

SEGRA 2019 Barooga
Far West Joint Organisation Practitioners Round Table
22 August 2019

***Focusing regional and local actions to assess and manage climate change in
the Far West Region of NSW***
Immediate actions for moving forward

SEGRA 2019 at Barooga provided an opportunity to bring together a critical mass of practitioners, researchers and administrators to initiate a proactive collaborative program to address community and commercial concerns over the risks arising from changing climatic conditions. Especially, the impacts of the prolonged drought on the rivers and wetlands of the Far West Region of NSW.

Three key projects were identified through the PRT process that the FWJO can support immediately. Each may have valuable inter-connected flow-on effects for the FW Region.

1. Menindee Wetlands Ramsar Nomination to optimise the ecosystem services that can be delivered from the river and wetland system under changing environmental conditions by:

- managing catchments holistically
- realigning production landscapes so that they can still be economically utilised in the face of reduced rainfall and runoff, prolonged drought and extreme temperatures

2. Far West Region Risk Assessment and Adaptation Plan to enhance understanding of the impacts of Climate Change in the FWR and identify the practical measures that can be taken to:

- reduce risks to human health, livelihoods and lifestyles
- safeguard natural assets and valued cultural systems
- protect infrastructure and essential services

3. Increasing Resilience to Climate Change Grants Program (Round 3) funding application process can be initiated by:

- gaining partner and community endorsement
- updating information on risks and adaptive responses at the town and settlement scale in collaboration with the Climate Change and Sustainability Division, NSW Department of Planning, Industry and Environment
- identifying realistic cost effective adaptive and mitigative measures that can be implemented with the resources available to regional Councils, institutions, industries and businesses and non government organisations and community based bodies

These projects align with the FWJO *Key Statement of Strategic Regional Priorities* that is still to be adopted. Broad based knowledge and significant practical expertise is available to guide and assist the FWJO in delivering these projects.

FWJO will need to explore the potential Ramsar listings from a Federal environment department perspective while being fully aware that the NSW government is a key to anything happening. Realistically, the proposal for Ramsar site listing will require a 'long haul' commitment by all parties to the process. Importantly, this process could help bring various community sectors together in pursuit of a common goal.

Purposes

The purposes of the PRT were to:

- Consolidate and review the messages and outputs from the MDB Forum *Optimising biophysical and socio-economic opportunities arising from changing environmental conditions in the Murray Darling Basin* of 19 August and Conference sessions.
- Scope the key challenges being confronted by regional Local Government Authorities (LGAs) and the resources available to councils and communities address them.
- Identify and agree a pathway forward to:
 - protect and optimise the potential of regional ecosystem services
 - reduce the risks from changing environmental condition including extreme climatic variability
 - secure Ramsar nomination for the Menindee Lakes system
 - embed sustainability principles for the utilisation of natural resources and the livelihoods and lifestyles of people in the FWR

Context: Assessing and managing changing climatic conditions

A context was provided by overviewing the global scale of anxieties over changing climatic conditions and their biophysical and socio-economic effects on humankind. Community and commercial concerns over the risks arising from climate driven changes were discussed broadly. Especially, the impacts of the prolonged drought on the rivers and wetlands of the Far West Region (FWR) of NSW. These encompasses (for example):

- loss of Indigenous connectivity to cultural lands and waters
- degradation of riverine and floodplain systems
- reduction in aquatic and terrestrial biodiversity
- physical impairment of infrastructure and buildings
- financial losses from decreased primary production and tourism
- effects of extreme weather events on regional transport and infrastructure
- environmental and population health risks and associated costs

Language was seen as an issue because the term 'climate change' can mean different things to different people. Drawing on Intergovernmental Panel on Climate Change (IPCC) definitions, the following terms help to explain what climate change and 'changing climatic conditions' mean.

- **Global Warming** is the heating of the earth's atmosphere by natural and human drivers
- **Weather** is what we are experiencing now
- **Climate** is 30 years of average weather, usually measured from the International Meteorological Organisation [IMO] baseline 1961-1990
- **Climate variability** is measured in terms of extremes such as conditions being hotter and colder or wetter and drier
- **Climate change** is measured statistically in terms of averages and variance from a 30 year baseline (usually the IMO baseline)
- **Changing climatic conditions** is the summation of long term measured changes in mean and variable temperature, rainfall and other weather parameters signaling that what is observed now is statically significantly different from the past and this trend is projected to continue.

