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Enhancement of the NSW Water Supply and Sewerage Performance Monitoring Database to meet BoM requirements

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OUTLINE

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 - Background
 - Best Practice Guidelines
 - Annual Performance Monitoring
 - Performance Monitoring Database
- BoM Requirements
- Proposed Database Enhancements
- Issues
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- Conclusions



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1. Background

In NSW there are 110 water utilities providing water and sewerage services.

- 4 metropolitan utilities (Sydney Water, Hunter Water, Hawkesbury & Sydney Catchment Authority)
- 106 non-metropolitan utilities (generally local government councils).

The NSW Office of Water

- is only involved with the 106 non-metropolitan utilities.
- Oversees and monitors the performance of the 106 utilities.
- Encourages best practice through
 - statutory approvals,
 - provision of guidelines and manuals,
 - Software and technical support,
 - inspections and training



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1. Background cont'd

The 106 NSW non-metropolitan utilities

- Provide services to 1.8million people (790,000 properties).
- Range in size from 200 properties to over 60,000 properties.
- Number of water supply schemes – 340
- Water supply dams - 86, weirs - 30
- Total water supplied 290,000 ML



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2. Best Practice Guidelines

National Water Initiative has extended the 1994 Strategic Framework for Water Reform to provide for national performance reporting.

It commits water utilities to effective, efficient and accountable water management.

In line with the National Water Initiative, the NSW Office of Water has developed the *Best Practice Management Water Supply and Sewerage Guidelines* (BPMG)

BPMG are key drivers for reform & performance improvement



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2. Best Practice Guidelines cont'd

The BPMG incorporate 6 best practice criteria:

- Annual performance monitoring by each utility (since 1986)
- Strategic business and financial plans
- Regulation and pricing of water supply, sewerage and trade waste
- Demand management
- Drought management
- Integrated Water Cycle Management

Annual performance monitoring is further explained below



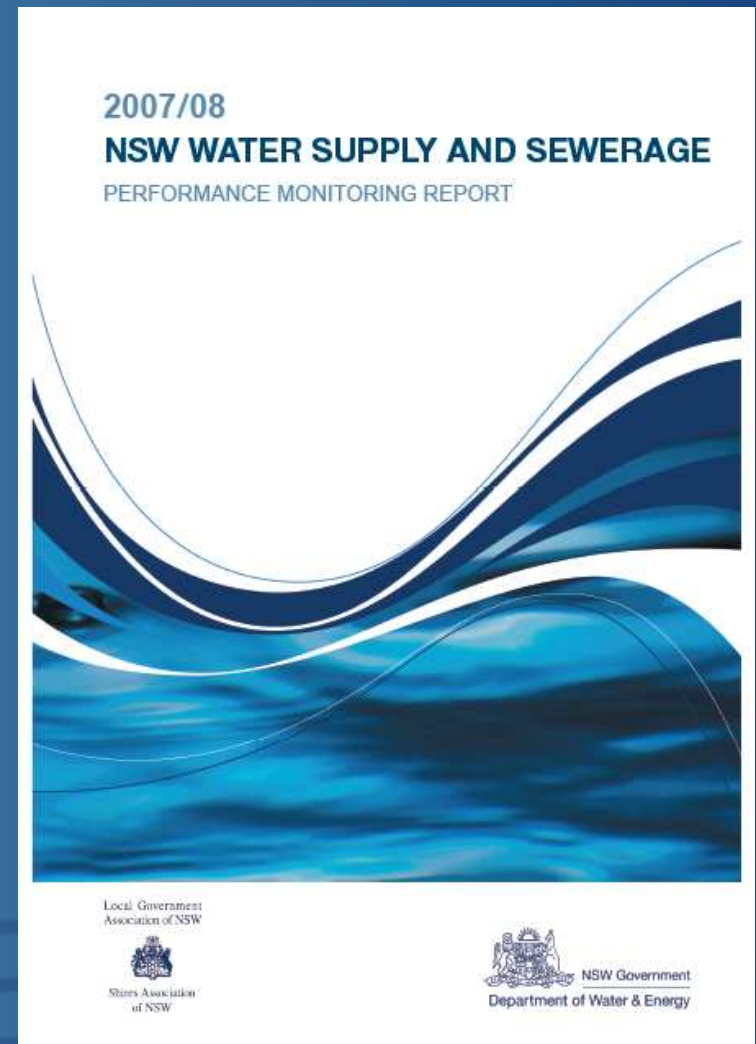
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3. Annual Performance Monitoring

