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Water planning

1.1 Overview

Under the NWI, transparent, statutory-based water plans should be developed for all surface water and groundwater management units in which entitlements are issued (NWI clause 36). Water plans are fundamental to water management, transparently establishing the intended balance between environmental and consumptive use outcomes and often setting out the terms and conditions of access to water for consumptive and non-consumptive users and the environment. Effective water planning processes enable scientific and community input and debate to inform water management and allocation decisions.

Water planning links closely to many other NWI objectives. It provides a framework for achieving environmental outcomes (**Chapter 4**), addressing overallocated and/or overused water systems (**Chapter 5**), developing water entitlements and markets (**Chapters 6 and 7**), assigning risks for changes in allocations (**Chapter 9**), and recognising and managing the connectivity between surface and groundwater resources (**Chapter 2**). Water planning also provides for the recognition of Indigenous needs in relation to water access and management and the protection of the integrity of water access entitlements from unregulated growth in water interception as a result of land-use change.

It is anticipated that when a fully effective water planning regime is in place, it will:

1. Provide a **clear and secure basis for water access entitlements and allocations**, thereby providing certainty to water users and the environment.
2. Enjoy the support of the community, by **appropriately balancing economic, social and environmental considerations**, drawing on and utilising the best available science, socioeconomic analysis and community input.
3. Clearly establish how to deal with currently overused and/or overallocated systems, thereby helping return necessary water to the environment and **ensure environmental and resource sustainability**.

In the Commission's view, some progress is being made in better understanding our water systems and the social, economic and environmental values they support, and developing the frameworks and processes for water planning across Australia, but scope remains for improvement. In particular, the ongoing delays in completing and implementing water plans across much of Australia are significantly impeding the realisation of the benefits of an effective water planning regime.

Finding 1.1

The Commission considers that progress in the development and commencement of statutory water plans is now critically inadequate, with over 40% of the total scheduled water plans yet to commence, although as noted in this chapter, there are limitations to reporting on progress of water planning on the basis of the number of plans completed. The Australian Capital Territory is the only jurisdiction to have commenced all of its scheduled plans. Despite improving its water planning to deliver some outcomes of the NWI, Western Australia is yet to prepare legislation to enable NWI-consistent statutory water plans. If the current rate of progress across Australia continues, most of the remaining scheduled plans will not commence until well after the 2009 NWI commitment. Delays in the delivery of NWI-consistent water plans necessarily mean delays in the delivery of many other benefits of the NWI.

Recommendation 1.1

The Commission strongly urges the immediate acceleration of the development and commencement of water plans to allow water users to realise the full benefits of NWI reforms. The Commission considers it is now timely for parties to reset and publish realistic timeframes for the rollout of remaining water plans. However the Commission considers that accelerating the pace of water planning should be balanced against quality, and particularly the quality of community consultation.

Finding 1.2

The presentation of 'best available' information in many water plans is often focused on the physical condition of the water resource, with limited description of ecological conditions and socioeconomic factors. Where information gaps have been identified in a water plan, there is too little explanation of the specific data and knowledge required or steps in place to gather that information, or of how it will assist the development or revision of plans.

Recommendation 1.2

The Commission recommends that, as plans approach their renewal date, jurisdictions review existing water plans to identify information gaps. Identified gaps should be prioritised and addressed effectively and the results of new research should be incorporated into new and existing plans.

Finding 1.3	There are some good examples where water plans have incorporated latest information on climate change; however, this is not widespread, particularly where water plans were developed several years ago. The Commission acknowledges that some jurisdictions, for example New South Wales and Queensland, plan to incorporate climate change scenarios into their future water plans.
Recommendation 1.3	The Commission recommends that all future water plans consider explicitly the impacts of climate change on water resources and the environment, and are sufficiently resilient to accommodate a broad range of climate change outcomes.
Finding 1.4	There is scope to improve the transparency of water plans by clearly stating the nature of trade-offs between competing users, communicating this to stakeholders and the community in the planning process, and better reflecting those trade-offs in the decisions to allocate water between various users and the environment.
Finding 1.5	As also found in Chapter 6 (Finding 6.8), while the NWI recognises through special clause 34 the potential for further policies and measures beyond the agreement for minerals and energy industries, the circumstances in which they would apply are not defined and identified in a consistent and transparent manner. Little progress has been made in the five years since the signing of the NWI in fleshing out the special provisions for the minerals and related industries. As a consequence, there remains limited integration of those industries with broader water markets and water planning processes, despite the potential for considerable benefits in many cases.
Finding 1.6	It is rare for Indigenous water requirements to be explicitly included in water plans, and most jurisdictions are not yet engaging Indigenous people effectively in water planning processes. The Commission notes that Indigenous groups are, at their own initiative, currently developing the capacity to participate more fully in water planning processes.
Recommendation 1.4	The Commission recommends that all jurisdictions develop and publish processes for effective engagement of Indigenous people in water planning. Parties should ensure that all new water plans (including statutory reviews of existing water plans) provide for Indigenous access to water resources by at least incorporating Indigenous social, spiritual and customary objectives and strategies for achieving those objectives. Jurisdictional processes should also make clear how Indigenous groups can pursue their legitimate economic objectives.
Finding 1.7	Across most jurisdictions, progress continues to be slow in identifying and addressing significant interception of surface and groundwater. There is no evidence that parties, other than South Australia, have formally identified significant interception activities in water systems or articulated policy responses that will enable full implementation of their NWI commitments to deal with water interception.
Recommendation 1.5	To reduce the potential for further erosion of security of existing water access entitlements, the Commission recommends that significant and potentially significant water interception activities be immediately identified and quantified, and a process for addressing them clarified within the next six months. This will enable jurisdictions to meet their commitment to include any proposals for additional water interception activities above an agreed threshold size into existing water access entitlement regimes by no later than 2011.
Finding 1.8	Management objectives in water plans are often too general to be able to be measured and assessed to determine the success of the plan. Furthermore, plans provide very limited or no explanation of how the 'best available' information was used to determine the objectives, or what assumptions were made.
Recommendation 1.6	The Commission considers that all water plan objectives need to be specific and measurable, and plans should incorporate monitoring arrangements specifically designed to measure performance against each objective, which in turn will enable improved adaptive management.
Finding 1.9	The Commission considers that, in general, rules for consumptive and non-consumptive water provisions are sufficiently well defined in water plans. However, rules do not always deal adequately with interception (refer to Finding 1.7), nor periods of exceptionally low inflows (refer to Finding 1.10).

Finding 1.10	The difficult recent seasonal conditions have revealed that many water plans have not adequately defined how systems will be operated during unanticipated sequences of low inflows.
Recommendation 1.7	The Commission recommends that jurisdictions and national agencies further invest (taking account of work already underway through the COAG work program) in best practice guidelines, streamlined processes and training to improve the quality, the effectiveness of the processes, and the resilience and community acceptance of water plans.
Recommendation 1.8	The Commission recommends that all existing and new plans be tested to ensure that they clearly define how water will be allocated to various categories of users and the environment under the full range of inflow conditions (including sequences of dry years), and to ensure that plans adequately specify how systems will be operated in times of extremely low water availability. This should include publicly defining the exceptional circumstances in which a plan would be suspended or qualified, the processes and principles then to be followed, and the arrangements for reinstatement of plans when conditions improve.
Finding 1.11	Water monitoring arrangements across jurisdictions are improving, with a number of jurisdictions implementing comprehensive statewide monitoring programs. However, water plans generally lack detailed description of their specific monitoring arrangements, and lack clarity about how plan-specific and statewide monitoring arrangements can each contribute to assessing achievement of the plans' objectives.
Finding 1.12	The quality and transparency of processes for reporting on the outcomes of water plans are inadequate in many jurisdictions. Ideally, such reports should be prepared at arm's length, clearly show how the plans' objectives are being achieved, discuss areas of success and failure and recommend any changes to the provisions of the plans (within the bounds of the plans' review provisions).
Finding 1.13	Considering the magnitude of the task ahead, the Commission observes that the MDBA has had a disappointingly slow start, with an intergovernmental delay in appointing authority members and growing pressure on timelines to complete the development of the Basin Plan. Effective community consultation is crucial to the basin planning process. There is a risk that the pressure on timelines may affect the quality of that consultation. The Commission supports the MDBA's work to develop strategies to engage the community in the preparation of the Basin Plan.
Recommendation 1.9	The Commission recommends that the MDBA further clarify the intended planning processes and ground rules for the development of the new Basin Plan in consultation with affected parties, to engage stakeholders in what the new plan will involve, to better manage expectations, provide more certainty, and facilitate a more cooperative approach with the MDB jurisdictions. In particular, the Commission recommends greater public consultation, progressive release of background and issues papers and, where possible, interim, progressive guidance from the MDBA on specific environmental, economic and social objectives or outcomes likely to be targeted in the plan.
Recommendation 1.10	To account for delays in progress to date and new developments, the Commission recommends that NWI parties revise and resubmit, within six months for accreditation by the Commission, their jurisdictional plans for implementation of their NWI commitments.

