluding first-in first-served).
- They provide a return to the community for access to water entitlements.
- The approach is consistent with the principles of the NWI.
- The process would provide funds that could contribute to water resource management costs or be directed to other uses by the state government.

Disadvantages of auctions and tenders include:

- An auction or tender process could not be implemented immediately, as the department would have to develop new regulations, processes and systems.
- Ad hoc auctions and tenders are typically time consuming and expensive to administer.
- Auctions and tenders disadvantage people without access to the funds to invest in water entitlements.
- They may be perceived as unfairly excluding small farms and other low value water users from gaining a water allocation (which is implied by the objective of directing water to the highest value use).
- They may encourage speculation, particularly if more water is made available than is required to meet demand at the time.
- The process, if further water becomes available after previously 'limited' resources were auctioned, may diminish the value of the resource to previous purchasers.
- The process of establishing and assessing tender criteria will suffer similar disadvantages to those described under the merit selection section.

Auctions and tender processes provide the most accurate means of allocating water to the highest value use if all existing and future water users are able to participate in the auction or tender. Auctions and tenders are relatively expensive to administer and therefore direct sales may be preferred if costs are prohibitive.

Direct sale

Advantages of direct sale include:

- It can be more easily applied over time. Proponents can apply at any time rather than being required to apply only when an auction or tender process is announced. Future users are more easily accommodated as multiple auction or tender rounds are not required.

- It assists in directing water to the highest economic value use.
- It encourages water use efficiency and reuse where these are less costly than purchasing water.
- It would be consistent with the principles of the NWI.
- It would provide funds that could contribute to water resource management costs or be directed to other uses by the state government.

Disadvantages of direct sale include:

- It could not be implemented immediately, as the department would have to develop new regulations, processes and systems.
- Determining a price for direct sales can be difficult when public information regarding the demand or economic value to potential users is limited. In particular, determining the value of water to a small number of high value users (e.g. mining or large industry) would typically be complicated by issues of commercial confidentiality.
- Calculation of direct sales values often rely on the use of average or median prices, which are more readily available than values for individual water users. Calculations based on average or median values will not accurately reflect the range of values across all water users.
- The direct sale price may change over time as demand and value profiles change.
- Direct sale may be perceived as unfairly excluding small farms and other low value water users from gaining a water allocation (which is implied by the objective of directing water to the highest value use).

Ballot

Advantages of the ballot approach include:

- It is relatively simple, easy to understand and transparent.
- It is likely to be accepted as fair because it treats everyone equally.
- It is low cost, and appropriate supporting processes and systems could be easily developed.

Disadvantages of the ballot approach include:

- It does not encourage efficient water use.
- Speculation could be encouraged, as people have nothing to lose and everything to gain by entering the ballot.
- It does not take into account the economic, social or environmental consequences of allocating scarce resources to one user over another. Low value uses can effectively 'block' higher value uses that may require water after the resource has been fully-allocated.

- No value is placed on water until the resource is fully-allocated. This may encourage over-investment in inefficient or low value water use applications. Water trading may occur once the resource is fully-allocated. However, the market can be slow to redirect water to the highest value use if the initial user makes substantial capital investments to utilise the water or uses access rights to stifle the development of competitors.
- Ballots are not a market based mechanism and therefore will only conform with paragraph 72 of the NWI where application of a market based approach is not practicable.

The ballot approach is simple to administer but does not recognise the value of scarce water resources. The ballot approach does not support the desired water reforms, so is not supported by the department. It is not considered further.

General issues

All selection processes that attempt to compare applications (i.e. merit select, auctions and tenders) need to consider whether all available water should be released through a single process, or whether there should be a number of releases so that the released water entitlements align with increasing water demand.

Releasing all available water through a single process is administratively simpler, and is appropriate where there is already water scarcity. This is the case for some water resources, where the known demand already exceeds the available water.

Other water resources will have a significant amount of water available (more than known demand). In these situations, the process would require multiple releases over time. This would increase the likelihood of allocating water to higher value uses and promote water use efficiency, but it would be more costly.

Questions

Are there further advantages or disadvantages that the department should consider for any of these approaches?

Are there other approaches that should be considered? What would be the advantages and disadvantages of those approaches?