To illustrate, we know that:

- Globally temperatures are rising
- Australia wide weather is becoming more variable and with greater extremes
- Temperatures have been increasing across Australia over the past seventy years
- Rainfall has been decreasing along the East coast of Australia and across the Murray Darling Basin and beyond over the past seventy years
- Prolonged drought and heatwave conditions have become the observed norm

Being based on a long time series of climatological data, this summation demonstrates clearly that climatic conditions are changing. And there is a range of analysed data, models and projections to support this conclusion.

Extreme weather events and climate change-are not the same and the two terms should not be confused. Far too often this happens in the media when reporting of floods, intense storms (eg cyclonic activity and monsoons), prolonged drought and bushfires.

Although there is still ongoing debate as to the causation of climatic variability and change there is no longer scientific uncertainty. Statistically measured changes in climatic conditions are not conjecture or uninformed opinion. They are a mathematical, geographic and climatological reality.

Approach

A brief overview was provided by Adjunct Professor Peter Waterman of the messages and outputs from the MDB Forum *Optimising biophysical and socio-economic opportunities arising from changing environmental conditions in the Murray Darling Basin* of 19 August and Conference sessions. Peter reported that perspectives were provided at the Forum by representatives of governmental, non-governmental bodies and academic institutions on current actions that are addressing core challenges such as:

- Indigenous water values and safe water needs
- Independent assessment of social and economic conditions in the Basin
- Connecting catchments and communities
- Climate risks and adaptive response

The importance of the policy settings was a constant theme with the presentations and discussions. And this was again the case with MDB Panel Session on the 21st

Applying governmental policies and guidelines was focused at the PRT by discussion of the climate change policy and programs of: the NSW Government, the Commonwealth Government and the Murray Darling Basin Authority (MDBA). The on-line availability of published material was noted.

The pivotal role of the NSW Government was outlined by Dr Melinda Hillery from the Department of Planning, Industry and Environment (DPIE). Mel shared that the NSW Government are targeting Net Zero Emissions by 2050 and have promulgated a policy setting to meet this objective. On-the-ground efforts by LGAs and communities of interest to address climate change mitigation and adaptation at regional and local scales is supported by the Adapt NSW Tools and website.

Dr Hillery commended Balranald Shire Council (BRC) and the FWJO for pursuing funding under the Increasing Resilience to Climate Change (IRCC) program. The DPIE, BSC and FWJO collaborative working session on the afternoon of the 21st looked at the theme: Climate change adaptive private

domestic water supplies for rural and remote properties. This was seen as building on and giving action to the Secure Safe Domestic Water (SSDW) project work undertaken in the FWR since 2017. Pre-PRT scoping found that the core environmental change challenges being confronted by regional Local Government Authorities (LGAs) in the FWR include.

- Regional climate risk assessment and adaptive responses
- Integrated catchment management (ICM) and the FWR
- Biophysical and socio-economic benefits from ecosystem services
- Ramsar as a tool for multiple uses of river and wetland systems
- Secure and safe domestic water supplies
- Impacts of extreme weather events on transport and infrastructure
- Facilitating sustainable health services and practices

Measures for focusing regional and local actions to assess and manage climate change in the Far West were introduced in short presentations and Q&A on:

- Integrated catchment management (ICM) and Ramsar
- Ecosystem services and sustainable development
- Secure and safe domestic water supplies
- Sustainability in the health and aged care sectors

From the discussions among the PRT participants, it was most evident that the lack of resources available to LGAs and communities to address the challenges and undertake adaptive actions to address them is a major problem. And one that needs to be addressed collaboratively and local and regional scales.

