

Case Study 2

The Murray-Darling Basin – an ecological and human tragedy

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1. Overview

The landscape of the Murray-Darling Basin (MDB) is under severe ecological stress. Issues such as salinity, poor water quality, stressed forests, dried wetlands, threatened native species, feral animals and noxious weeds are commonplace within the MDB. The reasons for this dramatic decline in river health are caused by water mismanagement including reversal of natural flow cycles and over allocation of water licences. Generations of bad farm practices such as deforestation have also played a major role in the ecological disaster that is the MDB.¹

Made up of the River Murray, the Darling River, the Murrumbidgee River, and all creeks and rivers that flow into them, the landscape within the Murray-Darling Basin (MDB) is incredibly diverse. It includes forests, plains, grasslands, mountain ranges, and both dry and ephemeral lakes and wetlands. The MDB supports a significant portion of Australia's biodiversity including species of flora and fauna found only within the MDB, such as the Coorong Mullet, Superb Parrot and the Murray Cod. These systems rely on the natural drying and flooding regime at appropriate times of the year. This variability provides for major breeding events of birds, fish and other fauna.

Text Box 1: The Murray-Darling Basin

The MDB is home to a large number of different plants and animals including:

- 35 endangered species of birds
- 16 species of endangered mammals
- over 35 different native fish species.

The MDB also includes over 30,000 wetlands – some of which are listed internationally for their importance to migratory birds from within the Basin, other parts of Australia and overseas.

1 Murray Lower Darling Rivers Indigenous Nations, *Murray-Darling Basin (Draft)*, unpublished, as cited by the Indigenous Peoples Organisation Network (IPO), *Environment – Indigenous Peoples Organisation of Australia Response*, Response to Agenda Item 4.2 – Environment of the Seventh Session of the United Nations Permanent Forum, New York, 21 April – 2 May 2008.

The MDB is also characterised by a variety of climatic conditions across its diverse landscape, ranging from sub-tropical conditions in the far north, cool humid eastern uplands, high alpine country of the Snowy Mountains, temperate conditions in the south-east, and hot and dry in the semi arid and arid western plains.²

Map 1: The Murray-Darling Basin³



The MDB is also an ancestral geographic domain, with nationally and internationally significant ecological sites, including four of the largest River Redgum forests in the world. The MDB also includes a number of Ramsar and World Heritage listed sites:

- Barmah-Millewa Forest
- Gunbower/Koondrook Forest

2 Murray-Darling Basin Commission, *The Murray-Darling Basin*, Information Sheet. For further information, see www.mdbc.gov.au.
 3 Murray-Darling Basin Commission, Map of the Murray-Darling Basin. At: http://kids.mdbc.gov.au/_data/page/75/Basin_Map.pdf.

- Perricoota Forest
- Werai Forest
- Hattah Lakes
- Chowilla Floodplain
- Menindee Lakes
- Lake Victoria
- Coorong and Lower Lakes
- Lake Mungo.

The MDB covers 1,061,469 square kilometres, about 14 percent of Australia's total area.⁴ The Basin is currently managed between five states and territories: Queensland, the Australian Capital Territory, New South Wales, Victoria, and South Australia. Each have their own water laws and policies which amount to an inconsistent approach to the effective management of the Basin.

The MDB is home to more than two million Australians. As well as providing drinking water to over three million people (more than one third of these people live outside the basin), the MDB provides for almost 45 percent of the value of Australia's agricultural output, including its sheep and cattle industry and major food and produce such as wheat, rice, cotton, vineyards, canola and soy. The MDB also generates approximately \$800 million per year in tourism and recreational industry income.

Text Box 2: Modern perceptions of the Murray-Darling Basin⁵

The Murray River has been perceived by governments and many others as central to the economic potential of the nation. This includes modern conceptualisations of nature, economy and nation – and water.

The Murray River was perceived as a liquid lifeline for agriculture in the semi-arid and arid inland. In the 1940s and 1950s governments and private industry popularised the Murray River as a powerful unlimited resource for the production of agricultural crops.

However, with limited knowledge of the variable natural flow of the inland rivers and weather patterns (which was at odds with methods of European agriculture), early settler farmers suffered valuable crop and stock losses, and extensive flooding destroyed townships such as Moama and Gundagai. To manage this problem irrigation schemes to drought proof agriculture were developed and townships were built on higher ground.

With irrigation activity in southern NSW and northern VIC, weirs have raised the height of water so it can move by gravity to agricultural lands, along canals and channels.⁶ By the mid 1970s, almost all of the water in the Murrumbidgee Irrigation Area had been allocated to irrigators.⁷

Today, 90 percent of the water consumed in the Murray-Darling Basin is used to irrigate agricultural lands, effectively diverting water into new networks, expanding the system of waterways from ephemeral creeks, to regulated channels next to irrigated fields.

4 Murray-Darling Basin Commission, *The Murray-Darling Basin*, Information Sheet. For further information see www.mdbc.gov.au.

5 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, pp 60-63.

6 D Eastburn, the River, in *The Murray*, ed N Mackay and D Eastburn, Murray-Darling Basin Commission, Canberra 1992, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 63.

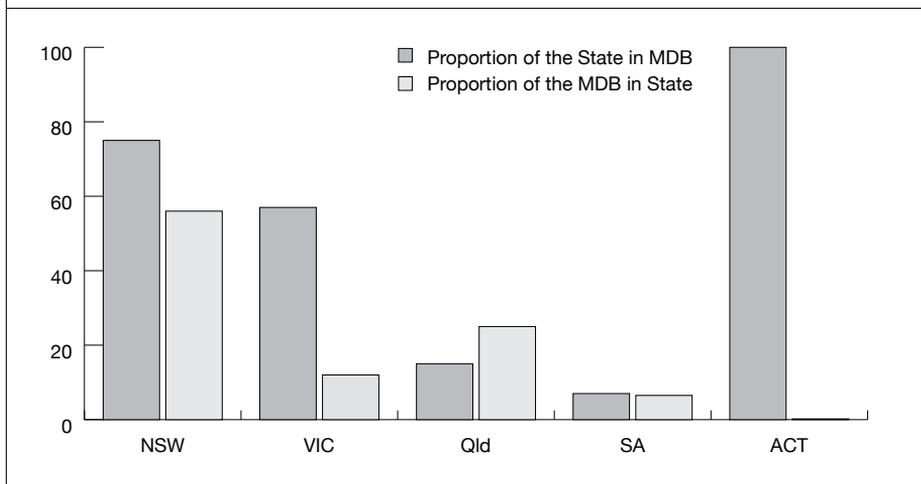
7 P Sinclair, *The Murray: a River and its People*, Melbourne University Press, 2001, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 63.

Individuals and companies apply to State governments for water permits, licences, allocations or entitlements which are issued as use rights rather than ownership. Use rights confer the authority to take water from a water source.⁸ More recently, control and allocation systems have extended to groundwater, with growing recognition that all water sources are connected.⁹

By way of comparison, the MDB is one of the driest catchments in the world. The catchment of the Mississippi River contributes 20 times more runoff per square kilometre while the Amazon catchment contributes 75 times more runoff per square kilometre.¹⁰

Although the MDB is one of the most variable riparian ecosystems in the world, research conducted by CSIRO and the Bureau of Meteorology (BOM) indicates that while these extreme climate conditions are caused partly by drought, they may be also partly attributed to global climate change, and that such conditions are likely to become more common.¹¹

Table 1: Proportion of the State in Murray-Darling Basin¹²



8 Productivity Commission, *Water Rights Arrangements in Australia and Overseas*, Commission Research Paper, Melbourne, 2003, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 63.

9 J McKay, Water, rivers and ecologically sustainable development, in *Fresh Water: New Perspectives on Water in Australia*, ed, E Potter, S McKenzie, A Mackinnon, J McKay, Melbourne University Press, 2007, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 63.

10 The Senate Standing Committee on Rural and Regional Affairs and Transport, *Report of the Standing Committee on Rural and Regional Affairs and Transport, Water management in the Coorong and Lower Lakes (including consideration of the Emergency Water (Murray-Darling Basin Rescue) Bill 2008)*, October 2008, Commonwealth of Australia, p 9. At: http://www.aph.gov.au/Senate/committee/rrat_ctte/lowerlakes_coorong/report/report.pdf (viewed 12 January 2009).

11 CSIRO and Bureau of Meteorology (2007) Climate change in Australia. Online technical report, CSIRO, 2007. At: <http://www.climatechangeinaustralia.gov.au>. As cited by CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 7. For further information see www.csiro.au.

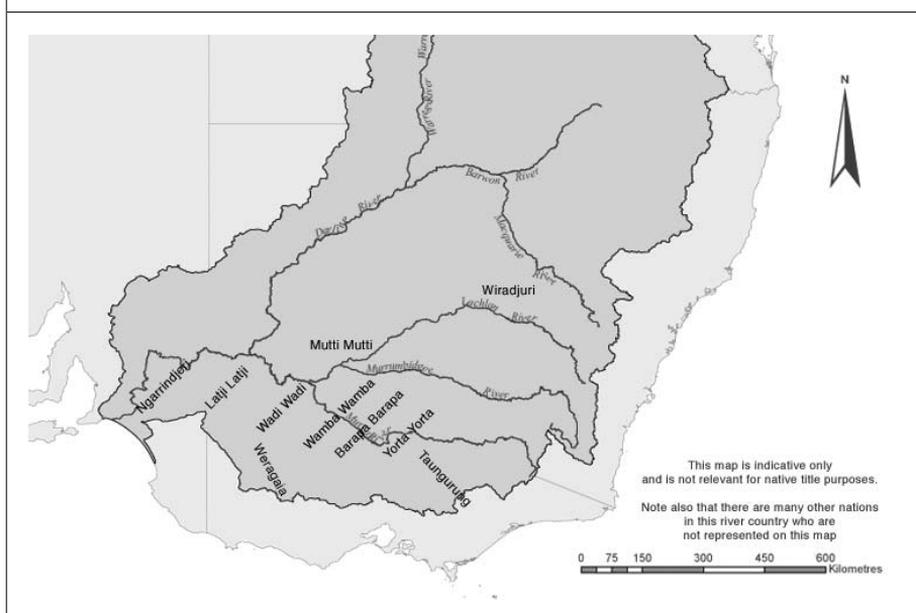
12 Proportion of the State in MDB: NSW – 75%, VIC – 57%, Qld – 15%, SA – 7%, ACT – 100%, proportion of the MDB in State: NSW – 56%, VIC – 12%, Qld – 25%, SA – 6.5%, ACT – 0.2%. For further information see www.mdbc.gov.au.

2. Indigenous peoples of the Murray-Darling Basin

Indigenous peoples currently make up 3.4 percent of the Basin's total population, 15 percent of the national Indigenous population.

The Murray-Darling River Basin is home to up to 40 autonomous Indigenous Nations¹³ across the five states and territories. These Traditional Owner groups include the Ngarrindjeri, Kurna, Peramangk, Wamba Wamba, Wadi Wadi, Wiradjuri, Yorta Yorta, Muthi Muthi, Mungatanga, Barkindji, Taungurung, Latji Latji, Wergaia, Wotjabulak, Barapa Barapa, Gamiloroi, Bugditji, and Nyiamppa Nations.