4.3 Evaluation

There is not a perfect or ideal mechanism to prioritise water allocation. All the approaches described have advantages and disadvantages. The mechanisms used must be designed to achieve a number of (sometimes conflicting) objectives including:

- supporting 'pioneering' economic development in areas where there is little water use

- directing water to the highest value use when water is scarce
- developing strong communities
- promoting efficient water use
- providing prospective water users with the opportunity to be considered
- ensuring that the costs of implementing the mechanism do not outweigh the benefits.

‘Pioneering’ water users are supported

Often when there are low levels of water use, it means that there is relatively little economic development in that area, or that the water is only suitable for limited purposes. This may be because it is not a preferred area of the state for development.

Allocation methods should support people who do move into these areas by minimising costs and simplifying administrative processes.

For resources that are not expected to be fully-allocated in the foreseeable future, a first-in first-served approach would be adequate and could be undertaken with the least administrative complexity.

Directing water to the highest value use when water is scarce

If the resource is expected to become fully-allocated, then it will be appropriate to consider methods of allocating the scarce resource to the highest value use.

In economic terms, the highest value use is generally reflected by each user’s willingness to pay for water. Auctions, tenders and direct sales would assist in directing water to the highest economic value use.

If social criteria are also included in the definition of highest value use, then only the merit selection or tender process will directly assess value based on both criteria. While issues such as availability of water for public water supply, and public open space requirements (particularly schools and sporting facilities) could be managed through a prioritisation mechanism, reservation through planning processes is a more effective tool. Reserving water for such purposes would provide greater certainty, cost effectiveness and transparency (and is recommended through this paper).

The other main form of social criteria relates to community preference, and this is discussed below.

Developing strong communities

Water management should support the formation of appropriate social outcomes. Determining what activities are appropriate to create the desired social fabric is best suited to the land use planning process. The water allocation planning process can

support the land use planning process where the government wishes to achieve specific outcomes.

A concern that is frequently raised about market based mechanisms is that smaller and lower income enterprises may not have the means to compete with wealthier water users and irrigators. This may affect the social framework of a region as less wealthy water users may not be able to expand their operations.

Noting that major social equity issues are most effectively addressed through planning processes, the department's view is that communities (and Western Australia as a whole) will benefit most from allocation approaches that maximise productivity and flexibility in the use of available water entitlements. Preparedness to pay is the best (albeit imperfect) guide to productivity. Market mechanisms (auctions, tenders or direct sale) are the approaches that best support this outcome.

Promoting efficient water use

Paragraph 70 of the NWI states that the any 'release of unallocated water should be managed in the context of encouraging the sustainable and efficient use of scarce water resources'.

The sustainable use of water, in an environmental sense, will typically be addressed through water allocation planning and the development of consumptive allocation limits rather than through the process of allocating water to individual users.

The efficient use of scarce water resources may be addressed through market mechanisms by assisting to direct water to the highest value use. If water continues to be allocated at no cost, the absence of a price signal preceding actual scarcity will delay efficiency investments, thereby supporting lower water use efficiency.

In the longer term, limitations on the volume of water available will drive water use efficiency, while trading mechanisms will allow water users to address their water requirements.

Providing prospective water users the opportunity to be considered

The first-in first-served and direct sales approaches do not provide an opportunity for other water users to be considered as the allocation limit is reached.

The design of the other processes provides an opportunity for other water users to make application for the final quantities of water available. The first-in first-served and direct sales approaches could be improved by making a public announcement at a threshold, but this only partially alleviates the issue and has proven unreliable in the past.

Ensuring that costs do not outweigh the benefits

The costs of implementing the system should not outweigh the benefits.

The question of administrative cost is particularly relevant to ongoing or long-term multi-stage auctions. These processes are required where water allocations are gradually released over time and use regular auctions that may become administratively resource intensive.

Direct sale may be preferable to an auction or tender, even when the latter processes would reveal more robust information about the economic value of water to individual users. However, in many instances the cost of collecting robust information for a direct sale may be equally or more onerous than the cost of administering ongoing auctions or tenders.

Similarly, a merit selection process is likely to require significant resources and external advice to implement in a comprehensive and robust manner.

