Highlights from the knowledge hub's first year

Water modelling and monitoring in NSW

condensation

precipitation

catchment

runoff

evaporation

stormwater

filtration

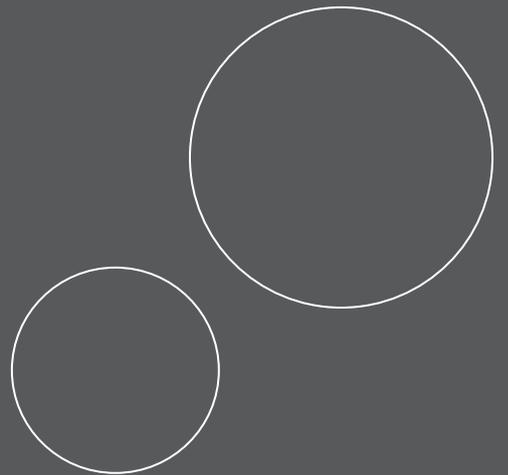*Image © WaterNSW*

NSW GOVERNMENT

Trustworthy information for better water management

To ensure that water is managed effectively in NSW, the NSW Government established the NSW Modelling and Monitoring knowledge Hub (MaMH) in 2018. The hub allows selected government agencies and state-owned corporations to share information.

The hub recognises that inter-agency collaboration is essential at a time of unprecedented drought conditions and water management reform. It is also important because implementing Murray–Darling Basin programs is a high priority.

Water modelling and monitoring underpins water management and operations, from the inland river basins to the coastal rivers and shores. The government needs trustworthy, accessible, cost-effective information derived from fit-for-purpose models and data. This will inform policy, planning and decision frameworks that are evidence-based and scientifically defensible.

Up to date *snapshots of modelling and monitoring* in NSW

Key reference studies recognising *over 150 government organisations are involved* in modelling and monitoring in NSW

The available water modelling and monitoring data

Staying true to its motto of thinking big, starting small and acting fast, the MaMH successfully delivered two foundation projects to define NSW's water modelling and monitoring strategic context and needs.

- *An overview of water modelling in NSW* (MaMH, 2019a). This key reference study provides the most up-to-date and comprehensive review of NSW water modelling and capabilities available now.

- *NSW water monitoring information and collaboration tools* (MaMH, 2019). This study builds on the *2011 Strategic Water Information and Monitoring Plan* (NSW Government) to provide a snapshot of current water monitoring and metering, a review of information collaboration tools and the development of a collaboration tool assessment framework.

There are over 150 government organisations involved in water modelling and monitoring in NSW. Approximately 50 of these organisations, including all the key water organisations, participated in MaMH surveys to create a picture of the state and provide a basis for capturing NSW's strategic needs in the foundation studies. The studies found:

- **Multiple NSW organisations rely on many different water models and water information sources.**
  - o Water models and information are held across many organisations, making it difficult to know of their existence in many cases. Until recently, there were few examples of coordinated modelling efforts across the state. There is no single water information portal or source to facilitate collaboration between organisations.
  - o We estimate that up to 2,000 water models are held by the surveyed organisations. There is a high uptake in the use of water models to support water management decision-making. There are opportunities to improve efficiency by optimising, sharing, re-using and coordinating models, recognising common purposes and uses.

o Likewise, there are more than 2.2 million active monitoring locations (including water meters), or more than 24,000 monitoring locations (not including water meters), across the state. Of the water data held, 98% is with nine key organisations. There is increasing demand for data and active metering reforms.

o Resourcing and funding are identified as the top two obstacles to collaboration. These will require further consideration to improve the effectiveness of collaboration.

o Now is the right time to coordinate water models and information, recognising most surveyed organisations see benefits in collaboration and are seeking to catalogue data and better understand available models.

- **Modelling skills and capacities vary across organisations.**

    o We have developed a water modelling capability matrix that highlights the variability across organisations and the opportunities to share skilled resources.

    o Model development, quality and documentation processes vary between organisations. There are opportunities to learn from each other and develop consistent processes to ensure that modelling outputs are fit for purpose.

- **Reported budget information for water modelling and monitoring is incomplete.**

    o There are difficulties in identifying comparable costs across organisations. We will work on this over the next year.

- **There are existing collaboration platforms that could allow us to share water models and monitoring information:**

    o SEED (**www.seed.nsw.gov.au**) is a specialist environmental database for open data that automatically links to other open data[1] portals.

    o Data.NSW (**www.data.nsw.gov.au)** is building on its existing platform during 2019 to develop shared data[2] capability and processes across NSW Government.

    o The NSW Flood Data Portal (**www.flooddata. ses.nsw.gov.au**) demonstrates a specialist flood model and information sharing portal.

[1] Open data is unrestricted public access information.

[2] Shared data is restricted to defined groups (often bounded by necessary knowledge and experience to make effective use of the shared information).

Now is the right time to coordinate models and monitoring

There are existing NSW Government platforms which could be used to *enable collaboration across organisations*

Collaboration across government

Six government organisations* formed the inaugural working group:

- NSW Department of Industry—Lands and Water
- Manly Hydraulics Laboratory
- Office of Environment and Heritage
- Office of Local Government
- Sydney Water
- WaterNSW.

Looking ahead

The MaMH working group looks forward to maximising the benefits of collaboration across all levels of NSW Government as it develops further within the NSW Department of Planning, Industry and Environment.

Recommendations for 2019–20 include:

- The MaMH Forum will be used to share knowledge among NSW Government staff.

- Undertake shared organisation studies to:
  - o develop guidelines and tools for water modelling and monitoring metadata[3] requirements
  - o pilot sharing information through Data.NSW
  - o develop a framework that will integrate water models and information through a case study in the north-western Sydney region
  - o develop business cases for water information collaboration.

[3] Metadata provides information about model or monitoring information and enables it to be readily discovered, assessed for use and shared, much like a library's catalogue.

More information

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