1.2 Context for this assessment

The 2007 Biennial Assessment (NWC 2007) and 2008 Update (NWC 2008) found that while almost all jurisdictions had made good progress in developing and implementing water planning frameworks, particularly for high-priority water systems, the rollout of water plans remained slow. The 2007 assessment also found that:

- + Indigenous issues needed to be taken into account more effectively
- + further progress was required with respect to improving the quality and extent of science underpinning water plans
- + there needed to be greater recognition of the connectivity between surface water and groundwater systems
- + overallocation and overuse must be addressed as a priority
- + further progress was needed in dealing with water interception
- + there needed to be improvements in monitoring and compliance.

At its March 2008 meeting, COAG commissioned the development of a comprehensive new water reform work program including dealing with water interception, overallocation, and improving environmental outcomes. The acceleration of the adoption of NWI water interception commitments is a priority under this work program and includes the development of a nationally consistent, risk-based approach to assessing and managing risks posed by groundwater extraction and other interception activities (WGCCW 2008).

Summaries of the COAG work addressing integrated management of connected surface and groundwater systems, environmental outcomes, and overallocation/overuse are noted in Chapters 2, 4 and 5, respectively, of this report.

1.3 The Commission's assessment and findings

1.3.1 Progress in water planning

Background: Terminology and relevant National Water Initiative clauses

The NWI states that 'statutory water plans will be prepared for surface water and groundwater management units in which entitlements are issued ... water planning is an important mechanism to assist governments and the community to determine water management and allocation decisions to meet productive, environmental and social objectives ...' (NWI clause 36).

Under the NWI, jurisdictions have committed to 'review any plans developed for the 1994 COAG framework to ensure they now meet the requirements of the NWI ... and proceed on a priority basis to develop any new plans.' (NWI clause 26)

This assessment examines the current and potential coverage and current status of NWI-consistent water plans against what was agreed in the jurisdictional NWI implementation plans. Table 2 reports on how many plans were described in NWI implementation plans, how many are in place now, and how many were in place at the time of the 2007 Biennial Assessment.

The Commission recognises that there are limitations to reporting progress of planning on the basis of numbers of plans. For example, in New South Wales, the completed plans cover a large percentage of total surface and groundwater extraction (approximately 90%); most of the remaining plans address smaller systems. However, volumetric and area-based measures of planning progress can also be deceptive. For example, in Queensland, total surface water is dominated by the Cape York Peninsula; however, consumptive water use, and therefore the need for water plans, is much greater in the south-east of the state. For these reasons, the Commission has decided to continue to report on the number of plans in place, while recognising these issues.

In addition, plans in different jurisdictions are not always directly comparable. As noted by Hamstead et al (2008), "the various plans are a function of state legislation, policy and practice that has been developing since well before the advent of the NWI. This affects the overall purposes of the various plans, which range from dealing with water sharing only, to water sharing and use, to total water cycle management (in the case of the Victorian sustainable water strategies). It also affects the geographical scope of the plans ..."

Table 2: National summary of water plans finalised against targets set in the NWI implementation plans

Jurisdiction	Type of water plan	Number of plans to be completed as listed in NWI implementation plans	Number of finalised plans 2009 Biennial (2007 Biennial)	Current status
ACT	Water Resources Management Plan	1	1 (1)	
NSW	Water sharing plans	54 (subsequently revised to 40)	40 (37)	NSW has advised that the number of water sharing plans and macro water sharing plans has been revised from 93 to 84 and are now to be completed by 2012, not June 2009 as originally scheduled in the NSW NWI Implementation Plan.
	Macro water sharing plans	39 (subsequently revised to 44)	5 (0)	
	Total	84 (previously 93)	45 (37)	
NT	Water allocation plans	4	3 (1)	Alice Springs and Ti Tree Water Resource Strategies completed. Water allocation plan for the Katherine Tindal has been completed. Plans for the Ooloo aquifer in the Daly and the Tindal aquifer at Mataranka are being developed and are expected to be completed in 2010. Darwin Rural regions and Tiwi Islands planning processes have commenced and are expected to be completed by the end of 2011.
Qld	Water resource plans	23	20 (17)	At the time of the Commission's assessments for the 2006 National Competition Policy payments, Queensland gave undertakings to the Commission that 13 resource operations plans would be completed (or amended) by July 2007. By July 2007, 10 plans had been completed. As at the end of June 2009, 12 plans had been completed. All outstanding resource operations plans are now scheduled to be completed by mid-2010 (with the exception of the Wet Tropics and Baffle).
	Resource operations plans	22	12 (9)	
	Total	45	32 (26)	
SA	Water allocation plans	22	19 (15)	Note that the number of completed plans includes 14 plans released prior to the NWI, which have undergone a five-year review. It also includes five new plans that have been adopted. Three new plans are being developed.

Jurisdiction	Type of water plan	Number of plans to be completed as listed in NWI implementation plans	Number of finalised plans 2009 Biennial (2007 Biennial)	Current status
Tas.	Water management plans	11	5 (5)	<p>Eight plans are currently being prepared; a further four are anticipated over the next two years. The Great Forester Plan is currently under review. Preparatory work is underway in advance of a scheduled review of the River Clyde and Lakes Sorrel and Crescent plans.</p> <p>Tasmania has noted that plans need to be developed in areas where new irrigation schemes are to be built. The government is working on the development of plans in these areas; however, they are unlikely to be in place before the irrigation developments obtain Commonwealth approval. This may be relevant to the provision of Commonwealth funding for new irrigation developments. The Tasmanian Government has indicated that the new developments are expected to result in only a relatively small increase in extractions in comparison with the sustainable yield.</p>
Vic.	Sustainable water strategies (SWSs)	4 (previously 5)	1 (0)	<p>Victoria has bulk entitlements in place for all its water systems, which share the available resources. The SWSs identify the threats to water resource availability and opportunities to improve reliability for towns, irrigators and the environment. The number of SWSs has been revised from five to four, but coverage remains the same. The Central Region SWS is now complete, the Draft Northern Region SWS has been released publicly, and the Western and Gippsland regional strategies are under development and due for completion by mid-2010 (the Victorian NWI Implementation Plan indicated completion by end 2009).</p>
WA	Surface water management area plans	9	1 (1)	<p>Six non-statutory (non-NWI consistent) plans are in place. These will be transitioned to statutory plans once the enabling legislation is passed. All statutory plans are due to commence by 2011.</p>
	Groundwater management area plans	15	5 (4)	
	Total	24	6 (5)	
Total plans^a		195	112 (90)	

a These totals differ from those used in **Chapter 5**, as that chapter examines all plans currently in place (NWI and non-NWI consistent).

