

The contribution of improved water information to the management of water resources in NSW

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22 November 2007

Improved water information

- Drivers – why do we need better water information
- Improve confidence of community, stakeholders and government
- Better science, better models

NSW – water information drivers

- National Water Initiative – NSW is a signatory
- National perspective
- Inter State agreements (Murray Darling Basin Agreement – NSW QLD Border Rivers Agreement)
- Water Sharing Plans (WSPs) – NSW Water Management Act

NSW – water information drivers

- Day to day operation of rivers – implementing plans
- Auditing of compliance (MDB Cap and WSPs)
- Access license rules (Cease To Pump etc) particularly for unregulated systems,
- Groundwater use – pumping interference, trading

NSW – water information drivers

- Flood Management
- Water quality including stream and groundwater salinity

NSW – water information drivers

- Drought Management
- Competition for water
- Sustainability – for water users and the environment

NSW – water information drivers

- Improved understanding of the total water resource/balance
- Climate variability
- Climate change

Improved water information

- Information capture – what and how
- Information coverage – where and when
- Information quality – how good
- Information products – what to deliver

Water Management in NSW DWE

- Water Sharing Plans
 - Unregulated systems – locating gauging stations that better reflect water availability, to set access rules for equitable sharing and protection of ecological values
 - Efficient user access to water information for pumping access / cease to pump compliance

Water Management in NSW DWE

- Water Sharing Plans – estuaries
 - Water access rules require specific monitoring
 - Typically larger rivers with tidal pools
 - New area for water management in Australia
 - Tidal pools support industries or towns that rely on freshwater extraction
 - The saline/freshwater interface is critical to both extraction and ecological values

Water Management in NSW DWE

- Water Sharing Plans - groundwater
 - In highly connected systems, better understanding of connectivity and how it changes over time – concurrent monitoring of stream flow/height and groundwater response - better predictive models
 - Better understanding of groundwater and river loss during extreme dry sequences – incorporate antecedent conditions into models

Water management in NSW DWE

- Water balance in lower reaches of western flowing river systems
 - Improve ability to measure major flow events on extensive floodplains
 - Instrument tributaries currently ungauged
 - Estimate direct rainfall effects on wide floodplains

Water Management in NSW Sydney Catchment Authority

- Improving networks d/s of storages
- Improving small stream monitoring to identify runoff and pollutant sources
- Telemetry upgrades – better forecasting
- More over-water meteorological stations
- Research - better techniques for measuring evap

Water Management in NSW Sydney Catchment Authority

- improve stream gauging technology
- standardise information systems
- standards for data loggers & data transfer systems
- advanced water information products – eg rainfall radar maps, better rainfall estimates

Water Management in NSW State Water

- Improved 1-14 day weather forecasts of rainfall, on-line and regular
- Improved forecasting of water demands and river 'losses' to make river operation more efficient, - telemetry or other methods to improve demand capture and compliance monitoring

Water Management in NSW State Water

- Flood operation – rainfall runoff predictive capacity, improve timing of storage pre-release against tributary flows
- Better event forecasting for more effective environmental release

Water management in NSW State Water

- Seasonal forecasting – improve management of transfers between storages
- Seasonal forecasting
 - better management of environmental allocations
 - airspace operation of storages
 - More flexibility in access for water users

Improving water information capture

- Efficiency – technology, automation, less data lost
- Standardisation – more reliable systems, best practice approaches to data capture ,
 - Stream gauging,
 - Education and training
 - OHS,
 - Quality systems,
 - Automation,
 - Technology,
 - Renewal
 - IP loggers (intelligent loggers)

Improving water information capture

- Metering – NSW contributing to developing national standards
- Implementation of standards
- Metering rollout - unregulated and groundwater systems

Improving water information capture

- Information transmission
 - technology,
 - communications,
 - standardisation,
 - obsolescence,
 - maintenance,
 - standardisation

Improving Information coverage

- Time and spatial aspects - (better quality)
- Contemporary network design and implementation review
- Improve siting of stations
- Need standardisation for reporting (daily, monthly annual)
- Improve design of concurrent surface and groundwater monitoring for connectivity understanding

Improving Information quality

- National standards flow to NSW – define quality
- Common terms, understanding
- Information compatibility
- Within NSW – same level of standard for collection of all data (SW, GW, WQ WU etc)
- Establishment of minimum standard that should raise quality of all data collection across NSW
- More highly skilled and trained workforce

Improving Information products

- Basic level – height, flow, EC, Use, parameter
- One location for all NSW agency data
- GIS based - Links to spatial query tools
- Better user interface needs
- Water accounting needs
- Water operator needs (State Water, SCA)
- Client needs (irrigators, power stations, environmental managers etc)