Map 2: The Indigenous Nations who have formed the alliance the Murray Lower Darling Rivers Indigenous Nations¹⁴



These Indigenous groups are interconnected by a compatible system of kinship law, who 'maintain an on-going social, cultural, economic and spiritual connection to their lands, waters and natural resources within the Murray-Darling Basin. Combined, their country extends between the Qld headwaters through to the Darling and Murray rivers systems within NSW, ACT and VIC to the ocean in SA'.¹⁵

13 The Traditional Owner groups of the Murray-Darling River Basin region identify as Indigenous Nations. For the purposes of this report, the use of the term 'Indigenous Nations' will be used in the same context as 'Indigenous peoples' and 'traditional owner groups'.

14 J Weir, 2007, *Murray River Country: An Ecological Dialogue with Traditional Owners*, PhD Thesis, The Australian National University, p 161.

15 M Morgan, L Strelein and J Weir, 'Authority, Knowledge and Values: Indigenous Nations Engagement in the Management of Natural Resources in the Murray-Darling Basin' in M Langton, O Mazel, L Palmer, K Shain and M Tehan (eds), *Settling with Indigenous Peoples: Modern treaty and agreement-making*, 2006, The Federation Press, Sydney.

While these Indigenous Nations, are independently identified based on their inherent cultural diversity and their traditions, sites, stories and cultural practices; they all share a vision for the Murray-Darling River Basin – and that is a healthy, living river with natural flows and cycles, sustaining communities and preserving its unique values.

The Indigenous Nations of the Murray-Darling River Basin possess distinct cultural and customary rights and responsibilities including:

- a spiritual connection to the lands, waters and natural resources of the Basin
- management of significant sites located along the river banks, on and in the river beds, and sites and stories associated with the water and natural resources located in the rivers and their tributaries
- protection of Indigenous cultural heritage and knowledge
- access to cultural activities such as hunting and fishing, and ceremony.

For the Indigenous Nations of the Murray-Darling River, water is not separate to the river and the river is not separate from the water within it. The river incorporates all of the lands and natural resources that rely on the water, and without the necessary management of the river and its lands and natural resources the water disappears.

Text Box 3: The Importance of the Rivers to the Indigenous Nations¹⁶

Indigenous people tell Dreaming stories that embed the inland rivers as places of energetic spiritual action by the ancestors. Rather than just one story, each language group has their own stories about how their country was created.

One of the most well known Dreaming stories of the Murray River is that of the giant Murray Cod. The Ngarrindjeri relate how this giant pondee (cod) was chased down the Murray River, from the junction with the Darling River, by their ancestral being Ngurunderi who was trying to spear the fish. The pondee thrashed through what was a small stream, widening it by the movement of its strong tail and thus creating the Murray River in what is now known as South Australia. When the pondee was caught it was cut up and the pieces of the pondee became different fresh and salt water fish species to sustain the Ngarrindjeri people.

Further upstream, the Yorta Yorta people, whose country includes the Barmah-Millewa forest tell us about Baiame's creation of Dhungala (the Murray River). Baiame sent a giant snake to follow his wife as she travelled from the mountains to the sea. The path of the giant snake made curves, creating the river bed which was later filled with rain water to form Dhungala.¹⁷

Such stories tie people to the rivers in a potent, spiritual way.

16 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 59.

17 A Arnold, Turning back the tide of history, *The Sunday Age*, Melbourne, 8 January 2006, p 18, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 59.

The river provides life through food and quality drinking water to Indigenous Nations, as it does to the Australian community. It also provides natural medicines to heal sickness, and enjoyment for recreational purposes. The natural flows and cycles feed all the rivers parts such as the tributaries, creeks, and nurseries. The native plants and wildlife depend on the river for survival.

Indigenous nations have for generations sought to engage government about the health of rivers.¹⁸ The entire ecosystem in and around the river needs to be maintained and looked after. If water is unhealthy, everything else will decline.¹⁹

Indigenous peoples have an obligation under their traditional law and custom to protect, conserve, and maintain the environment and the ecosystems in their natural state to ensure the sustainability of the whole environment.

However, historically Indigenous peoples have been excluded from water management. With low levels of awareness among Indigenous peoples of water institutions and regulation²⁰ and very little opportunity to participate in water management, Indigenous people have had little to no involvement in state, territory and national consultation processes, or the development of water policy. This has resulted in a limited capacity to negotiate enforceable water rights.²¹

As the physical water scarcity of Australia will be increasingly compounded by the impacts of drought and climate change, the capacity for Indigenous peoples to access water and secure Indigenous cultural water rights will be become increasingly important and difficult.

3. Potential effects of climate change on the Murray-Darling River Basin and it's Indigenous Peoples

In an interview with Jessica Weir, Elder of the Ngarrindjeri peoples, Agnes Rigney discussed the state of the Murray River saying:

It is not alive today, it is a dead river. Not only from just looking at it, but what it produces. Yes I've seen changes. I've seen the time when the river did produce for us well, when the river was clean. You could see the bottom of it. But to see it now, it makes you wonder how anything could live in it actually...²²

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- 18 M Morgan, L Strelein and J Weir, 'Authority, Knowledge and Values: Indigenous Nations Engagement in the Management of Natural Resources in the Murray-Darling Basin' in M Langton, O Mazel, L Palmer, K Shain and M Tehan (eds), *Settling with Indigenous Peoples: Modern treaty and agreement-making*, 2006 The Federation Press, Sydney.
- 19 M Morgan, L Strelein, J Weir, *Indigenous Rights to Water in the Murray-Darling Basin – in support of the Indigenous final report to the Living Murray Initiative*, Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS), Research Discussion Paper No.14, 2004, The Native Title Unit, AIATSIS.
- 20 S Jackson, (CSIRO), *Indigenous Interests and the National Water Initiative Water Management, Reform and Implementation Background Paper and Literature Review*, (2007), pp 65-66. At http://www.nailsma.org.au/nailsma/publications/downloads/NAISMA_NWI_Review_UPDATEDDec07.pdf (viewed 26 July 2008).
- 21 M Durette, *Indigenous Legal Rights to Freshwater: Australia in the International Context*, (2008) Centre for Aboriginal Economic Policy Research Working Paper No. 42/2008, p vii. At <http://www.anu.edu.au/caepr/Publications/WP/CAEPRWP42.pdf> (viewed 28 August 2008).
- 22 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis Australian National University, October 2007, p 109.

3.1 Mismanagement, long-term drought, and climate change

Indigenous peoples raised a number of concerns in their responses to the Living Murray Initiative.²³ Central responses were that:

The river is overused and abused and that government has failed to ensure the river's resources are used in a sustainable way. In doing so, government has failed future generations.²⁴

The Murray-Darling River Basin is in a state of crisis and ecological stress. It is widely acknowledged that extensive land and water mismanagement including bad farming practices that has included widespread deforestation, and significant human manipulation of the rivers through the construction of dams and weirs, has resulted in the reversal of natural flow cycles and over allocation of water licences.

I am concerned that if this current level of mismanagement continues, the added effects of long-term drought and climate change will see the demise of the Murray-Darling Basin.

The CSIRO reports that:

The major challenge for future water resource management in the MDB is to achieve sustainable water resource use while optimising economic, social and environmental outcomes in the context of a climate which is highly variable and non-stationary. The approaches of the past which assume an 'equilibrium' climate are no longer adequate.²⁵

The condition of the Murray-Darling Basin was established by the MDBC who found in 2001 that:

The rivers in the Basin are generally in poor ecological condition and that the current level of health is less than what is required for ecological sustainability.²⁶

Some of the findings of the MDBC included that:

- Fish populations are in very poor to extremely poor condition throughout the River Murray.
- Macroinvertebrate communities are generally in poor condition and declining toward the river mouth.

23 The *Living Murray Initiative*, is the Intergovernmental Agreement on Addressing Water Over-allocation and Achieving Environment Objectives in the Murray-Darling Basin of 25 June 2004, read together with: (a) the Supplementary Intergovernmental Agreement on Addressing Water Over-allocation and Achieving Environmental Objectives in the Murray-Darling Basin on 14 July 2006; and (b) arrangements referred to in clause 3.9.2 of the Agreement on Murray-Darling Basin Reform-Referral, as defined in the *Water Amendment Bill 2008*, s18H(2).

24 Farley Consulting Group, *Report to the Murray-Darling Basin Commission – Indigenous Response to the Living Murray Initiative*, Report commissioned by the Murray-Darling Basin Commission to report to the Ministerial Council on community engagement, April 2003, p 14.

25 CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 10. See www.csiro.au for further information.

26 Murray-Darling Basin Commission, *Environmental Challenges in the Murray-Darling Basin*, Information Sheet, Murray-Darling Basin *Initiative* Series, 2002. For further information see www.mdbc.gov.au.

- Riparian vegetation condition along the entire river was assessed as poor.
- Wetland quality is significantly reduced.
- The condition of floodplain inundation is very poor.
- Levels of nutrients and suspended sediments are undesirably high and worsening towards the river mouth.
- Throughout the River Murray and lower Darling River unseasonal flooding of wetlands, loss of connection with the floodplain, habitat simplification, water quality and bank erosion are all significant issues.²⁷

More recently, the Murray-Darling Basin Commission (MDBC) identified a number of challenges that require responses if the area is to survive. These challenges include the following:

- to improve the quality of the water
- to discover ways of sharing the water for the long term
- to keep the river systems healthy
- to manage the land in a way that provides jobs for the community, while at the same time taking care of the environment.²⁸

The Lower Murray now experiences drought every second year, instead of every twentieth. In the last two years the Murray has had its lowest inflow in recorded history and this will worsen with the increased impacts of climate change. For example, Garnaut reported that a one percent increase in maximum temperature will result in a 15 percent decrease in streamflow in the Murray-Darling Basin and he confirmed that as temperatures increase there will be a simultaneous increase in evaporation rates.²⁹

Additionally, the level of extraction of water from both groundwater³⁰ and surface water³¹ resources for consumptive, industrial and agricultural purposes is a major contributor to the stress on this fragile river system. This has been demonstrated by the fact that consumptive water use across the MDB has reduced average annual streamflow at the Murray Mouth by 61 percent. The river now ceases to flow through the mouth 40 percent of the time compared to one percent of the time in the absence of water resource development.³²

27 Murray-Darling Basin Commission, *A snapshot of the Murray and Darling River*, 2001. At: www.mdbc.gov.au/whatson/snapshot-exec.html.

28 Murray-Darling Basin Commission, *Taking up the challenge – Caring for the Murray River – an environmental challenge*, Information Sheet, April 2008. See www.mdbc.gov.au for further information.

29 R Garnaut, *The Garnaut Climate Change Review, Draft Report*, Commonwealth of Australia, 4 July 2008, p 147. At: <http://www.garnautreview.org.au/CA25734E0016A131/pages/all-reports--resources-draft-report> (viewed 17 October 2008).

30 Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturate zone is called the water table. US Geological Survey Water Glossary. At www.ga.water.usgs.gov/edu/dictionary.html (viewed 19 November 2008).