Focusing discussion

Integrated catchment management (ICM) and Ramsar

Professor Max Finlayson set the scene for focusing regional and local actions to assess and manage climate change by emphasising the importance of seeing integrated catchment management (ICM) as a regional biophysical and socio-ecological process. Such a holistic approach is needed to accommodate the implications of the global energy paradigm in moving to a carbon reduced economy and the human dimensions of the impacts of climate induced changes on lifestyles and livelihoods. Population pressures from urbanisation in regional towns and cities with increasing demands for domestic water supplies also needs to be addressed holistically. Such a broad approach includes maximising the benefits of ecosystems services for people living and working on diverse production, conservation and cultural landscapes.

In this context, Max asked: *Are we asking too much from the Basin Plan timeline?* A question that needs to be addressed sooner rather than later if the MDB is to be managed to meet the critical human water needs of people in the FWR.

Attachment 1 is the PPP Max used for his presentation on the pathway and challenges to be addressed when seeking Ramsar nomination for the Menindee Lakes system. Some very clear messages emerged when PRT participants discussed what Max had provided. They included that:

- the reality of the Ramsar process and the outcomes need to be thoroughly understood by all stakeholders, communities of interest and the media

- traditional ownership and land claims relating to the riverine and wetland system are addressed in partnership with the Aboriginal Land Councils and communities as a priority action
- there is a thorough scientifically informed understanding of what are the current and future biophysical conditions when compared with the ideal
- there is an appreciation that human impacted areas can be restored and managed to accommodate the realities of changed landscapes and climatic conditions
- conservation and wise use of wetlands should maintain ecological character while at the same time benefiting people
- the weaknesses in the 2010 documents are understood and information gaps are researched and closed
- all stakeholders are engaged and committed to what will be a 'long haul' process

Ecosystem services and sustainable development

Adjunct Professor David James spoke broadly about natural resources of regions and sustainable development and explained that the Convention on Biological Diversity defined ecosystems as: *"A dynamic complex of plant, animal and micro-organisms and their non-living environment interacting as a functional unit"*. And in speaking to his PPP ([Attachment 2](#)) he noted that they could be characterised as:

- Renewable resources
- Resilient
- Scalable
- Perform functions essential for life support
- Capable of underpinning sustainable economic activity and development
- May be intensively managed or left in predominantly natural state
- Occur within private and public domains

Further, David said we need to see ecosystems as capital assets in terms of:

- Parallels with economic capital
- Stock resources
- Production of goods and services
- Vulnerable to degradation and/or depletion
- Capable of restoration or enhancement from investments and wise management

David explained that ecosystem services are: *goods and services produced by ecosystems of benefit to individuals and communities* and they can be categorised as supporting services, provisioning services, regulating services and cultural services.

Frameworks for assessment of ecosystem services broadly encompass: connecting ecosystems with human well-being; ecosystem functions and ecosystem services; and values of ecosystem services in monetary and other ways. Examples are provide by:

- Millennium Ecosystem Assessment (MEA)
- South East Queensland (SEQ) Ecosystem Framework
- UN System of Environmental Accounts (SEA) Central Framework
- UN System of Environmental Economics Accounting (SEEA) Experimental Ecosystem Accounting Framework

Ecosystems in the MDB include:

- Native grasslands and croplands
- Woodlands and forests
- Orchards and vineyards
- Irrigated pasture, floodplains and wetlands
- Freshwater lakes and riverine aquatic systems
- Estuarine systems

Economic activities supported by ecosystems in the MDB comprise:

- Irrigated and dryland agriculture
- Riverine and estuarine fisheries
- Native and plantation forestry
- Domestic water supply
- Education and scientific research
- Tourism and recreation-based commercial activities
- Residential and industrial development

Cultural values of ecosystems in the MDB involve:

- Option use values
- Existence and bequest values
- Sense of place
- Indigenous values
- Ecosystems of national and international significance (Ramsar etc)

David noted that, unfortunately, the context for decision-making is sometimes perceived as ‘fish or birds or trees’ *versus* jobs, but suggested that jobs *versus* environment arguments were misguided. Changing attitudes to counter this view requires considerable political and societal will and effective community awareness and information programs. As emphasised long ago by the World Commission on Environment and Development in the Brundtland Report, environment protection and economic development should be mutually reinforcing. Identifying the interconnections between healthy ecosystems and human well-being can provide a basis for operational paradigms that optimise social, economic and environmental outcomes. Specifically, this entails: viewing natural assets as generators of economic benefits as well as non-economic benefits; appreciating that they can be innovatively managed as free gifts from nature; and ensuring that their positive values are optimised.

