## CABINET - SUBJECTS FOR CONSIDERATION, 05 FEBRUARY 2007 11:00 AM

Not Relevant

1 **New Initiatives/Policy Matters**

Not Relevant

107 TF07/010CS Treasurer's Item (Kevin Foley)
**APPROVED**

Not Relevant

107

LOCKED

**COVER SHEET**

| | | |
|---|---|---|
| 1. | **TITLE:** | **WATER SECURITY** 2007/08 |
| 2. | **MINISTER:** | **K**evin Foley **MP**<br>**DEPUTY PREMIER**<br>**TREASURER** |
| 3. | **PURPOSE** | To advise **C**abinet of current water availability scenarios for 2007/08, seek approval for **S**outh Australia's short-term water security strategy, seek approval for initial water security measures, and outline further matters for subsequent **C**abinet consideration. |
| 4. | **RELEVANT GOVERNMENT POLICY and/or STRATEGIC PLAN TARGET** | There are no directly applicable **S**trategic **P**lan targets. **H**owever, the measures proposed by the submission are aimed at protecting the health and well-being of communities reliant on **R**iver **M**urray water for drinking and domestic purposes, and on protecting the **S**tate's economic base. |
| 5. | **ICT COMPONENT** | Does the submission have a material **ICT** Component?<br>☐ **Y**es ☒ **N**o |
| 6. | **RESOURCES REQUIRED FOR IMPLEMENTATION** | **C**apital cost 2006/07 to 2007/08 $60 million<br>**O**perating costs: 2006/07 $9.024 million<br>2007/08 $100 million<br>**T**reasury and Finance agrees with the basis of the assessment of costs contained in this submission. |
| 7. | **COMMUNITY AND ENVIRONMENTAL IMPACT** | Does the submission have an impact on business?<br>☐ **Y**es ☒ **N**o |
| 8. | **RISKS** | There is a risk that, if record low inflows continue and appropriate measures are not taken, **SA W**ater's off-takes from the **R**iver **M**urray – which deliver water to in excess of 90% of the state's population – would cease operating due to falling river levels. |

**9. CONSULTATION**

The proposed water security strategy has been discussed with and endorsed by the Water Security Advisory Group.

The situation and proposed measures has been discussed with senior officials from the Commonwealth, MDBC, Vic and NSW. Measures to pump additional water and to disconnect selected wetlands are recommendations of the Dry Inflow Contingency Planning report to First Ministers.

All relevant SA government agencies are represented at the chief executive level on the Water Security Task Force.

**10. COMMUNICATION STRATEGY**

A communication strategy specific to the Government's response to the drought along the River Murray is being developed in consultation with the Premier's Media Unit and the Minister for the River Murray.

**11. URGENCY**

Urgent

**12. RECOMMENDATIONS**

It is recommended that Cabinet:

12.1 Endorse the overall water security strategy, on the basis that further approvals will be sought as indicated below;

12.2 Approve modifying SA Water's pumping stations at Murray Bridge, Swan Reach and Tailem Bend, noting that relevant expenditure approvals for the works will be sought from the Minister for Government Enterprises;

12.3 Note that, if one is required, the only feasible location for a temporary weir is at Pomanda Point;

12.4 Approve the continuation of preparatory work on a temporary weir, noting that some preliminary expenditure for materials and access works will be submitted to the Minister for Government Enterprises for approval;

12.5 Note that a further submission will be made to Cabinet when the full design and cost of a temporary weir is known;

12.6 Note that approvals are being pursued under the Commonwealth EPBC Act, Native Title Act and SA Aboriginal Heritage Act;

12.7 Approve in principle the plan to secure an additional reserve of 100 GL of water for South Australia in 2007/08, including acceptance of the Commonwealth offer to fund half of 20 GL and the investigation of an options contract on accessible above-target water held by Snowy Hydro Ltd, noting that specific approvals will be sought prior to entering into any commitments to purchase water or options contracts;

12.8 Note that, even if SA is successful in arguing for a basin-wide strategic reserve, SA would still need to find and fund additional water if critical agricultural and river health needs are to be met;

12.9 Approve the principles indicated herein as the basis for decision-making on potable water supplies;

12.10 Approve a pipeline not being constructed to Langhorne Creek/Currency Creek;

12.11 Approve a bulk water supply for the township of Clayton by SA Water as a community service obligation of $5 million;

12.12 Note there is no evidence to support a pipeline to the Narrung Peninsula and eastern side of the lakes on economic grounds, but that PIRSA has recommended that consultation occur before a final decision is reached;

12.13 Approve PIRSA consulting with relevant primary producers, including making information available publicly on the likely cost of pipelines and other options. If a pipeline is subsequently proposed, PIRSA will make a further submission to Cabinet;

12.14 Approve water being carted to Point McLeay by SA Water at a cost of $150,000 per annum, unless a pipeline to the Narrung Peninsula and eastern side of the lakes is subsequently approved.

12.15 Note that the Minister for the River Murray will gazette and publish an increase to 206 GL in SA Water's authorisation to take water in 2006/07 for metropolitan Adelaide to enable SA Water to pump the additional 60 GL;

12.16 Note that regulated wetlands have been closed and that work is underway to close selected unregulated wetlands, utilising Murray-Darling Basin Commission funding:

12.17 Approve additional appropriation and expenditure authority of $940,000 for DWLBC and $180,000 for DEH in 2006/07 for administration costs associated with water security issues;

12.18 Note that without off-setting revenue, there will be budget impacts from reduced SA Water contributions as a result of investigations and construction of a weir, additional pumping of 60 GL of water, modification to pumping stations and provision of water to additional communities. Budget impacts are dependent on funding arrangements, particularly Commonwealth funding;

12.19 Approve writing to the Commonwealth to seek funding for the costs of water security measures as set out in this submission.

**I declare that I have no actual or potential conflict of interest in relation to the proposals contained in this submission.**

Kevin Foley MP
**DEPUTY PREMIER**
**TREASURER**

2 / 2 /2007

**Contact Officer:** Paul Case, Chair, Water Security Task Force
Telephone Number: 8303 2299

TO: THE PREMIER FOR CABINET

RE: WATER SECURITY 2007/08

1. PROPOSAL

1.1. To advise Cabinet of current water availability scenarios for 2007/08, seek approval for South Australia's short-term water security strategy, seek approval for initial water security measures, and outline further matters for subsequent Cabinet consideration.

2. BACKGROUND

2.1. Under several possible drought scenarios, sufficient water may not be available to provide for basic needs in 2007/08 for those people reliant on the River Murray.

2.2. In response to record low inflows into the Murray-Darling Basin, the Government convened a group of national water experts - the Water Security Advisory Group – in early November 2006. The group members are:

- Hon Kevin Foley (chair)
- Mr Denis Flett
- Mr Don Blackmore
- Mr John Scanlon
- Mr Denis Hussey
- Mr Jim Hallion

2.3. The SA Advisory Group has met on four occasions since then to review the work of the Water Security Task Force, chaired by Mr Paul Case, and comprising the chief executives of Department of Water, Land and Biodiversity Conservation, Primary Industries and Resources SA, Department of Environment and Heritage, Department of Transport, Energy and Infrastructure, Department of Treasury and Finance, Department of Trade and Economic Development and SA Water.

2.4. The Task Force delivered an interim report and working paper to the Deputy Premier and Minister for the River Murray on 19 December 2006. The interim report will be separately submitted for Cabinet to note. Key findings of that report are:

- All the current scenarios indicate that 2007/08 will be a difficult water year for South Australia;
- There are steps we can take to ensure people don't run out of water although, in the worst cases, SA cannot solve its water shortfall alone. In the worst scenarios, sufficient water will only be secured by all basin states working together.

National level

2.5. Given the Basin-wide seriousness of the situation, the Prime Minister called a water summit on 7 November 2006. An outcome of that summit was to charge senior officials (the Dry Inflow Contingency Planning Group) with the

task of reporting to First Ministers on contingency arrangements for providing basic water to cities and towns reliant on the River Murray.

2.6. SA officials together with Commonwealth and interstate counterparts developed a report to First Ministers, which was delivered on 20 December 2006.

2.7. The Premier and Prime Minister have exchanged letters agreeing to 5 priority measures recommended by the Dry Inflow Contingency Planning senior officials. These are:

- Lower target end-of-season reserve in Lake Victoria;
- Reduced minimum flow targets;
- Early pumping to build reserves in Mt Lofty storages (action for SA);
- Options contracts for 2007/08 allocations;
- Disconnect selected wetlands (action for SA + other states).

2.8. A joint media statement was made on 12 January 2007. The national report will not be made public.

2.9. Issues remaining to be negotiated and/or requiring further work include:

- Agreement on a strategic reserve to secure critical urban consumption throughout the Basin;
- Quantum of that strategic reserve;
- Water for industrial use – particularly in Adelaide where 36 GL supports significant economic activity and jobs.

## 3. DISCUSSION

### Purpose

3.1. The purpose of this submission is to advise Cabinet of the current water scenarios for 2007/08, seek endorsement for the proposed strategy for securing water for Adelaide and country areas, and outline consequential actions for putting the strategy into effect.

### Forecast flows

3.2. South Australia's normal entitlement flow from the Murray-Darling Basin is 1,850 GL, although in past years the actual flow has averaged more like 4,800 GL.

*2006/07 water year*

3.3. At the time of the last detailed briefing to Cabinet (November 2006), the predicted River Murray flow to South Australia in 2006/07 was 1,580 GL (based on minimum inflows). As at January 2007, the realistic worst case inflow to SA is now predicted to be 1,460 GL.

3.4. South Australia's demand from the River Murray in 2006/07 is considered to be manageable with the present restrictions on urban users (level 3) and irrigators (60% of allocations). The Minister for the River Murray has stated publicly that, if possible, irrigators' allocations would not be reduced below

60%. However, this could entail mining the system within SA to the extent of about 200 – 300GL. This also means that 2006/07 water – which is presently the only 'secure' water in the system – cannot be saved and carried over to the 2007/08 water year.

3.5. South Australia does have the option of saving 2006/07 water by reducing irrigators' allocations below 60% and storing this water upstream in Dartmouth or Hume storages for use in 2007/08. This would require agreement from Victoria and NSW, and indications are that this would be possible.

3.6. However, apart from the commitment made by the Minister for the River Murray, there are indications that, at this stage in the water year, irrigators have already used most of their full entitlement (ie the full 60%) which means that there is very little 2006/07 water left to be saved.

*2007/08 water year*

3.7. At this stage there is no single prediction for 2007/08. The Murray-Darling Basin Commission (MDBC) has issued five scenarios for 2007/08, corresponding to the worst case (possibly 1:1000) and probabilities of 1:100, 1:10, 1:4 and 1:2. These are set out below, along with a comparison with predictions as at the last briefing to Cabinet in November 2006.

| Scenario | As at Nov 2006 | Latest estimate (Jan 07) | Explanation |
|---|---|---|---|
| A | n/a | 337 GL | Repeat of record low inflows received in 2006/07. Considered the "realistic worst case scenario". |
| B | 740 | 696 GL | 1 in 100 year drought, based on historical records. |
| C | 1,100 | 897 GL | 1 in 10 year drought, based on historical MDBC records. |
| D | 1,300 | 1,164 GL | 1 in 4 probability, based on historical MDBC records. |
| E | 1,762 (av year) | 1,597 GL | 1 in 2 probability, based on historical MDBC records. |

3.8. None of the scenarios are good for South Australia and, except for scenario E, none will allow a 'business as usual' approach. Under the lowest flow scenarios, South Australia is not even able to replace the evaporation and losses, so river levels will fall even with no extractions for urban or irrigation use.

