

ASIA-AUSTRALIA WATER LEARNING WEEK 2019

Sharing Australian water management expertise

Every second year, the Australian water sector hosts the Asian Development Bank (ADB) Asia-Australia Learning Week. The Learning Week is a collaboration between the ADB and the Australian Water Partnership. It brings together team leaders and water specialists from the ADB and ADB project representatives from the bank's Developing Member Countries (DMC) governments. The focus is for the participants to share knowledge and experience and to learn from Australian water

sector specialists and institutions.

The 2019 Learning Week was facilitated by eWater, the International Water Centre (Griffith University) and Alluvium. The week was structured around the theme of the use of decision support tools in water policy development, investment planning and on-ground management of water resources. Nine ADB staff and 17 representatives from DMC governments (from 14 Asia-Pacific countries) participated. The theme was decision support tools to guide water policy development, investment planning and on-ground management of water resources.

The week showcased the use of decision support tools at all scales, from local to catchment and in rural and urban settings. Participants heard from government agencies, water researchers, water utilities and water associations, including:

Murray-Darling Basin Authority
Bureau of Meteorology
Geoscience Australia
CSIRO

the Australian Rivers Institute

University of Queensland

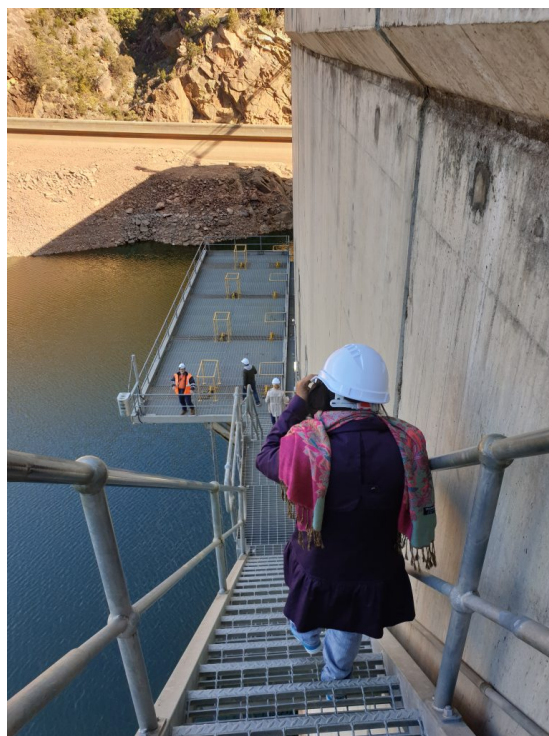
Melbourne Water

Water Services Association of Australia

WaterNSW (field trip to Burrinjuck Dam)

Goulburn-Murray Water (field trip to irrigation infrastructure)

Yarra Valley Water (field trip to Waste to Energy plant)



Descending Burrinjuck Dam wall

PARTNERING WITH THE MEKONG RIVER COMMISSION

eWater has worked
with the Mekong River
Commission (MRC)
since 2013.

Established in 1995 under the Mekong Agreement. The MRC is an inter-governmental agency working with the governments

of Cambodia, Laos, Thailand and Vietnam with the goal of jointly managing the shared water resource and the sustainable development of the Mekong River.

Since 2013, eWater has partnered with the MRC on several projects.



The Mekong River Luang Prabang, Laos

Modelling in the Mekong River Basin

Beginning in 2013, eWater and the MRC worked together to trial the adoption of Source in the Mekong. This included developing a plugin to convert the MRC's existing IQQM (Integrated Quantity and Quality Model) models to Source. Initially, work focused on the 3C catchment, and was progressively expanded to the whole of the Mekong.

eWater Source models are now used to simulate flows, sediment loads, nutrient levels, hydropower production, and agricultural and industrial water use to assess the impacts of water resources developments and to assess national water resource development plans from a basin-wide perspective.