Table 2 shows that all jurisdictions have made progress in putting in place frameworks for developing NWI-consistent water plans.

However, under the states' NWI implementation plans the development and commencement of all identified water plans was due by the end of 2009 (with the exception of Western Australia). To date, over 40% of these scheduled plans have not yet commenced. Progress since the 2007 Biennial Assessment has also been limited, with only a further 22 plans put in place.

Western Australia has improved its water planning with the aim of delivering key outcomes of the NWI within the existing legislative framework. However, Western Australia is yet to prepare legislation to enable statutory water plans and deliver the complete set of outcomes promoted by the NWI. Continuing delay in the passage of this legislation will prevent Western Australia from meeting its commitment to have all scheduled plans in place by 2011.

The Commission recognises that in some cases jurisdictions are preparing new water plans not previously identified, or have consolidated some plans into single plans. However, such plans represent only a handful of the scheduled plans due. The Commission notes that most jurisdictions will fail to meet the timeframes for completion of water plans, as set out in their NWI implementation plans. For example, New South Wales advises that its outstanding scheduled water plans will now be completed by 2012. However, the Commission also acknowledges that the new Murray–Darling Basin Plan (see Box 3) has impacted upon the context and timeline for water plans within the MDB. In the case of New South Wales, therefore, all inland plans are now planned to be completed by 2011 to align with the Basin Plan. Issues associated with the new Basin Plan are also discussed in Section 1.3.4.

The Commission is strongly of the view that the absence of statutory plans creates uncertainty for water users and can jeopardise the sustainable management of water systems. In some cases, the absence of a water plan also delays the potential introduction of water trading (see Section 7.3.1.8).

Box 3: The Murray–Darling Basin Plan

In line with the Commonwealth *Water Act 2007*, the Murray–Darling Basin Authority is currently preparing a basin-wide plan which will provide for the integrated and sustainable management of water resources in the basin. The plan is due to commence in 2011.

The *Water Act 2007* requires the Basin Plan to set limits on the amount of water (both surface water and groundwater) that can be taken from the basin, identify the risks to water resources and the responsibilities for managing those risks, specify an environmental watering plan, and set out trading rules for basin water resources.

Under the Act, the relevant jurisdictions will need to ensure that new water plans within the basin are consistent with the Basin Plan⁵ in order to be accredited under the Act (noting that under the transition arrangements of the Act, current water-sharing arrangements in existing water plans will remain in place until those plans expire).

It is intended that the Murray–Darling Basin Plan will provide the framework for the jurisdictions' water plans within the basin, while also setting limits on the amount of water that can be taken from the basin.

Given the experiences of most governments in water planning to date, the Commission reiterates the importance of designing from the outset effective, broad-ranging consultation and transparent decision making processes to ensure the accuracy, integrity and public acceptance of the Basin Plan.

■ Finding 1.1

The Commission considers that progress in the development and commencement of statutory water plans is now critically inadequate, with over 40% of the total scheduled water plans yet to commence, although as noted in this chapter, there are limitations to reporting on progress of water planning on the basis of the number of plans completed. The Australian Capital Territory is the only jurisdiction to have commenced all of its scheduled plans. Despite improving its water planning to deliver some outcomes of the NWI, Western Australia is yet to prepare legislation to enable NWI-consistent statutory water plans. If the current rate of progress across Australia continues, most of the remaining scheduled plans will not commence until well after the 2009 NWI commitment. Delays in the delivery of NWI-consistent water plans necessarily mean delays in the delivery of many other benefits of the NWI.

■ Recommendation 1.1

The Commission strongly urges the immediate acceleration of the development and commencement of water plans to allow water users to realise the full benefits of NWI reforms. The Commission considers it is now timely for parties to reset and publish realistic timeframes for the rollout of remaining water plans. However the Commission considers that accelerating the pace of water planning should be balanced against quality, and particularly the quality of community consultation.

5 *Water Act 2007*, ss.55(2), 63(6)

1.3.2 Quality of plans developed

Background: Terminology and relevant National Water Initiative clauses

NWI clause 36 states that ‘recognising that settling the trade-offs between competing outcomes for water systems will involve judgements informed by best available science, socio-economic analysis and community input, statutory water plans will be prepared for surface water and groundwater management units in which entitlements are issued (subject to NWI clause 38). Water planning is an important mechanism to assist governments and the community to determine water management and allocation decisions to meet productive, environmental and social objectives.’

NWI clause 25(iii) states that ‘once initiated, water access entitlements and planning frameworks will be characterised by planning processes in which there is adequate opportunity for productive, environmental and other public benefit considerations to be identified and considered in an open and transparent way.’

NWI clause 37 states that ‘broadly, water planning by States and Territories will provide for: (i) secure ecological outcomes by describing the environmental and other public benefit outcomes for water systems and defining the appropriate water management arrangements to achieve those outcomes, and (ii) resource security outcomes by determining the shares in the consumptive pool and the rules to allocate water during the life of the plan.’

While timely implementation is very important, the quality of a water plan will determine its ultimate success in achieving an optimal balance between the competing demands on the water resource and its acceptance by the community. There are a number of elements that drive quality in the water planning process, including the use of best available information, effective consultation, and the development of clear, measurable and achievable objectives.

The assessment and findings presented in this section draw partly from an assessment of a sample of water plans from across Australia, using the template set out in Appendix 6. The assessment aimed to identify NWI-consistent planning processes (as outlined in NWI clause 36 and Schedule E), as described in water plans or referenced secondary documents. It considered the two most recently approved water plans in each jurisdiction or, where approved plans were not available, plans that were in the most advanced stage of development (for example, in Victoria, the Northern Sustainable Water Strategy). Table 3 lists the plans assessed.

Table 3: Water plans reviewed by the Commission to inform the biennial assessment

Jurisdiction	Water allocation plans
ACT	Not assessed
NSW	Hunter Unregulated and Alluvial Water Sources Water Sharing Plan (draft) Water Sharing Plan for the Lower Gwydir Groundwater Source 2003 (as amended)
NT	Alice Springs Water Resource Strategy Draft Ti-Tree Region Water Resource Strategy (amended Ti-Tree Region Water Resource Strategy 2002–2007)
Qld	Burnett Water Resource Plan and Resource Operational Plan Pioneer Water Resource Plan and Resource Operational Plan
SA	Barossa Prescribed Area Water Allocation Plan (under review) McLaren Vale Prescribed Area Water Allocation Plan (under review)
Tas.	Lakes Sorell and Crescent Water Management Plan Little Swanport Catchment Water Management Plan
Vic.	Central Region Sustainable Water Strategy Northern Sustainable Water Strategy (draft)
WA	Esperance Groundwater Area Water Management Plan Gnangara Groundwater Area Water Management Plan

This section also draws on other sources of evidence, including the NWC Waterlines paper *Water allocation planning in Australia—Current practices and lessons learned* (Hamstead et al 2008), a paper on Indigenous access to water and management (Jackson et al 2009), submissions by NWI parties for the purposes of this assessment, and public submissions.

An extensive and comprehensive review of the quality of *all* water plans was beyond the practical scope of this assessment. Therefore, given the largely sample-based methodology used, the findings in this section are illustrative rather than exhaustive.

Furthermore, as noted previously, there are significant differences in the types of plans included in the NWI implementation plans, including the extent to which water allocation plans are integrated with regional natural resource management plans, urban water supply planning and other water planning activities such as floods and water quality management. Hamstead et al (2008) found that:

... in general, the broader the plan in terms of either geographic or thematic scope, the less specific it is about practical management rules, and the less clarity there is about factors affecting individual water entitlement holders' resource security, and about specific environmental management rules. Conversely, the more specific plans are, the less they consider wider trade-offs and broader supply and natural resource management (NRM) issues (including other catchment impacts on river health). Most commonly, there is a trend towards detailed plans sitting in a context of broad strategic plans or statewide 'default' policies and rules. Any attempts to compare plans in different jurisdictions must recognise these differences.