3.9. South Australia's normal entitlement flow from the Murray-Darling basin is 1,850 GL, although in past years the actual flow has averaged more like 4,800 GL. Without significant intervention, scenarios A, B and C have South Australia at risk of being unable to meet critical urban water demands in cities and towns reliant on the River Murray.

3.10. The Mount Lofty Ranges supply on average 60% of Adelaide's annual water needs, but this varies significantly from year to year depending on climatic

conditions. The dry inflows in the River Murray in 2006/07 have coincided with an extremely dry year in the Mount Lofty Ranges. The above dry inflow scenarios in the River Murray will be exacerbated if there are continuing dry conditions in the Mount Lofty Ranges. While good rains in the Mount Lofty Ranges would significantly assist the water situation for Adelaide, much of country SA is totally reliant on the River Murray such that rainfall in the Mount Lofty Ranges will have no effect.

3.11. While the worst case (scenario A above) does not have a high probability of occurring, it must be the basis for planning, in the absence of better information. To not do so, and then have the worst case occur, would expose the state to a loss of water supply for basic human existence for more than 90% of the state's population which is reliant on the River Murray for water. Similarly, while good rainfall in the Mount Lofty Ranges will assist, it cannot be relied upon and planning must proceed on the basis of worst case conditions.

SA strategy

3.12. Based on the Water Security Task Force's analysis, and review by the Water Security Advisory Group, the recommended water security strategy for SA has emerged and is set out below.

3.13. Given the number of uncertain events and triggers that can influence water availability in 2007/08, a flexible and adaptive strategy is recommended for insuring SA's water security. This enables new information and events to be incorporated into plans and decisions, increasing the effectiveness of the strategy while also lowering the potential cost of achieving water security. The key elements of this flexible approach include staging the weir capability (measure 4 below) and developing a range of options for an additional water reserve (measure 5).

| WATER SUPPLY MEASURES | | |
|---|---|---|
| 1. | **Pump additional 2006/07 water into storages**<br>An additional 60 GL can be pumped from the river into Mt Lofty ranges storages to provide a buffer against water quality problems (eg toxic algal blooms)<br>*This measure also was a recommendation of the national Dry Inflow Contingency Planning report to First Ministers, and agreed to in a letter from the Premier to the Prime Minister on 2 January 2007.* | As soon as practicable |

| | | |
|---|---|---|
| 2. | **Disconnect selected wetlands**<br>This will keep water in the main river channel and reduce evaporation<br>*This measure also was a recommendation of the national Dry Inflow Contingency Planning report to First Ministers, and agreed to in a letter from the Premier to the Prime Minister on 2 January 2007.* | Most regulated wetlands already closed – unregulated wetlands under consultation |
| 3. | **Modify SA Water's pumping stations**<br>Three major off-takes to Adelaide and country areas will cease operation if the river level falls. Modifications will extend the time they can continue pumping by about four months. | Begin March 2007 |
| 4. | **Prepare for and, if necessary, construct a weir**<br>It is still hoped that a weir will not ultimately be necessary. Until that is known for certain, work will proceed as: | |
| | A. Finalise site and design; | Already under way |
| | B. Pre-order and/or stockpile materials, construct access roads and the embankment to Pomanda Island, calling of tenders for construction; | March to May 2007 |
| | C. Commence construction of the weir embankment; | June 2007 |
| | D. Decide to finish construction (ie close off river). | August 2007 (weir embankment would be complete in Feb 2008. Other works may continue until April.) |
| 5. | **Identify an additional reserve of water**<br>In the worst case scenarios, the above measures will not be sufficient to meet all domestic needs. First preference is for a Basin-wide 'strategic reserve' of water jointly sourced and funded by the Commonwealth and Basin States.<br>In the meantime, SA needs to begin arranging access to an additional reserve for itself. | As soon as practicable |
| | **SUPPORT MEASURES** | |
| 6. | **Bring forward new water filtration plants**<br>Cabinet has already approved a project to provide new water filtration plants for 15 townships that currently receive unfiltered River Murray water. This will ensure these towns are protected from water quality issues such as algal blooms. | Already approved by Cabinet |

| | | |
|---|---|---|
| 7. | **Construct/arrange alternative supplies**<br>This is likely to include a bulk water pipeline to Clayton, water carting for Point McLeay<br>(NOTE that small desalination plants are a less secure and more costly option in the face of dwindling water supply in the lower lakes.) | March 2007 |
| **8.** | **Respond to ad hoc ancillary issues**<br>As river and lake levels fall, it can be anticipated that a range of issues will emerge that require government advice and/or assistance to solve. | Ongoing |
| **9.** | Develop a water recovery strategy<br>Strategy for managing the river and lower lakes as water inflows resume, including the removal of a weir (if constructed) and resumption of irrigation | Commence by March/April 2007 |

3.14. These measures have all been endorsed by the Water Security Advisory Group, and are consistent with the report to First Ministers. Further detail on each measure is set out in appendices 1 to **9**.

3.15. It is recommended that Cabinet endorse the overall water security strategy, on the basis that further separate approvals will be sought where indicated. In particular, further Cabinet approval will be sought for the commencement of construction of a weir.

3.16. Of these measures, the most critical are the weir and an additional reserve of water. While measures 1 to 3 are important measures, only a weir and an additional reserve of water provide access to sufficient volumes of water to meet critical needs in the worst case scenario. These two measures are discussed further below (as well as in detail in appendices 4 and 5).

3.17. The strategy outlined above relates only to the actions required to secure the maximum amount of water possible for the 2007/08 year. Once a water security strategy has been agreed to, significant effort will be required by the Premier's High Level Drought Task Force to develop an appropriate package of response measures. The Cabinet submission on SA Drought Response Measures – Phase 4, being considered on 5 February 2007, contains a number of measures that will provide support for River Murray irrigators and communities, and identifies the likely need for a further phase of response as the river situation deteriorates. It should also be noted that a number of the measures funded as part of the State Government's $4 million phase 2 drought response package (25 October 2006) are already providing support to irrigators and communities along the river, including:

- Stamp duty and other financial relief for irrigators;
- Workshops to assist managing in dry times;

- Mental health support, community support grants, and rural financial counselling and mediation support.

3.18. An application for exceptional circumstances support for the River Murray corridor should be completed by the end of February 2007.

**Weir**

3.19. In the worst scenarios, a weir is critical to providing basic water supplies to Adelaide and large country areas (along with an additional reserve – discussed below).

3.20. A number of sites have been examined between Murray Bridge and the Lower Lakes, using both new geotechnical surveys and by accessing data from previous projects such as the Swanport Bridge. A feasible site has been identified at Pomanda Point. The original site for a shorter structure close to Wellington has been proven not to be feasible.

3.21. The current estimated cost of a weir at Pomanda Point is $100 million. All options to reduce the cost are continuing to be investigated, including simplifying the design (while also ensuring the structure will hold) and staging the work to minimise early expenditures.

3.22. This cost is based on only partially removing the embankment when river flows return to normal. It assumes that on the western side the rock would be removed to a depth of –1.6 metres AHD (giving 2.35 metres water depth under normal pool conditions), with the expectation that the remaining material will sink further over time. It also assumes none of the embankment would be removed on the shallower eastern side.

3.23. While this degree of removal will ensure sufficient capacity for maximum river flows, concerns have been raised about potential ecological impacts and the perception of the local community that the weir is a permanent structure. The cost to remove the eastern embankment would be an additional $5 million, and this is an option for Cabinet to consider. The cost to totally remove the embankment below –1.5 m AHD on the western side has not been estimated, but will be much higher because of the difficulty in accessing this material particularly when the lakes are at normal pool level.

Additional reserve of water

3.24. In the worst case (scenario A), a weir would still not be sufficient to provide basic water supplies, and SA would need to source another 254 GL of water to meet fully-restricted domestic water needs (priority 1) and up to 456 GL to meet critical agricultural and river health needs as well as domestic needs.

3.25. This is set out in the table below which shows water needed against likely flows under scenarios A, B and C.

| All volumes are inflows to, or losses within, and demand within SA. | Scenario A 1 in 1,000 (Gigalitres) | Scenario B 1 in 100 (Gigalitres) | Scenario C 1 in 10 (Gigalitres) |
|---|---|---|---|
| Unavoidable evaporation and losses[1] | (390) | (390) | (390) |
| Fully restricted urban, stock and domestic | (201) | (201) | (201) |
| **Total to meet priority 1 needs** | (591) | (591) | (591) |
| Less minimum inflow | 337 | 696 | 897 |
| Net outcome (Priority 1) | (254) | 104 | 306 |
| Permanent crops survival | (165) | (165) | (165) |
| Critical river health | (37) | (37) | (37) |
| **Total to meet priority 2 needs** | (202) | (202) | (202) |
| Net outcome (Priority 1 and Priority 2) | (456) | (98) | 104 |

(1) Assumes the temporary weir is in place and 60 GL savings achieved from wetland closures

3.26. Of the 456 GL shortfall:

- 254 GL needs to be accessed just to provide for human consumption (priority 1) and offset evaporation losses;
- The remaining 202 GL would need to be secured in order to also cover agriculture and critical river health (priority 2).

3.27. The role of, and options for securing, that additional reserve of water for 2007/08 are set out in detail in appendix 5.

3.28. It is preferable that a single, Basin-wide 'strategic reserve' be jointly sourced and funded by the Commonwealth and Basin States. Such a reserve could cover the basic urban needs of cities and towns in SA, Victoria and NSW. A reserve of about 350 GL would be needed.

3.29. While the concept of a strategic reserve has not been agreed to yet by other Basin States, it has not been rejected either. In a letter to the Premier on 22 December 2006, the Prime Minister offered to fund half the purchase of 20 GL of water and potentially up to 50 GL.

3.30. The recommendation of the Water Security Advisory Group is that South Australia should proceed to secure an additional 100 GL of water and accept the Prime Minister's offer to fund half of 20 GL. If a Basin-wide strategic reserve is subsequently agreed, this water could become SA's contribution to it. In addition, SA should continue discussions with Snowy Hydro Ltd on the likely cost of an options contract on accessible water in their storages.

