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

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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)