Australian Water Association – Keynote address Kim Taylor
Director General, Department of Water

Introduction

- Thank you Peter.
- I appreciate the opportunity to address you all today.
- The Department of Water and AWA share a common mission and the department recognises and appreciates the important role your association has played, and will continue to play, in sustainable water management.
- What we also share, is working with a host of people with a keen interest and knowledge about water.
- [The Department of Water is, of course, only two-and-a-half years old; whereas the AWA emerged from an Institution of Engineers Conference some 46 years ago and your WA branch is just 10 years younger than that].

About me

- Before I talk about the Department of Water's work and some key issues we are addressing, I thought I would give just a bit of background about myself, which may explain some of my thinking on water matters.

- And I thought I would do this, by sharing with you, a couple of my memories of my early work and career highlights in the water industry – and you'll see I use the term 'highlights' very loosely here.

- I started work in the water industry in 1976 – a year which has now become recognised as a pronounced time in WA's water history – due to the start of our decline in rainfall. It seems to me that working in the water industry up to that time was probably a pretty 'cushy job' – but, as we know, it has been much harder 'yakka' since then, particularly this decade.

- Much of my early work was involved in groundwater assessment and development.

- It was a good time to be involved in this work as, with the drought occurring, government was keen for new groundwater resources to be developed as quickly as possible.

- One of the jobs I was given was to supervise development of a new borefield at Serpentine, near to the Serpentine trunk main.

- The hydrogeologists had advised that there were abundant, deep, fresh groundwater resources in this area, and it seemed like a simple job to drill the bores and connect them into the trunk main.

- We successfully drilled the first bore to a depth of about 300 metres, which was a fairly significant project, probably costing in the order of about 2 million in today's dollars.

- We tested the water and sure enough it was fresh, and at that stage I thought, "Yes, this is a simple job".

- We began pumping from the bore, and about two days later we got a call from the local land owner saying his soaks had dried up.

- Our first thought of course was, "no it can't be us; it must be the drought".

- However, we turned off the bore to investigate the matter, and two days later the soaks filled up again. We turned the bore back on, and sure enough, two days later the soaks dried up again.

- I think that today that bore still sits unused, in the ground down at Serpentine.

- What I learnt from that was, even where budgets are not constrained, it's not straightforward to bring new water sources on quickly to augment supplies in drought conditions, and that good planning and considerable work is always necessary.

- By the early 1980s the drought had passed, but rainfall hadn't fully recovered.

- At that time I was working on source development planning for the Perth IWSS. I recall in those days we used to think rainfall would return to the pre-1975 levels and used to say, *“Surely it will be back to normal by the mid 1980s”*.

- As such, we still used to adopt the entire long-term rainfall record for Perth in much of our source development planning.

- I can recall, even in the mid-1980s, we were still considering the option of a second dam on the Canning River because, based on long-term rainfall records, the river was under-regulated with potential for considerable overflow.

- Thank goodness we didn’t proceed with that dam, as it would have proven to be a great water supply ‘white elephant’.

- In those days, we also did some longer term planning, looking at potential water sources beyond 50 years. At that time we considered things like seawater desalination and aquifer recharge with treated wastewater as futuristic sources, and ones we were unlikely to see developed in our working careers.

- As we have come to learn over the last 20 years, climate variability is a critical factor for us in planning for and managing our water resources and we need to fully consider all water resource options.

Department of Water

- It was an interesting and enjoyable time in the water industry in those days – but things have now changed significantly.

- Water has a much higher profile these days and we face considerably more challenges in sustaining the state's water resources.

- Since starting with the department some 11 weeks ago, I've been most impressed by its work and operations.

- It has clear directions and a sound understanding of what it needs to achieve.

- It is very output- and outcomes-focused.

- You will all be aware of the substantial work which has been undertaken in the State in recent years in developing strategies and directions for water management.

- In particular, the *State Water Plan 2007*, the Blueprint for Water Reform and the National Water Initiative.

