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One recipe for getting water data 'right'

World Water Forum Istanbul, Turkey

Rob Vertessy - 20 March 2009



A cautionary footnote

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Australian Government

A wise and wonderful man once said:

"One man's fish is another man's poisson"







- Wealthy OECD nation
- Sophisticated water sector
- Federated nation (three tiers of government)
- Large land mass (7m km²), small population (21m)
- Concerned mainly about water scarcity
- Making huge investments in water





Five key ingredients

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1.Impetus

2.Mandate

3.Standards

4.Spatial enablement

5. Effective delivery



1. Impetus

Rainfall Deciles – 1 November 2001 to 31 October 2008





1. Impetus

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Water Resource Assessments National Water Accounts

The information cornerstones necessary to manage a scarce and increasingly valuable resource

Hydrologic forecasting Real-time status of water resources



Eight key questions (1).

• How much water is available in different parts of the country today and how does this compare with the past?

• Who is entitled to use water and how much are they using?

• How much water is being allocated and how is the security of particular water entitlements changing?

How much water is being traded and to where?



Eight key questions (2).

• How much water is the environment getting?

• How is the quality of water in rivers and aquifers changing?

• How much water is being intercepted by farm dams and various land management changes?

 How is flood risk changing in response to climatic and land management changes?
Water Informed Data - INFORMATION - II





Water Intori

- We are mandated to lead
- New (and strong) legislation introduced
 - Water Act 2007 + Water Regulations 2008
 - Collect data from over 240 agencies
- Set national standards on any water information matter
- Obligation to publish annually a National Water Account.





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Building a national data set



- ten primary categories of data (~65 sub-categories, >200 variables)
- eight categories of person (246 persons in total)
- entire historical archive provided at first
- updated thereafter daily, weekly, monthly or yearly
- QA/QC, certification, storage, management





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Water Regulations 2008 Categories of water information

- 1. surface water resources
- 2. groundwater resources
- 3. information on major and minor storages
- 4. meteorological information
- 5. water use
- 6. rights, allocations and trades
- 7. urban water management
- 8. water restrictions
- 9. water quality

10. metadata for the above







- Data model: WaterML2
 - Collaborative: BoM, CSIRO, CUASHI
 - XML encoding tailored to web services
 - Seeking WMO and OGC support
- National water balance conceptualisation(s)
 - How to estimate where we don't measure
- National Water Accounting Standards
 - Water Accounting Standards Board
 - Interface to SEEA-W





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4. Spatial enablement

The *hydrologic geofabric* is a spatial representation of most of Australia's hydrofeatures and their connectivity, <u>arranged in a network topology</u>

Based on ArcHydro, and like NHD-Plus, it includes:

- rivers, lakes, wetlands and reservoirs
- catchment, aquifer and management area boundaries
- monitoring points
- diversions, off-takes and return points





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One more (vital) ingredient

- 1. Impetus
- 2. Mandate
- 3. Standards
- 4. Spatial enablement
- 5. Effective delivery of information
- 6. Robust observation networks





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Thanks for listening

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