NSW Office of Water

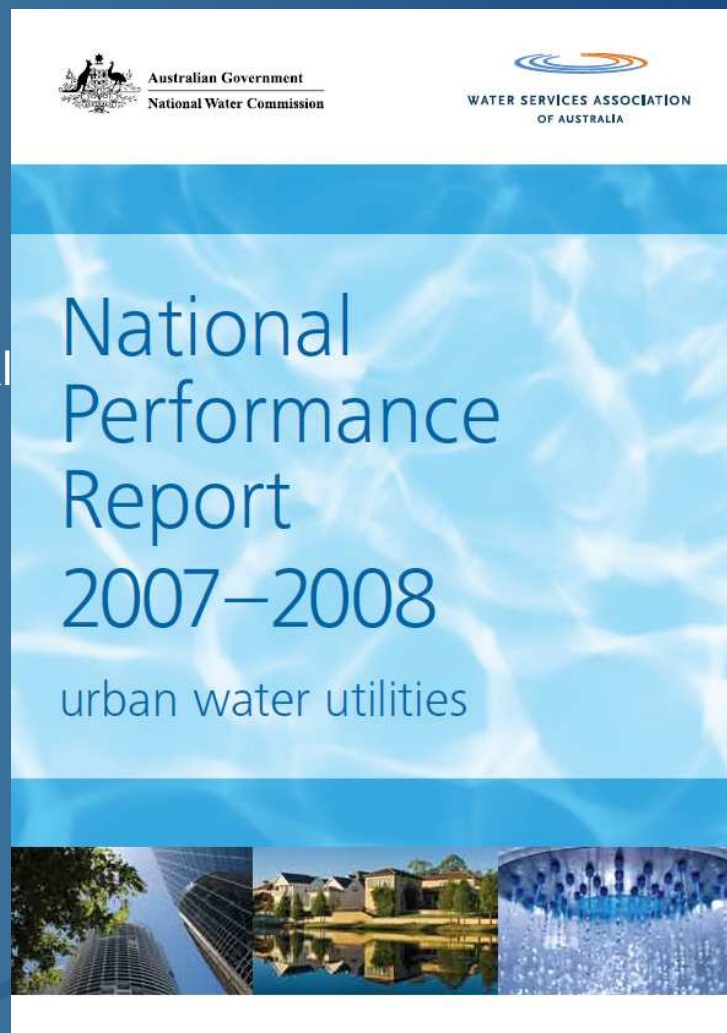
- Monitors performance data
- Prepares an annual NSW Performance Monitoring Report and also a NSW Performance Benchmarking Report (published on Office of Water website)
- These reports enable utilities to monitor and improve performance through trends and also benchmarking.
- Provides annual TBL Performance Reports and Action Plan templates to each utility



3. Annual Performance Monitoring cont'd

NSW Office of Water also provides

- Annual performance data to the National Water Commission for the larger utilities (required under the National Performance Framework).
- This data is audited
- The NWC prepares a National Performance Report for urban water utilities



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4. Performance Monitoring Database

The Office of Water has collected performance data since 1986.

Previously, data was collected and stored using Excel.

The Office of Water has now developed a MS SQL server based relational non-transactional database.

The database provides storage and performance indicator and report processing of utility water supply and sewerage data.

Each utility is able to input data via the internet through password secured access. The database enables utilities to view historic data and for them to enter current data during the data collection period.



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4. Performance Monitoring Database cont'd

The database uses a web based portal (Web Central database) that acts as a front end to the NSW database. Web Central enables the collection of data from utilities.

The process requires utilities to log in to the portal and access screens relevant to their required indicators.