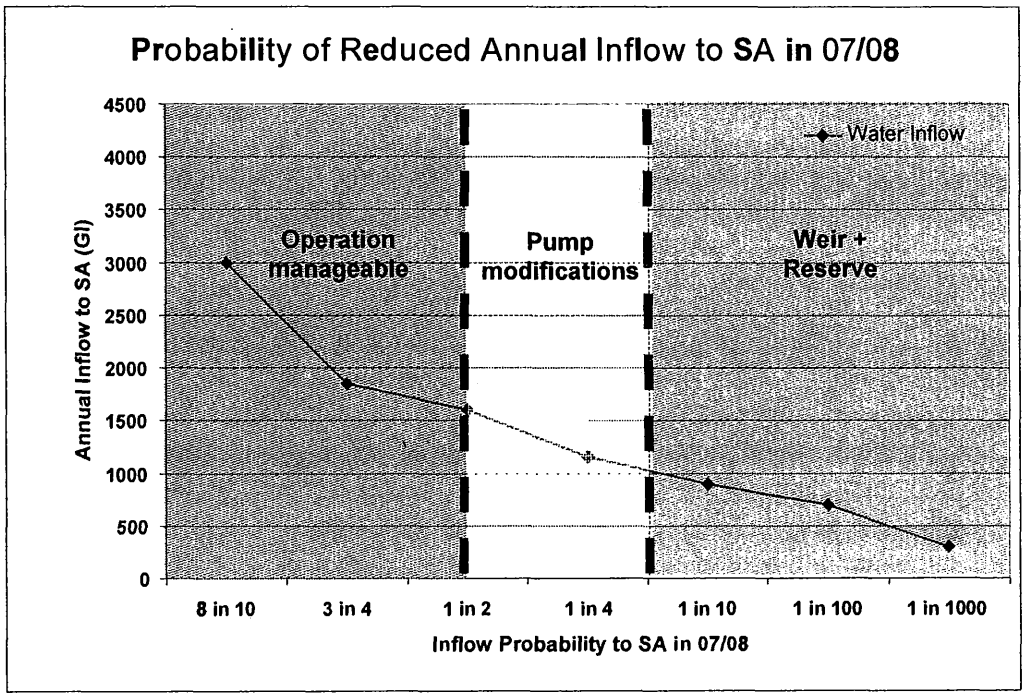
3.31. For the 1:100 year scenario (scenario B), basic human consumption needs can be met but there is a shortfall of 98 GL in meeting the critical agriculture and river health needs. Securing an additional reserve of 100 GL therefore also provides sufficient water to cover the critical agriculture and river health requirements for up to the 1:100 year scenario, giving some insurance against the long term economic impacts that such an event would have.

3.32. Cabinet is therefore asked to give in principle approval for the plan to secure an additional reserve of 100 GL of water for South Australia in 2007/08, including acceptance of the Commonwealth offer to fund half of 20 GL and

the investigation of an options contract on accessible above-target water held by Snowy Hydro Ltd. Further specific approvals will be sought prior to entering into any commitments to purchase water or options contracts.

Summary

3.33. The recommended water security strategy is depicted graphically as follows:




3.34. The graph depicts that there is a 1 in 2 chance that South Australia will have sufficient water to allow SA Water's major pumping stations to remain operational without taking any action. If the inflow is between about a 1 year in 2 and a 1 year in 10 event, additional pumping into storages, the disconnection of wetlands and modification to SA Water's pumping stations will be sufficient for them to remain operational in 2007/08. For inflows worse than about a 1 year in 10 event, there will be no option but to build a temporary weir and, in the worst case, secure an additional reserve of water to keep the major pumping stations operational delivering water for domestic needs.

3.35. Note that these probabilities should not be interpreted as being rigid trigger points for implementing water security measures. While planning is based on the MDBC's scenarios for entitlement flows, South Australia may also receive so-called 'unregulated flows' above these entitlement amounts. If this occurs, the amount of water flowing into SA will be higher than depicted above and the points at which measures such as a weir must be undertaken will change correspondingly.

Arrangement for alternative water supplies

3.36. Appendix 7 sets out in detail the areas and townships requiring alternative water supply arrangements due to the River Murray drought situation.

3.37. Given that areas throughout the state are enduring drought conditions, a set of principles are proposed to ensure the equitable provision of potable water supplies:

1. Government will maintain supplies on government owned and operated systems.
2. Assistance may be provided for council water supply schemes equivalent to the community service obligation that would be paid if SA Water was operating the scheme.
3. In general, individual households not on government owned and operated systems will need to make their own arrangements for water carting with private operators.
4. Government will prepare contingency plans for emergency situations that are beyond the capacity of councils and individual householders – for example, if there was a widespread blue-green algae outbreak.
5. Assistance for economic purposes will be made on a case by case basis, having regard to the economic value of services being protected and the costs involved.

3.38. Cabinet is asked to approve these principles as the basis for decision-making on potable water supplies.

3.39. Based on these principles, the Water Security Task Force recommends the following arrangements for supplies along the river impacted by dropping water levels in the lower lakes:

- A pipeline not be constructed to Langhorne Creek/Currency Creek, but that producers rely on rainfall and groundwater.
- A bulk water supply be provided to Clayton by SA Water as a community service obligation of $5 million.
- There is no evidence to support a pipeline to the Narrung Peninsula and eastern side of the lakes on economic grounds. However, PIRSA has recommended that consultation occur before a final decision is reached.
- PIRSA will consult relevant primary producers, including making information available publicly on the likely cost of pipelines and other options. If a pipeline is proposed, PIRSA will make a further submission to Cabinet.
- Water be carted to Point McLeay by SA Water at a cost of $150,000 per annum, unless a pipeline to the Narrung Peninsula and eastern side of the lakes is subsequently approved.

**Water restrictions**

3.40. South Australia currently has in place level 3 water restrictions that are estimated to reduce consumption by 30GL over a whole year. This has already been factored into water availability calculations. Consequently the only water 'savings' still available are from a move to level 4 and level 5.

3.41. Increasing restrictions to level 5 would achieve a further 20GL in savings, although at substantial cost. Level 5 restrictions would see the banning of all

outdoor water use by residential consumers, resulting in a significant costs, both in terms of re-establishing lawns, gardens, parks and playing fields, and in the value the community places on the use of open space. In terms of housing and other built structures, the incidence of cracking of buildings on reactive clay soils may be exacerbated.

3.42. The economic impact of level 5 water restrictions has been estimated as:
- $470 million replacement cost of gardens,
- $113 million replacement of ovals/parks,
- $94 million cracking in buildings.

3.43. While Sydney and Brisbane presently ban watering of lawns, the climate in those cities means there is regular rainfall which ensures these areas do not completely die. It is not uncommon in South Australia, however, for there to be no rainfall for long periods in summer. Few gardens could withstand such long periods without water. The loss of public parks and ovals would compound the loss of home gardens, leaving families and children with limited outdoor recreational choices.

3.44. The water security strategy is based on fully restricted domestic use in the worst scenarios, and this is likely to be the expectation by the Commonwealth and Basin States. Nevertheless careful consideration needs to be given to the implications of increases in restrictions, particularly to a ban on all outside watering. Consideration should also be given to whether exemptions are needed for certain public spaces to ensure appropriate recreation opportunities remain.

**Special legislation**

3.45. In the event that a weir must be constructed in time for the 2007/08 water year, special legislation will be needed to quickly provide the necessary approvals and authorities.

3.46. Drafting instructions are being prepared for special legislation to:
- facilitate the construction of any "works" needed to manage the drought – such as a weir, wetland closures, pipelines, or works to protect water quality (eg river bubblers, booms);
- remove liability for needed works, and specify that no compensation is payable for losses due to drought measures;
- exempt works from approvals under the Development Act, Native Vegetation Act, Heritage Act, National Parks & Wildlife Act and Environment Protection Act;
- exempt works from scrutiny by the Public Works Committee.

3.47. The special legislation is the subject of a separate Cabinet submission.

**Options for the future**

3.48. The Government's 20 year water resource strategy, Water Proofing Adelaide, was prepared in 2005 based on the best information available at that time and still contains appropriate initiatives. While the strategy takes into account

future reductions to existing water allocations from the River Murray due to the impacts of climate change, groundwater changes and bushfires, it was assumed that even in the worst case scenario South Australia would receive sufficient water across the border to meet the minimum urban requirements and that during periods of drought in the Murray-Darling Basin the only action necessary in South Australia would be moderate restrictions on water allocations from the River Murray.

3.49. The current drought situation has shown that the previous assumptions about the reliability of the River Murray are no longer valid. As a consequence, a review of the reliability of the water supply to Adelaide has been initiated and options developed for further improving reliability, and a position paper on future options will be available for Cabinet by the end of March 2007 (following which public consultation could be appropriate).

3.50. In particular, SA Water is investigating design and capacity options for desalination under a range of scenarios, and consideration will be given to the possibility of new dams. A new dam could provide more storage, and hence provide a buffer in drought years. Under the current MDBC Agreement, Victoria and NSW have the ability to store and carry over water but South Australia does not.

3.51. In this context, an ability for South Australia to store water upstream would provide similar benefits to constructing a new dam in the Mt Lofty Ranges in terms of being able to better manage our own water security, without the large infrastructure cost of building a dam.

3.52. Some of the potential options for improving the reliability during drought will have an impact on the Water Proofing Adelaide strategy. For example, if SA chose to construct a desalination plant there will be more water available all of the time and it may be possible for some of the initiatives in Water Proofing Adelaide to be scaled back and still provide sufficient water to meet future growth.

3.53. The review of options for increasing water security also will take into account the proposed response to the Adelaide Coastal Water study, which recommends a 75% reduction in the level of nutrients being discharged compared to the levels in 2004 and may make recycling of treated wastewater for irrigation even more cost effective.

Economic, financial and budgetary implications

3.54. It has been agreed with the Department of Treasury and Finance that, at this stage, 2006/07 expenditure on water security related activities be tracked and recorded by agencies. This only includes incremental expenditure (capital and operating) directly related to water security matters – ie existing salaries and agency overhead costs are excluded.

3.55. The final cost to the SA Government will also depend on discussions presently underway with the Commonwealth, the Murray-Darling Basin Commission and other Basin States. At this stage, it has been agreed that

the MDBC will fund wetland closures above 1 GL, although it is anticipated that this will be altered so they fund all closures. The Prime Minister has also offered Commonwealth funds for half the cost of purchasing between 20 and 50 GL of water.

3.56. Pressure should be applied to the Commonwealth for funding for the costs of the water security measures, including the cost of the weir, pumping additional water in storages and the modifications to SA Water's pumping stations. In addition, financial assistance should be sought for the additional water reserves, any structural adjustment for farmers and for the pipeline to Clayton.

3.57. It would be preferable that agreement on Commonwealth funding be reached prior to announcing the water security measures, lest a statement of SA's intention weaken the State's negotiating position. The Premier raised the cost of a weir in a letter to the Prime Minister on 22 December 2006. The quantum and cost of a strategic reserve of water and the cost of a weir is also being discussed by the senior officials group.

3.58. It is recommended that the Government write to the Commonwealth to seek funding for the costs of water security measures.

**Required resources**

3.59. Based on current estimates, the capital and operating costs associated with the proposed water security strategy are:

*Capital costs 2006/07 – 2007/08*

| | |
|---|---|
| Modifications to SA Water pumping stations | $5 million |
| New water filtration plants | $50 million |
| Pipeline to Clayton | $5 million |
| **TOTAL capital** | **$60 million** |

3.60. Given that the new water filtration plants have already been approved by Cabinet and have been incorporated within SA Water's forward capital program (2007/08 budget estimates), the impact of the above capital investment will be relatively minor with SA Water's contribution to the Government reducing by around $0.3m to $0.5m per annum. Note that the new filtration plants will incur operating costs of up to $3 million per annum following commissioning on 1 January 2008.

3.61. Given that this submission does not seek approval for specific water purchases and/or options contracts, the above table does not cite costs for these measures. Nevertheless, the proposal to accept the Prime Minister's offer to fund half the purchase of 20 GL of water has an implied commitment of funds. It is not possible to accurately predict the cost of water purchases, since the cost will depend on market forces at the time. However, if temporary water is available at $0.5 million/GL, the cost of 20 GL would be $10 million, of which SA's share would be $5 million. As emphasised above,

further approvals will be sought before any commitment is made to purchase an amount of water or enter into an options contract.