- The Department's task, and the focus of its directions, is to deliver on this water management and reform framework.

- It has already implemented many actions and initiatives. For example:

- We have established a significant number of allocation management plans, including for the south west groundwater areas, the Gnangara mound, the Upper Collie, Cockburn, Kemerton, and Canning and Carnarvon Basins.
- Importantly, we recently released a management plan covering an extensive area of surface water resources in the south west referred to as the Whicher plan. This represents the most substantial advancement in surface water management in the state for a considerable period.
- We are also progressing regional water plans – our draft plan for the south west has just been released and draft plans for the Pilbara region and the Perth–Peel region will be released in the coming months.
- We have published 15 drinking water source area protection plans in the past year alone – with up to ten new ones expected in 2008–09.

… and

- We continue with our groundwater assessment program – highly significant, for example, in the resource-rich Pilbara where our assessments will focus on the West Canning Basin, and the alluvial aquifers of the lower Fortescue River, Robe River, Maitland River, George River and Turner River.

- While much has been achieved, there is still much to be done – and a number of technical and policy issues still to be resolved.

- I'd like now to address some of the Department's key work areas – ones that have particular relevance to the Australian Water Association.

Significant work areas, and technical and policy issues

1. Completing the reform agenda though implementing the NWI and the WA Blueprint for Water Reform

- First, we intend to complete the current water reform agenda.

- The requirements of the National Water Initiative and the State Blueprint for Water Reform include:
    - an improved water planning framework;
    - secure water access entitlements;
    - water markets and trading;
    - integrated management of water for the environment and other public benefit;
    - water resource accounting including metering;
    - urban water reform; and
    - best practice pricing.

- As I've mentioned, we've already made big improvements in the planning and allocation framework, and also made substantial progress on metering, particularly on the Gnangara mound.

- New legislation is now required to enable us to make the next major steps with the reforms. In particular, perpetual water access entitlements as a share of a consumptive pool – entitlements that can be freely traded and held as real property.

- Consistent with the National Water Initiative, the legislation will enable water allocation plans to be made statutory, binding on both the government and water users. The legislation will also ensure secure water entitlements for the environment.

- We hope the draft Water Resources Management Bill will be available for broad consultation early next year; to be introduced into Parliament and passed by the end of the year.

- The benefits of these reforms would then start to be apparent progressively from 2010.

- Statutory water management plans and tradeable water entitlements as part of a consumptive pool will be implemented progressively to areas where water trading would be beneficial and a high level of management is justified.

- Licensing will continue in some areas where the consumptive pool is not appropriate.

- The department is also currently developing systems and procedures to ensure the effectiveness of the new legislation. These include:
    - establishing a water accounting system;
    - establishing procedures to support and encourage water trading, including new water registers; and
    - continuing to roll out our metering program state-wide (we have installed nearly one thousand meters to date).

- The Rudd Government, through COAG, is also looking at how the National Water Initiative might be enhanced and accelerated under its *Water for the Future Plan*.

- To make this happen, the department has an important role in a number of working groups.

- The outcomes of this work and implications for the National Water Initiative are expected to become clearer after the October COAG meeting.

2. Climate uncertainty and risk assignment

- The second matter I want to address is climate uncertainty.

- There's a lot of work being done locally, nationally and internationally to assess future climate scenarios and to endeavour to narrow the range of uncertainty we face regarding future climate.

- Meanwhile, the Department has to live with climate uncertainty as a big factor in our current policy, planning and licensing work.

- It is critical that we adopt justified and consistent future climate scenario options for our allocation planning and licensing decisions.

- We also need to spell these out clearly, so that government, the community and licence and entitlement holders understand the risks, and the possible variability of future outcomes.

- If we are too conservative, it could lead to under-utilisation of water resources.

- If we are too optimistic, it could lead to over-allocation – with implications for the environment and water entitlement holders.

- The department has been working with Brian Sadler, who has been involved with the Indian Ocean Climate Initiative for a number of years, to utilise best international, national and local information, to establish appropriate future climate and rainfall scenarios for individual regions in WA, for use in the Department's water resources management work.