The database currently only has basic data validation (eg ensuring that fields contain numerical values and mandatory fields have been entered). There is no sophisticated validation performed.

Once submitted, the data is loaded via SQL scripts to the database tables.



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Existing Database – Example Screen

NSW Water Utilities Performance Monitoring System - Windows Internet Explorer provided by NSW Office of Water

http://ctw/UtilityDataInput/default.aspx?m1=true

File Edit View Favorites Tools Help

McAfee SiteAdvisor

NSW Water Utilities Performance Monitoring System

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Department of Water & Energy

Welcome Albury City Council

Main Menu

- Home
- Set Active Year
- Help
- Reports
- Export Data
- Water Business
 - Population
 - Infrastructure**
 - Connections
 - Water Sourced
 - Water Losses
 - Water Supplied
 - Demand Management
 - Service Levels
 - Health
 - Workforce
 - Expenses, Charges And Bills
 - Environment
- Water Treatment
- Sewerage Business
- Sewerage Treatment
- Contact Us
- Feedback

2008/09 Water Business - Infrastructure

Ref.	Indicator	02-03	03-04	04-05	05-06	06-07	07-08	08-09	unit	R/A	Definitions and Instructions
Dams											
7	Number	0	0	0	0	0	0		n		Dams owned by the utility for seasonal water storage as distinct from daily balancing storages for distribution systems show example
8	Capacity	0	0	0	0	0		ML			
Service reservoirs											
9	Number	27	27	35	36	37	34		n		Distribution storage facilities used in the delivery of potable water to customers such as steel or concrete tanks used as daily balancing storages show example
10	Capacity	102	102	110	116	120	114		ML		
Weirs											
11	Number	0	0	0	0	0	0		n		Low barriers, generally within the stream banks, to divert flow to an offtake
12	Capacity	0	0	0	0	0		ML			
Bores											
13	Number	0	0	0	0	0	0		n		Bore holes connecting to an aquifer from which water is drawn
14	Capacity	0.0	0.0	0.0	0.0	0.0		ML/d			
Pumping stations - potable and nonpotable											
15	Number	16	16	18	18	19	22		n		Pumping stations for headworks and distribution systems show example
16	Capacity	0.0		1.8	70.0	90.0	90.0		ML/d		
Treatment works											
17	A1 Number	1	1	1	1	1	1		n		Treatment works providing comprehensive water treatment to achieve high quality water show example
18	Capacity	140.0	140.0	140.0	140.0	140.0	140.0		ML/d		
Water mains - potable and nonpotable											
20a	Headworks transfer length						7.0		km		Trunk mains which are part of the headworks (eg. dam, river) for delivery of water either from scheme to scheme or to treatment

Local intranet 100%

Start | REPORTS - Benchmarking | Inbox - Microsoft Outlook | Microsoft PowerPoint - [...] | Phone Users - Telstra En... | NSW Water Utilities P... | Microsoft Word | EN | 3:14 PM



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Existing Database – Example Screen

NSW Water Utilities Performance Monitoring System - Windows Internet Explorer provided by NSW Office of Water

http://ctw/UtilityDataInput/Water/WaterBusiness.aspx?m1=true

File Edit View Favorites Tools Help

McAfee SiteAdvisor

Favorites DWE IT Support Centre - Lo... Web Slice Gallery

NSW Water Utilities Performance Monitoring System

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Welcome Albury City Council

Main Menu

- Home
- Set Active Year
- Help
- Reports
- Export Data
- Water Business
- Population
- Infrastructure
- Connections
- Water Sourced
- Water Losses
- Water Supplied**
- Demand Management
- Service Levels
- Health
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- Expenses, Charges And Bills
- Environment
- Water Treatment
- Sewerage Business
- Sewerage Treatment
- Contact Us
- Feedback