*Operating costs 2006/07*

| | $m 2006/07 | $m 2007/08 |
|---|---|---|
| **DWLBC** | | |
| Water Security Advisory Group and Task Force | 0.14 | |
| Community liaison managers | 0.14 | |
| Ngarrindjeri monitoring agreements | 0.20 | |
| Public consultation, education and media | 0.43 | |
| Monitoring, modelling | 0.03 | |
| Total DWLBC | 0.94 | |
| DEH | | |
| Managing EPBC Act environmental approvals | 0.18 | |
| Total DEH | 0.18 | |
| SA **Water** | | |
| Investigations and preparations for weir | 0.53 | |
| Weir at Pomanda Point (if required) | | 100.00 |
| Additional pumping of 60 GL for strategic reserve | 7.00 | |
| Water quality investigations on managing toxic algae outbreaks | 0.17 | |
| Other including tankering, aerial surveillance, training and accommodation | 0.26 | |
| Total SA Water | 7.96 | 100.00 |
| **Grand total** | 9.024 | 100.00 |

3.62. As noted above, investigations on reducing the cost of a weir are continuing to be investigated.

3.63. For the purposes of this Cabinet submission the costs of the weir of $100 million in 2007/08 are treated as recurrent expenditure. Ultimately the accounting treatment for the costs will depend on the final option chosen for the weir.

3.64. The operating proposals outlined above have not been incorporated in the forward estimates and will adversely impact the Government's budget as outlined above. This includes costs incurred by SA Water which will be passed on to Government through a reduced contribution (dividend and tax) in the absence of off-setting revenue. Final budget impacts are dependent on funding arrangements, particularly Commonwealth funding.

3.65. It is proposed that Cabinet approve additional appropriation and expenditure authority of $940,000 for DWLBC and $180,000 for DEH in 2006/07 for administration costs associated with water security issues.

South Australia's Strategic Plan

3.66. There are no directly applicable Strategic Plan targets. However, the measures proposed in this submission are aimed at protecting the health and well-being of communities reliant on River Murray water for drinking and domestic purposes, and on protecting the State's economic base.

Information and communication technology requirements

3.67. There are no ICT requirements.

Staffing implications

3.68. The measures proposed in this submission do not entail an increase or decrease in staff numbers.

Impact on the community and the environment

3.69. The impact of SA Water being unable to pump water to the 90% of the state's population that relies on River Murray water would be devastating, in terms of the impact on family and community well-being and on businesses that rely on water for some part of their operation. The cost to government of making alternative arrangements, such as tankering, would be huge.

3.70. The ongoing drought in the Murray-Darling Basin is having a significant effect on the river environment. The impact of the proposed measures is insignificant, except for the possible construction of a weir. The environmental impact of a weir is being assessed for Commonwealth Environment Protection and Biodiversity Protection Act approval processes.

Risk management strategy

3.71. There is a risk that, if record low inflows continue and appropriate measures are not taken, SA Water's off-takes from the River Murray – which deliver water to a significant proportion the State's population – would cease operating due to falling river levels.

3.72. The recommended water security strategy set out in this submission is specifically designed to manage this risk.

3.73. Elements of the strategy entail risks, particularly the construction of a weir across the lower River Murray. The inflows into the Murray-Darling Basin and hence into South Australia won't be known until after winter and spring rains (approx Sept/Oct 2007). It is therefore likely that a significant proportion of weir construction will have been completed before we know whether or not it is actually needed. This risk is being mitigated by breaking the weir construction into stages that can be delayed for as long as possible.

3.74. On the other hand, another key risk is that of not constructing the weir in time to maintain a pool of water for the SA Water pumping stations. This risk is being managed by monitoring the water draw down rate in the lower lakes,

and by designing the weir structure and its staging to meet the deadline. Other 'normal' construction risks exist and will be managed.

**Consultation**

3.75. The proposed water security strategy for 2007/08 has been discussed with and endorsed by the Water Security Advisory Group.

3.76. The water situation in South Australia, and proposed solutions, has also been discussed with senior officials from the Commonwealth, Murray-Darling Basin Commission, Victoria and New South Wales. The measures to pump additional water into Mt Lofty Ranges storages and to disconnect selected wetlands are recommendations of the National Dry Inflow Contingency Planning Report to First Ministers.

3.77. The Prime Minister proposed that these measures be approved as priority actions. The Premier wrote to the Prime Minister on 2 January 2007 agreeing that appropriate wetland closures should proceed.

3.78. All relevant SA government agencies are represented at the chief executive level on the Water Security Task Force.

3.79. An extensive community consultation program has been undertaken utilising the services of Hon Dean Brown and Hon Neil Andrew (refer below).

3.80. Consultation is underway with communities and landholders regarding the closure of selected wetlands.

**Implementation plan**

3.81. Implementation of the plan is discussed in detail above and in appendices 1 to 9.

3.82. In brief, there are several measures that can be undertaken without delay on a "no regrets" basis. These include pumping additional water into storages, disconnecting selected wetlands and modifying SA Water's pumping stations.

3.83. Preparations for constructing a weir should also continue, in case it is needed. A decision to commence constructing a weir will be needed in about June 2007 if there is no improvement in predicted inflows. Construction of a weir would be staged to minimise costs, in the event that rains occur which mean that a weir is no longer needed for 2007/08. A separate decision to complete the weir would be needed in about August 2007. By that time, information will be available on winter and spring rains in the Murray-Darling Basin. If a decision is made to complete the weir, it would be completed (ie the river closed) in about February 2008, in time for the driest period of the year. By that time, water levels in the lower lakes will have fallen to a point where irrigators no longer have access.

**Communication strategy**

3.84. A communication strategy specific to the Government's response to the drought along the River Murray is being developed in consultation with the Premier's Media Unit and the Minister for the River Murray. While full details are yet to be determined, it is anticipated that communications will include:

- Media briefing by the Minister for the River Murray; and
- Newspaper spread providing details of the current situation and response measures.

3.85. This is in addition to the strategies and mechanisms already in place to provide community engagement and communication on water security and River Murray drought issues. Actions to date have included:

- Public meetings in November 2006 to provide irrigators and community members with information on likely river flows, water allocations and how the government is managing the available resources of the River Murray. A number of these meetings have been personally attended by the Minister for the River Murray.
- Meetings with community groups and individuals regarding the possible weir, beginning on 5 December 2006. These have included meetings with representatives of the Ngarrindjerri, representatives of the Clayton and Wellington communities, a meeting with mayors and Council chief executives, meetings with regional development board chairs and chief executives. Again, a large number of these meetings have been personally attended by the Minister for the River Murray.
- The Hon Dean Brown and Hon Neil Andrew have been appointed as community liaison managers to provide a conduit between government and communities along the river (below and above Lock 1 respectively). Messrs Brown and Andrew have met with over 40 individuals and community groups in total.

**Executive Council**

3.86. Executive Council consideration is not required.

## 4. RECOMMENDATIONS

It is recommended that Cabinet:

4.1. Endorse the overall water security strategy, on the basis that further approvals will be sought as indicated below;

4.2. Approve modifying SA Water's pumping stations at Murray Bridge, Swan Reach and Tailem Bend, noting that relevant expenditure approvals for the works will be sought from the Minister for Governemnt Enterprises;

4.3. Note that, if one is required, the only feasible location for a temporary weir is at Pomanda Point;

4.4. Approve the continuation of preparatory work on a temporary weir, noting that some preliminary expenditure for materials and access works will be submitted to the Minister for Government Enterprises for approval;

4.5. Note that a further submission will be made to Cabinet when the full design and cost of a temporary weir is known;

4.6. Note that approvals are being pursued under the Commonwealth EPBC Act, Native Title Act and SA Aboriginal Heritage Act;

4.7. Approve in principle the plan to secure an additional reserve of 100 GL of water for South Australia in 2007/08, including acceptance of the Commonwealth offer to fund half of 20 GL and the investigation of an options contract on accessible above-target water held by Snowy Hydro Ltd, noting that specific approvals will be sought prior to entering into any commitments to purchase water or options contracts;

4.8. Note that, even if SA is successful in arguing for a Basin-wide strategic reserve, SA would still need to find and fund additional water if critical agricultural and river health needs are to be met;

4.9. Approve the principles indicated herein as the basis for decision-making on potable water supplies;

4.10. Approve a pipeline not being constructed to Langhorne Creek/Currency Creek;

4.11. Approve a bulk water supply for the township of Clayton by SA Water as a community service obligation of $5 million;

4.12. Note there is no evidence to support a pipeline to the Narrung Peninsula and eastern side of the lakes on economic grounds, but that PIRSA has recommended that consultation occur before a final decision is reached;

4.13. Approve PIRSA consulting with relevant primary producers, including making information available publicly on the likely cost of pipelines and other options. If a pipeline is subsequently proposed, PIRSA will make a further submission to Cabinet;

4.14. Approve water being carted to Point McLeay by SA Water at a cost of $150,000 per annum, unless a pipeline to the Narrung Peninsula and eastern side of the lakes is subsequently approved.

4.15. Note that the Minister for the River Murray will gazette and publish an increase to 206 GL in SA Water's authorisation to take water in 2006/07 for metropolitan Adelaide to enable SA Water to pump the additional 60 GL;

4.16. Note that regulated wetlands have been closed and that work is underway to close selected unregulated wetlands, utilising Murray-Darling Basin Commission funding:

4.17. Approve additional appropriation and expenditure authority of $940,000 for DWLBC and $180,000 for DEH in 2006/07 for administration costs associated with water security issues;

4.18. Note that without off-setting revenue, there will be budget impacts from reduced SA Water contributions as a result of investigations and construction of a weir, additional pumping of 60 GL of water, modification to pumping stations and provision of water to additional communities. Budget impacts are dependent on funding arrangements, particularly Commonwealth funding;

4.19. Approve writing to the Commonwealth to seek funding for the costs of water security measures as set out in this submission.

Kevin Foley MP
**DEPUTY PREMIER**
**TREASURER**

2 / 2 /2007

**Contact Officer:** Paul Case, Chair, Water Security Task Force
Telephone Number: 8303 2299

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APPROVED
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## 5. APPENDICES:

**APPENDIX 1**

| | |
|---|---|
| **MEASURE:** | **Pump additional 2006/07 water into storages** |
| **PURPOSE:** | To provide a buffer of 60 GL water against water quality problems (eg toxic algal bloom) in the River Murray during very low flows. |
| **COSTS:** | $7 million cost in 2006/07, some of which may be off-set if the water is used in future years (ie it doesn't spill) |
| **RISKS:** | The risks associated with pumping additional water are:<br>• Irrigators perception that SA Water's metropolitan authorised volume is being increased, while theirs remain at 60% of allocation;<br>• A perception that the additional pumping will hasten the lowering of water levels in the lakes. Pumping 60 GL represents approx 7 cm drop in the lower lakes water level.<br>• If good rains occur in the Mt Lofty Ranges, the water will be spilled as reservoirs fill with run-off from hills catchments. |

**DETAILED EXPLANATION:**

Both the national Dry Inflow Contingency Planning report to First Ministers and SA's Water Security Task Force interim report recommended that additional water be pumped from the River Murray into Mt Lofty Ranges reservoirs while water is available during 2006/07.

The Commonwealth Dry Inflow Contingency Planning Group included additional pumping from the River Murray in 2006/07 as a group one measure, for immediate implementation.