The first-in first-served approach is the most cost effective.

Questions

Are there further matters the department should consider?

Are there different views that should be considered in this evaluation?

4.4 Preferred approach

The first-in first-served approach is cost effective and is broadly accepted, particularly at lower levels of allocation. This approach remains preferred until a resource becomes closer to being fully-allocated. As the level of water allocation approaches the allocation limit, the deficiencies of the FIFS approach become apparent.

The department recommends that market based allocation mechanisms be used once allocation levels exceed a certain threshold. Auctions are the preferred mechanism because they directly address water scarcity by allowing competing water users to bid for the limited resources. They are also able to address ambiguity around the value potential water users will place on water. The department notes that other mechanisms could be preferable in specific situations⁷.

⁷ Tenders could be considered where there are significant social issues that cannot be addressed through auctions. Direct sale of water may be appropriate where there is clarity around the value potential water users place on water, and limited need to allow users to directly compete against each other.

Water allocation plans are the preferred process for making and announcing decisions to depart from the preferred option.

An agreed threshold is necessary to provide clarity for water users and potential water users in the absence of a water allocation plan. The department recommends this be set at 70 per cent of the identified allocation limit, although this may be set at a different rate on a case by case basis, which can be determined at the time that the water allocation plan for a water resource is developed.

Experience has shown that the uptake of water resources can accelerate rapidly as its scarcity is recognised. This 70 per cent trigger should ensure that the appropriate management controls are implemented before a resource becomes fully-allocated, reducing the risk of needing to recover entitlements as a more precise sustainable capacity is determined.

There are significant changes to the department's management approach at this 70 per cent trigger. These changes are well accepted by the community and include increased:

- sophistication of water allocation planning with greater levels of community engagement
- examination of the possible impacts that would result from approving licences to take water
- compliance and enforcement activity to protect water users' rights and the environment.

The 70 per cent trigger level also has the benefit of introducing market mechanisms before competition for water becomes intense. This would provide for a transition period as the value paid for water increases, allowing communities and businesses to adapt to a water constrained economy.

Questions

Should the department consider further controls limiting the maximum amount or percentage of water an entity can hold to reduce the risk of anti-competitive behaviour?

What should happen when an applicant seeks water that would take an area from (say) 60 per cent allocated to 90 per cent allocated? Should the portion over 70 per cent be approved under first-in first-served, or an alternative mechanism?

Should the threshold for an alternative prioritisation approach include or exclude water held in reserve for future uses?

Should the alternative mechanism be applied when releasing reserved water?

Is there a better alternative threshold than 70 per cent? What is the basis for that alternative?

5 Outstanding issues

5.1 Reserving water

The department acknowledges that reserving water is also an important issue as water resources approach full allocation. The department is preparing a discussion paper to consider questions such as:

- What water uses should have water reserved for them?
- What would be the considerations for each reservation decision?
- How should access to these reserves be managed?

The discussion paper will be released for public comment.

5.2 Moving water out of an area

An issue that is frequently closely related to the matters reviewed in this discussion paper is moving water from one area to another. This can create concerns of inequity, as the wealth and benefits of use are transferred to another area.

The department has an internal policy on how applications that involve the movement of water from one area to another should be managed. This policy is being reviewed, and will be released for public comment before being finalised.

5.3 Detailed auction design

The detailed design of an auction system would need to be considered further. An outline of a possible design is provided in Appendix B.

Water auctions have been run in other jurisdictions and in Western Australia by Harvey Water. The department would consult further in developing the auction design.

Issues that will need to be considered include:

- How much of the available water should be released?
- Should the auctioned water be released as multiple lots of various sizes (increasing the chance of smaller water users obtaining appropriate quantities, but increasing administrative costs)?
- How will a reserve price be determined?
- What auction technique is appropriate (some options are outlined in Appendix B)?

Appendices

Appendix A – Water allocation management in Western Australia

Water allocation planning

Although water is a renewable resource, it is a limited resource. Protecting the environment and third party rights is important for maintaining long-term economic health and opportunities for future generations.

In Western Australia, we manage water abstraction by issuing water licences through the *Rights in Water and Irrigation Act 1914*. Water allocation planning guides our licensing decisions.