- This work should be released in the coming months – providing a basis for the scenarios to be adopted and identifying the risks.

- The National Water Initiative framework broadly spells out that water access entitlement holders are to bear the risks for any reduction or less reliable water allocation that results from seasonal or long-term climate changes.

- We largely support that approach, but see some difficulties and uncertainties in its application.

- Therefore, we are liaising with the National Water Commission on the application of the framework in WA, particularly in relation to allocation planning and water entitlements for groundwater resources.

- We believe the nature of groundwater resources and the difficulties in determining sustainable yields and environmental water allocations can be managed more effectively and efficiently by incorporating adaptive management.

- For surface water resources, the use of consumptive pools and risk assignment is becoming more accepted and understood in Australia.

- But there's a lot more uncertainty about their application to groundwater.

- Because 75 per cent of our water consumption is from groundwater sources, this has significant implications for the department in introducing consumptive pools and risk assignment.

- It is interesting to note the apparent difference in the response of groundwater and surface water resources since the mid-1970s – the decade when things started to get drier.

- We have all observed the significant reduction in streamflow from the 'step' declines in rainfall in the mid-1970s and now during this decade – with a 20 per cent reduction in rainfall resulting in about a 70 per cent reduction in streamflow.

- If there had been a similar 70 per cent reduction in our groundwater availability over this time, we would have been in real strife.

- While we can observe the effects on our groundwater systems, they are not, to date, as pronounced as with surface water.

- The quite different timeframe of responses to climate change by surface and groundwater resources has a large bearing on how we manage them.

- This is due, in part, to the longer lag time caused by the slow movement of groundwater within aquifers; but probably also because land clearing and development over aquifers on the coastal plain has previously increased the recharge – with drainage systems being implemented to remove excess groundwater in some areas.

- I’ve tried to illustrate this in this simple conceptual diagram. The blue line represents the reduction in streamflow due to reduced rainfall. As we have observed, there has been a very significant and immediate reduction in streamflow with drying climate.

- The green line represents the apparent response in net groundwater recharge. Impacts have tended to be smaller and less immediate initially, but as climate dries further, the impacts may increase as drainage flows reduce and the groundwater systems respond over a longer time period.

- Certainly, a reduction in net groundwater recharge of 70 per cent, similar to the reduction in streamflow, would be likely to have a dramatic effect on groundwater-dependent systems on the coastal plain.

- It is clear that a major issue for the department and the state is that, if increased drying occurs – and this is certainly possible – the impact on groundwater resources could be substantially greater in the longer-term and more in line with what has happened to our surface water systems.

3. Gnangara Sustainability Strategy

- The Gnangara mound, probably the State's most important water resource, highlights the issues of climate uncertainty and of determining appropriate environmental water provisions for groundwater systems.

- Current environmental conditions covering consumptive use of the mound were set in the late 1980s and the 1990s.

- In this current decade, the drier climate means steadily falling groundwater levels – resulting in breaches of these environmental conditions.

- On one hand, we have those seeking greater protection for the environmental values of the mound; on the other, we have private water users wishing to maintain or increase supplies (particularly commercial users such as horticulturalists).

- And all the while, we have to ensure the mound can provide public water supplies as our population grows.

- The Gnangara Sustainability Strategy is aiming to establish a clear framework for land and water management on the mound over the next two decades.

- It is designed to achieve an appropriate balance between land use, water use and environmental conservation.

- As part of developing the strategy, a number of major studies are being undertaken. These include:
    - biodiversity values;
    - local area groundwater modelling;
    - regional planning and future land-use options, including horticultural precinct planning and pine plantations.
    - prescribed burning and groundwater recharge; and
    - an analysis of social and economic factors.

- We expect to release the draft strategy for public comment later this year.

- While detailed groundwater modelling is still being undertaken, a simple water balance, as illustrated in this table, indicates the potential reduction in net recharge to the mound that could occur if, consistent with CSIRO future scenarios, there is a decline from 1990 rainfall levels of either 11 per cent or 20 per cent.