In assessing the potential for natural assets to enhance socio-economic well-being, iconic sites in production and conservation landscapes should be identified as special attractions and promoted through careful ‘brand revitalisation’. Natural assets are important contributors to a ‘sense of place’ in local communities, supporting social cohesion, recreational opportunities and cultural practices and values. For local communities, non-commercial values placed on natural environments are often just as important as marketable primary products emanating from rural and regional landscapes. And they may also be of national and international significance.

David wrapped up by saying that advancing ecosystem services as a management tool in the FWR of the MDB required:

- Proactive engagement and collaboration with Indigenous, primary industry and community stakeholders
- Collaboration with Federal and State agencies and LGAs
- Clear articulation of key management objectives and formulation of plans of action
- Agreeing and resourcing a rigorous research agenda and collaborative involvement of research institutions, industry and communities of interest

Secure and safe domestic water supplies

Peter Waterman provided a brief update on progress with the ILWS-SEGRA collaborative SSDW project in the FWR. The activities are aimed at providing strategies for meeting critical human water needs pursuant to Section 86A of the *Water Act 2007*. This project is part of the SEGRA Challenge: *Securing Adequate Safe Domestic Water for Rural and Remote Regional Australia*. [Attachment 3](#) is the briefing materials used in engagement activities in the Central and Lower Darling in 2017-18.

Peter emphasised that understanding critical human water needs from the perspectives of communities and people who are dependent on the surface and ground supplies in the MDB is fundamental to the success of implementation of the Basin Plan. Especially, from the 'bottom-up'.

Engagement activities undertaken in 2017-18 confirmed that the lack of adequate and safe domestic water on rural and remote properties is of serious concern in the FWR. A range of issues have been raised at public forums and are well documented in the media. Proactive information dissemination is needed to reduce misconceptions with respect to governmental responsibility for meeting critical human water needs. In short, if you are dependent on private sources you are on your own with respect to adequacy and quality of the supplies.

Collectively, these issues point to poor quality domestic water being a potential constraint to sustainable social and economic development. Specifically, for small settlements in the FWR region and for the MDB in general. And the associated health risks and potential costs are still to be dimensioned.

Peter pointed out that personal awareness of possible health risks from poor quality domestic supplies (rainwater tanks, surface supplies, shallow and deep bores) is lacking. Many people are complacent as to the potential health risks from rainwater tanks. Attitudinal and behavioural change towards domestic water quality is pivotal to reducing health risks from all water sources on rural and remote properties and from rainwater tanks in towns and Aboriginal communities.

Data on the adequacy and quality of untreated domestic supplies from all sources (including rainwater tanks) in the MDB is highly deficient. As well, health and related problems (including presentations for medical treatment and hospitalisation) arising from the quality of poor quality private domestic water supplies have not been dimensioned. Governments have been urged to address these concerns as matter of urgency.

NSW Health guidelines for managing private domestic supplies including rainwater tanks are available on-line and this resource needs to be promoted to people on rural and remote properties and to people in towns and communities who are using rain water for potable purposes

Sustainability in the health and aged care sectors

Dr Teresa Lewis provided an essential human dimension of the challenges arising from changing climatic conditions and associated health risks in the context of understanding sustainability

systems. A case example was used to demonstrate the need to lift understanding of what sustainability means in the workplace and (as a practical example) embed sustainable adaptive and mitigative strategies and actions in community hospitals and aged care facilities. Specifically, the need to work at 'the pit face' to reduce water consumption and conserve resources use starting with local hospitals and aged care facilities. The Power Point that Teresa used as the basis of her presentation is at [Attachment 4](#).