1.3.2.1 Collection and use of information to develop a water plan

Water plans should be informed by the best available hydrological, biotic and socioeconomic information. This information is needed to develop an understanding of the condition of a water system and water user needs, and to identify management priorities and options.⁶

Jurisdictions have different approaches to gathering information to inform the development of water plans. In its review of a sample of currently active water plans in each jurisdiction, the Commission found the following:

- + While there are examples in which information is cited (for example, technical reports informing plan development in Queensland are referenced in plan documentation), the information used to prepare water plans is often poorly referenced. As such, it is often not clear what information was gathered and how it was used to inform the decision-making processes in developing the plan (Hamstead et al 2008; plans assessed in Table 3).
- + The presentation of best available information in the plans is often focused on the physical condition (e.g. hydrology, geomorphology), with limited or no description of the ecological condition and socioeconomic aspects of the water resource area (Hamstead et al 2008, plans assessed in Table 3).
- + Some plans acknowledge that there are broad information gaps and the need for further research, with general comments along the lines of 'there is not sufficient information to determine water requirements'. However, little or no explanation is provided about the specific information required or steps in place to gather that information, or how it will assist the development, or revision of the plans to achieve their objectives.
- + Across Australia, there is still limited progress in the identification and common management of connected surface water and groundwater systems (this matter is discussed in Chapter 2).

Obviously there are trade-offs between the cost and resources required to obtain information for use in water plans. For example, Western Australia has advised that it adopts a risk-based approach, whereby resources are focused in areas considered to be most at risk. Extensive ecological assessments were conducted for the South West Groundwater Areas plan, which is approaching full allocation; on the other hand, the level of environmental investigation was not as comprehensive for the Carnarvon Artesian Basin, where use is only 20% of the allocation limit.

While supporting such an approach in principle, the Commission believes that much greater emphasis needs to be placed on obtaining quality information across Australia. For example, Hamstead et al (2008) found that in Queensland 'recent work done for Condamine–Balonne water planning has provided more accurate data about the storage potential of offstream storages built during the last 15 years. Future funding of extraction and flow monitoring using telemetry will improve knowledge about cumulative effects of overland flow harvesting.'

⁶ NWI Schedule E, clause 1(ii): description of 'the current health and condition of the system'.

NWI Schedule E, clause 1(vi): description of 'the uses and users of the water including consideration of indigenous water use'.

NWI Schedule E, clause 6(ii): includes 'consultation of the best available scientific knowledge and, consistent with the level of knowledge and resource use, socio-economic analyses'.

NWI Schedule E, clause 6(iii): includes 'adequate opportunity for consumptive use, environmental, cultural, and other public benefit issues to be identified and considered in an open and transparent way'.

The Commission sees considerable opportunity for water planners in all jurisdictions to share with each other best practice approaches to gathering information for water planning purposes. Indeed, the Commission has itself initiated processes through which such lessons can be shared among water planning practitioners.

■ Finding 1.2

The presentation of ‘best available’ information in many water plans is often focused on the physical condition of the water resource, with limited description of ecological conditions and socioeconomic factors. Where information gaps have been identified in a water plan, there is often little explanation of the specific data and knowledge required or steps in place to gather that information, or of how it will assist the development or revision of plans.

■ Recommendation 1.2

The Commission recommends that, as plans approach their renewal date, jurisdictions review existing water plans to identify information gaps. Identified gaps should be prioritised and addressed effectively and the results of new research should be incorporated into new and existing plans.

One area of particular importance in the water planning process is the incorporation of information on the possible impacts of climate change on water availability. In short, climate change may lead to river flows, groundwater recharge and evapotranspiration that are quite different from those experienced during the last 50 years. Consequently it is critical to consider the possible effects of climate change on consumptive use, the environmental assets to be protected in water plans and the provision of flows to maintain those assets, and the overall management and operation of the system.

Across Australia, few water plans currently consider the possible future effects of climate change. Hamstead et al (2008) found that ‘the Victorian Central Region SWS included the only practical application of the latest information on projected climate change. It provides a useful case study in how this information can be used to project possible future inflow patterns and in how the associated uncertainty can be handled.’ Subsequently, the draft Victorian Northern Region Sustainable Water Strategy (DSE 2008a) provides scenarios based on different projections of the severity of climate change. Table 4 shows the possible impacts on total inflows to the Murray system across a range of scenarios compared with the long term average.

Table 4: Forecast impacts on total inflows to the Murray system over 50 years

	2012	2034	2062
Scenario A: Low climate change	2%	5%	8%
Scenario B: Medium climate change	-5%	-10%	-21%
Scenario C: High climate change	-12%	-20%	-40%
Scenario D: Continuation of low inflows	-43%	-43%	-43%

Source: DSE (2008a).

In the Commission’s view, adequate consideration of the uncertain impacts of climate change and development of flexible strategies that are able to cope with climate change will increasingly become an essential element of good water planning. Without it, plans will lack resilience for the years ahead and lose public and scientific credibility. While the scenarios outlined above demonstrate aspects of good practice in Victoria, other states have also included climate change scenarios in their planning processes. Most importantly, Table 4 shows that climate change will be a critical consideration in the development of the Murray–Darling Basin Plan, which is required, under the *Water Act 2007*, to include the effects of climate change.

■ Finding 1.3

There are some good examples (particularly in Victoria) where water plans have incorporated latest information on climate change; however, this is not widespread, particularly where water plans were developed several years ago. The Commission acknowledges that some jurisdictions, for example New South Wales and Queensland, plan to incorporate climate change scenarios into their future water plans.

■ Recommendation 1.3

The Commission recommends that all future water plans consider explicitly the impacts of climate change on water resources and the environment, and are sufficiently resilient to accommodate a broad range of climate change outcomes.

1.3.2.2 Consultation and the trade-off process

The development of water plans inherently involves transparent trade-offs between competing demands for the water resource. To assess and manage these demands, water planners must first establish the environmental water requirements of a system, based on the best available science, and then transparently incorporate economic and social factors in any trade-offs made, to best reconcile competing demands. Consultation with the community and stakeholders in this process is essential in building understanding of the trade-offs involved, engendering confidence in the process, and enabling those affected by water plans as well as the broader community to contribute to the resultant plan outcomes. Ultimately, effective consultation will be critical in gaining acceptance of plan outcomes. During consultation with the jurisdictions, the Northern Territory government commented that the water planning process is one of the most useful tools emanating from the NWI.

In general however, the processes used to settle on any necessary trade-offs between competing water uses is poorly documented in water plans or referenced documents, making it difficult for the Commission to assess the quality of those processes. Description of the nature of trade-off decisions that were made, including the reasons for the decisions and the risks and uncertainty in the plan eventually adopted should be documented (Hamstead et al 2008; plans assessed in Table 3). Where they are available, examples of consultation processes can be informative. Box 4 and Box 5 outline key findings by Hamstead et al (2008) in relation to (i) the integrated approach to consultation and water planning adopted in Victoria, which demonstrates an effective process and (ii) examples from case studies that demonstrate where consultation processes on trade-offs have resulted in lack of community acceptance of water plan outcomes and costly interplay between governments and the community.

Box 4: The Victorian Central Region Sustainable Water Strategy

'The Victorian Central Region Sustainable Water Strategy (SWS) was the best example of integration we saw. The SWS is a regional strategic plan sitting over the top of river health and urban water supply planning. It identifies strategies that can meet multiple objectives relating to river health and water supply. It is essentially an integrated investment strategy that balances river health with economic and social outcomes and also links the management of water with catchment investment strategies driven by the NRM National Action Plan and Natural Heritage Trust.