Over the years, eWater has provided capacity building and technology transfer focusing on hands-on training and technical support to the Mekong River Commission Secretariat (MRCS) and MRC Member Countries (Cambodia, Laos, Thailand

and Vietnam).

Mekong River Council Study

The MRC Council Study is the first water resource study of this scale for the Mekong Basin. In 2018-19, eWater contributed to the MRC Council Study using Source to integrate information and existing SWAT basin models via plugins.

MRC Procedures for Water Use Monitoring (PWUM)

eWater implemented pilot projects to test the Procedures for Water Use Monitoring in Laos, Thailand and Cambodia. The MRC Water Use Monitoring procedures provide for the visualisation and analysis of trade-offs in different water management scenarios. The implementation of the pilot projects using water resource modelling is a major step towards a basin-wide water use monitoring in the Mekong Basin.

Data and information systems upgrade

In May 2019, eWater was invited by the MRC Secretariat to support a two-year initiative to reinvigorate its data, information, modelling, forecasting and communication systems to provide enhanced and timely information to the public and MRC Member Countries.

eWater's involvement was funded by the Australian Government, through the Department of Foreign Affairs and Trade.

The MRC's systems upgrade covers data collection and acquisition, data and information management, data analysis and assessment, and data and information reporting and communication. The initiative will support the Secretariat to:

- provide enhanced and timely information to the public and MRC Member Countries

implement key responsibilities, such as assessing the state of the Basin and tracking development in the Basin
respond to emerging issues, such as changes in flow regimes
strengthen its role as a regional knowledge hub.

Working closely with the Secretariat and other Australian experts, we prepared a concept design for the systems upgrade, it will see a transformation in the way the Secretariat collects, analyses, uses and communicates water information. The design concept was approved by the MRC Joint Committee in November 2019.

Other important aspects of the support include training in the use of Source for water management planning and the integration of operations and flood forecasting. In partnership with water agencies and regional modelling groups, we are also helping establish a Community of Practice and Best Practice Guidelines. Relationships with key academic and research stakeholders in the region have also been strengthened.

The project has included close collaboration with the MRC Secretariat and experts from the Australian Bureau of Meteorology, Geoscience Australia and the Murray-Darling Basin Authority, including review of existing systems, drafting of recommendations and presenting to members of the MRC and MRC Secretariat on the approaches used in Australia.

The project features as a success story in the MRC 2019 Annual Report.

USING AUSTRALIAN WATER TOOLS TO DEVELOP NEW DROUGHT METRICS FOR CAMBODIA

eWater, Geoscience
Australia (GA) and the
Australian Bureau of

Meteorology (BOM) collaborated to pilot using space-based data to forecast streamflows and water availability.

With the support of the Australian Water Partnership, eWater, GA and the BOM worked with the United Nations Economic and Social Commission for the Asia Pacific (UNESCAP) to develop new metrics for their 'Regional Cooperative Mechanism for Drought Monitoring and Early Warning in Asia and the Pacific' (the Regional Drought Mechanism)

The project integrated three leading Australian tools for water management:

Australia's National Hydrology Modelling Platform – eWater Source

GA's Open Data Cube for accessing and managing space-based data

the BOM's streamflow forecasting tools

The pilot project integrated the three tools, to develop streamflow and water availability forecasts from space-based data. Traditionally, such information requires significant on-ground data and complex analysis tools. The pilot highlights the potential of the integrated suite of tools to significantly increase the information available to water and agricultural managers and farmers to anticipate and plan for drought conditions.

Further, the use of Open Data Cube technology enabled many Source model inputs to be generated automatically, reducing the time to build the model, potentially making modelling more accessible to water managers.

The information was made available in a relatively simple format and accessed through mobile technology via <https://escap.ewater.org.au/>

Read more



As this image shows, water levels in Cambodia are highly variable. Metrics such as those produced in the pilot provide more information to help Cambodian water managers and

users adapt. (credit: simoscalise/ Adobe Stock)