Teresa asked: *So, what are these barriers to understanding sustainability systems?* On the basis of six years of research in Australia, Teresa concluded that some of the main reasons barriers occur are through:

- The lack of communication.
- The absence of meaningful education, because education needs to be significant to the specific type of business being conducted which is often not the case resulting in non-progression.
- The inability for employees to have input into processes that affect specific areas of their work leading to supportive frontline failure.
- The lack of ownership of projects and operational procedural planning means there is no balance between management and employees.

In turn this raised the question: *How do we go about engaging employees and management so that businesses can become successful in meeting their sustainability goals?* The answer was seen in a two way process whereby:

- Communication gives everyone a voice not just management.
- Imparting meaningful education so that employees understand the value of sustainability to their occupation or profession.
- Enabling employees to become contributors to operational planning especially specific to their area of work.
- Fostering open disclosure so that there is not only ownership of work production, but there's a feeling of mutual respect between management and employees.

Kooweerup Regional Health Services (KRHS) in Victoria was used as the case example. Through understanding the importance of education KRHS has been able to instill:

- Adaptation into its internal and external communities.
- Sustainability through a balance of ownership which helps nurses to value the three pillars of sustainability.
- Resilience, especially when addressing the implications of adverse weather events for patients, staff and the wider community.

As a dynamic community resource, KRHS continues to evolve as a more sustainable 'health hub' by:

- Maintaining partnerships, for example with the Climate and Health Alliance (CAHA) and Global Green and Healthy Hospitals (GGHH)
- Continuing meaningful education to staff and patients on the effects of climate change.
- Ongoing monitoring and benchmarking against all Victorian small rural health services to reduce emissions by 10% per annum.
- Embedding 'Health Promotion' into its core business with roll-out through practical initiatives.

- Environmental strategies for increasing resilience have been reviewed and integrated into the Strategic and Operational Plan (SOP).
- Ensuring cost savings by introducing solar tubes in main corridors.
- Changing cleaning practices – no more mop, bucket and chemical use its now over to microfiber and steam cleaning.
- Demonstrating that introducing Ozone technology for the laundry has economic benefits by reducing hot water usage.

Teresa provided an overview of how staff and community members felt about their hospital's sustainability project, concluding that:

- It brings the feeling of peace and friendship in the community garden
- There's an appreciation of one another
- It's about life-long learning from each other
- It's about being inspired by the work being carried out
- About gratitude - of being able to work towards a sustainable lifestyle; and the pleasure of eating organic produce purchased from the community garden.

Focusing outcomes and actions

Assessing and mitigating environmental risks provided a focus for the 'Round Table' discussion of tools and techniques for integrated adaptive assessment and management, encompassing:

- Regional scale ICM, rivers and wetlands
- Ecosystem services and Ramsar
- Secure and safe domestic water
- Sustainable health services and practices

Participants at the PRT sought to identify and agree a pathway forward to:

- protect and optimise the potential of regional ecosystem services
- reduce the risks from changing environmental condition including extreme climatic variability
- secure Ramsar nomination for the Menindee Lakes system
- embed sustainability principles for the utilisation of natural resources and the livelihoods and lifestyles of people in the FWR

Group discussion explored the 'way forward' by broadly looking at:

- How do we build on strength?
- Harvesting low hanging fruit
- Optimal ways of mobilising the skills and capabilities of:
 - regional Indigenous communities
 - industries
 - local stakeholders
- Sourcing funds and professional support

Outcomes and recommended actions

Key outcomes and recommended actions are summarised as follows.

1. Reduce the risk of further degradation to production and conservation landscapes.

This requires:

- An overarching communications strategy to engage stakeholders and raise awareness of climate risks.
- Embedding consideration of the benefits of ecosystem services in proposals for changes in agricultural and pastoral land uses and rehabilitation/restoration of degraded rangeland, wetland and riverine systems.
- Enhanced natural and human asset based community development initiatives that are underpinned by sound information.
- Development of a regional voice through 'Brand and Market Perception' with management through strategic communications.

2. Prepare and submit a Ramsar nomination as a vehicle for promoting and optimising the value of the ecosystem services of the Menindee riverine and wetland systems for communities of interest, space and spirit.

