

Riversymposium 2006

Water Planning Panel

“The role of science in Water Planning”

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Monday 4th September

Introduction:

The National Water Initiative (NWI) is Australia’s blueprint for national water reform. It builds on the previous Council of Australian Governments (COAG) framework for water reform signed by the Australian Government and all state and territory governments in 1994. Since 1994, national reform agreements have proved important in Australia for guiding the shape and maintaining the pace of water reform.

The National Water Initiative signifies:

- a commitment to *identifying over-allocated water systems, and restoring those systems to sustainable levels*
- the expansion of the trade in water resulting in *more profitable use of water and more cost-effective and flexible recovery of water to achieve environmental outcomes*
- *more confidence for those investing in the water industry* due to more secure water access entitlements, better registry arrangements, monitoring, reporting and accounting of water use, and improved public access to information
- *more sophisticated, transparent and comprehensive water planning,*
- *better and more efficient management of water in urban environments,* for example through the increased use of recycled water and stormwater.

The National Water Initiative requires:

- ***Statutory water plans*** for surface and groundwater management units in which entitlements are issued,
- Describe ***environmental and other public benefit outcomes*** and define water management arrangements to achieve those outcomes,
- Implement firm pathways for returning previously overallocated and/or overdrawn surface and groundwater systems to ***environmentally-sustainable levels of extraction***. Substantial progress will be made by **2010**.
- Provide resource security outcomes by determining the shares in the ***consumptive pool*** and the ***rules to allocate water*** during life of plan,

- *Identify surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values,*
- *Incorporate indigenous social, spiritual and customary objectives and strategies for achieving these objectives,*
- In fully allocated systems significant interception activities (farm dams, intercepting and storing of overland flows and large-scale plantation forestry) should be licensed and additional interception activities require a *water access entitlement*

WATER PLANNING

Improved water planning is the foundation of the National Water Initiative. “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.”

THE ROLE OF SCIENCE IN WATER PLANNING

The National Water Initiative requires:

Statutory water plans for surface and groundwater management units based on judgements informed by the **best available science**, socio-economic analysis and community input.

States and Territories have agreed to provide timely and relevant advice to all stakeholders on:

- **the science** underpinning the identification and implementation of environmental and other public benefit outcomes
- the **key science priorities** to support the NWI
- where **research** is being undertaken

States and Territories are required to ensure that:

- the **research effort** is well-coordinated and publicised
- any **gaps are addressed**.

WATER PLANNING & SCIENCE IN QUEENSLAND

The positives:

- Queensland has the strongest Water Planning program of all Australian States and Territories - the WRP & ROP process – in place for almost a decade
- Each WRP is focused on a river basin (e.g. Burnett) or region (Moreton region, SEQ)
- WRPs are fully informed on environmental and technical matters by scientists via Technical Advisory Panels (TAPs).
- TAPs provide the best available science to identify:
 - conservation values of waterways
 - existing condition of waterways
 - impacts due to water infrastructure and flow regulation

- key environmental flows indicators
 - flow requirements of riverine and associated ecosystems
 - risk assessment models
 - scenario assessments and likely ecological outcomes
 - other environmental assessment criteria
 - monitoring priorities and guidelines
 - knowledge gaps and priorities
- All technical details and reports are publicly available to stakeholders
 - Stakeholders have opportunities to meet with TAPs to discuss issues and provide input (e.g. species data)
 - Water Resource Plans - WRPs – and Resource Operations Plans – ROPs - are informed by the best available science, by socio-economic analysis and by community input.
 - Some sound decisions have been made to protect high conservation values within most river basins
 - Some high conservation rivers are being protected via Wild Rivers legislation,

The Negatives:

1. The best available science is often not available where and when needed for individual WRPs.
2. No process for collection of essential scientific data well ahead of the planned WRP process across the State.
3. Too much reliance on patchy environmental data and *ad hoc* studies.
4. The roles of science, socio-economic analysis and stakeholder input to the decision making process for prioritizing water resource plan scenarios is not transparent to all stakeholders.
5. Best available scientific and technical advice is not always incorporated into the environmental flows targets of WRPs.
6. River basins have generally been assessed individually but not comparatively.
7. No opportunity for scientists to assess priorities for desirable environmental flows and/or river conservation across the rivers of a region, e.g. SEQ – the Mary River has very high conservation values (lungfish, Mary R cod, turtle)
8. Rivers of high conservation value may be subjected to new water infrastructure and highly modified flow regimes.
9. Environmental flow recommendations have been “diluted” via Supplementary Legislation to make way for new water infrastructure (e.g. Paradise Dam on the Burnett River).
10. Other impacts and pressures on rivers are not assessed and managed in a co-ordinated, integrated manner.

Recommendations:

1. Collate TAP and other technical advice on the **key science priorities** to support the NWI

2. Produce a **State-wide** database of research projects / programs, locations, duration, likely outcomes, relevance to water resource planning and environmental flow management
3. Commit to a **State-wide science plan** to improve the scientific basis of the environmental / ecological components of WRPs.
4. Strongly support the key State research initiatives that can deliver to the NWI (e.g. MTSRF, TRACK, eWater).
5. Undertake partnership research with providers including short-, medium-, and long-term research on natural and modified river ecosystems.
6. Strongly support University Post-graduate research on high priority issues, and to ensure the acquisition of essential skills, for example:
 - water release experiments to validate “trigger” flows
 - scientific benchmarking of flow-ecological responses in bioclimatic regions of the State
 - predictive modeling
 - risk assessment procedures
 - knowledge growth via the adaptive management loop
7. Establish regional priorities for desirable levels of environmental flows to sustain valued biodiversity and ecological goods and services, e.g. all of SEQ, central Qld, Wet Tropics.
8. Re-evaluate recent Water Planning decisions that will clearly have adverse ecological consequences for vulnerable and endangered freshwater species (e.g. lungfish, Mary River cod, Mary River turtle) and ecosystems.
9. Engage all stakeholders in a social contract to recognize and abide by a “Water Ethic” involving the best practice environmental, domestic, agricultural and industrial water use, water allocations and water management.

Conclusion:

With Queensland’s advanced scientific knowledge of river ecology and flow requirements, our strong Water Act and Water Resource Planning Process, and our legislated commitment to the protection of Wild Rivers, Queensland has an unprecedented opportunity to demonstrate to Australia and the global community the best possible practices for Water Knowledge and Science, Water Use, Environmental Flows, Water Planning and Water Management in the face of burgeoning human populations, and the country’s most variable and changeable climatic and hydrological conditions – the toughest testing ground to pre-empt future water crises.

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In press 2006

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