SA Water has reviewed the pumping program and it is possible to pump a maximum of 60GL additional water, which will leave the storages at 63% full at the end of June 2007. This additional water will provide a 6 month buffer (with restrictions) against a water quality incident on the River Murray. If the worst case scenario does occur (scenario A), the water would be available to meet 2007/08 demands but it would be preferable to maintain the extra water as a buffer against water quality incidents, such as algal blooms, until such time as the river flows return to normal.

In a letter dated 22 December 2006, the Prime Minister proposed that this measure be approved as a priority action to provide a buffer for Adelaide against the risk of a major algal bloom in the river. The Premier wrote to the Prime Minister on 2 January 2007 agreeing that pumping would proceed.

SA Water's Adelaide authorisation to take water for 2006/07 will need to increase to 206GL to allow this additional volume to be pumped, otherwise it would be in breach of the authorised volume provided under the current notice of restriction for

metropolitan River Murray water extraction. A variation to the current notice of restriction would need to be gazetted, and published in relevant newspapers, by the end of February, which is when – at the current rate of pumping – SA Water will reach the limit of its current authorised volume of 146GL.

Note that, while SA Water has increased its rate of pumping to allow storage of the additional 60GL by the end of the year, it has not actually begun pumping the additional water. If an increase to SA Water's authorisation to take water was not approved, the rate of pumping would be dropped to ensure the current authorised volume was not breached. SA Water will reach the limit of its current authorised volume of 146GL at the end of February 2007 (at the current rate of pumping).

It was the view of both the National Dry Inflow Contingency Planning group and SA's Water Security Advisory Group that the risk of spilling the water was worth taking, in order to secure the 'insurance' of additional water in storages.

Cabinet is asked to note that the Minister for the River Murray will gazette and publish an increase to 206 GL in SA Water's authorisation to take water in 2006/07 for metropolitan Adelaide.

**APPENDIX 2**

| | |
|---|---|
| **MEASURE:** | **Disconnect selected wetlands** |
| **PURPOSE:** | Where possible, keep water in the main river channel and reduce evaporation. |
| **COSTS:** | Murray-Darling Basin Commission has been asked to fund. Cost is $3.1 million for first 8 unregulated wetlands (approx 43 GL water), and a further $7.2 million for remaining 22 sites. |
| **PARTNERS:** | Requires consultation with communities and landholders.<br><br>River Murray NRM Board. |

**DETAILED EXPLANATION:**

Both the National Dry Inflow Contingency Planning report to First Ministers and SA's Water Security Task Force interim report recommended that certain wetlands be disconnected from the river channel to avoid evaporative losses.

The Prime Minister proposed that this measure be approved as a priority action (in SA, Victoria and NSW). The Premier wrote to the Prime Minister on 2 January 2007 agreeing that appropriate wetland closures should proceed.

Nearly all regulated wetlands (25 of a total of 28) have already been closed, saving 14GL of water.

DWLBC initiated work late in 2006 to identify unregulated wetlands that could feasibly be closed. The SA Murray-Darling Basin NRM Board, through the River Murray Environmental Manager function, is continuing to investigate potential evaporative savings that could be achieved by blocking river connections on a number of wetlands as an emergency drought response. Initial reviews undertaken by SKM Consulting and a workshop of approximately 20 ecologists and wetland technical staff identified 39 potential sites. Of the 39 sites, 2 sites have since been identified as already dry and 7 sites have been identified as either high ecological value or not feasible and therefore are not recommended for closure.

The initial review and prioritisation process also highlighted that there was no baseline data and very little anecdotal local information on 19 of the sites. During late December, fish, water quality and soil surveys were undertaken in each of the 19 wetlands. Preliminary results of the surveys will be available shortly. Additionally, water quality and soil samples are being collected in high priority wetlands to assist in identifying sulphate potential and nutrient levels. This information will assist in further refining closure priority.

The following eight wetlands are being considered as the first stage of temporary closures (ie in addition to regulated wetlands already closed).

| Wetland | Approx water savings (ML/yr) |
|---|---|
| Nelwood Swamp | 450 |
| Horseshoe Swamp | 430 |
| Nelwart Swamp | 310 |
| Gurra Gurra Complex | 8 000 |
| Lake Bonney | 28 000 |
| Yatco Lagoon | 5 100 |
| Jaeschke Lagoon | 350 |
| Ross Lagoon | 650 |
| TOTAL | 43 290 |

Note: Wetlands listed from upstream to downstream, not based on recommended priority for closure.

Site assessments of these wetlands have occurred from both land and water to determine potential structure locations, inlet depths, inlet widths and to ensure pump information is correct. This information has been provided to contractors to assist in obtaining quotes for structures.

### Community Consultation

Consultation is underway with key landholders on each of the above eight wetlands. A preliminary meeting on Lake Bonney was held on 21 December 2006 with the Hon Neil Andrew, Berri Barmera Council, CIT, tourism representatives, SA MDB NRM Board and DWLBC representatives. A meeting with the Barmera community was held on Thursday 18 January regarding Lake Bonney.

### Funding

It is anticipated that the Murray-Darling Basin Commission will be funding wetland closures and re-opening across the Basin where the saving will be greater than 1 GL.

Preliminary estimates are indicated below for the closure of eight wetlands – Nelwood, Horseshoe Swamp, Nelwart, Gurra, Lake Bonney, Yatco, Ross and Jaeschke, and would equate to an annual evaporative saving of approximately 43.3GL. These wetlands are only considered as the first wetlands in a staged approach to closure. An additional 22 wetlands are currently under consideration for closure.

| | |
|---|---|
| Construction | 1 360 000 |
| Removal of Structures | 1 000 000 |
| Alternate water supply | 750 000 |
| | 3 110 000 |

Note: removal of earthen bank structures is a similar cost to construction

The total budget required will depend on the total number of sites requiring closure, the number of alternative water supplies to be funded and the duration of the closures. In some areas, alternate water supplies may require tanking water to properties and therefore the duration of closure will have a bearing on the total costs.

Further closures

| | |
|---|---|
| Construction | 3 200 000 |
| Removal of Structures | 3 000 000 |
| Alternate water supply | 1 000 000 |
| | 7 200 000 |

The total budget required will depend on the number of sites to be closed, the number of alternative water supplies to be funded and the duration of the closures.

*Other issues*

Consultation with the Department of Health is occurring on any potential health risks to communities in proximity to closed wetlands and opportunities to minimise those risks through management actions such as mosquito baiting. Costs associated with management of health risks will need to be considered as part of the overall project budget.

Clarification on some of the approval requirements, including several State approvals and Federal EPBC Act approvals, are being sought. Additionally, legal advice on any liabilities the State government may face if closures occur prior to the passing of emergency drought legislation are being considered.

Cabinet is asked to note that regulated wetlands have been closed and that work is underway to close selected unregulated wetlands, utilising MDBC funding.

**APPENDIX** 3

| | |
|---|---|
| **MEASURE:** | **Modify SA Water pump stations** |
| **PURPOSE:** | Modify pump stations at Murray Bridge, Swan Reach and Tailem Bend to operate at lower river levels and therefore pump for longer as river levels drop. |
| **TRIGGER POINT(S):** | To proceed as soon as practicable as a "no regrets" action that helps to delay the need to commence a weir. |
| **COSTS:** | $5 million |
| **RISKS:** | Reduced capacity and reliability of the pumping stations |

**DETAILED EXPLANATION:**

SA Water has four major pumping stations in the section of the river below Lock 1 – at Murray Bridge, Swan Reach, Tailem Bend and Mannum.

SA Water's major pumps were designed to operate to –0.25 AHD. As the water level dropped below this level, the pumps would cease operating.

SA Water has undertaken a technical analysis of the pumps, and liaised with the pump manufacturers, to identify modifications to allow the pumps at Murray Bridge, Swan Reach and Tailem Bend to operate at lower river levels and reduced pumping rates. The solution differs at each pump station but will have the effect of lowering the operating level of the pumps by approximately two metres, albeit at reduced flows consistent with at least level 3 water restrictions.

The effect of lowering the operating level of the pumping stations is to delay the need to begin constructing a weir. That is, the longer SA Water's pumps can operate as the river level drops, the longer construction of a weir can be delayed and the greater the possibility that inflows may improve such that a weir is not required at all.

The Murray-Darling Basin Commission is reviewing the implications of operating at low river levels for extended periods, particularly the extra salt that will flow into the river. This may set a limit on the time that the river can be kept at the lower levels, but it will not negate the benefit of delaying commencement of a weir.

The modifications required at Murray Bridge will be the most complex to undertake and the highest priority. Modifications need to commence in March 2007 and will take up to six months to complete.

An exact cost of modifying each of the pump stations is not yet known, but is expected to be between $3 million and $5 million in total. Costs will be within the Minister for Government Enterprise's delegation.

Cabinet is asked to approve modifying the pumping stations, noting that relevant expenditure approvals will be sought from the Minister for Governemnt Enterprises.

**APPENDIX 4**

| | | |
|---|---|---|
| **MEASURE:** | Temporary weir across lower Murray River | |
| **PURPOSE:** | To establish a stable pool level to enable continued operation of the four major urban water supply pumping stations that service Adelaide, Yorke Peninsula, the upper South East and the mid North | |
| **TRIGGER POINT(S):** | Preparatory work | Already underway |
| | East side of embankment | June 2007 |
| | Continue/stop remainder of weir | August 2007 |
| **COSTS:** | $100 million for full structure. Further options for staging continue to be investigated | |

**DETAILED EXPLANATION:**

As noted in both the National Dry Inflow Contingency Planning Report to First Ministers and SA's Water Security Task Force interim report, under the worst case scenarios, a weir on the lower River Murray will become a necessity.

Both reports recommend that preparations for constructing a weir be undertaken ahead of making a final decision on its construction, in order to ensure its timely delivery remains feasible.

A range of different locations and construction methods have been examined:

- Sites examined include areas around Murray Bridge, Tailem Bend, Wellington and south of Wellington;
- Designs considered included single row and, multi-row sheet piling, with or without associated structures (including catenary cable support), standard and cellular cofferdams, earth dams and temporary proprietary weirs ("Aquadam")
- Geotechnical investigations were conducted in the period November 2006 to January 2007, as well as making use of data from past projects such as the Swanport and Murray Bridge road bridges, Tailem Bend water pipeline river crossing, gas pipeline river crossing, Wellington marina and the original 1930 barrage investigations.

A site at Pomanda Point, south of Wellington, has been determined as the only feasible option. This conclusion was confirmed by a panel of experts including members of SA's Water Security Advisory Group and staff of the Murray-Darling Basin Commission. The original November 2006 concept at the Wellington site, and other sites between Wellington and Murray Bridge, have proven not feasible and been ruled out.

The preferred location for the weir has been selected based on a number of factors including geotechnical, bathymetry information and ability to construct the proposed weir to meet its objectives. Geotechnical surveys have shown there are no other

suitable sites due to predominance of soft underlying foundation material in the lower reaches of the River Murray. The preferred site, whilst soft on the western embankment does have firm foundation material on the eastern side. In addition, the river depths at this location are relatively shallow, with the maximum channel depth at the proposed site approximately 4 metres, compared to 15-20 metres depth in the river prior to where it widens at Brinkley.

The project involves the design and construction of a temporary weir extending approximately 2,600m eastwards across the River Murray from Pomanda Island, at the head of Lake Alexandrina, South Australia.