2008/09 Water Business - Water Supplied

Ref.	Indicator	02-03	03-04	04-05	05-06	06-07	07-08	08-09	unit	R/A	Definitions and Instructions
Authorised potable supply											
54	[W8] Residential	6246	6032	5803	6287	5359	3857		ML		Total metered and estimated non-metered potable water supplied to residential properties. show example
55	[W9] Commercial	1445	1245	762	854	762	551		ML		Total metered and estimated non-metered potable water supplied to commercial customers. show example
56	[W9] Industrial	1075	605	532	478	286	325		ML		Total metered and estimated non-metered potable water supplied to manufacturing and industrial customers. show example
57	[W9] Rural			19	18	42	23		ML		Total metered and estimated non-metered potable water supplied to farms and hobby farms outside urban zoned land. show example
58	[W9] Institutional	366	380	334	396	436	252		ML		Total metered and estimated non-metered potable water supplied to institutional customers. show example
59	W14 Bulk sales	848	1112	425	404	436	291		ML		Total volume of potable water sold to other utilities or entities outside your utility's geographic area of responsibility. Include water sourced from another geographic area. show example
60	[W9] Public parks	63	64	329	374	381	112		ML		Total metered and estimated non-metered potable water supplied for watering public parks and gardens. show example
61	[W10] Unbilled		0	0	10	38	0		ML		Metered and estimated unmetered authorised supply for which a bill is not issued to the consumer. show example
62	[W11] Total authorised potable supply	9,195.0	8,326.0	7,779.0	8,415.9	7,304.0	5,160.0	0	ML		Sum of (54) to (59), (60) and (61)
Authorised non-potable supply											
63	[W8] Residential			14	0	0	0		ML		Non-potable water reticulated to residential customers as part of a dual supply. show example
64	[W9] Non-residential			9106	0	0	0		ML		Non-potable water for town water supply reticulated to non-residential customers as part of a dual supply. show example
64b	[W8] Recycled residential					0	0		ML		Recycled water for town water supply reticulated to residential customers as part of a dual supply. show example
64c	[W9] Recycled non-residential					0	0		ML		Recycled water for town water supply reticulated to non-residential customers as part of a dual supply. show example

Local intranet

Start REPORTS - Benchmarking Inbox - Microsoft Outlook Microsoft PowerPoint - [...] Phone Users - Telstra En... NSW Water Utilities P... Document1 - Microsoft ... EN 3:15 PM



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5. BoM Requirements

The Water Act 2007 requires that organisations listed in the Water Regulations 2008 must report to the Bureau any water data specified in the regulations that is currently being electronically captured by the organisation.

- There are 9 categories of data of which only Category 7 data relates to the volume of urban water sourced and supplied or discharged.
- Category 7 includes 15 subcategories which is the only data proposed to be reported via the NSW Database
- Weekly data is required, which is to be reported annually.
- 27 NSW utilities are required to report such data to BoM.



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5. BoM Requirements cont'd

At present, utilities are required to report urban water data to

1. NSW Office of Water under the BPMG (approx 180 indicators),
2. National Water Commission under the National Performance Framework (117 indicators),
3. BoM under Category 7

NSW Office of Water has combined requirements 1 and 2 by ensuring the NSW indicator definitions agree with the NWC definitions. NSW Office of Water collects statewide data and reports all 117 indicators to NWC.

13 of these National indicators match the data required by BoM.

It is sensible for NSW Office of Water to also include requirement 3.



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Table 1: Category 7 Data

No.	Category 7 Data to be Reported	NPR Indicator
7a	Total weekly volume of water from surface water	W1
7b	Total weekly volume of water from ground water	W2
7c	Total weekly volume of water from desalination	W3
7d	Total weekly volume of water from recycling	W4
7e	Total weekly volume of water from bulk suppliers	W5
7f	Total weekly volume of bulk recycled water purchased	W6
7g	Total weekly volume of water taken	W7
7h	Weekly volume of water supplied - residential	W8
7i	Weekly volume of water supplied – Commercial, industrial, municipal	W9
7j	Weekly volume of water supplied – other	W10
7k	Total weekly volume of urban water supplied	W11
7l	Total weekly volume of bulk water exports	W14
7m	Total weekly volume of bulk recycled water exports	W15
7n	Total weekly volume of sewage discharges into a water course	
7o	Total weekly volume of stormwater discharges into a water course	



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6. Proposed Database Enhancements

- In order to capture weekly data, the NSW database must be upgraded.
- Further screens are proposed to enable utilities to enter data with options for different time periods (eg. daily, weekly, monthly etc)
- Options are being investigated for input of large data sets (including excel templates, pseudo excel screens, copy and paste facilities)
- The data must be transferred to BoM in the required format




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6. Database Enhancement cont'd

- Example screen specifically for Category 7 data.

