



Australia's National
Science Agency

Future-Ready MDB Forum: Beyond 2030

Synthesis



Overview

The *Future Ready Murray-Darling Basin Forum: Beyond 2030* held over 14th and 15th of March 2019 provided a unique opportunity for Australia's leading thinkers to focus their attention on the long-term future of the Murray-Darling Basin. It commenced a national conversation to:

- 1. Consider future constraints and opportunities for balancing environmental, cultural, social and economic demands of the Basin,**
- 2. Identify critical gaps and investments in knowledge that are needed to realise a sustainable future for the Basin, and**
- 3. Ensure that these investments deliver impact, securing the natural and managed landscape resources of the Basin for the future benefit of the nation.**

With 100 participants from diverse backgrounds, the forum explored the future of the Basin through the lens of global trends, the physical environment and regional communities and economies. The forum highlighted the need to embed the values of the people and communities of the Basin and recognised that long-term future strategic priorities and knowledge needs for the Basin will need better partnerships by:

- Connecting with people and their values,
- Connecting our lands and water, and
- Connecting Western and Indigenous knowledge.

The forum examined drivers of change, how we need to adapt to change, and building resilience to change. A solutions-focus to the challenges was a heartening feature of the two days of discussion, generating support for longer-term collaboration around the Basin.

Identified solutions which put people at the centre of a better Basin future included models of adaptive governance, using advanced data technologies that scale from farm to basin, models to better predict the future, and developing our social science capabilities.

The discussions started through this Forum will be ongoing and over time will engage leading thinkers from across the Murray-Darling Basin with diverse knowledge and backgrounds. CSIRO, which has played an important part in the history of Australian water reforms as a trusted advisor, thought leader and provider of independent and rigorous scientific solutions to inform Basin management, is committed to shared dialogue, learning and understanding. The *Future Ready Murray-Darling Basin Forum* has started capturing these ideas and developing broad alignment around key areas of knowledge and capability that are needed to help prepare Australia into the future.

Forum objectives

The *Future-Ready Murray-Darling Basin Forum: Beyond 2030* sought to bring together leading thinkers to collectively:

1. Initiate a constructive dialogue on the longer-term, future-looking priorities and knowledge needs of the Murray-Darling Basin,
2. Identify strategic priorities and knowledge needs for the future, and
3. Generate support for longer-term collaboration to develop and invest in an understanding of a *Future-Ready Murray-Darling Basin: Beyond 2030*.

This document synthesises key parts of the dialogue from the forum, with a focus on key points raised, including future change; what a future ready Basin looks like; and what actions we can undertake now.

Disclaimer: This document provides an informal synthesis of symposium discussions. It is intended to capture key contributions and the breadth of thinking, and to serve as a resource document to draw on in future development of ideas. It is not intended to be a complete formal record of symposium proceedings.



What do we know about the future of the Murray-Darling Basin?

Changes are happening, and inaction will only exacerbate their risks:

- The level of climate change predicted over the next two decades is unprecedented, with more hotter days and fewer cold days, increased heatwaves and extreme fire weather.
- Climate change impacts are already being manifested, with impacts being detected in ground and surface water, though future trends are difficult to predict.
- Non-stationarity is being observed with climate change, which means trends and their impacts are becoming harder to predict.
- Complacency and uncertainty about the future state is the greatest risk to being able to adapt to change.

Water reform is a work in progress, and there are some lessons we can learn, including:

- Water reform in the Murray-Darling Basin has been a world-first in terms of the scale of intervention, but it has been a difficult process.
- We acknowledge that the Water Act (2007) and the Basin Plan (2012) need to be given an opportunity to be fully implemented, to yield outcomes and to be evaluated.
- Experience up to now suggests that there is scope for strengthening engagement with communities across the Murray-Darling Basin.
- Communities desire deeper understanding of how the government make decisions within the Murray-Darling Basin.



What does a Future Ready MDB look like?

There are inevitabilities within the system: change, uncertainty, complexity, plural values, and ongoing impacts. For a Future-Ready Murray-Darling Basin, three success factors were the focus of discussion:

1

Knowledge

Understanding the cause, consequence and solutions

- Knowledge deficits are not always a barrier to change
- However, with better knowledge we know what levers to pull
- By investing in knowledge, we can:
 - Respect and integrate all knowledge types, and particularly indigenous knowledge, into policy and planning
 - Take a landscape focus to planning: Land *and* water
 - Find synergies, such as bridging between agriculture and the environment
 - Use new technologies to improve accounting and monitoring of the system, across scales, and to be prepared for change and improve on risk management.
- Knowledge is powerful when it connects to values and catalyses change

2

Values

Knowing we have to do something

- There is a plurality of values in the Murray-Darling Basin
- A focus on values puts participation and co-design as being central to dialogue
- There is a need to rebuild trust with the community to:
 - Improve connections: people, the land and water, food production, energy, and governance
 - Forge better partnerships: emphasis on synergies
 - Build better networks and bolster knowledge brokers
 - Empower Aboriginal voices in the Basin.