'Commenting on the Central Region SWS, several interviewees noted the value of having urban and rural water authorities and catchment management authorities working together to come up with ways to achieve both environmental and water supply objectives. All the participants were forced to see beyond their immediate systems and areas of responsibility to the larger picture of water supply and river health. They worked together in the broader context to deliver an integrated outcome, across multiple water sources, that considered options for both supply and demand.

'One criticism levelled at the Victorian approach was that water entitlement planning (which is quarantined from this process as a matter of state policy) should be brought under this umbrella also. The SWS dealt with adjusting entitlements (where it was considered warranted) by planning for investments in such things as water efficiency savings, which could be traded off for water entitlement reductions. Provision for across the board changes to water entitlements to increase environmental water, which is a fundamental aspect of water allocation plans in the other states, is managed through a separate review process in Victoria at 15-year intervals ...'

Source: Hamstead et al (2008), page x

Box 5: The importance of consultation processes and transparency in determining community acceptance of water plans

'In the case of the Gwydir groundwater plan in NSW, a very difficult decision had been made to cut entitlements by a large amount. The affected licence holders had largely accepted the need to make the cut, and in 2004 a plan was approved (but not commenced), which provided for proportionally equal cuts in entitlements for all licence holders; however, there remained considerable unhappiness about the way the 'pain' was shared. Consequently, these licence holders continued to lobby for financial assistance from government, which eventually came from a joint state–Commonwealth fund. Additionally, a group of licence holders pushed for a change in the way the cuts were distributed between licence holders to take more account of the level of development of the entitlement. Eventually the Minister and Cabinet overturned the previous decision and required the alteration of all the major inland groundwater plans to reflect a different distribution of the cuts, which included a weighting for the level of development.

'This illustrates how perceived equity in trade-offs can be critical to the success of a plan ... The case studies suggest that significant unaddressed concerns of a particular stakeholder group are likely to result in change to a plan because that group will continue to use all the political and legal processes available to have their concerns addressed. This is apparent in the Clyde Valley in Tasmania, where the water users are unhappy with the plan because they feel they have been unjustly treated. They have recently lodged an appeal against the plan in the courts and continue to lobby at all levels for change.

'Similarly, downstream water users in NSW continue to lobby against bearing what they perceive are inordinate costs to themselves and the environment for upstream development in Queensland's Condamine–Balonne and their perception that water planning has not gone far enough to address it ...'

Source: Hamstead et al (2008), page xiii

Improved transparency in the decision-making process for allocating water will increase understanding and acceptance of why water is allocated to one user over another, and provides a better basis for assessing the success of the plan's objectives. As outlined by Hamstead et al (2008, page xiii), 'while equity and fairness in water sharing is an objective common to all jurisdictions, the methods for achieving it are not defined and seem to be left to the personal qualities of the planners, community feedback, and (in the end) to political processes at Government level ... achieving distributional equity in water planning is of vital importance ...'

In its submission, Queensland Conservation notes its view that the over-representation of consumptive water users on the water resource plan community reference panels (the primary consultative mechanism for the development of plans in Queensland) has led to the majority of water resource plan objectives being slanted in favour of consumptive users. At the same time, the Queensland Farmers' Federation notes that the confusion that occasionally arises in the implementation of water plans may be due to a lack of understanding among consumptive users of how the plan will achieve environmental outcomes. The Commission acknowledges that the Queensland *Water Act 2000* stipulates that community reference panels are to include representatives of cultural, economic and environmental interests in the proposed plan area.⁷

■ Finding 1.4

There is scope to improve the transparency of water plans by clearly stating the nature of trade-offs between competing users, communicating this to stakeholders and the community in the planning process, and better reflecting those trade-offs in the decisions to allocate water between various users and the environment.

Giving due consideration to the views and information contributed by all stakeholders in a plan's development is an important step in minimising any unforeseen negative outcomes. A number of public submissions specifically noted the lack of recognition of the potential development of mining activities in water plans. Cumulative impacts of a number of mines were raised by a number of stakeholders. Rivers SOS Alliance (NSW) and Amanda Albury (NSW) argue that the lack of consideration of mining activities in plan development is resulting in unregulated water use by, and unmonitored return flows from, the industry. Issues associated with entitlements for mining activities are addressed in Section 6.3.3.2.

From another perspective, the Minerals Council of Australia is also concerned about the lack of recognition of mining in the planning framework, noting that mining and some other industries are not provided with the same entitlement security and water trading opportunities available to other consumptive users.

⁷ *Water Act 2000* (Qld), s. 41(2).

The Commission notes that while clause 34 of the NWI provides for special management arrangements being put in place for mining and petroleum activities, it does not *preclude* parties from including the minerals or petroleum sectors in their water planning regimes. For example, in South Australia, minerals developments can be managed within the water planning regime or under specific arrangements outside the water planning regime, or through a combination of the two. However, as a general finding, the question of how mining activities relate to water planning processes appears to require further consideration in most jurisdictions.

■ Finding 1.5

As also found in Chapter 6 (Finding 6.8), while the NWI recognises through special clause 34 the potential for further policies and measures beyond the agreement for minerals and energy industries, the circumstances in which they would apply are not defined and identified in a consistent and transparent manner. Little progress has been made in the five years since the signing of the NWI in fleshing out the special provisions for the minerals and related industries. As a consequence, there remains limited integration of those industries with broader water markets and water planning processes, despite the potential for considerable benefits in many cases.

1.3.2.3 Indigenous participation

Background: Terminology and relevant NWI clauses

52. The Parties will provide for indigenous access to water resources, in accordance with relevant Commonwealth, State and Territory legislation, through planning processes that ensure:
 - i) inclusion of indigenous representation in water planning wherever possible; and
 - ii) water plans will incorporate indigenous social, spiritual and customary objectives and strategies for achieving these objectives wherever they can be developed.
53. Water planning processes will take account of the possible existence of native title rights to water in the catchment or aquifer area. The Parties note that plans may need to allocate water to native title holders following the recognition of native title rights in water under the Commonwealth *Native Title Act 1993*.
54. Water allocated to native title holders for traditional cultural purposes will be accounted for.

Indigenous participation in water planning is provided for in all jurisdictions. However, with the exception of New South Wales, no jurisdictions have an explicit requirement for Indigenous participation in planning.

There are some examples of state governments working closely with Indigenous communities and researchers to identify cultural assets and determine watering requirements, including a specific provision enabling the preservation of environmental assets on land purchased on behalf of the Nari Nari Tribal Council on the Murrumbidgee River in New South Wales, and identification of significant cultural assets for the Karajarri community through the draft Le Grange aquifer plan in Western Australia (Jackson et al 2009).

In Queensland, under the *Cape York Peninsula Heritage Act 2007*, a wild river declaration or water resource plan in the Cape York Peninsula Region must provide for a reserve of water for the purpose of helping Indigenous communities in the area achieve their economic and social aspirations. The Archer Basin, Lockhart Basin and Stewart Basin wild river declarations apply within the Cape York Peninsula Region and an Indigenous reserve of water has been made available in each of these wild river areas. Under the *Water Resource (Mitchell) Plan 2007* and the *Water Resource (Gulf) Plan 2007*, an Indigenous reserve of water has been made available for those parts of the plan areas that are within the Cape York Peninsula Region.

South Australia has developed and published the manual *Engaging South Australian Aboriginal Communities in NRM* for use by all NRM officers; in developing water plans, all regional NRM boards engage with Indigenous groups. In Victoria, development of the sustainable water strategies has included specific processes to engage and consult with the Indigenous community. There is no evidence to suggest that any consultation with Indigenous people has occurred in any of the water plans developed in Tasmania; however, the *Generic principles for water management planning* (Water Resources Policy #2005/1) have been amended to incorporate cultural and heritage objectives.