- As you can see, the outcome would be a net recharge reduction of about 100 or 200 Gl/year.

- The overall reduction in net recharge will need to be shared between the environment, private consumptive use and public water supplies.

- However, the degree of ‘pain’ borne by each sector can be reduced if the recharge lost through rainfall decline can be offset by increased recharge due to land-use change and management.

- For example, recharge beneath open grassland areas and urban areas can be more than three times higher than beneath native vegetation.

- Under predicted future rainfall conditions, this can produce an extra 20 Gl/year over a 10 000 hectare area that has an annual rainfall of around 700 mm.

- What I’m stressing here, is that if we are to offset reductions in water availability and impacts on the environment from a drier climate, then using land-use change or management to increase groundwater recharge or stream run-off must have top priority.

- A particular challenge is to determine appropriate environmental water provisions and balance that with consumptive use.

- Groundwater resources support environmental systems in a different way to surface water systems.

- I will try to illustrate this with some simple figures – recognising that in real life, we are dealing with highly complex water systems.

- With surface water, even with a drier climate, the environment can generally be sustained – provided a reasonable flow continues.

- For example, if flow is reduced by 50 per cent, a significant portion can still be allocated for the environment – particularly when regulated by a storage reservoir.

- With groundwater, the environment such as wetlands and phreatophytic vegetation generally relies on the water table or ‘top water’.

- If net recharge is reduced by 50 per cent, while storage and throughflow will remain in the aquifer, the effect on the environment may be severe.

- Thus, the future climate scenario that we adopt for determining environmental water provisions will be critical.

- If the likely range of scenarios falls below the critical level to sustain the environment, then there may be limited benefit in choosing to reduce consumptive allocation in the short-term.

- If, however, the likely range of scenarios falls either side of the critical level, then this will create complications for setting future consumptive use allocations.

- This is another reason why, in the face of climate uncertainty, groundwater resources are best suited to an adaptive management approach.

- The notion of groundwater-dependent ecosystems relying on the ‘top water’, and the uncertainty of potential impacts on groundwater recharge from climate change, were probably both significant factors in the decision on the South West Yarragadee project.

- It is acknowledged that the South West Yarragadee development study was a world-class water resources study; however, from a water resources development and management perspective, I believe the decision at the end of the day to proceed with the second desalination plant was a good one for the state.

4. Land and water-based recreation opportunities in catchments

- While a lot of our work is about balancing consumptive use with environmental needs, the recent decision to close the Logue Brook dam for recreation activities, so it could be used for drinking water, focused attention on the need to ensure adequate access to public land for recreation.

- The government has allocated $10 million to provide alternative recreation and leisure amenities in and around water bodies in the south west.

- However, pressure continues for greater access to existing water catchment areas for recreational pursuits.

- From the perspective of avoiding and minimising health risks to drinking water, tight restrictions on access is clearly preferred.

- Where greater access is allowed, there is the potential for increased treatment costs.

- On the other hand, the state forests that cover much of our catchments are an ideal environment for many recreation and tourism pursuits.

- WA has largely adopted a ‘controlled catchment’ approach, which, to now, has served us well and ensured high quality water at low costs.

- Consistent with this, the Department of Water established a policy that prohibits public access to land and water near drinking water reservoirs, but allows for some conditional recreation access to catchments outside the reservoir protection zones.

- Recognising the ongoing demand for recreation opportunities in the State's south west, the Minister has announced a review of this policy.

- We are currently initiating this review. It will consider policies and practices elsewhere; scientific evidence of the impacts; community values; treatment implications; recreation management options; and economic implications.

- A stakeholder reference group and a technical reference group are also being established which will include representatives and technical experts across a range of fields.

- The Department expects a discussion paper on options for any changes to the existing policy and associated implications to be released later this year.

- The Department has two roles in this project – firstly to provide the best water policy advice into the review, but also to ensure that the views of all stakeholders are presented fairly to enable the Minister and the government to make a fully informed decision.