3

Policy and planning

Catalysing change to be ready for the future

- Institutions need to demonstrate integrity: being accountable, responsive and serving the long-term interest of all
- Policy and planning need to be adaptive and able to accommodate change and uncertainty
- Designing a future-ready policy environment will:
 - Allow for adaptive management across scales
 - Develop new forums for broader discussions
 - Gain collective agreement based on actions.
- Develop a portfolio of 'no regrets' actions we can adapt and adjust over time

What can we do now to achieve a Future-Ready MDB?

1

Understanding global drivers and their effect on the MDB

The Murray-Darling Basin has warmed by 1 degree Celsius since 1910. Global climate change is predicted to have dramatic consequences on weather extremes, water resources and distribution, agriculture, urban areas and ecosystems. Greater future variability in climate will test how we manage water resources.

Global populations are growing, their wealth is increasing, and their consumption – food, energy and water – is changing. Revolutions in technology and communication have consequences for agricultural production, efficiency of resource use, and sensing technologies, which affect how decisions are made. Societal values continue to change, while cultural values for water remain highly important.

Actions that can be undertaken now include:

1. Prioritising and funding research that takes an integrated approach to scenario analyses and fore-sighting; exploring impacts and adaptation of the environment and communities.
2. Synthesising existing knowledge of global drivers to support decision makers in policy development within the Murray-Darling Basin.
3. Assess the relative ‘skill’ of different climate models for the Basin and use the most skilled models for predictive purposes.
4. Assess the uncertainty associated with different climate models for the Basin and identify best suite of models for predictive purposes.



2

Engaging with communities to adapt to change

Due to the intensity and duration of the current drought, many Basin communities are hurting, and trust in policy and institutions is low. In engaging with communities, the purpose and engagement method needs to be appropriate for the scale for intervention. To date, reform is being explored through a water lens, and communities experiencing impacts from this and other drivers have no parallel structural change in regional planning and adjustment policies. Enabling and supporting communities to find their own solutions for adjustment, and working with government to facilitate equality, social justice and social responsibility, will empower people to make decisions. Taking an approach which recognises that each community is different is essential. Future readiness has room for rich, deep celebration of the way Australia's regional communities live, love, enjoy and care for water and rivers, while improving access to water.

To achieve this, funding models need to help build long-term trust with communities. Engagement needs time, and the integrity of this process is important. There is a need to reinvest in networks and partnerships within the Murray-Darling Basin.

Actions that can be undertaken now include:

1. Invest in regionally-based knowledge brokers to support delivery of information sharing between research, communities and government. Invest in regions to build capacity in communities to adapt to change and be proactively involved in the management of the Basin.
2. Develop and deliver community engagement programs that instil pride and ownership in the Basin, including by visiting schools and engaging in industry forums.
3. Invest in new and enduring partnerships between science delivery and policy agencies, for the co-design of research that can achieve impact for the Basin.
4. Convene annual Murray-Darling Basin forums that can share new knowledge, foster an exchange of ideas and build networks within the Murray-Darling Basin.

3

Investing in Aboriginal voices of the MDB

To date, our oldest surviving culture in the Basin has lacked a voice in water management. The Water Act (2007) requires regard be given to Indigenous people and values. Aboriginal people are impacted by decisions that exclude them in many ways. It is critical Aboriginal people are empowered and resourced to share their knowledge, and to communicate about water in multiple ways and languages, on their own terms.

Actions that can be undertaken now include:

1. Development of a First Peoples water strategy that embeds Aboriginal voices in future initiatives for a Future Ready Murray-Darling Basin.
2. Resourcing water research led by First Peoples and having Aboriginal knowledge mainstreamed across water research.
3. Development of governance models for Aboriginal water holdings.