31 Surface water is water that is on the Earth's surface, such as in a stream, river, lake or reservoir. US Geological Survey Water Glossary. At: www.ga.water.usgs.gov/edu/dictionary.html (viewed 19 November 2008).

32 CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 5. See www.csiro.au for further information.

Text Box 4: Projected climate change impacts in the MDB – The Murray-Darling Basin Sustainable Yields Project

In November 2006 as a result of the Summit on the south Murray-Darling Basin (MDB) the then Prime Minister and the MDB state Premiers commissioned CSIRO to report on sustainable yields of surface and groundwater systems within the MDB. The report provided assessments for the 18 regions that make up the Basin.

With water extraction and consumption a major concern within the MDB, the CSIRO found that while the impacts of climate change are uncertain:

- by 2030, surface water availability across the entire MDB is more likely to decline than to increase, with a substantial decline in the south. However, it is possible that there may be increases in surface water availability in the north of the MDB. The median decline for the MDB region is 11 percent – 9 percent in the north and 13 percent in the south of the MDB.
- the median water availability decline would reduce total surface water use by four percent under current water sharing arrangements but would further reduce flow at the Murray mouth by 24 percent to be 30 percent of the total without-development³³ outflow. The majority of the impact of climate change would be borne by the environment rather than by consumptive water users.
- the relative impact of climate change on surface water use would be much greater in dry years. Under the median 2030 climate, diversion in driest years would fall by more than 10 percent in most NSW regions, around 20 percent in the Murrumbidgee and Murray regions and from around 35 to over 50 percent in the Victorian regions. Compared to the dry extreme 2030 climate, diversions in driest years would fall by over 20 percent in the Condamine-Balonne, around 40-50 percent in NSW regions, over 70 percent in the Murray and 80-90 percent in the major Victorian regions.
- groundwater use currently represents 16 percent of total water use in the MDB. Current groundwater use is unsustainable in seven of the twenty high-use groundwater areas in the MDB and is expected to lead to major drawdowns in groundwater levels in the absence of management intervention. Groundwater use could increase by 2030 to be over one-quarter of total water use. One-quarter of current groundwater use will eventually be sourced directly from induced streamflow leakage which is equivalent to about four percent of current surface water diversions.

33 'Without development' refers to a scenario that removes the effects of water management infrastructure and consumptive water use. Catchment characteristics such as vegetation cover are not adjusted and so this scenario does not represent 'pre-development' or 'natural' condition. As defined by CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 4. See www.csiro.au for further information.

- expansion of commercial forestry plantations and increases in the total capacity of farm dams could occur by 2030. While the impacts of these developments³⁴ are expected to be minor in terms of the runoff reaching rivers across the MDB. The amount of surface water required by these developments and the impacts on the within-subcatchment streamflow may be significant.

Despite the information provided by the CSIRO on the projected impacts of climate change on the MDB, the Government continues to develop strategies that encourage the use of water resources. For example, the Governments Carbon Pollution Reduction Scheme provides incentives for carbon offsets through forest plantations on an opt-in (voluntary) basis.³⁵ This encourages further farming activity which will also require extraction and manipulation of water resources. As noted by the Australian Government:

The inclusion of forestry on an opt-in basis will provide an incentive for forest landholders, including indigenous land managers, to establish additional forests, or carbon sinks (forests planted for the purpose of permanently storing carbon). This raises other questions regarding potential shifts in land use from agriculture and other environmental impacts such as on water systems and biodiversity. The incentive will be greatest for carbon sinks that are planted with no intention of cutting the trees down. The incentive will be weaker for forests that have been planted for the purpose of felling as forest landholders will need to take account of the possibility of a liability at the point of felling. The Government is aware of these complex land use policy challenges and believes that they are best addressed directly through water policy and natural resource management policy.³⁶

3.2 Wetlands, Water Rights and the Cultural Economy

Specific to the interests of the Indigenous peoples of the MDB, I am particularly concerned about:

- the health of fragile ecosystems including the many wetlands and the River Red Gums
- the recognition and provision of cultural water rights in order to maintain culture as well as the environment
- Indigenous peoples ability to access the cultural economy.

34 The 'development' scenario anticipated the likely future development and the 2030 climate. Development includes growth in farm dam capacity, expansion of commercial forestry plantations and increases in groundwater extraction. The projections of future farm dam and commercial forestry plantation development are approximates and in the context of current policy and recent trends. The projections of future groundwater extraction represent maximum allowable use under existing water sharing arrangements. As defined by CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 5. See www.csiro.au for further information.

35 Department of Climate Change, *Carbon Pollution Reduction Scheme, Green Paper*, Australian Government, July 2008, p 17. At: <http://www.climatechange.gov.au/greenpaper/report/pubs/greenpaper.pdf> (viewed, 29 August 2008).

36 Department of Climate Change, *Carbon Pollution Reduction Scheme, Green Paper*, Australian Government, July 2008, p 17. At: <http://www.climatechange.gov.au/greenpaper/report/pubs/greenpaper.pdf> (viewed, 29 August 2008).

(a) The health of fragile ecosystems

Massive extractions of water from the Murray River for irrigation have degraded the ecological health of the river country, transforming relationships previously sustained by the flow of the river water...The consequences of the over-extraction of water from the inland rivers are so serious that it is being experienced by the traditional Aboriginal land owners as a contemporary dispossession of their country.³⁷

The culture and existence of the Indigenous Nations of the MDB is affirmed by the Rivers. Through circumstance, some have lost opportunities to connect with and reaffirm relationships with country and with each other. We often hear Indigenous peoples say that 'we have survived'. However, extensive settlement and agricultural industry in the MDB has bought with it ecological destruction. This has resulted in impacts to traditional owners ability to maintain their connection to country and their traditional identity. A second wave of dispossession.

Agnes Rigney of the Ngarrindjeri peoples, defines her experience of living in, surviving on and experiencing and enjoying country as 'cultural living'. Weir understands Agnes Rigney's understanding of cultural living as 'reaffirming continuities with the ecological world through the practicing and passing on of cultural knowledge and experience. This worldview clearly identifies a direct link with the loss of life by the river to the loss of 'cultural living'.³⁸

Text Box 5: Cultural Living – Agnes Rigney of the Ngarrindjeri peoples

I remember as a kid growing up in Loxton how clear the river was, the water was, and my father was actually making us spears from bamboo. And we used to walk down to the river and we used to spear the fish. And it is just sad what's happened to it now. That was part of cultural living, connected to the river, that we can't really practice anymore.³⁹

However, despite 15 years of native title which is centred around Indigenous peoples proving their continued connection to their traditional lands and waters, the connectivity of Indigenous peoples to their lands and waters remains unaccounted for in the majority of Indigenous policy.

Traditionally, many Indigenous peoples depended upon the natural resources of their lands and waters for their livelihoods. Some of these peoples lived within diverse but fragile ecosystems. As identified by the International Work Group for Indigenous Affairs at the Conference on Indigenous Peoples and Climate Change:

The consequences of ecosystem changes have implications for the use, protection and management of wildlife, fisheries, and forests, affecting the customary uses of culturally and economically important species and resources.⁴⁰

37 J Weir, 'The traditional owner experience along the Murray River', in E Potter, S Mackenzie, A Mackinnon, and J Mackay (eds), *Fresh Water: New Perspectives on Water in Australia*, Melbourne University Press, 2007, p 44.

38 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 105.

39 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 105.

40 International Work Group for Indigenous Affairs (IWGIA), *Conference on Indigenous Peoples and Climate Change, Meeting Report*, Copenhagen, 21-22 February 2008, Submitted to the Permanent Forum on Indigenous Issues, Seventh session, New York, 21 April – 2 May 2008.

These consequences are also a reality for the Murray-Darling Basin, where the rapid ecological decline of the rivers and waterways is leading to issues such as salinity, poor water quality, stressed forests, dried wetlands, threatened native species, feral animals and noxious weeds.

For example, there are 26 native fish species that complete their life cycles within the Murray-Darling river system. Changes in river flow, physical barriers to movement (such as dams and weirs), the decline in water quality, removal of habitat, overfishing, and the introduction of exotic fish (such as carp) and diseases have made it extremely difficult for many native species to survive.⁴¹

(b) Wetlands

The stress experienced by various fauna and flora that rely on the ecosystems of the MDB is further exacerbated by the declining health of the many wetlands that form a crucial part of the MDB.

Text Box 6: What is a wetland?

A wetland is any depression in the landscape that has the capacity to contain water at some time. Wetlands can contain fresh, brackish or saline water, and can be still or flowing, permanent or temporary, large or small, deep or shallow, natural or man-made.

Natural wetlands include lakes, billabongs, swamps, estuaries, rivers, streams and shallow marine areas. Artificial wetlands include reservoirs, sewage farms and drainage basins.

Many people think that all wetlands must be wet all of the time. In fact, many wetlands require a cycle of both wet and dry periods to be healthy.⁴² Each wetland has its own unique ecosystem of plants and animals that depend on the wetland for food, water and habitat.

Wetlands are areas of high biological diversity and assist with maintaining water quality and protecting the biodiversity. They also provide flood and erosion protection, a habitat and breeding place for native fish, waterbirds and reptiles.

Wetlands are also sites of archaeological and cultural significance for Indigenous and non-indigenous peoples.⁴³ For Indigenous peoples, wetlands are often places where there is significant cultural heritage including scar trees, artefacts, shell middens, and burial sites. The devastation of sacred sites, burial places and hunting and gathering spaces, not to mention a changing and eroding landscape, cause great distress to Indigenous peoples.

41 Murray-Darling Basin Commission, *Environmental Challenges in the Murray-Darling Basin*, Information Sheet, Murray-Darling Basin *Initiative Series*, 2002. For further information see www.mdbc.gov.au.

42 Mallee Catchment Management Authority, *What is a wetland?*, Information Sheet, Mallee Catchment Management Authority, Victoria. For further information see www.malleecma.vic.gov.au.

43 Mallee Catchment Management Authority, *What is a wetland?*, Information Sheet, Mallee Catchment Management Authority, Victoria. For further information see www.malleecma.vic.gov.au.

The importance of wetlands has been internationally recognised by the adoption in 1971 of the Ramsar Convention on Wetlands of International importance especially as Waterfowl Habitat (the Ramsar Convention).⁴⁴ Across Australia, 49 wetlands have now been recognised as being of international significance and are listed under the Ramsar Convention.⁴⁵ Sixteen of these wetlands are in the MDB, and around 220 wetlands in the MDB are listed in the Directory of Important Wetlands in Australia.⁴⁶

According to the Mallee Catchment Management Authority, many of the wetlands are under threat from river regulation, pollution, land clearing, introduced species and climate change.

The Lower Lakes, Coorong and the Murray Mouth are Ramsar listed wetlands that have been significantly degraded as a result of water resource development, through for example the construction of barrages that isolate the Lower Lakes from the Murray mouth.⁴⁷ It is expected that while the impacts of climate change are unclear, the impacts of climate change would be exacerbated under current water sharing arrangements. Furthermore, the impact of reduced surface water availability would be transferred to the riverine environments along the Murray River including the Lower Lakes and the Coorong.

The most significant impact from reduced inflows is the exposure of sediments high in sulfates which have the potential to oxidize and produce sulphuric acid upon rewetting.

Historically a problem of coastal regions, sulfidic sediments have emerged as a significant threat to the long-term ecological sustainability of Australia's inland wetlands and are a sure sign of poor wetland condition.⁴⁸

Around 3,000 hectares of the Coorong lake bed is affected by sulfidic sediments and the problem is spreading up the Murray River Valley.⁴⁹ Bottle Bend Lagoon provides evidence of the most detrimental impacts from reduced inflows into wetlands resulting in sulfidic sediments.

44 Convention of the Parties 2002, *Convention on Wetlands of International Importance especially as Waterfowl Habitat*, Ramsar, 1971. At: www.ramsar.org (viewed 3 October 2008).

45 Murray-Darling Basin Commission, *Natural Resource Management, Wetlands*, Information Sheet. For further information see http://www.mdbc.gov.au/nrm/water_issues/wetlands.

46 CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 19. See www.csiro.au for further information.

47 CSIRO, *Water Availability in the Murray-Darling Basin – A report from CSIRO to the Australian Government*, October 2008, p 20. See www.csiro.au for further information.

48 National Water Commission, *Sulfidic Sediments, Threatening Australia's inland wetlands*, Information Sheet. For further information see www.mwwwg.org.au.

49 J Pittock, *Australia's Coorong Ramsar site as an example of climate change challenges – Over-allocation of water and climate change wreck ecological havoc: big issues for Ramsar COP10?*, The Ramsar Convention on Wetlands, 29 September 2008. At: www.ramsar.org/features/features_australia_coorong.htm (viewed on 12 January 2009).

Text Box 7: What are sulfidic sediments?

- Sulfidic sediments form naturally when soils are inundated for extended periods.
- Long term wetting, combined with increased salinity leads to the formation of sulfidic sediments. When sulfidic sediments are dried and rewet a chemical process occurs which releases lots of acid into the system.
- When the soil is rewetted, excess acid may be flushed into the water resulting in harm to fish and vegetation.

Bottle Bend Lagoon is a natural ephemeral wetland located in the Gol Gol State Forest near Mildura in Victoria, on the NSW side of the Murray River. The construction of Lock 11 weir pool at Mildura changed the natural flows of this wetland, which has resulted in many years of semi-permanent inundation. This inundation combined with a drying and wetting cycle in 2001/2002 lead to significant changes in pH levels from 7.24 (April 2002) to 3.69 (June 2002), and the intrusion of highly saline groundwater which resulted in lethal concentrations of heavy metals such as aluminium and manganese. This cycle resulted in a massive fish kill and the eventual death of thousands of trees and other vegetation.

On a site visit to Bottle Bend Lagoon, traditional owners discussed their concerns about the state of the Lagoon, and their frustration in addressing these issues with Government. In particular, they were concerned that some wetlands are significantly deteriorating in very short periods of time.⁵⁰

Other traditional owners have also expressed their concern over the scale and speed of the decline. Mutti Mutti Elder Mary Pappin said:

Such a short space of time! I can't take my grandchildren down to my favourite fishing spots and do what I used to do.⁵¹

In 2004, the NSW Environmental Trust and the NSW Murray Working Wetlands Group co-funded a project to examine a range of wetlands in NSW. Of 81 NSW wetlands surveyed by the Murray-Darling Freshwater Research Centre, 20 percent showed some evidence of sulfidic sediments. If mismanaged, significant ecological damage is expected.⁵²

Such degradation of wetlands and waterways also has a significant affect on the rights of the Indigenous peoples of the MDB to conduct cultural activities and undertake their responsibilities which ensure the health of the rivers.

50 Traditional Owner, *Site Visit to Bottle Bend Lagoon, Gol Gol State Forest Victoria*, CSIRO's 2nd National Indigenous Science and Research Roundtable, Mildura, 6-7 November 2008.

51 Up the River Forum, Message Stick Festival, Sydney Opera House, May 2004, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 104.

52 National Water Commission, *Sulfidic Sediments, Threatening Australia's inland wetlands*, Information Sheet. For further information see www.mwwwg.org.au.

(c) River Red Gum Forests

A major feature of the Murray-Darling Basin and its wetlands are the river red gum forests. River red gum is the dominant tree species on the Murray River floodplain in Victoria. River red gum forests exist on 269, 444 hectares of public land within the MDB extending from Lake Hume to the South Australian border.⁵³ The two largest river red gum forests in the world occur within the MDB: the Gunbower-Perricoota and Barmah-Millewa forests.

For generations, the River Red Gum forests along the Murray River and its tributaries have supported and nurtured many Aboriginal peoples including Bangerang, Bararapa Bararapa, Dhudoroa, Dja Dja Wurrung, Jarra Jarra, Jupagulk, Latje Latje, Ntait, Nyeri Nyeri, Robinvale, Tati Tati, Taungurung, Wadi Wadi, Wamba Wamba, Way Wuru, Wergaia, Yorta Yorta, and Yulupna. Each of these groups had deep spiritual links with the land.⁵⁴

These forests provided Indigenous people with vital resources including plants, animals, water, minerals and stone, and sustained a lifestyle that not only serviced basic needs such as food, clothing, tools, medicine, housing and heating, but also a rich cultural life with jewellery, ornaments, transport, mythology, art and crafts.

Text Box 8: The high biodiversity value of river red gum forests

River red gum forest wetlands have high biodiversity value as they provide habitat for fish and waterbirds (breeding, feeding and refuge areas). This requires a certain length of flooding duration and time of year. Hollows and spouts in river red gum provide habitat for water and forest birds, including two rare species of parrot (Superb Parrot (*Polytelis swainsonii*) and Regent parrot (*Polytelis anthopeplus*)) in the Murray River region.⁵⁵

This biodiversity is maintained by the health of the river red gum ecosystem. Stands of river red gum are intimately associated with the surface-flooding regime of the watercourses and related ground water flow. The high water use of river red gums contributes to maintaining the watertables at depth.⁵⁶

These forests are also of considerable value to the non-indigenous residents of the MDB. Many industries, including timber harvesting, honey production and grazing, have been active in forest areas since the early days of European settlement.⁵⁷

53 Victorian Environment Assessment Council, *River Red Gum Forests Investigation – Report*, Melbourne, July 2008, p 88. At: <http://www.veac.vic.gov.au/riverredgumdiscussionpaper.htm> (viewed 12 January 2009).

54 Victorian Environment Assessment Council, *River Red Gum Forests Investigation – Discussion Paper*, Melbourne, October 2006, p 88. At: <http://www.veac.vic.gov.au/riverredgumdiscussionpaper.htm> (viewed 12 January 2009).

55 K Dalton, *Managing our river red gums*, Soil Conservation Service of New South Wales, Sydney, 1990, as cited by CSIRO, *Water for a health country, River Red Gum*, Information Sheet. At: <http://www.anbg.gov.au/cpbr/WfHC/Eucalyptus-camaldulensis/index.html> (viewed 12 January 2009).

56 K Dalton, *Managing our river red gums*, Soil Conservation Service of New South Wales, Sydney, 1990, as cited by CSIRO, *Water for a health country, River Red Gum*, Information Sheet. At: <http://www.anbg.gov.au/cpbr/WfHC/Eucalyptus-camaldulensis/index.html> (viewed 12 January 2009).

57 Victorian Environment Assessment Council, *River Red Gum Forests Investigation – Discussion Paper*, Melbourne, October 2006, p 1. At: <http://www.veac.vic.gov.au/riverredgumdiscussionpaper.htm> (viewed 12 January 2009).

While these forests are most common in high rainfall areas, river red gum have adapted to the extremes of the MDB with alternating periods of excess water availability during floods and periods of water deficit during drought. They are dependent on surface flooding and groundwater.

A report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, *Mapping the Current Condition of River Red Gum Stands along the Victorian Murray River Floodplain*,⁵⁸ has identified that the regulation of the Murray River through dams, weirs, levees and diversion has drastically altered the flow regime.

In general, average peak monthly flows have been reduced by over 50 percent along the Murray River. The seasonal distribution of flows has shifted from winter-spring to summer-autumn since the construction of Hume Dam, regulation has reduced extensive flooding in the Barmah Forest, and the reduction has been more pronounced in the Mallee, with the frequency of extensive floods on Wallpolla Island and Lindsay Island having been reduced. The decline in flooding frequency, has resulted in a substantial decline in river red gum tree condition over the past twenty years.⁵⁹

Based on a random selection of 140 sites surveyed on the floodplains of the Murray River between the Hume Dam and the South Australian border, the lower Ovens River and the lower Goulburn River, the report predicts that:

- only 30.1 percent of river red gum stands across the Victorian Murray River Floodplain are currently in good condition
- a downstream decline in the stand condition of river red gum forests and woodlands along the Victorian Murray River Floodplain
- the Victorian Riverina is the only region where the majority of river gum stands are in good condition.⁶⁰

The decline in the health of the river red gum forests in the Murray-Darling Basin has been public knowledge since 1990 with a number of surveys conducted. These surveys found:

- in the late 1980s degradation of tree canopies increased dramatically below the Wakool Junction in the Mallee⁶¹

58 S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment.

59 S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, pp 3-4.

60 S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, p 1.

61 Margules and Partners, *Riparian Vegetation of the River Murray. Report prepared by Margules and Partners Pty. Ltd., P. & J. Smith Ecological Consultants and Department of Conservation Forests and Lands*, Murray-Darling Basin Commission, 1990, Canberra, as cited by S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, p 4.

- in 2002, around 52 percent of trees were identified as stressed or dead in the Mallee between Wentworth and Renmark⁶²
- in 2003 approximately 80 percent of trees showed some signs of crown stress on the Lower Murray in South Australia⁶³
- in 2004, the sites between Wentworth and Renmark were resurveyed, the proportion of trees that were stressed in the had increased to 78 percent.⁶⁴

While the rapid decline in tree condition has been attributed to the drought, regulation of the river may also limit the potential of trees to recover. The *Mapping the Condition of River Red Gum Report* observes that stressed trees are generally found away from the banks of the Murray River and permanently inundated anabranches on the floodplain.⁶⁵

Despite the current pressure on the river red gum forests and the biodiversity that is supported by them, environmental degradation and climate change presents the market with the impetus to create large scale plantations. Many commercial interests have enthusiastically engaged with Government to establish there business in pursuance of new timber products and for the emerging carbon trade industry in Australia.⁶⁶

Climate change challenge and mitigation and adaptation strategies that are being developed to address the associated issues appear to be predominantly market driven, or focused on economic outcomes. This in itself has the potential to increase the pressure on the MDB, particularly its area's of ecological and biodiversity importance. Weir discusses this in the context of oppositional worldviews. For example, the influential 'ecology versus economy' position.

This perspective tells us what happened and what our responses should be: we understand that unhealthy rivers are the unfortunate sacrifice we had to make for economic growth, and that investing in river health is to the detriment of economic growth. However, we can see with our own eyes that a dying river does not support

62 Resource and Environmental Management, *Hydrogeological Benchmark Assessment for the River Murray Between Wentworth and Renmark. Final Report – Work Initiatives*, Resource and Management Pty. Ltd., Kent Town, South Australia, 2003, as cited by S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, p 4.

63 Murray-Darling Basin Commission, *Preliminary Investigations Into Observed River Red Gum Decline Along the River Murray Below Euston*, Technical Report 03/03, Murray-Darling Basin Commission, Canberra, 2003, as cited by S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, p 4.

64 Murray-Darling Basin Commission, *Survey of River Red Gum and Black Box Health Along the River Murray in New South Wales, Victoria and South Australia – 2004*. Murray-Darling Basin Commission, Canberra, 2005, as cited by S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, p 4.

65 S Cunningham, R Mac Nally, M White, J Read, P Baker, J Thomson, and P Griffioen, *Mapping the Current Condition of River Red Gum (Eucalyptus Camaldulensis Dehnh.) Stands along the Victorian Murray River Floodplain*, A Report to the Northern Victorian Catchment Management Authorities and the Department of Sustainability and Environment, p 4.

66 As cited by Indigenous Peoples Organisations Network, *Oil Palm and Other Commercial Tree Plantations, Monocropping: Impacts on Indigenous Peoples' Land Tenure and Resource Management Systems and Livelihoods – Indigenous Peoples Organisation of Australia Response*, Response to Item 4 of the Seventh Session of the United Nations Permanent Forum New York 21 April – 2 May 2008.

our economies. Rather, the far reaching relationships sustained by healthy fresh water ecologies provide water as a resource for production and a nurturing life force.⁶⁷

Contingency planning has been conducted by the Prime Minister and the Premiers of New South Wales, Victoria and South Australia regarding wetlands in the River Murray. This planning acknowledges that some wetlands have an impact on threatened species that come under the Ramsar Convention and that actions in relation to these will be subject to the *Environmental Protection and Biodiversity Conservation Act 1999*.⁶⁸

Text Box 9: Declaration on the Rights of Indigenous Peoples

Article 29 states:

- Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands and territory and resources. States shall establish and implement assistance programs for Indigenous peoples for such conservation protection, without discrimination.
- States will take effective measures to ensure that no storage or disposal of hazardous materials shall take place on lands or territory of Indigenous peoples without their consent.

(d) Cultural water rights

The cultural flow is not a competition for water. It is a philosophical change in water management which respects a living world within which our lives are embedded in ethical relationships of care. There is no cultural flow from a dead river. The ecological philosophers, the traditional owners, and the ecologists concur. We must look to our relationships with rivers to understand how to get ourselves out of this catastrophe.⁶⁹

Indigenous rights to waters are part of a holistic system of land and water management. The imposition of the European systems of land and water management has meant that this holistic system has been fragmented. Under European administration, Indigenous water needs are not adequately addressed.

While the current legislative arrangements make provision for the recognition of environmental water, there is limited consideration given to social, cultural and Indigenous issues.

As identified by Morgan, Strelein and Weir:

Water is central to the survival of Indigenous peoples in Australia. Indigenous peoples' survival depended upon knowledge of the both the episodic and seasonal behaviour of the creeks and rivers, reliable water holes, and the availability of swamps, springs and soaks. Careful management of the natural resources of the Murray River meant that food would be available for important gatherings of thousands of people held over

67 J Weir, *Ecological Dialogue*, Ecological Humanities, Australian National University. At: <http://www.ecologicalhumanities.org/ecodialogue.html> (viewed 12 January 2009).

68 Department of the Environment and Water Resources, *Murray-Darling Basin Dry Inflow Contingency Planning – Overview Report to First Ministers, 20 April 2007*, Prime Minister and the Premiers of New South Wales (NSW), Victoria and South Australia, April 2007. At: <http://www.environment.gov.au>.

69 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 238.

several days. The right to use and to take water is an essential part of the historical and contemporary lives of Indigenous Nations.⁷⁰

With Australia naturally being a country of physical water scarcity, I am concerned about the capacity for the recognition of Indigenous rights and access to water. In the context of the predicted impacts of drought and climate change, securing Indigenous cultural water rights will become increasingly important.

The Indigenous Nations of the Murray-Darling River Nations argue that they require specific cultural water allocations, which they refer to as 'cultural flows', to meet their spiritual, cultural, social, economic and environmental management responsibilities and development aspirations.

Text Box 10: What is cultural water?

The Indigenous Nations of the Murray-Darling River Basin define cultural flows as:

Water entitlements that are legally and beneficially owned by the Indigenous Nations of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environment, social and economic conditions of those Indigenous Nations.⁷¹

The impacts and benefits of cultural water to Indigenous peoples include:

- empowerment and social justice - water is being delivered to country by the peoples
- growing native plants
- protecting and hunting animals
- song, dance, art and ceremony
- spiritual sites
- improved cultural-economic and health outcome through the provision of food, medicines and materials for art.⁷²

While some of the points raised above could be classified as environmental water, this does not reduce the government's responsibility to provide sustainable resources for the management of water resources.

The Indigenous Nations of the Murray-Darling River Basin distinguish between cultural and environmental water.

They argue that:

The difference between environmental and cultural water is that it is the Indigenous peoples themselves deciding where and when water should be delivered based on traditional knowledge and their aspirations. This ensures Indigenous peoples are empowered to fulfil their responsibilities to care for country.⁷³

70 M Morgan, L Strelein, J Weir, *Indigenous Rights to Water in the Murray-Darling Basin – in support of the Indigenous final report to the Living Murray Initiative*, Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS), Research Discussion Paper No.14, 2004, The Native Title Unit, AIATSIS, p 35.

71 Murray Lower Darling Rivers Indigenous Nations, *Cultural Flows*, undated.

72 Murray Lower Darling Rivers Indigenous Nations, *Cultural Flows*, undated.

73 Murray Lower Darling Rivers Indigenous Nations, *Cultural Flows*, undated.

Ian Cohen of the Greens Party, addressed the issue of cultural water provisions for Indigenous peoples in NSW:

Australia's international obligations under article 8(j) of the Convention of Biological Diversity require indigenous traditional owners not be engaged as stakeholders but as co-managers to map out how to energise and implement the provision of cultural water in natural resource management frameworks. Our indigenous communities have an intrinsic and spiritual connection with the Murray-Darling that goes back untold generations before invasion. Forging ahead, we must take steps to understand the connectivity between the cultural and societal capital needs of indigenous nations and align such needs with allocations for cultural water.⁷⁴

The provision of environmental water is the responsibility of the State, however Indigenous people may choose to use cultural water for the purposes of maintaining their environment and culture.

The Indigenous Nations of the Murray-Darling River Basin also understand that the volume of water required to bring the Rivers back to a healthy state is well-known. Therefore questions of volume for cultural water need to be explored through scoping work with the Indigenous Nations, and that is negotiated using informed consent and good faith processes.⁷⁵

(e) Access to the cultural economy

The difficult task of determining how best to manage the scarce water resources of the MDB cannot side-step the inherent rights of Indigenous Nations to the use, access, enjoyment and economic utility of the water of the MDB.

Whilst the cultural economy is understood by governments and others to describe the subsistence economy of the traditional owners,⁷⁶ the Indigenous Nations of the MDB 'use cultural economy to express themes of ecological restoration and repair, using the logic of holism to connect ecology, culture and economy'.⁷⁷

Text Box 11: The cultural economy – Jeanette Crew of the Mutti Mutti peoples

Jeanette discussed with Jessica Weir how Wamba Wamba women (her close relatives) want to revive the art of making woven grass baskets and trade them as part of their cultural economy.

Jeanette raised concerns that the way the water is managed today is 'interfering with our cultural economy'. For example, for the grasses needed to make the baskets to grow, the seasonal flood waters need to return to the swamps in the Werai forest near Deniliquin.⁷⁸

74 I Cohen, *Indigenous Traditional Owners Cultural Water Provision*, Hansard, Legislative Council, Parliament of New South Wales, 25 November 2008, p 11639. At: www.parliament.nsw.gov.au/prod/parlament/hansart.nsf/V3Key/LC20081125050 (viewed 13 January 2009).

75 Murray Lower Darling Rivers Indigenous Nations, *Cultural Flows*, undated.

76 E A Povinelli, *Labor's Lot: The Power, History, and Cultural of Aboriginal Action*, 1993, Chicago: University of Chicago Press, and J Altman, *Promoting Aboriginal Economic Interests in Natural Resource Management in NSW: Perspectives Tropical North Australia and Some Prospects*. Presented at Relationships between Aboriginal people and land management issues in NSW: Barriers and bridges to successful partnerships, University of Wollongong, 1-3 October 2003, as cited by J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 215.

77 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 215.

78 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 215.

For the Indigenous peoples of the MDB, water resources are an opportunity for developing rural industries. Water allocation rights can mean inclusion in the water trading environment for economic development opportunities, or for achieving cultural and environmental objectives by allocating water for cultural or environmental flows.⁷⁹

Indigenous peoples across Australia are increasingly being encouraged to consider options for the effective use of their lands, waters and resources for economic development. The Federal Government have committed to supporting the efforts of Indigenous Australians to use their land for economic development, by facilitating appropriate land use arrangements through negotiation and agreement with traditional owners.⁸⁰

However, access to economic development for the Indigenous peoples of the Murray-Darling via their lands and waters has to date been significantly limited by the priority of water allocations being given to industrial and agricultural activities, and the policy barriers to having their rights to their lands, waters and natural resources recognised, including the recognition of native title.

While it is estimated that the Indigenous estate is currently 20 percent of land in Australia, the Indigenous peoples of the MDB (who comprise approximately 3.4 percent of the Basin's population) currently hold less than 0.2 percent of land. This is despite land reforms such as the *NSW Aboriginal Land Rights Act 1983* and the *Native title Act 1993* which were introduced with a specific aim of returning access to lands to Indigenous people. The National Water Initiative also commits all States and Territories of the MDB to increasing indigenous representation in water planning; recognising Indigenous peoples water needs, and providing for Indigenous access to water resources; incorporating indigenous social, spiritual and customary objectives and strategies; and acknowledging the possible existence of native title rights to water.⁸¹

Addressing the Senate Rural and Regional Affairs and Transport Standing Committee, Steven Ross explained:

Importantly for traditional owners, under the National Water Initiative there is a component which allows water allocation to native title holders but in southern New South Wales, Victoria and South Australia the capacity for those traditional owners to gain native title is limited. We would like to see a broader expansion of water allocation to other traditional owners who may not hold or seek native title.⁸²

79 M Morgan, L Strelein, J Weir, *Indigenous Rights to Water in the Murray-Darling Basin – in support of the Indigenous final report to the Living Murray Initiative*, Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS), Research Discussion Paper No.14, 2004, The Native Title Unit, AIATSIS, p 35.

80 Australian Labor Party, *Indigenous economic development*. At: http://www.alp.org.au/download/now/indig_econ_dev_statement.pdf (viewed 8 October 2008).

81 National Water Commission, Intergovernmental Agreement on a National Water Initiative between the Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory and the Northern Territory, 25 June 2004, Council of Australian Governments meeting. At: <http://www.nwc.gov.au/www/html/117-national-water-initiative.asp> (viewed 12 January 2008).

82 Commonwealth of Australia, *Official Committee Hansard – Senate Standing Committee On Rural and Regional Affairs and Transport, Reference: Water policy initiatives*, Friday, 15 September 2006, Canberra, p 52. At: <http://www.aph.gov.au/hansard/senate/commtee/S9618.pdf> (viewed 12 January 2009).

Text Box 12: Declaration on the Rights of Indigenous Peoples

Article 27 states:

States shall establish and implement, in consultation with indigenous peoples concerned, a fair system to recognize and adjudicate the rights of indigenous peoples pertaining to their lands, territories and resources.

Article 28 states:

Indigenous peoples have the right to redress, which can include restitution or compensation, for the lands, territories and resources which they have traditionally owned but have been confiscated, taken, occupied, used or damaged without their consent. Compensation usually taking the form of lands, territories and resources equal in quality, size and legal status or monetary compensation.

Indigenous peoples have a human right to maintain a ‘cultural economy’. This relates to Indigenous peoples being able to undertake activities that secure sustainable capital from the natural resources that traditionally and historically belong to each Nation.

Text Box 13: International Covenant on Economic, Social, and Cultural Rights

Article 1 of the Covenant states:

- (1) All peoples have the right to self determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.
- (2) All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic cooperation, based upon the principle of mutual benefit and international law. In no case may a people be deprived of its own means of subsistence.

Declaration on the Rights of Indigenous Peoples

Article 26 states:

Indigenous peoples have the right to own, use and develop the lands, territories and resources, which they have traditionally owned. Additionally, States should give legal recognition and protection to these areas.

In this regard, the Murray-Darling Basin must be seen as a ‘cultural economy’ to the Indigenous Nations that belong to the Rivers. The ‘cultural economy’ includes all the natural resources in the River Murray definition.

The river should be recognised and accepted as a ‘cultural economy’, which has declined as the health of the river has declined. There has been a reduction in the quantity and quality of fish, yabbies, plants and animals. Some species have disappeared completely. As this has occurred, there has been greater reliance on other forms of income, mainly welfare, to survive.⁸³

83 Farley Consulting Group, *Report to the Murray-Darling Basin Commission – Indigenous Response to the Living Murray Initiative*, Report commissioned by the Murray-Darling Basin Commission to report to the Ministerial Council on community engagement, April 2003, p 44.

This cultural economy, which previously allowed Indigenous Nations to maintain their traditional lifestyle across their country, has been diminished by the poor health of the river system that has decimated traditional sources of food and medicines. As one group explained:

The healing that we use Old Man Weed for needs to be done by the River. It is the same with fish – we need to catch, cook and eat by the River. Now, we can't get clay out of the bank to coat the fish or to use on our skin – this is a big part of women's business.⁸⁴

Healthy rivers have the potential to provide commercial opportunities for indigenous people, for example in areas such as eco-tourism, cultural tourism, native nurseries and seed collection. However, the current decline in the health of the river system has led to a decline in the economic position of Indigenous people.

Cultural water allocations are crucial to increasing the opportunities for the Indigenous peoples of the MDB to leverage economic development through cultural economies.

There was a widely held view that a water allocation should be available to each Indigenous Nation to enable them to exercise their custodial responsibilities to care for the river system. Each Nation would decide whether its allocation should be used to increase environmental flows or to help generate a more independent economic base for their people. The decision would be taken in the context of the health of the river system and their custodial responsibilities.⁸⁵

The Murray Lower Darling Indigenous Nations have voiced their position to the Senate Rural and Regional Affairs and Transport Committee stressing that the provision of cultural water:

will provide for the continuation of cultural economy, for a sense of justice for Indigenous people, for the continuation of Indigenous knowledge, for our involvement in natural resource management and for what ultimately we believe will be sustainable social, cultural and environmental outcomes for all Australians.⁸⁶

However, in order for Indigenous people to effectively engage and access their lands, waters, and natural resources initiatives to encourage more efficient use of water are vital. Public investment in incentives and assistance for industry and other water users to change management systems is urgently required.

84 Farley Consulting Group, *Report to the Murray-Darling Basin Commission – Indigenous Response to the Living Murray Initiative*, Report commissioned by the Murray-Darling Basin Commission to report to the Ministerial Council on community engagement, April 2003, p 12.

85 Farley Consulting Group, *Report to the Murray-Darling Basin Commission – Indigenous Response to the Living Murray Initiative*, Report commissioned by the Murray-Darling Basin Commission to report to the Ministerial Council on community engagement, April 2003, p 7.

86 Commonwealth of Australia, *Official Committee Hansard – Senate Standing Committee on Rural and Regional Affairs and Transport, Reference: Water policy initiatives*, Friday, 15 September 2006, Canberra, p 52. At: <http://www.aph.gov.au/hansard/senate/commtee/S9618.pdf> (viewed 12 January 2009).

4. Climate change and the human rights of the Indigenous Peoples living in the Murray-Darling River Basin

The Indigenous peoples of the MDB have a unique relationship with the Murray-Darling River Basin. This relationship not only includes the benefits they receive from the river and its environment in terms of sustenance and cultural economies, but the rivers sustain their culture and confirm their existence and their identity. In return, Indigenous people have a responsibility to the maintenance and care of their country that is the MDB. Matt Rigney, a Ngarrindjeri man describes this special relationship:

We are of these waters, and the River Murray and the Darling and all of its estuaries are the veins within our body. You want to plug one up, we become sick. And we are getting sick as human beings because our waterways are not clean. So it is not sustaining us as it was meant to be by the creators of our world.⁸⁷

The impacts of climate change compounded by the current use and management arrangements in the MDB are currently affecting the human rights of Indigenous peoples whose livelihoods depend on the MDB. The United Nations Permanent Forum on Indigenous Issues are particularly concerned with the impacts of climate change on Indigenous populations and recommended:

that States develop mechanisms through which they can monitor and report on the impacts of climate change on indigenous peoples, which considers our socio-economic limitations as well as our spiritual and cultural attachment to lands and waters.⁸⁸

For the Indigenous peoples of the Murray-Darling River Basin this is of great significance. Particularly where non-Indigenous development has restricted Indigenous peoples' access to their lands, waters and natural resources. The commercialisation of water has also meant that the spiritual and cultural connection to these lands and waters has in many cases been denied.

4.1 International obligations

As discussed throughout this report, Australia has a number of obligations regarding the environment and Indigenous peoples rights. These obligations are the result of Australia's support for international treaties and mechanisms, including:

- the International Covenant on Civil and Political Rights (ICCPR)
- the International Covenant on Economic, Social and Cultural Rights (ICESCR)
- the United Nations Framework Convention on Climate Change (UNFCCC)
- the Kyoto Protocol
- the Convention on Biological Diversity (CBD)
- the Ramsar Convention
- The Second International Decade on the World's Indigenous People
- the Declaration on the Rights of Indigenous Peoples⁸⁹

87 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis submitted to Australian National University, October 2007, p 103.

88 United Nations Economic and Social Council, *Recommendations on the special theme, 'Climate Change, biocultural diversity and livelihood: the stewardship role of indigenous peoples and new challenges'*, Permanent Forum on Indigenous Issues, Seventh Session, New York, 21 April – 2 May 2008, E/C.19/2008/14, pp3-7.

89 For further discussion about the international human rights, Indigenous peoples and climate change, see chapters 5 and 6 of this report.

- the Convention of the Elimination of all forms of Racial Discrimination (CERD).

The Australian Government has an obligation to ensure the full enjoyment and exercise of these human rights for its citizens, including Indigenous peoples. As articulated by AIATSIS:

Clean water access is critical for health in all communities. In Indigenous communities' lack of supply of clean water is linked to high morbidity and mortality rates. Unlike the broad rural demographic trends of rural to urban migrations and an ageing population, Indigenous Nations are staying on their lands and Indigenous communities have growing, young populations. Supporting these Indigenous communities is integral to the support of the socio-economic viability of rural Australia. The provision of services and infrastructure and the future development of growing Indigenous communities and Nations should be incorporated into planning objectives.⁹⁰

In addition, as Indigenous peoples, the Murray-Darling River Basin Indigenous Nations hold a special status as the first peoples of the lands and waters. As such, they must be afforded a number of distinct rights that recognise their rights to; their lands, waters, and natural resources; self determination; and engagement and participation in government processes that directly or indirectly impact on their lives.

While the right to life, health, and food are fundamental human rights that are clearly provided for in international treaties and mechanisms, the following internationally recognised rights have additional significance for the Indigenous Nations of the Murray-Darling Basin. These rights include:

- The right to water
- The right to a healthy environment
- The right to culture
- The right to economic development

How these rights relate to indigenous peoples is discussed in detail in chapters 4, 5 and 6 of this report.

While the right to water is critical to the well-being of Indigenous peoples, Yorta Yorta woman Monica Morgan argues that the United Nations interpretation of the right to water is limited in that it denies the agency of living beings other than humans. She argues that the importance of water is considered only in terms of human needs and therefore is being disrespectful to country. Such perspectives enable people to transform nature without considering the ethical consequences.⁹¹

This argument emphasises discussion raised earlier regarding the disruption of connectivity for Indigenous peoples and ecology versus economy.

The Declaration on the Rights of Indigenous Peoples supports Indigenous people's rights to access, conservation and economic development of water. It provides that indigenous peoples have a right to maintain and strengthen the distinctive indigenous spiritual relationship with 'traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas.' It also provides that indigenous peoples have the right to conservation and protection of indigenous lands and resources with state assistance and the right to development for all indigenous lands and resources including water. Allocations of water for cultural purposes (cultural flows) to the

90 M Morgan, L Strelein, J Weir, *Indigenous Rights to Water in the Murray-Darling Basin – in support of the Indigenous final report to the Living Murray Initiative*, Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS), Research Discussion Paper No.14, 2004, The Native Title Unit, AIATSIS.

91 J Weir, 'Connectivity', *Australian Humanities Review*, Issue 45, November 2008. At: <http://www.australianhumanitiesreview.org/> (viewed 12 January 2009).

Indigenous Nations of the Murray-Darling River Basin will be integral to fully realise their rights to water.

4.2 Domestic Protection

At the domestic level, Indigenous peoples' rights require legislative protection. In the development of legislative frameworks such as those relevant to land, water, and natural and cultural heritage, the following must be protected:

- the full participation and engagement of Indigenous peoples in the development of policy and legislation that directly or indirectly affects their lives and their rights
- the adoption of and compliance with the principle of free, prior and informed consent
- the protection of Indigenous interests, specifically access to our lands, waters and natural resources
- the protection of Indigenous areas of significance, biodiversity, and cultural heritage
- the protection of Indigenous knowledge's
- access and benefit-sharing through partnerships between the government, private sector, and Indigenous communities
- non-discrimination and substantive equality.

In order to fully realise the above human rights for Indigenous peoples, governments must be conscious of:

- the need for the protection of intergenerational human rights which requires a consideration of ecologically sustainable development
- the need for conservation regimes which recognise and provide for the existence of Indigenous peoples and their co-dependence on their lands and waters. For example, that Indigenous peoples rely on their lands and waters for survival and caring for country is crucial to both the lands and waters and meeting cultural obligations.

For further discussion on the international and domestic legislative and policy context of Indigenous peoples and climate change, see chapters 4 and 5 of this Report.

5. What is being done?

Since the Yorta Yorta Federal Court decision in 1998,⁹² the Indigenous Nations of the Murray-Darling Basin resolved to develop a stronger voice for traditional owners in policy and management responses to the severely degraded Murray River, including strengthening the relationships between traditional owner groups through the development of 'Nation to Nation' protocols.⁹³ This resolution resulted in the establishment of the Murray Lower Darling Rivers Indigenous Nations (Aboriginal Corporation) (MLDRIN), with an objective to represent traditional owners and be a platform to engage with government.

92 *Members of the Yorta Yorta Aboriginal Community v The State of Victoria* [1998] 1606 (18 December 1998) – Federal Court Decision.

93 M Morgan, L Strelein and J Weir, 'Authority, Knowledge and Values: Indigenous Nations Engagement in the Management of Natural Resources in the Murray-Darling Basin' in M Langton, O Mazel, L Palmer, K Shain and M Tehan (eds), *Settling with Indigenous Peoples: Modern treaty and agreement-making*, 2006 The Federation Press, Sydney. See also J Weir and S Ross, "Beyond Native Title: Murray Lower Darling Rivers Indigenous Nations", 2007 in F Morphy and B R Smith (eds), *The Social Effects of Native Title: Recognition, Translation, Coexistence*, CAEPR Research Monograph No. 27, ANU E-Press.

MLDRIN is an alliance of 10 traditional owner groups, also known as Nations whose countries lie in the southern part of the Murray-Darling Basin, including:

- Wiradjuri, Yorta Yorta, Taungurung, Wamba Wamba, Barapa Barapa, Mutti Mutti, Wergaia, Wadi Wadi, Latji Latji, and Ngarrindjeri.

In particular, MLDRIN provides strategic advice from traditional owners to natural resource management agencies responsible for water and forestry issues.⁹⁴ MLDRIN engage primarily with State Governments and departments, the Murray-Darling Basin Commission, and the Commonwealth Government, and it works closely with environmental groups who are concerned with the health of the rivers and their interconnected waterways. They have also developed strategic relationships with Indigenous Research Centres, National Indigenous Working Groups, and Other Indigenous groups working on the issue of the protection and management of water resources.

In particular, more recently and throughout 2008, MLDRIN have been actively engaging with the National Water Commission on the National Water Initiative and lobbying for the recognition of Indigenous water rights and cultural water allocations under the *Water Act 2007*. The Water Act is being amended in the near future and this will be an opportunity for MLDRIN to strongly advocate for the provision of cultural water allocations and the recognition of such allocations to be considered as a 'critical human need'. They will also have the opportunity to stress the importance of Indigenous specific representation by traditional owners on the Murray-Darling Basin Authority.

MLDRIN have also been engaged at the International level, attending the United Nations Permanent Forum in 2008 in New York, and the International Union on the Conservation of Nature World Congress on Conservation in Barcelona advocating for the rights of the Indigenous Nations of the Murray-Darling Basin, and discussing their concerns related to the Ramsar Convention and the Convention of Biological Diversity with other Indigenous peoples around the world.

A number of developments have been progressed in recent years including:

(a) The Murray-Darling Basin Commission (MDBC) and the Murray Lower Darling Rivers Indigenous Nations – The Indigenous Partnerships Project (IPP)⁹⁵

The MDBC has formed a collaborative partnership arrangement with the Murray Lower Darling Rivers Indigenous Nations (MLDRIN). Over the last three years together they have developed the Indigenous Partnerships Project which focuses on establishing a new basis for engaging Indigenous people in The Living Murray in a way which ensures their social, spiritual, cultural, environmental and economic interests are included in planning and management of the icon sites.

94 Murray Lower Darling Rivers Indigenous Nations, Correspondence with T Calma, Aboriginal and Torres Strait Islander Social Justice Commissioner, 22 October 2008.

95 N Ward (Murray-Darling Basin Commission), *Effective Indigenous Involvement In The Living Murray – Introducing A New Methodology*, Murray-Darling Basin Commission Canberra, ACT, Australia. At: <http://www.riversymposium.com/index.php?element=WARD> (viewed 12 January 2009).

The Indigenous Partnerships Project takes a principle-based approach aimed at achieving consistent and grounded involvement of Indigenous people in The Living Murray's decision making and planning processes. Aimed at improving Indigenous engagement in natural resource management, the Indigenous Partnerships Project funds the employment of a small number of Indigenous facilitators and supports an equal number of Indigenous advisory groups at each icon site.

With this program, the emphasis is on pursuing an approach that elucidates Indigenous people's contemporary relationship with the land as a basis for their input into the environmental management planning process of The Living Murray.

(b) Memorandum of Understanding between Murray Lower Darling Rivers Indigenous Nations and Murray-Darling Basin Commission

Four years of negotiation with the Murray-Darling Basin Commission (MDBC) has resulted in a 'historic partnership agreement',⁹⁶ a Memorandum of Understanding (MOU) between the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and Murray-Darling Basin.

The MOU was signed by the President of the MDBC and authorised representatives of the Indigenous nations at a ceremony near Albury, New South Wales, in March 2006. It enables MLDRIN's participation in the management of the natural resources of the Murray and Darling River valleys below the Menindee Lakes Storage and establishes a cooperative relationship, so that the use of the natural resources of the Murray and Darling River valleys respect and benefit the cultural heritage of the Indigenous nations.⁹⁷

Of the Agreement, Matt Rigney, traditional owner and Chairperson of MLDRIN, said:

The signing of the MOU signifies the formalisation of Indigenous involvement in the programs and projects of the Murray-Darling Basin Commission. We are very pleased with the increased opportunities to be involved in the management of natural resources on our Country. This MOU signifies a start of what we hope will be a long term relationship.⁹⁸

The Right Hon. Ian Sinclair AC, President of the MDBC also commented:

Cultural perspectives need to be taken into account in the long term management of natural resources. Managing the Murray and Lower Darling Rivers requires decisions that go beyond a site-by-site approach.⁹⁹

96 Murray-Darling Basin Commission, *Murray-Darling Basin Commission – April 2006*, E-letter No 53. At: http://mdbc.gov.au/communications/s-scribe/eLetter_menu/e-letter_april_2006#Indigenous (viewed 12 January 2009).

97 Agreements, Treaties and Negotiated Settlements Project, *Memorandum of Understanding between Murray Lower Darling Rivers Indigenous Nations and Murray-Darling Basin Commission*, Information Sheet. At: <http://www.atns.net.au/agreement.asp?EntityID=3661> (viewed 12 January 2009).

98 Murray-Darling Basin Commission, *Murray-Darling Basin Commission – April 2006*, E-letter No 53. At: http://mdbc.gov.au/communications/s-scribe/eLetter_menu/e-letter_april_2006#Indigenous (viewed 12 January 2009).

99 Murray-Darling Basin Commission, *Murray-Darling Basin Commission – April 2006*, E-letter No 53. At: http://mdbc.gov.au/communications/s-scribe/eLetter_menu/e-letter_april_2006#Indigenous (viewed 12 January 2009).

Text Box 15: The purpose of the Memorandum of Understanding between Murray Lower Darling Rivers Indigenous Nations and Murray-Darling Basin Commission

The purpose of the MOU is to enable the parties to:

- recognise their shared interests and goals
- establish a collaboration framework
- develop dialogue processes with Indigenous nations
- ensure that Indigenous nations' traditions are part of policy development with regard to natural resource management in the Murray and Darling River valleys. The parties also agree to create mechanisms and processes for achieving the goals of the MOU.¹⁰⁰

(c) A Cooperation Agreement between Murray Lower Darling Rivers Indigenous Nations and Environmental Non-Government Organisations¹⁰¹

On 23 February 2007, the Murray Lower Darling Rivers Indigenous Nations entered a cooperation agreement with a number of Environmental Non-Government Organisations (eNGO's).¹⁰² The foundation for this agreement is the recognition and acceptance of the importance of looking after country to both the traditional owners and the environmental groups.

A core feature of this agreement is that the parties formally recognise the Wiradjuri, Yorta Yorta, Taungurung, Barapa Barapa, Wamba Wamba, Wadi Wadi, Mutti Mutti, Latji Latji, Wegaia and the Ngarrindjeri peoples as the traditional owners of the country centred on the Murray and Lower Darling River systems. This agreement also confirms a shared responsibility to ensure that this country is managed and maintained to the highest standard of ecological and cultural integrity for the benefit of future generations.¹⁰³

100 Agreements, Treaties and Negotiated Settlements Project, *Memorandum of Understanding between Murray Lower Darling Rivers Indigenous Nations and Murray-Darling Basin Commission*, Information Sheet. At: <http://www.atns.net.au/agreement.asp?EntityID=3661> (viewed 12 January 2009).

101 Cooperation Agreement between MLDRIN and eNGO's, 23 February 2007.

102 The eNGO's included: the Australian Conservation Foundation Inc, Environment Victoria Inc, Friends of the Earth Australia Inc, Friends of the Earth Melbourne Inc, National Parks Association of New South Wales Inc, Nature Conservation Council of New South Wales Inc, Victorian National Parks Association Inc, The Wilderness Society Inc, The Wilderness Society Victoria Inc, The Wilderness Society Sydney Inc, The Wilderness Society (South Australia Branch) Inc.

103 Cooperation Agreement between MLDRIN and eNGO's, 23 February 2007, p 2.

Text Box 16: The purpose of the Cooperation Agreement between Murray Lower Darling Rivers Indigenous Nations and Environmental Non-Government Organisations¹⁰⁴

The purpose of the Agreement is to support the protection of cultural and environmental values by:

- Working together to ensure country is managed and maintained to the highest standard of ecological and cultural integrity and that there is public and community support for this goal.
- Supporting inherent traditional owner land and water rights and aspirations to access and manage country according to traditions and customs across a range of tenures.
- Supporting fair and adequate resourcing for the management of natural and cultural values by Indigenous Nations, and the use of Indigenous knowledge.
- Supporting existing or new industries that are compatible with the maintenance of cultural and environmental values, and will provide a livelihood and socio-economic development for families, and communities, including the self determination of Indigenous Nations.

This agreement also includes innovative principles and engagement protocols that provide for the recognition of the unique rights and interests of Indigenous peoples to the country, and the protection of the Indigenous knowledge that underpins these rights and interests.¹⁰⁵

(d) Use and Occupancy Mapping¹⁰⁶

As part of the Indigenous Partnerships Project, the Murray-Darling Basin Commission (MDBC) has been working with the Murray Lower Darling River Indigenous Nations (MLDRIN) and other representatives of Traditional Owners on a pilot mapping project with an Indigenous community. Developed in Canada in the early 1970s, Use and Occupancy mapping is essentially a survey technique based on mapping an individual's relationship with the land.

These maps can help identify and record the spiritual, cultural, environmental, social and economic interests of Indigenous people for each icon site. This approach focuses on Indigenous people's contemporary connections to the land in a way that can be directly related and considered in developing icon site management activities.

As part of this pilot, use and occupancy maps have successfully been produced for several individuals at two of the icon sites. Indigenous input will be provided into each of the icon site environmental management plans. Indigenous Working Groups will ensure that Indigenous involvement is undertaken in culturally appropriate ways.

104 Cooperation Agreement between MLDRIN and eNGO's, 23 February 2007, p 4.

105 Cooperation Agreement between MLDRIN and eNGO's, 23 February 2007, pp 3-6.

106 Murray-Darling Basin Commission, *Indigenous Partnership*. At: http://www.mdbc.gov.au/subs/annual_reports/AR_2006-07/part1_1.htm, and The Living Murray, *Indigenous Partnerships*. At: <http://www.thelivingmurray.mdbc.gov.au/communities> (both viewed 1 October 2008).

Considerable effort has been invested in involving and informing Indigenous community members regarding use and occupancy mapping, which is now gaining strong support within the Indigenous community. Local Indigenous facilitators are planned to be employed at each of the icon sites to work with their communities.

Over time these communities will produce 'Use and Occupancy Maps' for each icon site. The maps can also be used as a basis for cultural heritage protection and management, and help monitor the impacts of The Living Murray. Use and occupancy mapping is sometimes referred to as the 'geography of oral tradition'.

The MDBC is working with Charles Sturt University to undertake a research and monitoring program to measure the impacts and benefits of use and occupancy mapping at the icon sites.

The MDBC is also closely involved in the development of the world's first textbook on use and occupancy mapping, currently being researched and written in Canada. This involvement will ensure that the textbook will be relevant to Australia and available for future training needs in the Murray-Darling Basin.¹⁰⁷

Text Box 17: Use and Occupancy Map – Yorta Yorta¹⁰⁸

Australia's first set of Use and Occupancy maps were produced in March 2008. With the support of the Yorta Yorta leadership, interviews were conducted in Echuca, Shepparton and Melbourne by an experienced Canadian team and the Manager of the Indigenous Partnerships Project. Utilising the Canadian team was the preferred way forward as it eliminated potential errors that would have occurred if a freshly trained and inexperienced Australian team had undertaken the research design, interviewing and mapping.

As could be expected, Yorta Yorta leaders had to deal with a general mistrust of government processes, scepticism regarding the ownership of the process and outcomes and therefore a reluctance to engage in the project.

A key component of overcoming this was to emphasise to the Yorta Yorta people that Use and Occupancy mapping was a tool for their purposes, either at the negotiating table or within their own communities. In addition, it was emphasised that all of the maps and associated intellectual property would belong to each of the respondents, legally, ethically and morally.

The role of government (that is, MDBC) was limited to facilitation through the provision of funds, and a commitment to Indigenous people gaining meaningful and respectful engagement in the management of the Murray-Darling Basin's natural resources.

107 Murray-Darling Basin Commission, *Indigenous Partnership*. At: http://www.mdbc.gov.au/subs/annual_reports/AR_2006-07/part1_1.htm, and The Living Murray, *Indigenous Partnerships*. At: <http://www.thelivingmurray.mdbc.gov.au/communities> (both viewed 1 October 2008).

108 N Ward (Murray-Darling Basin Commission), *Effective Indigenous Involvement In The Living Murray – Introducing A New Methodology*, Murray-Darling Basin Commission, Canberra, ACT, Australia. At: <http://www.riversymposium.com/index.php?element=WARD> (viewed 12 January 2009).

A total of 66 members of the Yorta Yorta nation completed map biographies for the 667 square kilometres of the Barmah-Millewa Forests. They were asked to map sites for 72 different categories, ranging from places where they had successfully hunted for kangaroo, fished for Murray Cod, and collected turtle eggs, to locations where they had camped overnight or repatriated ancestors' remains. This resulted in over 6,000 features being mapped. Without doubt, the respondents enjoyed their time working on their map biographies. Some individuals commented that they had been waiting for years for an opportunity to record the land, its animals and the places that were important in their lives.

This participation and data production was sufficient to reveal a tangible, impressive snapshot of the Yorta Yorta nation's contemporaneous connection to their country.

The map biographies produced from the Yorta Yorta nation's pilot mapping project are currently being digitised by Ecotrust Canada in Vancouver, British Columbia, Canada. The Yorta Yorta leadership felt more comfortable having their data handled by a distant non-government organisation with much experience in producing these types of maps.

A positive element of the Use and Occupancy mapping pilot project was that participation clearly created a common experience which has helped reinforce the notion of shared values and beliefs among the Yorta Yorta community about land and water. This strengthened the sense of community within the Yorta Yorta nation.

The Yorta Yorta nation intends using their thematic maps for a range of purposes, primarily to help them explain to natural resource managers how they use their Country and how management actions can provide for and enhance these on-going activities. It is this use that the MDBC hopes will create a dialogue at a practical level that will assist icon site managers to better understand the ways in which land and water is important to Indigenous people.¹⁰⁹

(e) Indigenous Action Plan (IAP)¹¹⁰

The Murray-Darling Basin Ministerial Council in 2002 resolved to develop an Indigenous Action Plan in response to its adoption of the COAG Reconciliation Commitment. In March 2006, the Murray-Darling Basin Commission endorsed the Murray-Darling Basin Indigenous Action Plan.¹¹¹ According to Monica Morgan, a Yorta Yorta woman, this was done without the consent of the Indigenous Nations concerned.¹¹²

The IAP seeks to implement the Council of Australian Governments' (COAG) Reconciliation Framework and integrate its principles into the management of the Murray-Darling Basin. In particular, the IAP aims to:

109 N Ward (Murray-Darling Basin Commission), *Effective Indigenous Involvement In The Living Murray – Introducing A New Methodology*, Murray-Darling Basin Commission, Canberra, ACT, Australia . At: <http://riversymposium.com/index.php?element=WARD> (viewed 12 January 2009).

110 Murray-Darling Basin Commission, *Natural Resource Management*. At: http://www.mdbc.gov.au/nrm/basin_communities/indigenous_communities (viewed 12 January 2009).

111 Murray-Darling Basin Commission, *Community Advisory Committee Annual Report 2005–06*, Murray-Darling Basin Commission 2006. At: http://www.mdbc.gov.au/subs/annual_reports/AR_2005-06/cac3.htm#indigenous (viewed 12 January 2009).

112 M Morgan, *Keeping the Status Quo, MDB Indigenous In-action Plan*, Yorta Yorta Nation Aboriginal Corporation. At: http://www.anu.edu.au/caepr/Publications/topical/Morgan_MDB.pdf (viewed 12 January 2009).

- establish a set of principles for the MDBC which guide behaviours and influence processes and ensure consistent and practical approaches to Indigenous involvement in Natural Resource Management decision making
- identify actions which are aimed at improving Indigenous engagement in natural resource management by the MDBC programs and projects.

While the final IAP document contained some substantive commitments, it was not considered to fully reflect the work undertaken in the consultative process, and as a result, was rejected by MLDRIN.¹¹³

6. What could be done?

As is evident from the discussion throughout this chapter, there is a significant amount of work to be done in the Murray-Darling Basin generally. However for Indigenous peoples this work is urgent and crucial to their physical and mental well-being.

A first step to improving the current situation for the Indigenous Nations of the Murray-Darling Basin is to ensure the rights based and process focused involvement of Indigenous interests rather than marginal inclusion that allows authorities to tick a box. Indigenous peoples across the country possess intimate knowledge of their environments. Through the imparting of this knowledge, not only revitalises and maintains their culture and connection to their lands and waters, but benefits non-Indigenous Australians as a nation.

Secondly, there is considerable research required within the Murray-Darling, including:

- specific research on the impacts of climate change on Indigenous peoples within the MDB, particularly in relation to access to the cultural economy.
- further research on the impacts of climate change and drought on the sustainability of the environment, particularly in relation to additional pressures on ecosystems including the wetlands and forests from logging, agriculture animals seeking refuge, impacts on threatened species and regionally significant fauna and flora, including the projection of movement of fauna and flora.
- research that examines world's best practice with regard to national parks and other conservation regimes including the implementation of the Ramsar Convention and the Convention on Biological Diversity.

Thirdly, the full and immediate implementation of Water Reform Plan including appropriate environmental flows is required. While the legislation currently provides for the recognition of environmental water, if Governments are serious about Closing the Gap for Indigenous health, the Authority must also have regard to social, cultural and Indigenous issues in the Basin Plan. This will require the inclusion of enforceable cultural water allocations.

113 M Morgan, L Strelein and J Weir, 'Authority, Knowledge and Values: Indigenous Nations Engagement in the Management of Natural Resources in the Murray-Darling Basin' in M Langton, O Mazel, L Palmer, K Shain and M Tehan (eds), *Settling with Indigenous Peoples: Modern treaty and agreement-making*, 2006, The Federation Press, Sydney.

If the Government is unwilling to provide for cultural water then compensation must be provided for the loss of traditional values.¹¹⁴

In addition, in order for the Indigenous peoples of the Murray-Darling Basin to effectively engage in decision-making that has a direct impact on their lives, amendments to the *Water Act 2007* will be required to provide for Indigenous representation on relevant Committees, as well as the development of an Indigenous Committee that provides advice and direction specific to Indigenous issues.

Text Box 18: Lesson to be Learned

Monica Morgan, Lisa Strelein and Jessica Weir have identified four key values that can be learned from the situation in the Murray-Darling Basin.¹¹⁵

1. The opportunity to prioritise shared values
 - Indigenous nations sought to establish relationships of repair and restoration
 - Shared vision of a healthy river
2. Recognition of shared authority
 - Recognition by government of traditional owners and the need to deal directly with traditional owners. This is remarkable for MLDRIN in a southern state
3. The potential of open and connected government
 - Where community plays a role
 - Great complexity in this area and potential for governments and agencies to reach stalemate
4. Certainty, process and outcomes.

The traditional owners do not have 'shared interests' in this work if it kills life. Without a healthy river country there is no point in sitting down at a table with government to discuss fishing rights or moving rocks to repair the fish traps. There is no point going fishing. Without this activity, land use and occupancy mapping becomes an exercise without content.¹¹⁶

114 Farley Consulting Group, *Report to the Murray-Darling Basin Commission – Indigenous Response to the Living Murray Initiative*, Report commissioned by the Murray-Darling Basin Commission to report to the Ministerial Council on community engagement, April 2003, p 7.

115 M Morgan, L Strelein and J Weir, 'Authority, Knowledge and Values: Indigenous Nations Engagement in the Management of Natural Resources in the Murray-Darling Basin' in M Langton, O Mazel, L Palmer, K Shain and M Tehan (eds), *Settling with Indigenous Peoples: Modern treaty and agreement-making*, 2006 The Federation Press, Sydney.

116 J Weir, *Murray River Country: An ecological dialogue with traditional owners*, PhD thesis, Australian National University, October 2007, p 238.