This requires:

- Developing a community view by engaging stakeholders in developing the vision and undertaking the journey and in doing so allay fears and reframe benefits arising from the nomination.
- Critical analysis of alternative planning structures and catchment management mechanisms.
- Carrying out a literature review, information audit and gap analysis based on existing data and information from previous submissions and proposals.
- Designing, agreeing and resourcing the research needed to fill the identified gaps and meet the requirements of the nomination process.

As a Phase I of the process, an *Options Paper and Business Case* should be produced as a vehicle to guide stakeholder engagement and gain endorsement to proceed with the nomination.

3. Further the secure, safe domestic water initiative to reduce risks to human health and forestall avoidable costs for medical and hospital services.

This requires:

- Greater understanding of water quality issues and health risks from poor quality domestic supplies (rainwater tanks, surface supplies, shallow and deep bores).
- Attitudinal and behavioural change towards domestic use of all water sources on rural and remote properties and from rainwater tanks in towns and Aboriginal communities.
- Qualitative and quantitative data on the adequacy and quality of untreated domestic supplies from all sources (including rainwater tanks) in the FWR.
- Dimensioning health and related problems (including presentations for medical treatment and hospitalisation) arising from the quality of poor quality private domestic water supplies.
- Promotion of NSW Health guidelines for managing private domestic supplies including rainwater tanks.

4. Enhance regional transport and infrastructure to mitigate emissions and reduce the impacts of extreme weather events.

This requires:

- Undertaking a regional 'Transport Linkages Analysis' to inform, be informed and provide a lens through which to evaluate community/social dimensions of transportation needs and costs in the face of climate change challenges encompassing:
 - domestic vehicle use
 - commercial freight
 - tourism and recreational travel
- Reviewing the quality the physical infrastructure in terms of (for example) susceptibility of:
 - road materials and airport tarmacs to extreme heatwave conditions
 - bridges and culverts to flash flooding

5. Embed sustainability in local health and aged care policy, infrastructure and operations as a front line response to changing climatic conditions.

This requires:

- Undertaking a regional evaluation of the level of adoption of sustainability principles and practice in health and aged care facilities with purposes of:
 - reducing the consumption of electricity and water
 - minimising the generation of waste materials (solid, liquid)
 - engaging staff at all levels as champions of sustainable workplaces and lifestyles
- Building partnerships between local hospitals and aged care providers to facilitate strengthening of their roles in addressing the effects of:
 - extreme weather events (eg heatwaves, dust from storms and smoke from bushfires) on vulnerable age groups (small children and aged)
 - health impacts of poor quality domestic water supplies
- Fostering continuing meaningful awareness raising and education for staff and patients on the effects of climate change.
- Optimising health and aged care facilities as 'hubs' for demonstrating best practice in applying sustainability principles and practice at home
- Communicating the success of sustainably initiatives to local and regional communities.

6. Seek governmental funding and institutional support to increase resilience and adapt to climate change in the FWR.

This requires:

- Engaging with State Government Departments to better access program funding
- Appreciating broader sources of public and private sector funds and how to access them
- Building institutional partnerships to collaboratively seek funds for innovative research, development and demonstration (RD&D) projects
- Mobilising personnel from partnering bodies to prepare bids for project funding and RD&D initiatives

Next steps

Further collaborative work is needed to help the FWJO build a cost effective action focused framework for:

- Developing action plans, work schedules and realistic timelines
- Determining measurable deliverables
- Agreeing who would deliver the actions
- Ascertaining the level of resources and professional support required

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- gaining partner and community endorsement
- updating information on risks and adaptive responses at the town and settlement scale in collaboration with the Climate Change and Sustainability Division, NSW Department of Planning, Industry and Environment
- identifying realistic cost effective adaptive and mitigative measures that can be implemented with the resources available to regional Councils, institutions, industries and businesses and non government organisations and community based bodies

These projects align with the FWJO *Key Statement of Strategic Regional Priorities* that is still to be adopted. Broad based knowledge and significant practical expertise is available to guide and assist the FWJO in delivering these projects.