4

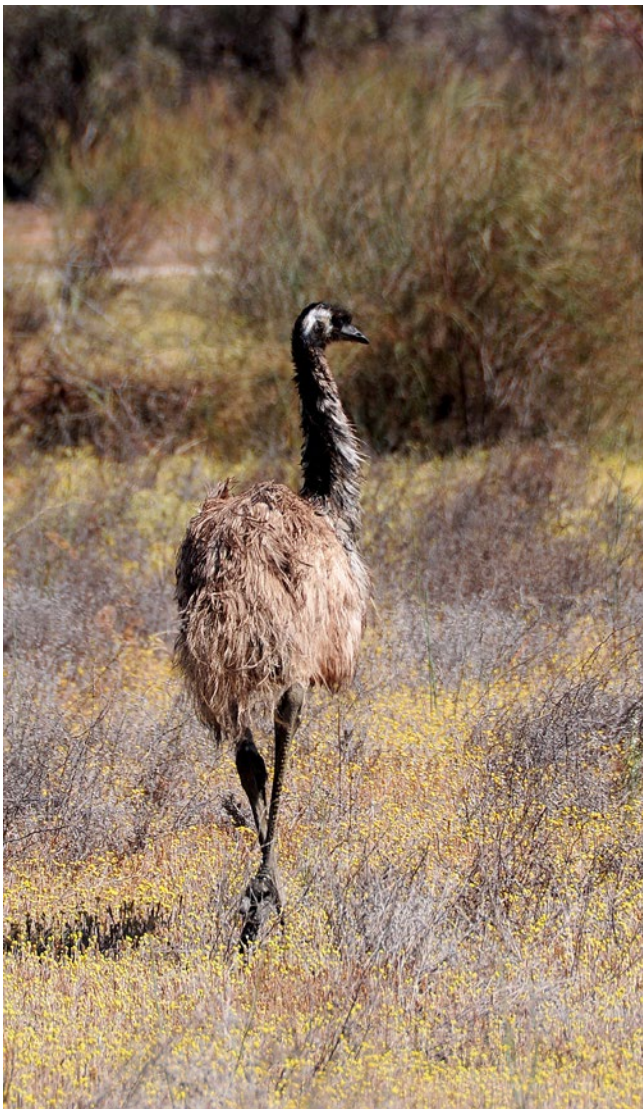
Strategic Investments in new knowledge and technologies

Science and technologies are fundamental to understanding the changes resulting from global and local drivers. Science can be used to identify trends, provide early warning signals of change, understand the consequences of Basin management, and the cause and effect of complex patterns of change. As policy and management evolves and the sophistication of our science and technology increases, our skills to apply these must also evolve to be ready and able to respond.

For example, horizon scanning methods can imagine potential futures and draw on knowledge and understanding from diverse sources, to develop pathways to adapt and prosper in times of change. Likewise, investing in new technologies (for example from genomics to satellites) can vastly improve monitoring and accounting in the Murray-Darling Basin.

Actions that can be undertaken now include:

1. Develop a cohesive science strategy for the Basin, considering support for investing in monitoring and evaluation to support policy-development and land and water management that takes a whole-of-system view (including social and economic perspectives).
2. Create new coalitions and research and development models, with partnerships into communities and government.



Building a system understanding

Science and technology investments are needed to improve our knowledge of managing an interconnected system. A strong environment sustains a strong industry. We need the flexibility to adjust the way water is used, and uncoupling water and land ownership has provided that. We now have a disconnect between land, water and energy governance, planning and management that is preventing policy integration. Integrated solutions need to bring water and land planning and management back together.

Reinvesting in building an understanding of the Murray-Darling Basin landscape as a connected system, that includes people and society, is important in supporting future, integrated policy processes. A systems view is needed for the science we do in the Murray-Darling Basin, to balance the broad suite of ecosystem services the Basin provides while keeping in mind that parts of the Murray-Darling Basin are already heavily modified. Drawing from the successes from water management from basins outside of the MDB can also provide fresh perspectives. System models are important for characterising complexity in ways that support learning.

Knowledge has greatest power when it connects with values and informs effective action, such as:

- Understanding risks and consequences
- System-scale analysis and modelling, and moving knowledge and systems to the Digital Age
- Multiple methods and assessment approaches focused on participation
- Creating a middle ground, and provide a platform to help people stay the course rather than political processes that leads to polarisation of views and dialogue
- Engaging, assessing and communicating plural values – participatory methods, stakeholder-driven scenario analysis and modelling
- Seeking consensus on collective actions despite enduring differences in values, and
- Demonstrating integrity: to be accountable, responsive and serving the long-term interest of all.



A challenge is how we get communities ready for the future we know is coming. At present, we are overwhelmed with information and we have an uncertain future. The science community needs to work with policy makers and the broader community to synthesize and integrate what we know and how to use that information to inform change. Providing a voice to the communities will enable a diversity of issues and solutions to be explored. It is important to work together to build capacity to understand what we are doing and why it is important. This fosters greater confidence and encourages all those with a stake to stay engaged and stay the course.

Actions that can be undertaken now include:

1. Invest in an annual State of the Basin report, which takes a whole of system view, can enable a more timely and integrated view for understanding, planning and responding to system change.
2. Bring land and water management back together by developing a systems understanding to inform planning and consider the influence and benefits of actions beyond just water management.
3. Develop a cohesive science strategy for the Basin, including investment in monitoring and evaluation that takes a whole-of-system view to support policy-development and integrated land and water management.



Priority Actions

Summary of Priority Actions to support a Future-Ready Murray-Darling Basin

1. Develop a Future-Ready Murray-Darling Basin science prospectus for the Basin, that provides a foundation for investment in knowledge to support resilient and adaptive communities, industries and the environment.
2. Undertake an annual State of the Basin report card, which synthesises the economic, cultural, social and environmental wellbeing of the Murray-Darling Basin.
3. Mainstream Aboriginal voices into activities within the Murray-Darling Basin.
4. Improve partnerships to address the current and future challenges of the Basin.



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