5. Drainage reform

- Other areas where the department is focusing its attention are drainage and urban water management.

- Since the 1994 COAG water reform program that recognised the need for reform and improvements, there really has not been enough progress made.

- There has been a lack of overarching drainage planning and insufficient attention to ensure that drainage planning and management proceeded in parallel with land planning and development.

- To address this, across the Perth and Peel areas, we have undertaken an Urban Drainage Initiative program with four key components:
    - urban water planning (with an emphasis on the drainage component of the water cycle);
    - best management practices;
    - integration of urban drainage planning with land planning and development; and

  - governance and coordination.

- We have made substantial progress in developing a *Better Urban Water Management* framework that will integrate urban drainage planning and management with land-use planning and development.

- The framework describes how water resources should be considered at each land-use planning stage.

- Together with the Department for Planning and Infrastructure, the WA Planning Commission and others, we will shortly be releasing this framework, together with supplementary documents to assist with implementation.

- Among other progress we have made, are draft drainage and water management plans for Byford and the Swan urban growth corridor.

- Another one – for Jandakot –is scheduled for release this month.

- While there are still teething issues associated with implementation of the initiatives, which we recognise and are addressing, we are pleased there is now broad acceptance that better urban water management must be a part of new urban design and development.

- And while we now have a better understanding about what constitutes ‘best drainage practice’, we still need better data on what performance is achieved with water conservation and water quality by applying these best practice systems.

- The department is therefore seeking to put monitoring and reviews in place to assess performance and see whether long-term target objectives are met.

- While the initiatives I have just mentioned are resulting in improvements in drainage and water management in new urban areas, we have known for a long time that we need to improve drainage in many established areas of Perth, where systems were put in mainly to remove excess water with little thought for water conservation and water quality management.

- The Department of Water is currently leading a working group to develop an appropriate model and approach to funding to upgrade drainage systems in such areas, for consideration by government.

- Such a scheme can be likened in ways to the successful backlog sewering program for Perth.

6. Water services provision

- The final element I want to touch on is water services provision.

- While the Water Corporation and the Economic Regulation Authority have key responsibilities in this area, the Department of Water also has a role in providing advice to government on regulatory policy and administering water services legislation – a role that complements our mainstream water resources management function.

- In discharging this role, we don't compete with the Water Corporation or ERA in terms of our advice to government, but aim to provide well-considered, complementary advice to enable the government to make well-informed decisions in this area.

- As one illustration of the issues and the advice we are involved with, you will be aware that the ERA is currently conducting an inquiry into Competition in the Water Services Sector.

- We believe it is important for government to consider fully how the private sector might be more involved in water services provision and the ERA inquiry will enable government to make an informed decision on this. We have made a number of submissions into the inquiry.

- One element of particular interest to us is a recommendation to establish an Independent Procurement Entity, with responsibility

to procure bulk water supplies for the Integrated Water Supply System in the south west.

- We have some concerns with the proposed approach and presented these in our submissions. We are unsure whether it would lead to sufficient benefits when balanced against the potential risks.

- Another topical current area of water services provision policy and planning is the reliability (or restriction) policy, and the associated water scarcity pricing policy.

- There are two schools of thought.

- One. That there should be no need for restrictions and that we should simply build sufficient water sources and charge people who want to have access to unlimited supplies.

- The second is that we should use the restriction policy sensibly as part of good water efficiency practice, and as part of seeking cost-moderation.

- The department has an important role in providing advice to government in this area.

- We consider the existing two-day watering rostering system is a sensible water efficiency practice that provides consumers with a fair and adequate water supply for domestic needs.

- Therefore, we will continue to advocate strongly for sensible water efficiency measures in all water consumption sectors.

Conclusion

- In conclusion, may I say that in all we do, we welcome the contribution of the Australian Water Association and its members.

- Together I am confident we can ensure a sustainable water future for our state.

- Thank you for your attention and I welcome your questions.