2008/09 Water Business - Water Sourced
Orange - Orange City Water Supply
PDF
Show all examples



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Welcome UNALLOCATED TWS LICENCES

Logout

- Home
- Submit Performance Data
- Help
- Reports
- Export Data
- Water Business
 - Population
 - Infrastructure
 - Connections
 - Water Sourced
 - BoM Category 7
 - Yearly
 - Quarterly
 - Monthly
 - Fortnightly
 - Weekly
 - Daily
 - Water Losses
 - Water Supplied
 - Demand Management
 - Service Levels
 - Health
 - Workforce
 - Expenses, Charges And Bills
 - Environment
 - Water Treatment

Ref.	Indicator	unit	unit	unit	unit	unit	unit
Water sources							
Wk Start Date:		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Wk End Date:		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
41	[W1] Off-stream dams	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
42	[W1] On-stream dams	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
43	[W1] Run-of-river pumping excluding volumes pumped to dams	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
44	[W1] River release from State Water dams	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
45	W2 Groundwater extraction	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
46	W3 Desalinated water	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
47	W4 Recycled water	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
48	Total water from Utility's sources	0.0	0.0	0.0	0.0	0.0	0.0
49	[W6] Bulk purchase: potable	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
50	[W6] Bulk purchase: non-potable	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
49	[W5] Bulk purchase: potable	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML
50	[W5] Bulk purchase: non-potable	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML	<input type="text"/> ML

The rest of the indicators would be held down here



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6. Database Enhancements cont'd

Metadata – An additional screen may be required to capture metadata for each scheme

Data transfer to BoM – It is envisaged that notification will be sent to both the Office of Water and to the utility to advise that the data has been transferred to BoM



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6. Database Enhancements cont'd

The data will be converted to WDTF files

The file will be then be FTP'd to the relevant Office of Water folder in the BoM site

The data will not be audited or checked for errors prior to forwarding to BoM



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6. Database Enhancements cont'd

NSW Office of Water is organising workshops with the 27 NSW utilities in April/May

The main purpose of the workshops is to prepare the utilities for the NWC audit requirements.

At the same time, it is proposed to explain the BoM requirements and the enhanced database facility.



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7. Issues to be Considered

Timing

- Currently NSW utilities are required to report performance data by 15 Sept. However, data is often not received till Oct or Nov (eg. unable to be extracted, data incorrect etc). To report data in July may be difficult.

Data Period

- Data is required weekly, but some data (eg household metered usage) is only collected at irregular periods.

Reporting Responsibility

- NSW Office of Water will provide a reporting tool for utilities. However, the responsibility for reporting must remain with the utility.

Data Audits

- The data will be transferred without evaluation (error checking) or auditing



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8. Benefits of Project

There are a number of benefits in consolidating data collection

- Continue the present “one stop shop” approach in NSW
- Utilities are familiar with database
- Facilitates data transfer to BoM by utilities
- Removes the need for each utility to develop their own WDTF
- Similarity of data required by the NWC, BoM
- Possible in future to incorporate more sophisticated data error evaluation
- Possible in future to increase the frequency of reporting
- Benefit to BoM and NWC to have a single source for the NSW data



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9. Conclusions

1. NSW Office of Water already collects a large volume of NSW statewide data
2. NSW Database is used by all 106 NSW utilities. It is a familiar interface and is strongly supported by utilities.
3. Relatively straightforward to enhance the NSW Database to incorporate current BoM requirements.
4. Significant benefits to NSW utilities in having the Office of Water undertake data collection and transfer.



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