The design concept is for a 2,600 metre weir from Pomanda Island, and a causeway must be constructed to provide access to the island. The weir is an embankment with a sheet pile cut off along its entire length. The western 1,300 metres (on soft foundations) has side slopes of 1:4, and initial crest width of 8.5 metres. The eastern 1,300 metres (on firm foundations) has side slopes of 1:3 and a crest width of 6 metres. An overflow section of approximately 300 metres length will be located on the western end of the firm foundations, as close as practicable to the natural flow channel off Pomanda Island

Construction of the weir will also involve:

- Establishment of a works compound including stockpile locations, equipment and material storage on Pomanda Island on the western side of the proposed alignment, with a similar compound in the immediate vicinity of the eastern abutment.
- Construction of an earthen causeway to provide access to Pomanda Island. The causeway will be up to 15m in width at the base to allow for dual carriage. The causeway is proposed to be located on the outer western edge of reed beds, along a cleared path used by grazing cattle to access the island. The construction footprint for the causeway will necessitate the clearance of reeds along the edge of the bed, however the location for the causeway has been selected to minimise the impact on and clearance of reeds as much as possible.
- Sourcing of embankment and causeway fill materials. Current design estimates that approximately 350,000 cubic meters of fill will be required. The source location for the material is to be determined. Options are currently being investigated including using existing quarry sites (although this is likely to require significant transport), sourcing material from Pomanda Island or establishing new quarry sites.
- Possible quarrying of materials, which may include blasting
- Transport of and stockpiling of fill materials
- Construction of access tracks including levelling and filling of uneven areas. A new access track is required on the western side, within Nalpa Station, to bypass the homestead and allow adequate access to the proposed causeway. An unmade but previously existing road reserve has been identified as a potential location for this access track however the final location will be subject to negotiations with the landowners. On the eastern side a short access track

is required to extend from an existing public road (Eckerts Road) to the site of the proposed weir, the final location of this track will be subject to negotiations with the landowner.

- Relocation of the occupants of one house adjacent to the eastern abutment during the construction period.
- Minor vegetation clearance – vegetation clearance will be kept to a minimum. Some pruning of vegetation may be required on Nalpa station on the existing access road to allow passage of large trucks. Clearance of reeds will be required for construction of the causeway. In addition, several shrubs (individual trees) will need to be removed.
- An Environmental Management Plan (EMP) will be prepared and will document specific site environmental management measures including extent of works compounds, any vegetation to be removed, stockpile locations, access and contingency plans.
- Continual addition of fill material on the western side of the embankment to adjust for the significant settlement expected during the life of the structure
- Removal of piling and fill material from the western side embankment at the end of the life of the structure, as far as is practicable, to re-establish the river flow path. This fill material could be stockpiled on Pomanda Island, dispersed into the adjacent water, or relocated onto any remaining embankment. Removal of piling and fill material from the eastern side embankment may be optional, both to save costs and to leave this section in place as a contingency for it being required at some point in the future. Modelling is being initiated to determine whether any adverse hydraulic or ecological impacts exist if approximately 1300 metres of the embankment on the eastern side are not removed.

Timing of the works will be based on the need to ensure that the weir can be completed to secure water supplies in the worst case scenario.

As the works are of an emergency nature, construction is proposed to occur in stages, with key hold and decision points in place that are dependent on the River Murray water situation.

On current information actual construction of the weir would need to commence in June 2007, however, preliminary works would need to be undertaken progressively from March, comprising:

- Ordering of sheet piling material
- Calling tenders
- Constructing access roads and the causeway
- Stockpiling rock material on site

Rock construction would commence from the eastern bank, south of Wellington. This is the shallowest water, it has the best foundations, and is away from the natural flow channel on the western side near Pomanda Island. This is also the section of the embankment that may not be removed.

By August 2007 the seasonal inflow position in the Murray-Darling Basin will be clearer and a decision on either continuing work or stopping construction can be made. The final stages of construction will include the western embankment and the sheet piling cut-off (ie to make the weir impervious).

While there is a 90% chance that a temporary weir will not be needed in 2007/08, unfortunately this won't be known until the spring of 2007 (September or October). If construction of the weir is to be completed before the river drops below the critical level for SA Water's modified pumping stations, construction of a weir would need to commence in June 2007 (assuming the modifications to the pumps are done). It is therefore quite likely that significant construction will be completed before there is any degree of certainty whether the weir is really needed. Breaking down the construction of a temporary weir into stages that can be delayed, to minimise the up-front costs (as described above), is one way of mitigating this risk.

Work is continuing on ways to further defer the commencement of construction, both by monitoring the actual draw down of water levels in the lower lakes and by alternative staging and construction techniques. The modification of SA Water's pump stations provides sufficient time to allow this work to take place prior to committing to the final details of the weir.

The weir also appears feasible at levels below the original proposal of 0.35 metres AHD. This will be of importance in reassuring residents around the lower lakes that a weir, if it proves necessary, will not cut off their water supply. If the worst case scenario eventuates the water level is likely to be –1.5 metres AHD when the final section of the weir is completed. By this time, water levels in the lower lakes will be so low irrigators will no longer have access to the water.

### Environment Protection and Biodiversity Conservation Act 1999

A two part process has been determined for dealing with the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1. To seek exemption due to national interest for the construction phase to allow the weir to commence construction in the short time frame required.
2. To refer to the Commonwealth the commissioning, operation and decommissioning of the weir.

The Minister for Environment and Conservation has already written to the Commonwealth Minister requesting an exemption for the construction phase of the proposed weir under the EPBC Act. Once the Australian Government approves the construction exemption, construction works can start immediately.

Since the Minister's request to the Commonwealth Minister of the Environment for an exemption for the construction phase of the weir development, DEH has been working with Australian Government DEH officers to provide the information required to progress our application. Negotiations have also occurred with the Commonwealth to fast track the approvals required for an exemption.

DEH are working with the Commonwealth to ensure that the timing of the exemption will be decided at around the same time as the weir proposal going to Cabinet in mid-

February. If it is approved, the decision will be made public by the Commonwealth (required under the EPBC Act within 10 business days of a decision) just after a State Cabinet decision on the weir.

Once an exemption is granted, the referral for the commissioning, operation and decommissioning of the Weir under the EPBC Act can occur prior to and during the construction of the weir, either via a Public Environment Report (PER) or Environmental Impact Statement (EIS) process under the EPBC Act.

The EPBC legislation is specific in its scope; and, therefore, the environmental assessment report will deal primarily with those matters of national significance applicable to this area (Ramsar site, nationally listed species and migratory species) and not the full range of issues that a more typical environmental impact statement under the State Development Act process would cover. Any EIS/PER process will also need to address the conditions under which the weir would be decommissioned and detail the recovery plans that would be enacted to address environmental issues post the operation of the weir.

In order to be prepared for the possible construction of the weir, DEH is working closely with the Australian Government to get the environmental approvals for commissioning the weir in place as soon as possible.

Provided the exemption is given and appropriate contractors are available immediately to take on this work, it is anticipated that a substantial portion of the EIS/PER process would be underway before construction of the weir begins.

Native Title Act **1993** (Cth) and the Aboriginal Heritage Act **1988** (SA).

To date geotechnical investigation for the proposed weir and the streamlining of dredging protocols have required separate agreements to be entered into with the Ngarrindjeri.

The need for agreements is triggered by the *Native Title Act 1993* (Cth) and the *Aboriginal Heritage Act 1988* (SA).

Works like the geotechnical investigation and emergency dredging are 'future acts' under the Native Title Act. This means that, without agreement, the works would normally require formal notice to be given to Aboriginal interests for comment. The convention is to give 2 months notice. Due to the urgency of works (geotechnical investigation and emergency dredging) there was not considered to be sufficient project time for the 2 month time period to be met. By agreement it was waived.

Any civil works activity, like dredging, can potentially trigger the Aboriginal Heritage Act. A person must not, without the authority of the Minister responsible for administering the Aboriginal Heritage Act, damage, disturb or interfere with any Aboriginal sites, objects or remains. Authorisation pursuant to the Aboriginal Heritage Act requires a lengthy consultation process. To overcome the normal clearance time frames, due to the urgency of the works, the State negotiated agreements with the Ngarrindjeri, which allows them to monitor dredging, providing a reasonable risk management approach to the Aboriginal Heritage Act obligations while meeting the time frame needs of water users to mitigate falling water levels.

Both agreements were entered into by the Minister for the River Murray with payments under the agreements met by State Government.

Future agreements will be required for construction of any temporary weir, to support emergency dredging north of the Ngarrindjeri claim area and any wetland closure program. Work to secure these agreements has commenced.

Cabinet is asked to:

- Note that the only feasible location for a temporary weir is at Pomanda Point;
- Approve the continuation of preparatory work, noting that some preliminary expenditure will be submitted to the Minister for Government Enterprises for approval;
- Note that a further submission will be made to Cabinet when the full design and cost of a temporary weir is known.
- Note that approvals are being obtained under the Commonwealth EPBC Act, Native Title Act and SA Aboriginal Heritage Act.

**APPENDIX** 5

**MEASURE:** Additional reserve of water

**PURPOSE:** To supplement a weir to provide sufficient water to meet human consumption requirements in the worst case scenario (priority 1) and, in lesser scenarios, provide for critical agricultural and river health requirements (priority 2).

**PARTNERS:** All options require some level of cooperation from other Basin States. First preference is for collective, Basin-wide action.

**DETAILED EXPLANATION:**

For the worst case scenario (scenario A), even if the temporary weir is constructed, South Australia will not have sufficient water to meet its minimum urban needs, let alone have water to enable survival of permanent crops or for critical river health. Under the low flow scenarios (for which the temporary weir will be required) the critical volumes of water are:

| All volumes are inflows to, or losses within, and demand within SA. | Scenario A 1 in 1,000 (Gigalitres) | Scenario B 1 in 100 (Gigalitres) | Scenario C 1 in 10 (Gigalitres) |
|---|---|---|---|
| Unavoidable evaporation and losses[1] | (390) | (390) | (390) |
| Fully restricted urban, stock and domestic | (201) | (201) | (201) |
| **Total to meet priority** 1 needs | (591) | (591) | (591) |
| Less minimum inflow | 337 | 696 | 897 |
| Net outcome (Priority 1) | (254) | 104 | 306 |
| Permanent crops survival | (165) | (165) | (165) |
| Critical river health | (37) | (37) | (37) |
| **Total to meet priority** 2 **needs** | (202) | (202) | (202) |
| Net outcome (Priority 1 and Priority 2) | (456) | (98) | 104 |

(1) Assumes the temporary weir is in place and 60 GL savings achieved from wetland closures

Assuming the temporary weir is built and wetlands within South Australia are disconnected to save water, South Australia still needs an extra 254 GL of water in the worst case scenario (scenario A) just to meet priority 1 minimum urban needs. For the 1 in 100 year scenario B, the minimum urban needs can be met but an extra 98 GL will be needed to meet the priority 2 minimum requirements to ensure crop survival and to prevent irreparable environmental damage in the River Murray. With a weir, both priority 1 and priority 2 demands can be met for scenario C.

Hence, there is something like a 1 in 1,000 chance that SA will need to source 254 GL in 2007/08 just to meet basic urban needs for a large part of SA. There is a 1 in 100 chance that SA will need to source 98 GL in 2007/08 to meet permanent crops and critical environmental needs in addition to urban needs.