Importantly, the Ramsar initiative has to mesh with planning by the NSW Government regarding the future of Menindee Lakes. This work is being done in collaboration with MDBA. Not to do so could result conflict. A detailed proposal for the Lakes had already been prepared by the NSW Government as a so-called 'supply project' under the provisions of the SDLAM (Sustainable Diversion Limit [SDL] Adjustment Mechanism) that allows for a 5% adjustment in the SDL. But it does have broader implications as the lakes are a critical resource in that part of the system, with important upstream and downstream linkages.

The draft SDLAM project plan involved significant infrastructure modifications as well as amendments to flow management. However, it is likely that the Menindee Lakes SDLAM project will be completely re-designed, largely as a consequence of the Independent Panel's report (the Vertessy Report) relating to the fish kills in the Lower Darling and Menindee Lakes earlier in 2019. The Vertessy report is available on the MDBA website and it contains detailed recommendations on water management and environmental monitoring. Buybacks of water rights upstream (Class A licences) were one of those recommendations.

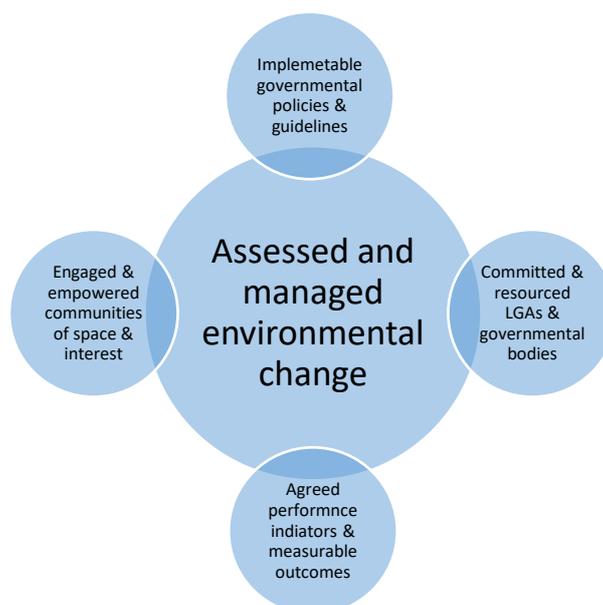
In this context, any proposal to nominate Menindee Lakes as a Ramsar site must involve close interaction with the NSW Government and the MDBA to ensure that the management objectives, physical morphology, flow management regimes and environmental monitoring operations for the lakes (taking into account the obligations to downstream water users as well as environment protection of the lakes themselves) are all compatible. And this is seen as being essential in persuading the Australian Government to nominate the lakes as a Ramsar site.

Summing up

The essential ingredients for success when assessing and managing environmental change (including changing climatic conditions) were broadly identified when planning the PRT. These have been confirmed through the presentations and accompanying broad ranging discussions. This process demonstrated that a coordinated inter governmentally endorsed regional approach is required to:

- Deliver climate change risk assessments and adaptation programs and projects that are supported by governmental policies, guidelines and participation in advisory roles.
- Accommodate the geographic and societal realities of rural and remote based LGAs and governmental bodies as committed and resourced stakeholders.
- Meet societal expectations of engaged and empowered communities of space and interest with respect to changing climatic conditions.
- Provide delivery mechanisms that embed agreed performance indicators and measurable outcomes.

They are synthesised schematically as follows.



Three projects have been identified:

- Menindee Wetlands Ramsar Nomination
- Far West Region Risk Assessment and Adaptation Plan
- Increasing Resilience to Climate Change Grants Program (Round 3)

These are seen as 'immediate actions' that the FWJO can deliver in collaboration with institutional partners and regional stakeholders.

FWJO will need to explore the potential Ramsar listings from MDBA and Federal environment department perspectives while being fully aware that the NSW government is a key to anything happening. Additionally, Traditional Owners and local and regional communities of interest must support the nomination. Realistically, the proposal for Ramsar site listing will require a 'long haul' commitment by all parties to the process. Importantly, this process could help bring various community sectors together in pursuit of a common goal.

The FWJO PRT has initiated a collaborative process for assessing and managing environmental change in the FWR. This inaugural activity has focused on changing climatic conditions in the region. Participants who helped launch this process through the PRT are as follows.