While consultation may occur, a deeper assessment of Indigenous water values and needs in water plans is typically not undertaken. Indigenous knowledge is currently underutilised in water resource assessments, and little guidance is given to water planners and managers seeking to meet the objectives relating to Indigenous access and involvement. It is common to see agencies rely on Indigenous representatives on plan development committees for Indigenous needs and values assessment. While important, such representative consultation does not necessarily provide the detailed input needed to underpin the specification of Indigenous requirements in water plans.

Indigenous people are becoming increasingly aware of the NWI and are rapidly developing the capacity to participate fully in water planning processes. Their interests embrace social, spiritual and customary objectives and, increasingly, economic objectives. Policies and practices for access to water resources and engagement are being developed by Indigenous organisations such as Murray Lower Darling Indigenous Nations and the North Australian Indigenous Land and Sea Management Alliance Indigenous Water Policy Group. In New South Wales, the Natural Resources Advisory Council has recently developed an Aboriginal Natural Resource Agreements Kit to help incorporate Indigenous interests into natural resource management outcomes. The Commission would encourage all jurisdictions to consider similar policies and practices and to consider policy and procedural proposals as they emerge from the current Indigenous water planning working groups.

■ Finding 1.6

It is rare for Indigenous water requirements to be explicitly included in water plans, and most jurisdictions are not yet engaging Indigenous people effectively in water planning processes. The Commission notes that Indigenous groups are, at their own initiative, currently developing the capacity to participate more fully in water planning processes.

■ Recommendation 1.4

The Commission recommends that all jurisdictions develop and publish processes for effective engagement of Indigenous people in water planning. Parties should ensure that all new water plans (including statutory reviews of existing water plans) provide for Indigenous access to water resources by at least incorporating Indigenous social, spiritual and customary objectives and strategies for achieving those objectives. Jurisdictional processes should also make clear how Indigenous groups can pursue their legitimate economic objectives.

1.3.2.4 Inclusion of interception

Interception relates to a number of land-use change activities, such as farm dams and bores, large-scale plantation forestry and interception of overland flow, which have potential to intercept significant volumes of surface and/or ground water now and in the future. The NWI parties recognised that, if these activities are not subject to some form of planning and regulation, they present a risk to the future integrity of water access entitlements and the achievement of environmental objectives for water systems.

The NWI requires that states have taken into account significant interception activities in water systems that are fully allocated, overallocated or approaching full allocation by 2011.

As found in the 2007 Biennial Assessment, South Australia is still the only jurisdiction that has in place a process for regulating the water interception impacts of commercial forestry plantations. At this stage, the process only covers the lower south-east of South Australia. This process is provided through regulations under the South Australian *Natural Resource Management Act 2004*. South Australia has recently established a statewide policy framework and introduced a Bill to establish a statewide approach to regulating the impacts of commercial forests on water resources (DWLBC 2009).

New South Wales has drafted a policy for floodplain harvesting that will require all floodplain harvesting activities to be licensed, and subjected to volume limits. Furthermore, no new licences will be issued to existing licence holders. This approach aims to increase flows into rivers during periods of significant rainfall.

In Queensland, overland flow take is limited by law under the *Water Act 2000* and finalised water resource plans. The *Water Act 2000* requires water resource plans to manage interception of overland flow water if there is a risk that taking overland flow water in the area may significantly impact on the plan's outcomes. Queensland is currently implementing a process for converting overland flow authorisations to water access entitlements.

Tasmania reports that it has made progress in addressing interception. Interception by dams is regulated under the *Water Management Act 1999*, which requires permits for dam works and related water allocations to be appropriately assessed. Tasmania reports that it is developing a groundwater management framework that will enhance control of interception by bores. Tasmania has developed and tested the Water Availability and Forest Landuse planning tool to assess potential impacts of plantation forest water interception. The Tasmanian Sustainable Yields project is currently assessing the water yield of Tasmania's development catchments, and will provide an initial risk assessment of plantation forest water interception.

In Western Australia, interception is accounted for when determining the water balance. While this achieves part of the intent of the NWI, Western Australia does not yet have legislation in place that allows regulation of interception.

Jurisdictions have varying policies and regulations for the taking of water to off-stream farm dams. New South Wales has a policy of requiring that all farm dams that capture more than 10% of the average annual runoff must be licensed and include an entitlement. In South Australia, the taking of water in this manner requires a licence (except for stock and domestic purposes, although stock and domestic dams greater than 5 ML (megalitres) in the Western Mount Lofty Ranges will also be subject to licensing). Licences normally have conditions specifying extraction rates, threshold flow rates and metering obligations. These conditions are usually contained in the relevant water allocation plan. Metering of all licensed water use is a statewide policy. In the Northern Territory, constraints to capture of overland flow are defined in the Northern Territory *Water Act*. Specific entitlement-setting processes for water intercepted by off-stream farm dams in stressed water systems have not yet been developed in Queensland.

The potential impacts of unlicensed activities (such as farm dams, stock and domestic groundwater use, and commercial plantations), and regulatory processes for addressing them, are currently being considered in the preparation of Victoria's Northern and Western sustainable water strategies.

In summary, only limited progress has been made by most jurisdictions in addressing NWI water interception commitments. Key areas still to be addressed are how to identify potential activities that could intercept significant surface and/or groundwater in particular systems; how to determine their water use thresholds; and how best to incorporate appropriate management responses for incorporating activities into water access entitlement systems where interception is significant in stressed water systems.

■ Finding 1.7

Across most jurisdictions, progress continues to be slow in identifying and addressing significant interception of surface and groundwater. There is no evidence that parties, other than South Australia, have formally identified significant interception activities in water systems or articulated policy responses that will enable full implementation of their NWI commitments to deal with water interception.

■ Recommendation 1.5

To reduce the potential for further erosion of security of existing water access entitlements, the Commission recommends that significant and potentially significant water interception activities be immediately identified and quantified, and a process for addressing them clarified within the next six months. This will enable jurisdictions to meet their commitment to include any proposals for additional water interception activities above an agreed threshold size into existing water access entitlement regimes by no later than 2011.

1.3.2.5 Setting measurable objectives

The establishment of objectives is essential in planning to achieve the desired outcomes for water systems. An informed assessment of the success of a plan against its objectives can only be achieved by ensuring that those objectives are measurable, with corresponding measurable performance indicators and all assumptions linking indicators to objectives clearly documented.

Such rigorous measurement and assessment against objectives are prerequisites for improved adaptive management.

The Commission found that management objectives in water plans are often too general to be able to be measured and assessed to determine the success of the plan, and often generic to plans (for example, 'protect and where possible improve health of rivers'). Furthermore, most plans provide very limited or no explanation on how the 'best available' information was used to determine the objectives. Hence, the objectives become less relevant to the specified water resource in the plan, and therefore more difficult to assess (Hamstead et al 2008; plans assessed in Table 3).

However, there are examples of good practice in aligning water management actions to water plan objectives:

- + Queensland's resource operations plans specifically align the plans' resource operations rules to each of the general and ecological outcomes of the companion water resource plans. This approach clearly sets out the basis for measuring the achievement of the plans' outcomes.
- + Tasmania's water management plans explicitly outline how the plans' actions will achieve the plans' objectives, including detailed descriptions of the water regime that best gives effect to the environmental and other objectives of the plans, and an assessment of the ability of that water regime to achieve the objectives.
- + Water sharing plans in New South Wales set out performance indicators that will be used to determine the performance of a plan against its objectives, and detail the methods for assessing the indicators.

■ Finding 1.8

Management objectives in water plans are often too general to be able to be measured and assessed to determine the success of the plan. Furthermore, plans provide very limited or no explanation of how the 'best available' information was used to determine the objectives, or what assumptions were made.

■ Recommendation 1.6

The Commission considers that all water plan objectives need to be specific and measurable, and plans should incorporate monitoring arrangements specifically designed to measure performance against each objective, which in turn will enable improved adaptive management.

1.3.2.6 Establishing water operational rules

Water plans must set out operating rules and arrangements to meet management objectives.⁸

All water plans include consumptive and non-consumptive water operations rules. For example, the Northern Territory's *Alice Springs Water Resource Strategy 2006–2015* (NRETA 2007) uses percentages to determine non-consumptive water use: 95% of the surface water resource is for environmental and cultural use and 5% for domestic and stock use.

The rules for access, use and trading from the consumptive pool are usually explicitly and comprehensively described in plans and, if not, are referenced to the relevant legislation and policy documentation.

The identification and description of water provided for the environment and other public benefits are typically not explicitly set out in plans. Such water is the residual after the consumptive pool is determined. However, water implicitly provided for environmental and other public benefit purposes can usually be identified through the water management rules detailed in the plans. Detailed rules for minimum flows and water levels and/or storage release volumes and rates, designed to protect against environmental degradation and achieve the ecological objectives of the plans, are in place in all surface water plans. Daily flow limits, diversion rostering and/or cease-to-pump conditions are commonly used approaches. In groundwater plans, water levels and salinity thresholds are commonly in place to provide resource sustainability and protect the ecosystems that depend on groundwater discharge.

■ Finding 1.9

The Commission considers that, in general, rules for consumptive and non-consumptive water provisions are sufficiently well defined in water plans. However, rules do not always deal adequately with interception (refer to Finding 1.7), nor periods of exceptionally low inflows (refer to Finding 1.10).

⁸ NWI Schedule E, clause 37(i): 'secure ecological outcomes by describing the environmental and other public benefit outcomes for water systems and defining the appropriate water management arrangements to achieve those outcomes'.

1.3.2.7 Robustness of water plans to changes in water availability

Drought conditions over the past six years have seen jurisdictions suspend or limit water planning provisions to protect water supplies deemed essential for consumptive purposes. Examples include the current suspension of a number of New South Wales water sharing plans (for the Lachlan, Macquarie, Murray and Murrumbidgee regulated rivers) due to record minimum system inflows, and temporary qualification of rights (temporary changes to legal entitlements to water) in numerous regulated and unregulated systems across Victoria since 2007, including systems covered by the Central Region Sustainable Water Strategy.

In these and other cases, in responding to drought, governments and system operators have had to make decisions to manage available water including changing the operating patterns to minimise the risk of system losses, and reducing the deliverability of water to various parts of their irrigation systems or at various times of the year (for example, shortening the irrigation season).

The Commission recognises the unprecedented pressures placed on some water systems during recent periods of record low rainfall and inflows. Understandably, these pressures have led to extraordinary suspensions or limits being put in place in some New South Wales and Victorian systems. However, the Commission considers that these actions seriously undermine public confidence in water plans. This highlights the need for all plans to be sufficiently robust to cope with a broader range of inflow and storage scenarios. Plans and associated operating rules should fully define how water will be allocated to various types of users and the environment under the full range of inflow conditions (including sequences of dry years), and how systems will be operated in times of extremely low water availability. This information is essential in providing water users with certainty and the ability to make informed decisions about how to best adapt to changing circumstances. It also improves confidence in approaches to water management.

The Commission also suggests that plans should include specific provisions defining the circumstances under which plans would be suspended or qualified. Plans should also make transparent the decision-making processes which would then be followed. Currently, these are opaque. Arrangements for the reinstatement of the plans or plan provisions should also be defined as far as possible. These provisions would go a long way towards improving public confidence in the integrity of water plans and water planning processes—especially in an era of challenging climate change.

There is some evidence of this occurring (for example, in New South Wales, recent amendments to the *Water Management Act 2000* limit the life of suspensions, and require that suspensions be gazetted and made public), but it is the Commission's view that much more needs to be done in this area.

■ Finding 1.10

The difficult recent seasonal conditions have revealed that many water plans have not adequately defined how systems will be operated during unanticipated sequences of low inflows.

■ Recommendation 1.7

The Commission recommends that jurisdictions and national agencies should further invest (taking account of work already underway through the COAG work program) in best practice guidelines, streamlined processes and training to improve the quality, the effectiveness of the processes, and the resilience and community acceptance of water plans.

■ Recommendation 1.8

The Commission recommends that all existing and new plans be tested to ensure that they clearly define how water will be allocated to various categories of users and the environment under the full range of inflow conditions (including sequences of dry years), and to ensure that plans adequately specify how systems will be operated in times of extremely low water availability. This should include publicly defining the exceptional circumstances in which a plan would be suspended or qualified, the processes and principles then to be followed, and the arrangements for reinstatement of plans when conditions improve.

1.3.3 Monitoring and reporting on water plans

Background: Terminology and relevant National Water Initiative clauses

NWI clause 40 states that 'In the implementation of water plans, the Parties will, consistent with the nature and intensity of resource use: (i) monitor the performance of water plan objectives, outcomes and water management arrangements; (ii) factor in knowledge improvements as provided for in the plans; and (iii) provide regular public reports. The reporting will be designed to help water users and governments to manage risk, and be timed to give early indications of possible changes to the consumptive pool.'

The NWI approach to water planning is based on adaptive management. Once plans have defined objectives and tools to achieve those objectives, it is essential to monitor performance against objectives using clearly defined and relevant indicators, and to report to water users and the community on the achievement of objectives. When objectives are not achieved, the management approach needs to be adjusted ('adapted') accordingly.

Monitoring enables assessment of whether performance indicators are being achieved. Periodic review of water plans is an essential part of adaptive management, providing an opportunity to evaluate the extent to which the objectives have been achieved, whether operational rules are appropriate for meeting objectives, and the appropriateness of the objectives in the light of new information. Public reporting of the results of monitoring and review processes is important in providing transparency and accountability. This process then links to the risk assignment framework (see Chapter 9), which defines how any changes to the available water resource are to be shared.

1.3.3.1 Monitoring

The Commission's review has found that the monitoring processes described or referenced to in water plans are generally oversimplified, with limited explanation of the specific monitoring requirements (for example, identification of performance indicators and when and how often they are to be measured) (Hamstead et al 2008; plans assessed in Table 3). Hence, it is often not clear how monitoring will assist water planners in assessing the achievement of the plan's management objectives.

However, Queensland's water resource plans and resource operations plans include detailed monitoring processes that have been designed to determine whether the plans are effective in achieving their objectives. All resource operations plans include detailed natural ecosystem monitoring provisions outlining the steps to gather scientific information (for example, on fish, aquatic vegetation and water quality), analyse the trends, determine whether objectives specified in the water resource plan are being achieved, and provide annual public reports on the findings. Queensland's statewide environmental flows monitoring program is designed to collect and provide this information for all water resource plan areas.

The Commission recognises that water monitoring arrangements, particularly for ecosystem health, are often set outside water plans. The majority of states are putting in place systematic statewide efforts to measure ongoing river health. For example, Victoria has ongoing and systematic monitoring and reporting arrangements for river health using the index of stream condition. New South Wales collects information on major river systems under its Integrated Monitoring of Environmental Flows Program (DWE 2009). The results from the program will inform the review of water sharing plans by the Natural Resources Commission. New South Wales has also recently provided progress reports on the implementation of the water sharing plans, and contributed information to the Sustainable Rivers Audit. Further effort is needed in demonstrating how these statewide programs will determine whether a specific water plan's objectives are being achieved.

While such efforts to improve systematic monitoring arrangements are encouraging, there needs to be clearer and more detailed explanation in individual water plans of the specific monitoring arrangements that have been designed to determine whether a plan is effective in achieving its objectives. These arrangements should include reference to systematic statewide monitoring processes where they exist.

Monitoring arrangements will of course only be truly effective if adequately resourced and appropriately skilled. Resource and technical capacity constraints continue to inhibit fully effective monitoring arrangements across jurisdictions.