Water allocation plans set out how much water can be licensed for abstraction, and how much water is left in the system, under the *Rights in Water and Irrigation Act 1914*. Our water allocation plans are non-statutory.

An allocation plan details allocation limits, water for the environment and our approach to managing water resources within a defined plan area. Water resources within the plan area are divided into management areas. A plan may cover a number of management areas.

Since the Department of Water was formed in 2005, we have put in place water allocation plans for most of the state's surface water and groundwater resources where there is demand.

In planning, we aim to maximise the water available for abstraction and maintain the integrity of the water resource. This makes water available for communities and economic development, while preserving environments that need water to survive.

Water allocation plans set the approach to managing water abstraction for seven years. We evaluate the effectiveness of our management approach (including the allocation limits) every year by checking if we are meeting the water resource objectives in the plan.

Water allocation planning involves many specialist areas throughout the department: licensing, measurement, hydrogeology, hydrology, environmental water, policy, legislation and communication. We also meet regularly with external stakeholders and advisors in close consultation for each plan. The scope and funding for each plan depends on the amount of water already abstracted and the risk to the resource.

Ensuring that plans reflect all of our legislative and policy requirements, as well as local priorities for managing water in each area, is integral to our water allocation planning process. We work with local water users and stakeholders throughout the

planning process to develop an approach to managing water in the plan area. The technical work and policy within our plans also reflect our water reform agenda, committed to under the National Water Initiative and our state blueprint for water reform.

The department recently sought public comment through *Water allocation planning in Western Australia – A guide to our process*. This publication is available on the department's web page.

Unlicensed (legal) water uses

A variety of water uses in proclaimed areas are not subject to licensing. These include stock dams, domestic and garden bores, riparian rights, minor dewatering and water intercepted by plantation forestry.

Collectively, this water use can be significant. The department identifies and reserves the volume of water that will be used by these activities to ensure it is accounted for. This protects the integrity of the licensing system, protecting the rights of water users and the environment. The amount of water is estimated through the water allocation planning process.

Water licensing process

The Department of Water is responsible for managing the state's water resources by issuing licences and permits under the *Rights in Water and Irrigation Act 1914*. The department protects the state's water resources and promotes the sustainable and efficient use of water by ensuring that licensees comply with the terms and conditions of their licences.

A water licence ensures that the licensee has security of a water entitlement to support their development. It is important that licensees manage their water use and ensure that the growing area and proposed water use is within the annual water entitlement. Taking more water than the entitlement can affect other water users and can put the water resource at risk.

The *Rights in Water and Irrigation Act 1914* requires the department to assess applications to determine whether issuing a water licence is appropriate. The Act mandates an extensive list of matters to be considered through that assessment process⁸. This ensures that existing water users and the environment are considered, and that decisions are consistent with other government policy (such as land planning policy).

The licensing processes (guided by legislation and water allocation plans) should ensure that all externalities and equity considerations are adequately addressed.

⁸ *Rights in Water and Irrigation Act 1914*, Schedule 1, cl 7

Externalities are issues that affect water users other than those involved in the purchase or sale of an item. In the case of water entitlements, this could include downstream users or the general community.

Licences are issued for a fixed term (up to ten years), and are normally renewed if the licensee has met the conditions of the licence. Most licences include monitoring and reporting conditions to allow the department to manage water abstraction.

As part of the licensing process, the department undertakes regular compliance audits on licensed users. These are a crucial tool that the department uses to ensure that the water resource is not being overused and to ensure the security and sustainability of water entitlements for all users.

Water markets

Once a water resource's allocation limit is reached, further water cannot be allocated without creating unacceptable risks of eroding the rights of existing water users or damaging the environment. This can limit the potential for existing businesses to expand or for new ventures to start.

Governments across Australia have recognised that market mechanisms provide the most efficient and flexible approach to resolving this limitation. Water markets can allow water users to buy and sell water entitlements to meet their business needs, providing a mechanism to allow these entitlements to migrate from lower to higher value uses. Such mechanisms are seen to produce better outcomes than governments attempting to pick winners through centrally planning how water will be used in the economy.

