Australian Government
Bureau of Meteorology

Senate Inquiry into Water Licences and Rights

Bureau of Meteorology

Submission to the Senate Standing Committee on Environment, Communications and the Arts

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1. Preamble

Under the Commonwealth *Water Act 2007*, the Bureau of Meteorology's (the Bureau's) mandate has been extended to collect, hold, manage, interpret and disseminate Australia's water information.

Specifically, the Bureau's new responsibilities under the *Water Act 2007* include:

- issuing national water information standards
- collecting and publishing water information
- conducting regular national water resources assessments
- publishing an annual National Water Account
- providing regular water availability forecasts
- giving advice on matters relating to water information
- enhancing understanding of Australia's water resources.

Water for the Future was announced in May 2008, as a $12.9 billion water investment program to accelerate the national water reform objectives of the National Water Initiative (NWI). This program included $450 million for the *Improving Water Information Program* administered by the Bureau of Meteorology, enabling it to fulfil its new roles as set out under the *Water Act 2007*.

The Bureau's new water information activities are salient to the Terms of Reference for the Senate Inquiry into Water Licences and Rights, particularly to clause c: "*the collection, collation and analysis and dissemination of information about Australia's water resources, and the use of such information in the granting of water rights".*

The Bureau's submission is confined to this particular clause of the Terms of Reference. Although the Bureau is not involved in the process of granting water rights, the information it is collecting on the status of Australia's water resources will be of great value to a wide range of water stakeholders involved in that process. The National Water Initiative repeatedly stresses the criticality of good quality water information to good water resources management.

The information in this submission is based on the following activities being undertaken by the Bureau as part of its new water information mission:

- Water Regulations 2008
- The Modernisation and Extension of Hydrologic Monitoring Systems Program
- The Australian Water Resources Information System
- The National Water Account
- Water availability forecasting service
- Water Information Research and Development Alliance

This submission is supported by seven fact sheets that describe various facets of the Bureau's new water information role.

2. Water Regulations 2008

The basis of the Bureau's water information functions is the collection of primary water data from a large number of public sector agencies, and some private entities that make measurements in the field. Section 126 of the *Water Act 2007* provides for the making of Regulations to support the Bureau's water data collection function. The Water Regulations 2008 specify persons who must give specified types of water information to the Bureau, and the time and format in which they must give it.

The Regulations encompass some 65 primary data types, including surface water resources, groundwater resources, water diversions, water quality, dam storage levels, water entitlements, allocations and trades, water restriction notices, and urban and rural water use. Named persons (organisations) are required to provide the Bureau with their entire historical archive of water information (if it is in electronic form) and to update the information either on a daily, weekly, monthly or annual basis, depending on the data type and category of person.

There are 242 organisations in eight categories (A to H) named in the Regulations. Organisations may be in more than just one category as they may perform more than one function.

Category A (lead water agencies): This Category includes the lead State and Commonwealth agencies, which have a primary water resource planning, management or policy functions. These agencies monitor, collect and report water information. They also have, in many cases, a regulatory or compliance role. The lead water agencies in each state and territory were nominated by their respective Departments of Premier and Cabinet. They have a role in assisting the Bureau to co-ordinate the provision of information within their respective jurisdictions.

Category B (other agencies of the Commonwealth or a State): This Category includes State or Commonwealth agencies that collect water information but whose primary function is not water resource planning, management or policy.

Category C (hydroelectricity generators): This Category includes the major hydroelectricity generators.

Category D (owners or operators of major storages): This Category lists persons that own or operate water storages of not less than 1GL.

Category E (rural water utilities): This Category includes organisations that supply water for irrigation. It includes the 13 Rural Water Utilities required to meet the National Water Initiative Rural Performance Reporting requirements as well as one other rural utility that was included at its own request.

Category F (urban water utilities): This Category includes the major and non-major urban water utilities required to meet National Water Initiative Urban Performance Reporting requirements.

Category G (Catchment Management Authorities and others): This Category includes bodies established to oversee the management of natural resources and the conservation of natural and cultural heritage in particular catchments. In some jurisdictions, such as New South Wales, they are statutory authorities (the *Catchment Management Authorities Act (NSW, 2003)*).