It is preferable that a single, basin-wide 'strategic reserve' be jointly sourced and funded by the Commonwealth and Basin States. Such a reserve could cover the

basic urban needs of cities and towns in SA, Victoria and NSW. A reserve of about 350 GL would be needed.

While the concept of a strategic reserve has not been agreed to yet by other Basin States, it has not been rejected either. In a letter to Premiers on 22 December 2006, the Prime Minister offered to fund half the purchase of 20 GL of water and potentially up to 50 GL. The senior officials group has, however, resolved that the MDBC will investigate the implementation of a single point operator and provide advice on the availability and cost of water to cover critical urban demands.

South Australia cannot solve the water shortage issue under the worst case scenario on its own, not only because of the very high costs involved but also because agreement will be needed from NSW and Victoria for many of the options for acquiring and storing the water. The concept of a strategic reserve of water is equally as important as the temporary weir in South Australia's drought response.

The options available to SA, or to the Murray-Darling Basin as a whole, for obtaining additional water for use in 2007/08 are:

Alternative 1 involves setting aside the current Murray-Darling Basin Agreement (MDBA) and applying the first available water towards meeting critical urban needs of NSW, Victoria and SA (ie assuming full water restrictions apply). When these critical needs are met, any extra water can be allocated in the normal manner.

In the worst case scenario, there is sufficient total volume of water available in the Murray-Darling Basin system to meet the critical urban needs in all states. However, unless the MDBA is set aside, South Australia would have a 254 GL deficit as shown in the table above, while NSW and Victoria would have water for irrigation.

While there have been positive discussions, the Eastern States are concerned to be sure that South Australia has made all reasonable endeavours to help itself, particularly through market mechanisms. The question of what volume of water would constitute 'best endeavours' has not been quantified at this stage.

Alternative 2 involves the market purchase of temporary or permanent entitlements in 2006-07 to be held in upstream storages for use in 2007/08.

While there are no current arrangements under the current MDBC Agreement for South Australia to hold water in MDBC storages for carry over to the following year, MDBC officials have indicated that they would be amenable to South Australia holding water in Dartmouth Dam for release in 2007/08. The Dry Inflow Contingency Planning Group believes that 50 to 100 GL could be secured under such an arrangement, at a cost of $0.5million/GL for temporary (annual) allocations or up to $2.2million/GL for permanent (perpetual) entitlements. The Prime Minister has written to the Premier offering to fund 50% of the cost of an initial 20 GL of water purchased and possibly up to 50 GL.

A disadvantage of this option is the high cost. If the water is not needed in 2007/08 then it is estimated that around 80% of the investment value will be lost for temporary allocations purchased and 40% for permanent entitlements, as prices return to

normal levels. Balanced against this, there may be longer term strategic advantages in developing an agreement for South Australia to hold water in MDBC storages and carry it over for use in later years. Such an agreement would be one mechanism for South Australia to manage its drought risks.

It is theoretically possible to consider the purchase of 2007/08 allocations or entitlements, however, under the low flow scenarios there may not be sufficient water available on the market to make this a viable option.

Alternative 3 involves the purchase of options over water held in storages by Snowy Hydro for release in 2007/08. While Snowy Hydro does not own any of the water in its storages, it does have certain control over the timing of flow releases. NSW irrigation authorities have previously contracted with Snowy Hydro for the early release of water to meet their irrigation needs.

The rules around flow releases by Snowy Hydro are complex, but the essential elements are:

- In normal circumstances the water is totally owned by NSW and Victoria, who are obligated to contribute equally to provide guaranteed minimum flows to SA of 1,850GL p.a..
- Under the special accounting arrangements that exist during periods of drought, the water released into the Murrumbidgee River is owned by NSW. The water released to the River Murray continues to be owned by NSW and Victoria, but it must be shared equally between NSW, Victoria and South Australia.
- Snowy Hydro must release a defined minimum volume of water each year (within target water). The amount reduces in periods of drought.
- Snowy Hydro opportunistically releases extra water (above target water) in order to meet peak power demands. The timing or quantity of target water released is dictated by peak power requirements; however, Snowy Hydro can choose to make these releases to suit water supply needs if it is commercially attractive.
- Any proposals for alternative release arrangements for water from Snowy Hydro need to be agreed by all parties to the MDBC Agreement, as does the ownership and use of the water released. Precedents established to assist NSW irrigators indicate that agreement could be forthcoming.

South Australia could try to negotiate for access to any of the water held by Snowy Hydro, but the most accessible water is considered to be the South Australian share of the water released on the River Murray side of the scheme when special accounting rules are active. It is expected that a total of 392 GL will be held in these storages in June 2007, so the South Australian special accounting share is around 130 GL. The volume that Snowy Hydro chooses to make available and the price will to a large extent depend on other power hedging contracts in place that rely on this water for peak power generation.

As this water is effectively owned by SA, any purchase of its release during 2007/08 would mean that this volume of water would not be available in subsequent years.

Snowy Hydro is currently preparing costs for an options contract for water to be released for South Australia in 2007/08 if certain triggers are met. If this cost is acceptable, South Australia would need to negotiate agreement of the proposed arrangement with NSW and Victoria before it could finalise such a contract.

It is also possible to consider options based contracts with other users, however, Snowy Hydro is the only organisation outside of the MDBC with sufficient size storages and water holdings for 2007/08 to be able to meet South Australia's requirements during a drought. Victoria currently holds "carry over" water in MDBC storages that will be available in 2007/08 in addition to the normal water allocations for that year, and discussions are being held over South Australia getting access to this water if the worst case scenario eventuates.

The Water Security Task Force and Advisory Group recommend a multi-prong approach to resolving this aspect of the strategy:

1. South Australia should move now to secure 100 GL of water towards its share of a strategic reserve, through alternatives 2 and/or 3, as elaborated below.

   If the worst case scenario (1 in 1000 chance) does occur, the 100 GL is considered an adequate volume to satisfy the "best endeavours" requirements sought by the other States before they will consider setting aside the current sharing arrangements in the MDBC Agreement. South Australia would also be citing the construction of the temporary weir and closure of wetlands as further contributions towards solving the problem.

   If we get a 1 in 100 year inflow or better, where the critical urban demands are covered by natural inflows, this 100 GL of water would secure the minimum amount required to also cover the priority 2 demands (minimum urban, crop survival and critical river health). The 1% risk of not being able to meet these priority 2 demands is considered to be acceptable.

2. Seeking agreement at the First Ministers level for establishing a strategic reserve, particularly the arrangements for guaranteeing the volumes needed beyond the 100 GL dealt with above if the worst case scenario eventuates.

3. Continue negotiations with Snowy Hydro for an option to secure up to 100 GL of water in 2007/08 if inflows to South Australia are worse than a 1 in 100 year event. If the cost of the option is acceptable, move to the next stage of seeking agreement to the proposal from NSW and Victoria.

4. Offer to participate in the purchase of the first 20 GL of water for the strategic reserve as suggested by the Prime Minister. This offer should be conditional on satisfactory arrangements being agreed for storing and carrying over the water in MDBC storages, as the first step in establishing these as long term options for South Australia to manage its drought risk.

These steps are aimed at making sure we have adequate measures in place to insure against the catastrophic consequences for urban water supplies if the worst case scenario does occur in 2007/08, while also providing protection against the

economic impact of low inflows up to a 1 in 100 year event. They also foreshadow future changes to arrangements in the MDBC Agreement to provide South Australia with options for increasing its security against major drought.

The maximum cost for this part of the drought response strategy is $50 million (100 GL of temporary allocation at $0.5million/GL). South Australia would be looking to reduce the cost through:

- The options contract with Snowy Hydro (which would only make sense if it was at a significantly lower cost than direct purchase of water)
- Sharing the costs with the Federal Government. The Prime Minister has offered to fund 50% of the first 20 GL and has identified a possible 50 GL of water being secured from the market
- Sharing the costs with the MDBC. In the longer term a strategic reserve of water might be integrated with The Living Murray Initiative, with excess water being used for environmental purposes

South Australia will continue to explore these options during the further development of this aspect of the drought response strategy.

Cabinet is asked to:

- Give in principle approval for the plan to secure an additional reserve of 100 GL of water for South Australia in 2007/08, including acceptance of the Commonwealth offer to fund half of 20 GL and the investigation of an options contract on accessible above-target water held by Snowy Hydro Ltd.

- Further specific approvals will be sought prior to entering into any commitments to purchase water or options contracts.

- Note that, even if SA is successful in arguing for a basin-wide strategic reserve, SA would still need to find and fund additional water if critical agricultural and river health needs are to be met.

- Note that discussions have commenced with Snowy Hydro Ltd on options contracts on water held in their storages.

**APPENDIX 6**

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| **MEASURE:** | **New water filtration plants** |
| **PURPOSE:** | Provision of filtered water to 15 communities currently receiving unfiltered River Murray water, including treatment against possible algal toxins |
| **TRIGGER POINT(S):** | n/a – already approved by Cabinet as an acceleration of SA Water's country water quality improvement program. |
| **COSTS:** | Capital investment of $55 million over three years from 2006/07 to 2008/09 – from within SA Water's forward budget |
| **RISKS:** | There are risks associated with meeting the tight time frames to deliver the project by December 2007. These will be dealt with via normal project risk management options. |

**DETAILED EXPLANATION:**

Cabinet has approved bringing forward SA Water's country water quality improvement program for communities that are presently supplied with unfiltered river water by SA Water.

The towns to benefit are: Callington/Kanmantoo, Mypolonga, Wall Flat, Pompoota, Neeta/Cowirra, Palmer, Tungkillo, Blanchetown, Swan Reach, Glossop/Monash, Cadell, Kingston, Moorook.

Once completed in December 2007, the risk to these communities from blue-green algae outbreaks will be reduced.

If an algal bloom occurs prior to their completion, SA Water will cart water to ensure continued supply (although on full water restrictions).

APPENDIX 7

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| MEASURE: | Construct/arrange alternative water supplies |
| PURPOSE: | To ensure there are contingency plans for townships reliant on the lower River Murray, particularly below the possible weir site. |
| TRIGGER POINT(S): | Support action in response to continued falls in river and lower lakes water levels. |
| COSTS: | $5 million capital costs for Clayton water supply<br>$150,000 per annum for water carting to Point McLeay |
| RISKS: | Raising expectations of assistance for households elsewhere in South Australia that are impacted by drought conditions |

**DETAILED EXPLANATION:**

**Domestic supplies along the river**

A number of communities and households rely on water drawn directly from the River Murray for domestic purposes. There is no comprehensive list of the properties that might be involved as many individual households do not require a water licence.

Drought is impacting a number of communities throughout South Australia. Proposals for government assistance for potable water must therefore be equitable across the state. For example, there are many areas within South Australia where households are not connected to a public water supply system and will be impacted by drought. These include numerous households through the Adelaide Hills plus shack owners in various areas. Preliminary analysis shows close to 80,000 households without a connection to an SA Water reticulated system.

To ensure an equitable approach for all communities, the following principles are proposed for making decisions on potable water supplies:

1. Government will be responsible for maintaining supplies on government owned and operated systems. This includes SA Water systems and systems such as the one at Point McLeay which is owned by DEH.

2. Assistance will be provided for council water supply schemes such as at Clayton, equivalent to the community service obligation (CSO) that would be paid if SA Water was operating the scheme.

3. In general, individual households not on government owned and operated systems will need to make their own arrangements for water carting with private operators. The State government would help access to EC assistance from the Commonwealth government to off-set some of the costs.

4. Government will prepare contingency plans for emergency situations that are beyond the capacity of councils and individual householders – for example, if there was a widespread blue-green algae outbreak such that normal water carting markets would be unable to cope.

5. Assistance for economic purposes will be made on a case by case basis, having regard to the economic value of produce and services being protected and the costs involved.

Cabinet is asked to approve these principles as the basis for decision-making on potable water supplies.

Based on these principles, the following arrangements for domestic supplies along the river impacted by a temporary weir and/or dropping water levels in the lower lakes are proposed:

***Towns on government systems***

*Point McLeay*

Point McLeay on the lower lakes is supplied from a system owned by DEH and operated by SA Water. For Point McLeay there are two main options for providing continued water supply for domestic purposes:

- As part of a larger scheme to supply water for irrigation and/or stock to the users in the Meningie area. The cost of a full irrigation system has been estimated at around $200 million and, under the worst case drought scenario, water would not be available anyway – see further discussion below.
- A domestic only supply to Point McLeay, either via a pipeline or via temporary water carting. A pipeline scheme that would include Point McLeay but also allow for domestic use plus stock watering and dairy operations on the western side of Lake Albert would cost between $10 million and $15 million, depending on the physical extent of the scheme. The decision on whether to build any pipelines should take into account the likely agricultural returns (discussed below). If a scheme was to proceed it would need to start forthwith to be of any use in the current drought.

It is the view of the Water Security Task Force that the most cost effective way of providing domestic water supply to the community at Point McLeay is by water carting. However, PIRSA has argued strongly that a pipeline for stock and domestic should not be ruled out prior to public consultation (discussed below).

A small desalination plant is a long term option for Point McLeay providing the intake is extended well out into the lake to ensure raw water is available during drought conditions. It is recommended that, if this option is to be pursued, it should be done independent of the short term drought response.

As this is a government owned system, government should provide the water carting service, at an expected cost of around $150 000 per year.

***Towns on non-government systems***

*Clayton*

The Clayton system is operated by the Alexandrina Council, although the infrastructure is owned by SA Water. A bulk water supply could be extended to Clayton from SA Water's existing system which would secure the water supply to Clayton should lake levels drop. The cost is between $5 million and $8 million, depending on the capacity allowed for future growth. The pipeline option is of similar cost to a small desalination plant but provides a better solution for long term operation of the water system.

While Alexandrina Council might be willing to make some contribution towards an improved water supply, it is unlikely that Council will cover all of the costs. In line with the principles above, it is proposed that assistance be provided for the Council equivalent to the community service obligation (CSO) that would be paid if SA Water was operating the scheme. This would be an amount of $5 million.

*Wellington*

The township of Wellington is also not supplied by SA Water. If a temporary weir is constructed downstream of the township, the existing pumps are likely to remain suitable. Any costs for modifying the pumps would be the responsibility of the local Council, which owns and operates this supply.

*Individual households*

There are a number of individual households below Lock 1 that draw water directly from the River Murray, where supply will be lost under very low river levels. There are also some areas which are supplied from an irrigation main (eg Monash). In accordance with the above principles, individual households should make their own water carting arrangements.

In the event of a wide spread blue green algae outbreak in the river, the number of households impacted across the whole system would mean that normal water carting arrangements would not be able to cope. SA Water is therefore preparing contingency plans that would utilise powers under the Emergency Management Act to ensure sufficient water tankers could be brought into operation,

**Primary industries**

Primary industry activities south of Wellington include:

- Commercial fisheries in the lakes and Coorong – gross value of production approx $5 million;
- Langhorne Creek/Currency Creek areas – viticulture and horticulture – gross value of production approx $85 million; and
- Narrung Peninsula and eastern (Meningie) side of lakes – dairy/other livestock, pasture/vegetable irrigation – gross value of production approx $35 million.

In the event that water levels in the lower lakes fall to very low levels (which will occur in the worst cases, irrespective of whether a weir is constructed), the options for these industries are as follows:

*Fisheries*

If a weir is in place for 12 months, the effects are likely to be manageable. However, should a weir need to be in place for several years, there are no mitigating measures available to restore the fishery. Adjustment would need to be considered.

*Langhorne Creek/Currency Creek*

Estimated capital costs for a pipeline providing full irrigation demands to Langhorne Creek only and to both Langhorne and Currency Creeks are:

| | 100% normal use | 70% normal use |
|---|---|---|
| Langhorne Creek only | $109m | $88m |
| Langhorne + Currency Cks | $132m | $106m |

The above costs assume water will be available from the River Murray if the temporary weir is in place.

PIRSA has assessed the minimum amount of water required for perennial crops to survive. Perennial crops in this area have been assessed as able to survive (but without production) on rainfall and local groundwater supplies.

Considering the benefits of a pipeline – increasing the security of irrigated output (but not completely) – relative to the expected cost, a pipeline is not a recommended option.

*Narrung Peninsula and eastern side of lakes*

There are two options on this side of the lower lakes:

- Constructing a pipeline to provide full irrigation demands to the Narrung area – cost $194 million - $211 million depending on scale. Again this assumes water will be available from the River Murray if the temporary weir is in place. Considering the limited benefits of more secure livestock output (totalling around $35 million) compared to the high cost, this is not a recommended option.
- Piping water for stock survival and dairy operations only, and to import fodder for the livestock around Narrung (eastern side of Lake Albert) and the western side of Lake Albert. Based on preliminary concept information, two pipelines of around 40 kilometres each would be required with a cost of approximately $10 million to $15 million each. The annual total cost to farmers of carting the required amount of water to service this need would be $10 million – $15 million.

The installation of a stock and domestic pipeline may allow the current livestock industries to survive in the worse case scenarios. The cost of establishing such a stock and domestic water supply scheme needs to also take account of other issues such as the health and quality-of-life benefits for local aboriginal and farming

communities, the potential further growth of lifestyle residential development and tourism, the stabilisation of the economy of the local community, potential long term use of land and resources on the Narrung Peninsula and the willingness of residents and farmers to pay for a potable water supply.

In addition, the Task Force concluded that adjustment may be a preferred option for many dairy / livestock farmers with the high impact of the current drought (compared to bearing costs of water carting (pipelines) and feed purchases or agistment options). Hence committing to any pipeline now would be inappropriate given the chance of pipeline assets being stranded (not utilised).

PIRSA has argued strongly that, before any decision is made on the likely longer term future of the Narrung Peninsula and relevant drought recovery strategies, community consultation is essential to seek local views on potential long term scenarios and therefore the viability of supplying permanent potable water to the regions surrounding Meningie that are not currently serviced.

PIRSA has also argued that making some of the Water Security Task Force's data available publicly is necessary to inform the local community and to enable effective discussion to occur on options for dealing with drought and restricted water availability from the lakes. Data relating to potential stock and domestic water supplies from mains at Meningie and from the deeper parts of Lake Alexandrina would be relevant to those discussions.

Should a pipeline be agreed, construction would need to commence by the end of February 2007. PIRSA expects to complete the required consultation by mid-February 2007.

Cabinet is asked to:

- Endorse the recommendation that a pipeline not be constructed to Langhorne Creek/Currency Creek.

- Approve the provision of a bulk water supply to Clayton by SA Water as a community service obligation of $5 million.

- Note the conclusion that there is no evidence to support a pipeline to the Narrung Peninsula and eastern side of the lakes on economic grounds, but that PIRSA has recommended that consultation occur before a final decision is reached.

- Approve the carting of water to Point McLeay by SA Water at a cost of $150,000 per annum, unless a pipeline to the Narrung Peninsula and eastern side of the lakes is subsequently approved.

- Approve PIRSA consulting relevant primary producers, including making information available publicly on the likely cost of pipelines and other options. If a pipeline is proposed, PIRSA will make a further submission.

**APPENDIX 8**

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|---|---|
| **MEASURE:** | **Respond to ad hoc ancillary issues** |
| **PURPOSE:** | Provide advice and/or assistance on issues that emerge as river and lake levels fall. |
| **COSTS:** | Depending on issue |
| **PARTNERS:** | Depending on the issue involved: councils, community groups, individual landholders, irrigation trusts |

**DETAILED EXPLANATION:**

As river and lake levels fall, it can be anticipated that a range of issues will emerge that require government advice and/or assistance to solve. These cannot be predicted and will change over time.

As at January 2007, issues being progressed include:

- Consultation with Aboriginal communities;
- Bunding to prevent ingress of sea water;
- Lock management in low flow conditions;
- Dredging/trenching in the lower lakes;
- Floating pumps (irrigators).

**APPENDIX 9**

**MEASURE:** Develop a water recovery strategy

**PURPOSE:** To ensure there is an orderly plan for the recovery of the lower River Murray and lower lakes, as inflows return to more normal levels and maintain public confidence that this is an unusual event.

**TRIGGER POINT(S):** n/a – work should commence in March/April 2007

**PARTNERS:** Murray-Darling Basin Commission

**DETAILED EXPLANATION:**

If the weir is constructed, the decision on when to remove it is potentially more difficult than the decision to start. The weir cannot be removed until the water level in the lakes can be recovered, and there is adequate reserves in the MDB storages to give confidence that the weir would not be required again in the near future.

South Australia has placed this on the agenda of the Murray-Darling Basin Commission. The policies adopted by the other states on water allocation will impact the speed at which the river system can be recovered to normal operation.

Development of a recovery strategy should begin in April 2007, and will need to continue for as long as inflows remain uncertain.

The development of an integrated social, economic and environmental response and recovery to the drought across South Australia is occurring under the auspices of the Premier's High Level Drought Task Force.

COSTING COMMENT

MINUTES forming ENCLOSURE to

File T&F06/1203
Doc No TF907D0553

To The Treasurer

## WATER SECURITY 2007-08 CABINET SUBMISSION

Timing: URGENT - For Cabinet meeting on 5/02/2007

**Recommendations/Issues:** It is recommended that you:

- Note the budget impacts arising immediately from this submission ($9.084 million in 2006-07 and $0.5 million per annum thereafter) and the size of potential future budget impacts from construction of the weir ($100 million) and purchase of a strategic supply of water ($5 million State contribution for initial 20GL).
- Note the importance in engaging the Commonwealth immediately to seek funding, in particular for the weir but also for associated water security related costs.

Noted

Treasurer

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**Key Points:**

- We understand you have received the *Water Security 2007-08* Cabinet submission from Paul Case for your signature and Cabinet consideration on Monday 5 February.
- We have no objections to the recommendations of the submission.
- The submission lists the resources required as:
  - Capital costs of $60 million over 2 years.
  - Operating costs of $9.024 million in 2006-07 and $100 million in 2007-08.
- The immediate decisions of this submission give rise to budget impacts as follows:

**Budget Impact table** (1)

| | 2006-07 $000 | 2007-08 $000 | 2008-09 $000 | 2009-10 $000 | 2010-11 $000 | Ongoing $000 |
|---|---|---|---|---|---|---|
| Net Operating Balance Impact | -9 084 | -500 | -500 | -500 | -500 | -500 |
| Net Lending Impact | -9 084 | -500 | -500 | -500 | -500 | -500 |

(1) Negatives indicate increases in agency spending or reductions in revenues (deterioration in net lending). Positives indicate savings or increases in revenue (improvement to net lending).