■ Finding 1.11

Water monitoring arrangements across jurisdictions are improving, with a number of jurisdictions implementing comprehensive statewide monitoring programs. However, water plans generally lack detailed description of their specific monitoring arrangements, and lack clarity about how plan-specific and statewide monitoring arrangements can each contribute to assessing achievement of the plans' objectives.

1.3.3.2 Reporting

Reporting on the implementation of water plan rules varies considerably across Australia (Table 5), from comprehensive and detailed public reporting of actions, to situations where reporting on the implementation of water plan rules is nonexistent.

Queensland provides an example of the former. Queensland undertakes an annual assessment of the effectiveness of its water resource plans. Where the objectives are not being met, relevant provisions within the plan can be amended to improve the plan's effectiveness. Specific details of any noncompliance with resource operations plans (which implement the water resource plans) are also detailed in the annual report. The Commission considers these arrangements to be a good example of adaptive management.

While New South Wales collects information on regulated water systems under its Integrated Monitoring of Environmental Flows Program, it does not appear that this information is publicly reported, and it is unclear how the information is used if the provisions of the plan are found not to be delivering the planned outcomes. In the Commission's view, New South Wales' future arrangements for independent reporting by the Natural Resources Commission will set a benchmark for independent reporting arrangements in other jurisdictions.

As detailed in Table 5, not all jurisdictions provide regular reports of the implementation of individual water plans. In some cases, reports are incorporated into a management agency's annual report.

Table 5: Summary of water plan reporting

Jurisdiction	Type of report	Information reported
ACT	<i>ACT Water Report</i> (annual)	Summarises water resource management actions for the territory.
NSW	Departmental annual report Natural Resources Commission Review Regular progress reports	General reporting on implementation of water sharing plan rules, with limited information on specific plans. The Natural Resources Commission will review water sharing plans between 5 and 10 years from plan commencement. The first tranche of reviews is currently underway. The progress reports provide a brief assessment of key implementation activities under a number of water sharing plans (i.e. regulated, unregulated and aquifer).
NT	Departmental annual report	Very general information on implementation of water resource strategies.
Qld	<i>Water Resource Plans Annual Report</i> (for certain catchments under the <i>Water Act 2000</i>)	Summarises implementation of water resource plans and assesses the effectiveness in achieving the plan objectives. Report advises any changes to the plans and provides information on entitlements, use, trade, operations, environmental management, pricing and monitoring activities for the reporting year.
SA	Annual reports by Natural Resource Management Boards Five-year reviews of water allocation plans	Annual reports provide a general update on progress with water allocation plan development or implementation. Under the <i>Natural Resources Management Act 2004</i> , reviews must be undertaken at least once during each five-year period from the date of adoption, and can be undertaken at any time. Reviews must consider the entire plan and usually include recommendations about elements of plans that should be amended in order to better manage the resource.
Tas.	Departmental annual report	General reporting on implementation of water management plan rules.

Jurisdiction	Type of report	Information reported
Vic.	Monthly water reports	Monthly reports and the annual <i>Water Account</i> include a summary of actions taken under bulk entitlement and water plan provisions.
	Annual <i>Water Account</i>	
	Departmental annual report	Progress of implementation of sustainable water strategies is to be provided in the departmental annual report.
WA	Departmental annual report	Limited reporting on water allocation plan development; no information on implementation of plan rules.
	Annual evaluation reports	All plans include requirements for public annual reporting of achievements against objectives, and annual reporting of plan implementation actions.
Commonwealth	Bureau of Meteorology <i>National Water Account</i>	A pilot <i>National Water Account</i> will be published by December 2009, and a first comprehensive <i>National Water Account</i> will be published by December 2010.

■ Finding 1.12

The quality and transparency of processes for reporting on the outcomes of water plans are inadequate in many jurisdictions. Ideally, such reports should be prepared at arm's length, clearly show how the plans' objectives are being achieved, discuss areas of success and failure and recommend any changes to the provisions of the plans (within the bounds of the plans' review provisions).

1.3.4 The development of the new Murray–Darling Basin Plan

Experiences to date demonstrate that water planning is extremely challenging and that resilient outcomes of water planning processes that are science and evidence based and accepted by the community take a lot of time, effort and resources. In the MDB, the forthcoming Basin Plan will be critical in setting the scene for decades to come. The scope of the Basin Plan is spelt out in detail in the *Water Act 2007*. Section 21 of the *Water Act* describes the general basis on which the plan is to be developed, including how it is to take into account the best available scientific knowledge and socio-economic analysis. Section 22 describes the content of the plan.

During the biennial assessment process, it has become clear to the Commission that there are extremely high, perhaps unrealistic, expectations for the new Basin Plan (see Box 3), and that stakeholders have concerns about the lack of progress and clarity about the scope of the plan, in areas including:

- + The extent to which the new Basin Plan, particularly the new basin-wide sustainable diversion limit, will engage the community and stakeholders to identify objectives and understand trade-offs.
- + Notwithstanding the guidance provided by relevant sections of the *Water Act*, whether the plan will be driven by scientific and environmental advice independent of social and economic considerations, or be a less rigorous administrative process of streamlining existing arrangements.

If it is the former, the concern expressed to the Commission is whether the timetable is sufficient to allow adequate consultation and stakeholder involvement to ensure that the resultant plan and the processes and decisions are transparent and well understood.

If it is the latter, the concern expressed is whether the plan will meet the community's high expectations and whether it will be broadly accepted, noting that if broad acceptance is not obtained, then the decades of lack of agreement associated with the extent of overallocation and overuse in the basin will continue.

- + What impact any changes to the sustainable diversion limit will have on existing entitlements, and how the risks associated with any reductions are to be shared, both in the initial establishment of the plan and in subsequent review processes (see Chapter 9 on risk assignment).
- + How the costs associated with preparing and managing the new Basin Plan will be recovered (see Chapter 8 on cost recovery for water planning and management activities).

A number of stakeholders have also expressed concerns regarding the lack of clarity in the scope and implications of the new Basin Plan. The MDBA's *Concept Statement for the Plan* released in May 2009 has helped address these concerns by clarifying the relevant requirements of the *Water Act*, and providing guidance on the timetable and consultation arrangements to be used in developing the plan. The MDBA is also developing a series of fact sheets and issues papers to promote understanding of the plan. The Commission encourages the MDBA to consider releasing further such clarifying papers and statements as the authority settles the nature, scope and process for the plan.

The Commission recognises that the MDBA is developing strategies to engage the community in the preparation of the Basin Plan. The MDBA is developing a detailed stakeholder engagement strategy, and a Basin Consultative Committee has been established to advise the MDBA on (among other issues) community engagement. When completed in mid-2010, the draft Basin Plan will be released for public and stakeholder comment in accordance with the *Water Act* (sections 43 and 43A).

■ **Finding 1.13**

Considering the magnitude of the task ahead, the Commission observes that the MDBA has had a disappointingly slow start, with an intergovernmental delay in appointing authority members and growing pressure on timelines to complete the development of the Basin Plan. Effective community consultation is crucial to the basin planning process. There is a risk that the pressure on timelines may affect the quality of that consultation. The Commission supports the MDBA's work to develop strategies to engage the community in the preparation of the Basin Plan.

■ **Recommendation 1.9**

The Commission recommends that the MDBA further clarify the intended planning processes and ground rules for the development of the new Basin Plan in consultation with affected parties, to engage stakeholders in what the new plan will involve, to better manage expectations, provide more certainty, and facilitate a more cooperative approach with the MDB jurisdictions. In particular, the Commission recommends greater public consultation, progressive release of background and issues papers and, where possible, interim, progressive guidance from the MDBA on specific environmental, economic and social objectives or outcomes likely to be targeted in the plan.

■ **Recommendation 1.10**

To account for delays in progress to date and new developments, the Commission recommends that NWI parties revise and resubmit, within six months for accreditation by the Commission, their jurisdictional plans for implementation of their NWI commitments.