The *Rights in Water and Irrigation Act 1914* was amended in 2000 to allow licensees to transfer water entitlements to another person, or allow another person to use the entitlement for a limited period of time. Entitlement transfers (whether permanent or temporary) operate within the rules set by government, as outlined above. The Act requires entitlement transfers to be assessed by the department to minimise the risk of undesired effects.

The use of water markets is steadily increasing in Western Australia as more water resources reach full allocation.

Ownership of rights to water

Common law rights to water are quite limited in Western Australia. The *Rights in Water and Irrigation Act 1914* was passed to allow people to obtain a licence to use water beyond their common law rights. The Act has been amended many times since then, most recently in 2000, making licences to take water transferrable (either with or without land).

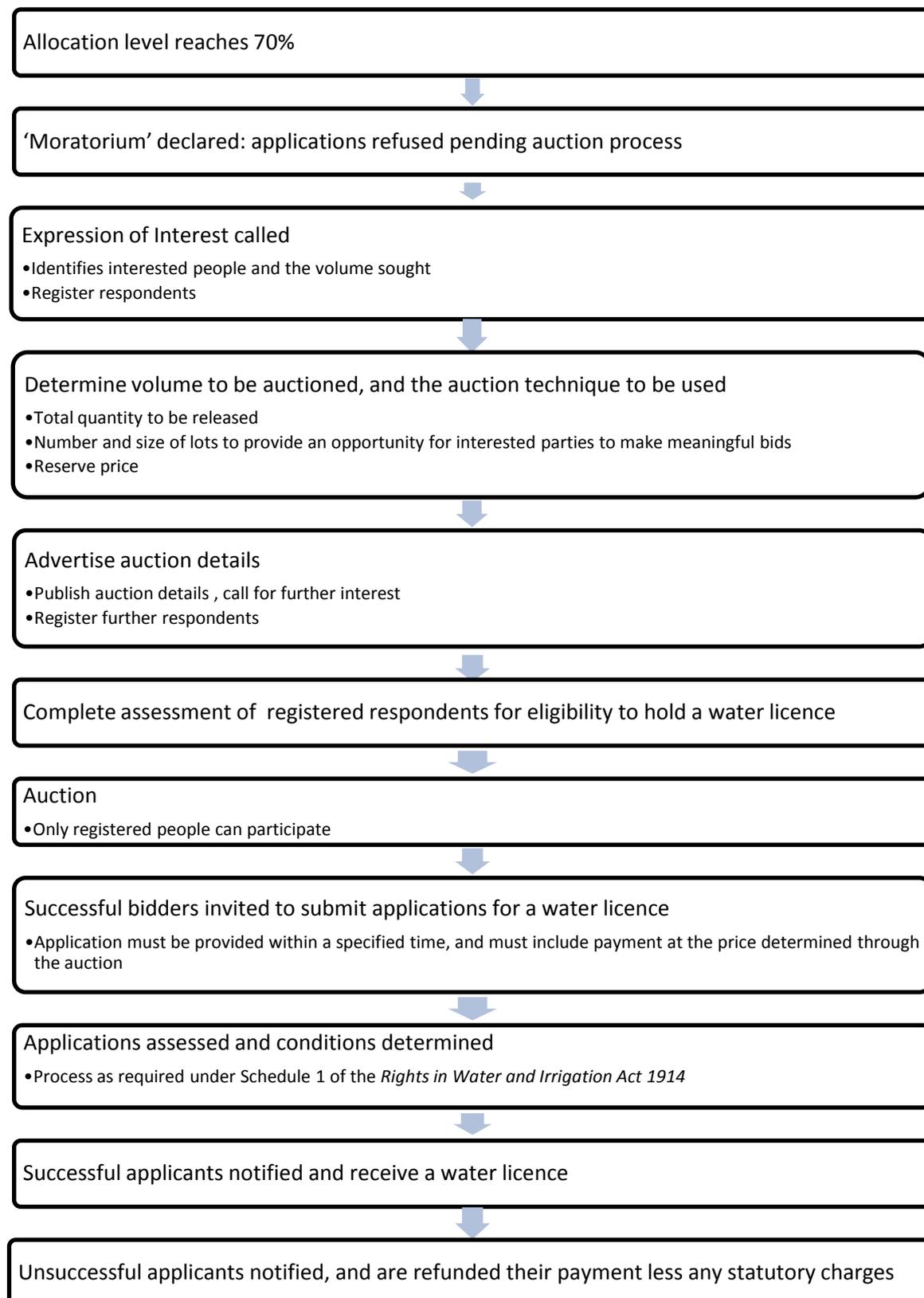
The *Rights in Water and Irrigation Act 1914* vests the right to the use, flow, and control of natural water (in watercourses, wetlands or underground water) in the Crown, except as appropriated under the Act or another written law. Water resources belong to all Western Australians, and need to be carefully managed to maximise the benefits to the whole of the Western Australian community.

Because of the distribution of water resources in the state, Western Australia has a long history of moving water to support the state's development. Examples include the Mundaring to Kalgoorlie pipeline, the Great Southern Towns Water Supply Scheme and pipelines from various dams (such as Harvey Dam) to Perth.

However, careful thought must be given to equity issues when considering moving water between regions. In these cases, restrictions on future development may be imposed within one area, while the wealth and benefits of use are transferred to another area.

Appendix B – Further information about auctions

Outline of auction process



Types of auctions

Open auction

This type of auction is the most commonly understood type. It would be very similar to the auction of a property, where all the bidders are brought together at one time and place and compete for the licence. The auctioneer (the department or a contracted auctioneer) will start at a low price, and then the applicants will place competitive bids which increase until there are no more bidders and a 'winner' is declared.

Sealed bid auction

This auction type is also well understood. The applicants submit a single sealed monetary bid to the auctioneer which details the maximum amount the applicant is willing to pay for a certain quantity of water. The auctioneer ('behind closed doors') will then determine who has the highest bid and allocate the water accordingly.

Quantity auction

Prior to the start of the auction, the auctioneer will determine and announce total supply and the starting price. Each bidder submits a (sealed) quantity bid for that price. If demand is less than supply, everyone gets their quantity at that price. If demand exceeds supply, the auctioneer increases the price, then bidders submit their next quantity bid equal to or smaller in size than the previous bid. This continues until equilibrium is reached. This means that each buyer ends up paying a similar price, which is close to market price and therefore which truly represents demand. This process allows the bidders to use the information revealed in the bidding process to adapt their bids.

The amount of bid information revealed between rounds is up to the auctioneer, but if the total demand submitted is revealed this is enough information for the applicants to make a good, informed decision without revealing information that can be used for collusive practices i.e. all the bids. After the auction an entire schedule of bids is released which gives transparency and legitimacy to the process.

References

- Council of Australian Governments 2004, *Intergovernmental Agreement on a National Water Initiative*, <www.nwc.gov.au/resources/documents/Intergovernmental-Agreement-on-a-national-water-initiative2.pdf>, viewed 15 September 2011.
- Department of Environment 2005 (now Department of Water), *Protecting Public Drinking Water Source Areas in Western Australia*, Department of Environment, Perth.
- Department of Water 2010, *Water allocation planning in Western Australia – A guide to our process*, Department of Water, Perth.
- 2011, *Peel Regional Water Plan (Draft)*, Department of Water, Perth.
- Pickering, P 2010, *Evaluation of mechanisms for releasing unallocated water in Western Australia. Part A: Selection of market instruments*, report prepared by Marsden Jacobs Associates for the Department of Water, Perth.
- Resource Economics Unit 2011, *Water Futures for Western Australia 2008-2030. Volume 1: State Report*, prepared for the Department of Water, Perth, p. 32.
- Water Corporation 2011, *Who uses our Water*, <www.watercorporation.com.au/W/water_use_at_home.cfm>, viewed 22 August 2011.
- Western Australian Planning Commission 2003, *Statement of Planning Policy No. 2.7: Public drinking water sources*, Western Australian Planning Commission, Perth.
- 2009, *Liveable Neighbourhoods*, Western Australian Planning Commission, Perth.

Department of **Water**

168 St Georges Terrace, Perth, Western Australia
PO Box K822 Perth Western Australia 6842

Phone: 08 6364 7600

Fax: 08 6364 7601

www.water.wa.gov.au