Category H (providers of water information for flood forecasting and warning): This Category includes organisations that are already part of the Bureau's flood forecasting and warning network.

3. The Modernisation and Extension of Hydrologic Monitoring Systems Program

The Bureau's new water information products and services rely heavily on water data collected by State and territory agencies. Over the years, the coverage and quality of the data these agencies have

been collecting have been in decline. Although the Bureau is collecting a huge amount of data from many agencies, the aggregate national water data asset is still deemed inadequate for many of the products and services to be delivered by the Bureau. Enhancing the accuracy, currency and coverage of the nation's water data sets is vital.

The Australian Government's Modernisation and Extension of Hydrologic Monitoring Systems Program is an administered fund, managed by the Bureau. The objective of the 5-year, $80 million Program is to assist water information collectors to modernise and extend their water monitoring and data management systems. This program will enhance the accuracy, currency and coverage of water information across Australia and expedite delivery of it to the Bureau.

Persons named in the Water Regulations 2008 are eligible to apply for program funding and have been actively applying for support since the inception of the program.

In its first year of operation (2007/08), the program provided $9.8 million for 55 projects. In the second year (2008/09), $20 million was made available for 132 projects. The third round of funding (2009/2010), valued at $20 million, has been allocated to 115 projects.

Benefits accrued by the program thus far include:

- A significant increase in real-time acquisition of water data
- Widespread adoption of the CSIRO/Bureau-developed Water Data Transfer Format (WDTF), simplifying and speeding up data delivery from agencies to the Bureau
- Extensive use of new technology Acoustic Doppler Current Profilers (ADCPs) to improve the accuracy of river flow gaugings

4. The Australian Water Resources Information System

The Australian Water Resources Information System (AWRIS) is the technology centrepiece for the Bureau's new water information role. AWRIS will consolidate water flow water storage, groundwater, water trading, and water quality information from more than 200 sources across Australia. Once AWRIS is developed, all Australians will have free online access to most of the nation's water information, which will significantly enhance the transparency and community understanding of water resources management.

AWRIS is being designed for use by a range of uses and users, including technical specialists, water managers, water users and the general community. AWRIS will deliver data, dashboards, information, tools and reports that will significantly improve the decision-making capabilities of its users engaged in policy development, planning, operations, public enquiry, education and research.

AWRIS will become operational early next year and grow in functionality over the following three years. AWRIS Phase 1a will be released in late February 2010 and will focus on the water storage information. Phase 1b is due for release in August 2010 and will include a comprehensive data warehouse for all of the water data types being collected by the Bureau.

In later years, AWRIS will be further developed as the engine to produce periodic water resource assessments, the National Water Account, and a number of water forecasting services.

5. The National Water Account

Under the Commonwealth *Water Act (2007)*, the Bureau of Meteorology is required to compile and publish comprehensive water information across Australia. The requirement includes publication of an annual National Water Account (NWA).

The objective of the National Water Account is "To disclose the availability, rights to take and actual

take, of water on a national and consistent basis to inform water planning (sharing) processes, water markets, investment decisions and environmental management". This is a fundamental information-set required by governments to assess the effectiveness of the water entitlements regime and associated water sharing arrangements. It should be noted here that the Bureau's role is non-evaluative and that it will not be engaged in such review processes, other than as a supplier of factual information.

As the competition for water resources increases, it is more important than ever to fully account for how water is shared between the economy, critical human needs and the environment. The NWA will provide information that has previously been difficult to access or unavailable to general users in a standardised form. The first National Water Account is due for release in December 2010, and will be updated annually thereafter.

The Bureau has recently published the Preliminary National Water Accounting Standard (PAWAS) and an accompanying model water account, and has invited public comment on them. The PAWAS is currently being trialled in a pilot National Water Account due for completion at the end of 2009. This methods pilot is being applied to seven key Australian water regions.

The National Water Account Committee (NWAC), chaired by the Bureau, has been established to oversee production of the National Water Account, including the methods pilot. NWAC provides important stakeholder advice and collaboration on the development, implementation and production of the National Water Account. The committee's membership includes representatives from each state and territory lead water agency, urban and rural water industry bodies and Australian Government agencies. They are:

- The Bureau of Meteorology
- Department of Environment Heritage and the Arts
- Murray Darling Basin Authority
- National Water Commission
- Australian Bureau of Statistics
- Department of Water (WA)
- Department of Land and Environment (NT)
- Department of Environment and Resource Management (Qld)
- Department of Water and Energy (NSW)
- Department of the Environment, Climate Change, Energy and Water (ACT)
- Department of Sustainability and Environment (Vic)
- Department of Primary Industries and Water (Tas)
- Department of Water, Land and Biodiversity Conservation (SA)
- Water Services Association of Australia (urban water)
- Irrigation Australia (rural water)

6. Water availability forecasting service

The Bureau plans to issue short-term (7-10 days), seasonal (3-9 months) and long-range (multi-decadal) water availability forecasts to complement its current flood warning and forecasting service. Presently, the new services are in early stages of concept development. However, it is envisaged that the Bureau will provide 7-10 day flow forecasts, and seasonal outlooks for reservoir inflows for priority rivers catchments.

7. The Water Information Research and Development Alliance

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All of the Bureau's new water information activities enumerated above require considerable innovation. Hence, research and development are important facets of the program. The Water Information Research and Development Alliance (the Alliance) has been established to bring together

CSIRO's research and development expertise in water and information sciences and the Bureau of Meteorology's operational role in hydrological analysis and prediction. The Alliance is a strategic investment of $50m over five years that will deliver most of the innovation required by the Bureau to fulfil its national water information mandate.

8. Summary

The need to accurately monitor, assess and forecast the availability, condition and use of Australia's water resources is now more vital than ever. Water resources information is currently collected and held by hundreds of organisations across Australia, making it difficult to monitor the status and use of Australia's water resources and to accurately forecast water availability. The Bureau of Meteorology's new water information role will significantly improve the accessibility and utility value of water information, and lead to improved water resource management outcomes.

Submission Date: 1 October 2009

Submitted by:

Dr Greg Ayers
Director of Meteorology
Bureau of Meteorology
GPO Box 1289
Melbourne Vic 3001
Tel: (03) 9669 4558
Fax: (03) 9669 4548
eMail: g.ayers@bom.gov.au

Inquiries:

Dr Rob Vertessy
Deputy Director (Water)
Bureau of Meteorology
GPO Box 2334
Canberra ACT 2601
Tel: (02) 6232 3501
Fax: (02) 6232 3535
eMail: r.vertessy@bom.gov.au

Attachments

Information Sheet 1 - Transforming Australia's water resources information
An overview of the Bureau of Meteorology's expanded role which will see it transform Australia's water resources information; information that is essential for sound decision-making by governments, business and the community.

Information Sheet 2 - The *Water Act 2007* and Water Regulations 2008
This publication outlines the Bureau of Meteorology's new functions and powers under the Commonwealth *Water Act 2007* (the Act), and will be of interest to water data users and managers, including those water data collectors potentially affected by regulations being developed to support the Act.

Information Sheet 3 - The Australian Water Resources Information System
An overview of the Australian Water Resources Information System (AWRIS) - an online information tool that will provide comprehensive, robust and reliable information about one of Australia's most precious resources, water.

Information Sheet 4 - Water Information Research and Development Alliance
The Water Information Research and Development Alliance brings together CSIRO's research and development expertise in water and information sciences and the Bureau of Meteorology's operational role in hydrological analysis and prediction to transform the way Australia manages its water resources.

Information Sheet 5 - Australian Hydrological Geospatial Fabric (Geofabric)
The Australian Hydrological Geospatial Fabric (or Geofabric), is a spatial framework for discovering, querying, reporting and modelling water information.

Information Sheet 6 - Flood Forecasting and Warning Services
The Bureau of Meteorology is responsible for providing an effective flood forecasting and warning service in each Australian state and territory. The Bureau is improving the accuracy and timeliness of flood warnings and forecasts through the introduction of new technology, specialist training and more staff.

Information Sheet 7 - The National Water Account
The Bureau of Meteorology is responsible for delivering a National Water Account from 2010 that will provide a valuable window into the management of Australia's water resources.