Dr	Graham	Cam	President Birdlife Australia
Professor	Max	Finlayson	Director ILWS
Mr	Mark	Forbes	CEO Far West Joint Organisation
Mr	Greg	Hill	General Manager CDSC
Dr	Melinda	Hillery	Senior Project Officer NSW DPIE
Dr	David	James	Adjunct Professor ILWS
Mr	Frank	Malcolm	Investment Development Officer
Mr	Michael	Vanderzee	PhD Researcher
Dr	Wesley	Ward	Adjunct Research Fellow ILWS
Adjunct Prof	Peter	Waterman	Pracademic ILWS
Mr	Michael	Williams	Director RDA Far West NSW
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Briefing Note: Secure, Safe Domestic Water (SSDW) in the Central & Lower Darling Region

Setting the scene

Australia wide, apart from health information brochures, little assistance is provided by any level of government to reduce potential health risks from non-scheme water in rural and remote regions. People on farming and pastoral properties are left to their own devices to secure adequate and safe domestic water supplies. Currently, the sufficiency and quality of these resources is largely unknown and the potential health risks arising from this situation are not being addressed. And this deficiency has implications for economic productivity and the quality of life for people in 'regional Australia'.

Policy underpinning for a Murry Darling Basin (MDB) project

Critical human water needs are defined in subsection 86A (2) of the Water Act 2007 and Chapter 11 of the *Basin Plan* and cover all uses of surface and ground water for domestic purposes. Essential first steps towards understanding how this statutory requirement is being met at the property scale include: raising awareness of potential health risks; water quality screening; and providing information on remedial actions to reduce the impacts of poor quality domestic water supplies. To this end, the Murray Darling Basin Authority (MDBA) supports the SSDW project and are keen to see it initiated in the Central Darling as a priority region.

What the Central & Lower Darling SSDW project seeks to achieve

The project seeks to establish a community based collaboration (SSDW-Central Darling) to support the sustainable provision of adequate safe domestic water from private supplies. Specifically, for people who are dependent on surface and ground water and rainwater tanks. This covers remote towns and settlements, farming and pastoral properties and isolated commercial enterprises such as tourist infrastructure, caravan/camping parks and service stations. Rainwater tanks in Broken Hill and regional towns are also private supplies and the quality of the water needs to be monitored.

What is required and what costs may be involved?

Community organisations could take leadership roles in the collaboration by assisting in raising awareness of potential health risks from poor quality supplies, fostering water quality screening, and promotion of simple cost effective measures to reduce health risks.

For the 'initiating stage' of the proposed collaboration, costs will be incurred for participating in project coordination, in-kind support in disseminating awareness raising information and communicating with residents to encourage them to be involved in regional workshops/information sessions. Ongoing in-kind support would be incurred in sustaining the initiative and disseminating health promotion information. Costs for simple water quality screening are still to be determined and this item would be addressed in formalising the SSDW-Central Darling collaboration.

The benefit for people in Broken Hill and the Central Darling region

The SSDW project has as its core purpose the reduction of health risks from poor quality domestic water supplies from rainwater tanks in the city and from all sources on farming and pastoral properties and other remote enterprises in the Central Darling. Better focused health promotion and protection are the fundamental benefits for all people living in or passing through the region.

Secure Safe Domestic Water for the Central and Lower Darling (SSDW-C&LD)

What is the SSDW-C&LD project seeking to achieve?

We are seeking to

Establish community based collaborations to support the sustainable provision of adequate safe domestic water from private supplies

Especially for

- remote towns
- settlements
- farming and pastoral properties
- isolated commercial enterprises (eg tourist infrastructure, caravan/camping parks and service stations)

Benefit for people in the C&LD

The core purpose of the SSDW-C&LD project is:

Reduction of health risks from poor quality domestic water supplies on farming and pastoral properties and other remote enterprises

The fundamental benefits for communities and households are:

- ***Clearly identified health risks***
- ***Focused health promotion***
- ***Cost effective risk reduction and protection***

That are for

- **you**
- **your family**
- **friends and visitors**

Are you interested in part of this initiative?

If you are, please contact -----

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Community engagement sponsored by:

