



Environment Victoria

Submission to the the Standing Committee on Regional Australia Inquiry into the socio-economic impact of the Proposed Murray-Darling Basin Authority's 'Guide to the Proposed Basin Plan'

December, 2010

Environment Victoria is the Victoria's peak non-government, not-for-profit environment organisation. Our Healthy Rivers Campaign is dedicated to working with government, business and communities for the restoration and protection our state's great river systems. Our vision is for a future where healthy rivers sustain abundant life and prosperous communities, providing us with good food, clean water and places to love and enjoy.

Environment Victoria welcomes the opportunity to contribute to the Commonwealth's deliberations regarding the prosperity of regional communities in the Basin, and the future health of the river ecosystems that underpins the raft of socio-economic prospects in the region.

Introduction

The release of the *Guide to the proposed Basin Plan* (the Guide) is a landmark event in water planning in Australia. For the first time, the Basin Plan offers an opportunity to address the long-term decline in environmental condition that threatens the very base of productive agriculture on a basin-wide scale. It will be an enforceable plan and will have legal teeth, and all the Basin states have agreed to implement the sustainable diversion limits that the Plan will set.

We are at a critical point in history – decades of over-extraction of water and the last 12 years of intense drought have brought the Basin's ecosystems to the brink of collapse.

2010 has provided a welcome respite and the recent rains have demonstrated the resilience of both the Basin's ecosystems and its communities. However, compelling evidence suggests that we face a drier future and can no longer rely on nature to bail us – and river ecosystems – out on a regular basis.

A strong Basin Plan that sets sustainable diversion limits that will restore environmental health is essential to the long term future of both the ecological and the human communities of the Murray-Darling Basin. Anything less will be judged inadequate by future generations.

In this submission, we comment especially on the following Terms of Reference for the Committee's Inquiry:

- The direct and indirect impact of the Proposed Basin Plan on regional communities, including agricultural industries, local business activity and community wellbeing;
- Options for water-saving measures or water return on a region-by-region basis with consideration given to an analysis of actual usage versus licence entitlement over the preceding fifteen years
- The role of governments, the agricultural industry and the research sector in developing and delivering infrastructure and technologies aimed at supporting water efficiency within the Murray-Darling Basin.
- Opportunities for economic growth and diversification within regional communities;

but throughout the submission make contribution to the entire suite of TOR.

This submission details some of Environment Victoria's views on the connections between river health, community prosperity and the Murray-Darling Basin Plan, and the opportunities and necessity for this Committee to factor these connections into its deliberations.

The submission goes on to describe a range of socio-economic issues – key areas for which we make a series of recommendations. Sections regarding climate change scenarios and impacts, and the provision of ecosystem services follow. A final discussion of pathways to transition precedes a conclusion and a summary of our recommendations.

Environment Victoria believes that the Guide provides an inadequate outline or agenda, not least for the Committee's full consideration of the impacts of any Plan, proposed or otherwise. This is because the framework is incomplete on a number of fronts. The

content of this submission describes these omissions and flaws, which include, but are not limited to, proper consideration of costs and benefits of delivering between 4,000 and 7,600 GL (billion litres) to the environment, rigorous application of a sufficient range of climate change scenarios, and identification and exploration of the full range of economic growth and diversification opportunities, including ecosystem service provision.

We believe these oversights and exclusions have significant and serious implications for the Committee's investigation into and reporting on the above four, if not all, the TOR. Environment Victoria therefore recognises that the Committee's deliberations, which are informed in the first instance by the Guide to the proposed Basin Plan, run the risk of being somewhat similarly incomplete and inadequate.

Given the scope and nature of data used to inform and frame the exercise in the first instance, we call, therefore, for the Committee to avoid employing a variation on the blinkered approach taken to date, and, by using best available science, reliable data and accurate interpretation of the Act, make every effort to consider, analyse and recommend the entire spectrum of direct and indirect impacts, options for water-saving measures, and opportunities for economic growth and diversification.

It is only an analysis to this level of rigour and robustness that will deliver a secure and prosperous Murray-Darling Basin. Indeed, the future health of the river systems and the communities that rely on them demand and deserve such a necessarily high level of rigour to be applied, by us all.

Recommendation One:

That the Committee identify and factor into its investigations and reports the nature and extent of oversights, omissions and flaws in the framework provided by the Plan.

River health, community prosperity and the Murray-Darling Basin Plan: the cost of *not* taking action

River health is the litmus test of how sustainable our water-use is. Environment Victoria cannot emphasise highly enough that the risks and costs of *not* taking action to secure the environmental health of the Basin are, in fact, among the most serious direct and indirect impacts on regional communities, including agricultural industries, local business activity and community wellbeing that ought to be considered in the development of the Plan. Failure of the Proposed Basin Plan to adequately address these risks and secure enough water to maintain the long-term ecological health of the Basin will lead to an inevitable decline in the economic and social health of Basin communities.

As stated in the Guide to the proposed Basin Plan:

*'Unless action is taken now, the basin and its communities do not have a long-term future and consequently face irreversible decline in the environmental health and, in turn, the economic strength of the Basin. It is vital to change the balance between water for the environment and water for economic benefit in order to restore the environmental health of the Basin and preserve and enhance its long term productivity.'*¹

Environment Victoria believes there is a significant role for government to maximise the institutional capacity for investigation, with communities, into alternative economic futures. An investment into research and the development of comprehensive transition plans is vital. However the role of governments, the agricultural industry and the research sector in developing and delivering infrastructure and technologies aimed at supporting water efficiency within the Murray-Darling Basin will be only part of finding pathways through the challenges we now collectively face, as real solutions lie both with and beyond infrastructure and technology.

Proper investigation and analysis of the raft of alternative opportunities for economic growth and diversification within regional communities needs be front and centre of the complex and dynamic work that must be undertaken to secure the health of the Basin, and the future of its regional communities.

The opportunities and benefits provided by a healthy Basin

Healthy ecosystems bring economic and social benefits as well as environmental. Environment Victoria here shares a recent Victorian experience that evidences the multiple positive effects of a healthy river – for the environment and, therefore, for local communities.

The response to the return of flows to the lower Wimmera River in spring 2009 was impressive: people from all over Victoria rushed excitedly to see the flowing river, some of them following the water front as it advanced towards Lake Hindmarsh. Tourism businesses had a rush of bookings, local shops a big increase in trade, and the Dimboola rowing regatta was able to be held for the first time in 4 years. In addition to the agricultural benefit of increased rainfall, property prices in Dimboola increased and the feeling of increased well-being was palpable. Communities across northern Victoria have had similar experiences as river flows have increased this year.

All this is missing from the *Guide to the Basin Plan*. Healthy ecosystems bring long term benefits as well as short term, including the provision of ecosystem services and carbon sequestration. They are also attractive to people, bringing new interests to the regions

¹ MDBA Guide to the Proposed Basin Plan, p25

and the possibility of fresh and diverse economic activity. The benefits of restoring the basin to health extend well beyond the environmental.

Recommendation Two:

That the Committee, in its investigation into and reporting on the impacts of the Proposed Plan, consider and communicate the benefits and opportunities of water reform for the environment, the economy and the Australian people.

Some initial comments on the Plan

The Murray-Darling Basin Plan is mandated by the Commonwealth *Water Act 2007* (the Act). The Act states that the Plan should give effect to relevant international agreements, establish and enforce environmentally sustainable diversion limits (SDLs) on the amount of ground and surface water that may be taken from Basin water resources, and set basin-wide objectives for water-dependent ecosystems of the Basin. The plan must ‘promote sustainable use of the Basin water resources to protect and restore the ecosystems, natural habitats and species that are reliant on the basin water resources and conserve biodiversity’.²

This conclusion points to a fundamental flaw in the *Guide to the proposed Basin Plan*. The Murray-Darling Basin Authority (MDBA) has determined that the range of additional environmental water required for the Basin, in order to meet the requirements of the Act, is between 3,000 and 7,600 GL³. However the Authority has decided that ‘in order to optimise the social, economic and environmental outcomes, as it is obliged to do under the Act, it can only consider basin-wide reductions of between 3,000 and 4,000 GL/year for the Basin. That is, reductions in current diversions above 4,000 GL have been judged beyond the range of acceptable diversions’.⁴

This decision is based on a misinterpretation of the Act, and is an incomplete frame through which to consider the direct and indirect impact of the Proposed Basin Plan on regional communities, including agricultural industries, local business activity and community wellbeing.

The Act clearly and deliberately establishes a process that requires the assessment of environmentally sustainable extraction levels to be based on scientific analysis. Reliance on scientific data alone in determining what environmentally sustainable extraction does not mean that economic and social factors are not important or should not be considered – indeed the Act requires that they be considered. The key issue is the point in the process at which non-scientific considerations should be taken into account.

² Commonwealth Water Act 2007, s21

³ Guide p73

⁴ Guide p82

Rather than being part of the decision of what is environmentally sustainable extraction, economic and social considerations are properly part of the decision of how best to deliver that environmentally sustainable level of extraction, and in determining what transitional assistance is needed to achieve this outcome.

The need to assess all implications of returning between 4,000 and 7,600 GL to the environment - whether they be positive and negative, or environmental, social and economic - is paramount.

Fifty-eight of Australia's top scientists support this call, saying that reducing annual extractions by 3-4,000 GL is a minimal requirement for ecosystem health.⁵ These scientists further state that:

'[t]he central issue is the combined long-term welfare of the environment and the human communities that it supports. The costs and benefits of re-adjustment would be shared among all Australians. Benefits include improved 'goods and services', such as more reliable water supplies, better quality water for irrigation, flooding for grazing, improved fishing and new opportunities for tourism'.

Recommendation Three:

As implementation of sustainable diversion limits that will restore environmental health are essential to the securing the long term future of human communities of the Murray-Darling Basin, Environment Victoria recommends that, given the failure to date to thoroughly assess all repercussive costs and benefits of returning between 4,000 and 7,600 GL to the environment, the Committee:

- **acknowledge and describe the limits of the Proposed Basin Plan when considering the direct and indirect impact of the Proposed Basin Plan on regional communities, including agricultural industries, local business activity and community wellbeing; and**
- **in doing so identify and quantify the gaps and the nature and scope of their potential impacts on regional communities, including agricultural industries, local business activity and community wellbeing.**

Recommendation Four:

That the Committee call for a strong Basin Plan; one that fully considers all implications of returning between 4,000 and 7,600 GL to the environment, whether those implications be positive or negative, environmental, social and economic.

⁵ <http://www.wetrivers.unsw.edu.au/2010/11/basin-plan-support/>

Social and economic considerations

The MDBA has been subject to widespread criticism of its approach to the social and economic impacts of the Basin Plan. Much of the criticism has been misplaced, potentially driven by community fear, and has been in part the product of the failure of the MDBA to spell out the crucial need for reform and the consequences of inaction. Some people may feel that their livelihoods are threatened by the Plan and have thus reacted understandably and predictably.

If the frame for discussion of the Plan were different - stressing instead the intimate connection between environmental health and community wellbeing, and the fact that environmental degradation is undermining the future viability of these communities - the response may also have been different. After all, the alternative to sustainable diversion limits is unsustainable diversion limits, and they are of no help to anyone.

The outcry that followed the release of the Guide has obscured many crucial issues in the debate on social, economic and environmental outcomes. Some of them are explored here.

Optimising social and economic outcomes

Interpretation of the Act has been much debated. Fortunately the Act itself provides clear guidance on the how the Basin Plan should be constructed and when social and economic impacts should be considered. As discussed in section 1.1, the main environmental requirements in the Act are for the international obligations around the Ramsar Convention and Convention on Biodiversity (and others), and for the setting of SDLs at an 'environmentally sustainable level of take'. This is defined as a level that 'must not compromise key ecosystem functions, key environmental assets, the productive base of the water resource, and key environmental outcomes including ecosystem function, biodiversity, water quality and water resource health'.⁶

The Act requires the MDBA and the Minister to meet these environmental requirements as a first priority. However, once the environmental requirements are defined, they must then consider how to meet them in a way that optimises social, economic and environmental outcomes.⁷ This does not mean that all three are balanced against each other right from the start, it means that once the environmental requirements have been determined, they must be achieved in a way that minimises negative social and economic impacts.⁸ This approach is reflected in legal advice given to the MDBA and is the approach taken in the Guide.

⁶ Water Act (2007) s4

⁷ Water Act (2007) s20(d)

⁸ See ANEDO submission to the MDBA for further detail

Arguments about how and when social and economic impacts should be taken into account have obscured a proper consideration of what these impacts actually are. They have also obscured the all important discussion about the consequences of *not* taking action to restore environmental health, and a proper exploration of the social and economic benefits of restoring ecosystem health.

Recommendation Five:

That the Committee, when investigating and reporting on social and environmental impacts, and not inconsistently with the Act, maintain an approach whereby the determination of environmental requirements is first agreed and understood, and that social, economic and environmental outcomes are subsequently optimised in the implementation of that environmental requirements determination.

Recommendation Six:

That the Committee recommends the MDBA, with regard to consideration of social and environmental impacts, and not inconsistently with the Act, maintains its approach of determining environmental requirements first, and then subsequently optimises social, economic and environmental outcomes.

Veracity of socio-economic data

The MDBA's assumptions about impacts on communities were based largely on work by Marsden Jacob & Associates, work that informs the Technical Background to the Guide.

One of the major research tools used was face to face and telephone interviews to assess the impact of reducing allocations to irrigators at farm, industry, and regional community levels. 'As agreed by the MDBA, these face-to-face interviews sought to understand how regions and irrigation sectors of the regional economy would respond to permanent reductions in the order of 20 percent, 40 percent and 60 percent of the long-term cap equivalent (LTCE). However, the supply reduction scenarios were discussed as no compensation, no transitional support scenarios. That is, interviewees were told that the regional water allocations would be reduced, but were *not told* that they would be compensated for this reduction by some mechanism'.⁹ Environment Victoria believes this misconception significantly skews the reliability of the data.

Marsden Jacob & Associates describe this as an "extreme scenario". In fact it is more than just an extreme scenario – it is a scenario by which the nature of the questioning is likely to provoke a negative response. It also ignores various clauses in the Act, including:

⁹ Marsden Jacob Associates et al (2010) *Economic and social profiles and impact assessments for the Murray-Darling Basin Plan. Synthesis report*, p16

- the phase-in time for States to comply with the Basin Plan (up to 2019 for Victoria);
- a temporary diversion limit that allows extra water to be taken for up to five years to minimise negative social and economic impacts when SDLs are lower than the amount of water taken historically (up to 2014 for Victoria); and
- a risk allocation framework that requires the Commonwealth to provide payments for changes to water allocations as a result of a change of government policy, and commitment by Prime Minister Gillard to ‘bridge the gap’ between Water for the Future purchases and SDLs.

More recent modelling by ABARE-BRS that did factor in the Government’s Water for the Future program and additional water purchases, found that a 3,500 GL SDL would only reduce the MDB’s Gross Regional Product by 0.7 percent in 2018-19. Further, that employment in the region would actually *increase* by 0.1 percent.¹⁰ This is more in line with ABS data that shows that in recent years when water use was reduced by up to 70 percent, agricultural output declined by 1 percent.¹¹

Recommendation Seven:

That given the potential unreliability of the socio-economic data used to inform the Technical Background to the Guide, and indeed given the incomplete nature of the initial survey work that was undertaken with communities, Committee members, in their deliberations:

- purposely avoid reliance on ‘extreme scenarios’ in assessing socio-economic impacts; and
- widen the scope of its sources of data, including provision of cognizance of Commonwealth Government commitments for compensation and transitional support.

Recommendation Eight:

That given the potential unreliability of the socio-economic data used to inform the Technical Background to the Guide, and indeed given the incomplete nature of the initial survey work that was undertaken with communities, the Committee call for a Basin Plan that:

- reflects Commonwealth Government commitments for compensation and transitional support, the Committee recommend that the MDBA;
- takes existing government Water for the Future commitments into account in its assessment of the socio-economic impacts of SDLs; and

¹⁰ ABARE-BRS (2010) *Assessing the regional impact of the Murray–Darling Basin Plan and the Australian Government’s Water for the Future Program in the Murray–Darling Basin*

¹¹ http://www.crikey.com.au/2010/10/22/murray-murmurings-the-costs-of-business-as-usual/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+CrikeyDaily+%28Crikey+Daily%29, viewed 17 December 2010

- **reduces its reliance on ‘extreme scenarios’ in assessing socio-economic impacts, and widen the scope of its sources of data.**

Costs of continuing ‘business as usual’

The environmental degradation caused by over-extraction of water has been well documented in the Guide and elsewhere. What is not well documented is the economic and social cost of that degradation. These costs can take many forms, and provide but two examples in this submission.

The loss of ecosystem services can have major impacts. To take one small example, it has been estimated that a single Straw-necked ibis colony can consume up to 500 tonnes of food per day.¹² Much of that food is pest animals such as mice and locusts. The massive decline in waterbird population, down by 80 percent since the 1980s, is depriving farmers of this huge contribution to pest control.

Salinity is major cost of ‘business as usual’. Current agricultural practice and levels of water use mean that average river salinities in key tributary rivers will rise significantly; endangering their use for irrigation and urban purposes within 20 to 50 years, and about 3.4 million ha of land in the eastern and southern regions of the Basin will be salt-affected within 50 years.¹³ Average salinity in the Loddon and Avoca Rivers already exceeds the 800 EC¹⁴ threshold for desirable drinking water quality.

The Salinity Audit of the MDB found that the cost of a one EC unit rise in river salinity at Morgan in South Australia was between \$93,000 and \$142,000 per year in 1999 dollars. River salinity was predicted to rise by 330 EC units over the next century.¹⁵ Multiply this across the Basin and the impacts are huge.

The furore over the potential costs of reduced water allocations has completely overwhelmed consideration of the costs, and future disadvantages, of current water use in the Basin, now and in the future.

¹² <http://www.brg.cma.nsw.gov.au/index.php?page=native-veget>

¹³ MDBC, *The Basin Salinity Management Strategy 2001-2015*, 2001, p.1

¹⁴ EC is a measure of electrical conductivity used to estimate the salt content of water. 800EC is the limit for desirable drinking water quality and irrigation. See <http://www.dpi.vic.gov.au/dpi/nreninf.nsf/childdocs/-2BAF4D73531CD1544A2568B3000505AF-9A924F4B3FB28503CA256BC80004E921-8132507DA12388464A256DEA00280C4F-64DFC3B291771BD7CA256BCF000AD4E9?open> for details.

¹⁵ MDBC, *The Salinity Audit of the Murray Darling Basin*, 1999, pvi

Recommendation Nine:

That in order to

- adequately quantify impacts of the proposed Basin Plan on regional communities (including agricultural industries, local business activity and community wellbeing);
- investigate opportunities for economic growth and diversification within regional communities; and
- provide an accurate summary of options for water-saving measures or water return on a region-by-region basis

the Committee properly interrogate the consequences of any ‘business as usual’ approach in the MDB.

Recommendation Ten:

The Committee recommend that the MDBA assess, catalogue and communicate to Basin communities, and to other Australians, the economic and social costs of environmental decline resulting from

- current levels of water-extraction from the MDB;
- any constitution of a ‘business as usual’ approach in the MDB; and
- recommend ways of effectively communicating this information.

A whole of government approach and integrated investment

The reaction of communities across the MDB to the release of the Guide has made it clear that the impact of the Basin Plan will be profound. Communities that are heavily reliant on irrigated agriculture for employment will be particularly affected.

However the Basin plan is not occurring in isolation as both federal and state governments are investing heavily in regional Australia. The Australian government has invested over \$9 billion in *Water for the Future* and the Victorian government has invested over \$1 billion in irrigation infrastructure modernisation. These programs are directed at acquiring water for the environment, but are only a fraction of overall government spending. The Australian government is investing in regional Australia through programs such as Strengthening Basin Communities, a new Priority Regional Infrastructure Program, Regional Priority Round from the Health and Hospitals Fund and access to Education Investment Fund for Regional Universities and TAFES. Add the incoming Victorian Coalition government’s commitment of \$1 billion for regional renewal, and large sums of money are available to provide the economic foundation for transition to more sustainable water use and to open up fresh opportunities for basin communities.

Recommendation Eleven:

That the Committee input the opportunities and benefits of government programs that invest in regional Australia into investigation of the entire spectrum of direct and indirect impacts, options for water-saving measures, and opportunities for economic growth and diversification. Further that assessment is made of the benefits and opportunities for current cross portfolio Australian and state government investment in the MDB to both offset any negative economic impacts from reducing the over-use of water in the MDB and to elevate the potential of, and investment in, alternative economic futures.

Recommendation Twelve:

That the Committee call on the Minister for Regional Australia and the Parliament to oblige the MDBA to prioritise and require a whole of government approach that makes best use of integrated investment opportunities that can assist to offset negative economic impacts from reducing the over-use of water in the MDB, and elevate the potential of, and investment in, alternative economic futures.

The Victorian experience in meeting SDLs

The Commonwealth government has been purchasing water in Victoria for environmental purposes for the past 2 years. Investment in infrastructure modernisation is also beginning to pay dividends in terms of water saved for the environment, and governments and irrigators are also investing in on-farm efficiency.

The 2009 agreement between the Australian and Victorian governments¹⁶ to integrate water buyback with irrigation modernisation and allow exemptions to the 4 percent cap on trade out of districts was a major step forward in facilitating progress to meeting SDLs. The decision to wind down the Campaspe Irrigation District opens up further opportunities to acquire environmental water, as does investment in in-farm efficiency.

Taken together, these initiatives mean that considerable progress has already been made towards meeting proposed SDLs in Victoria. Table 1 shows that in the larger catchments, current programs will meet more than half the reductions in water use required to meet the 4,000 GL scenario. It should be noted that the Victorian government has committed in its election policy to using the 75 GL from modernisation savings intended for Melbourne to contribute towards the SDL, which is not included in the table.

¹⁶ Prime Minister's media release 4/6/09

Table 1. Progress towards SDLs in Victoria

Catchment	Already achieved (GL) ¹⁷			Confidently expected (GL) ¹⁸			Total (GL)	% of SDL 4,000GL scenario
	Buyback	Modernisation	On-farm	Buyback	Modernisation	On-farm		
Goulburn	117	43.5		93	50.5	2.4	306.4	51.7
Vic Murray	133	31.5		105	49.5	2.4	321.4	54.1
Campaspe	5				24		29	54.7
Loddon	1.5						1.5	3.5
Ovens	0.05						0.05	0.5

Recommendation Thirteen:

When considering the impacts of the proposed Basin Plan, the Committee recognise and take into account progress already made towards meeting SDLs, in Victoria, and elsewhere.

Recommendation Fourteen:

That to assist the ongoing facilitation of community acceptance of SDLs in northern Victoria, and of SDLs elsewhere, the Committee investigate and recommend to the MDBA that they recognise progress already made towards meeting SDLs, take these into account in future SDL calculations, and identify key steps and processes to ensure this information is communicated clearly to those impacted directly and indirectly by the proposed Basin Plan, including regional communities and agricultural industries.

Climate change impacts

The Guide gives limited consideration to managing the risks of reduced water availability arising from the current and predicted impacts of climate change, which brings into question whether best available science is being taken into account by the MDBA.

Environment Victoria views this to be serious concern when efforts are made to quantify the direct and indirect impact of the Proposed Basin Plan on regional communities, including agricultural industries, local business activity and community wellbeing, as the risk is high that an incomplete picture will be formed and considered.

The Guide suggests that surface water availability will decline across the Basin by about 10 percent by 2030.¹⁹ The CSIRO Sustainable Yields Project predicts much greater

¹⁷ Through *Restoring the Balance* and NVIRP

¹⁸ Through *Restoring the Balance*, NVIRP, and Goulburn Broken CMA on farm project

¹⁹ Guide p33

variability even under the median 2030 climate change scenario. Under this median scenario, diversions in the driest years would fall by more than 10 percent in most NSW regions, around 20 percent in the Murrumbidgee and Murray River regions, and from around 35 to over 50 percent in the Victorian regions. Reductions under more severe scenarios are much greater.²⁰

In its Guide to the Plan, the MDBA proposes a reduction of water allocations of just 3 percent to allow for climate change. This allowance is based on CSIRO's median forecast, halved on the basis that part of the impact should already be present, and halved again to reflect the envisaged ten year (2011 to 2021) life of the plan²¹ (even though Victorian implementation would only commence in 2019 and finish in 2024).

This approach seems rash for a number of reasons. Firstly, a 3 percent reduction in water availability (based on long term averages) during the 10 year life of the Plan appears to be a massive underestimate in the light of recent experience.

In the 12 years between 1997 and 2009, all Victorian MDB catchments lost at least 40 percent of their average inflows.²² In many places, the impact was even more extreme, for example the Avoca River lost 85 percent of its flows.²³ While rainfall in 2010 has been close to or above the long term average, an occasional wet or very wet year is entirely consistent with scenarios predicted by climate change science.

Good risk management should consider a range of scenarios of differing severity and impact. The Victorian state government's Northern Region Sustainable Water Strategy considered 3 alternative scenarios (long term average, median climate change, and continuation of 1997-2008 climate) to assist its planning for northern Victoria. This would be an appropriate model for the MDBA to follow rather than a minimal 3 percent allowance.

When the Committee, and others, are considering the options for water-saving measures or water return on a region-by-region basis, it is imperative that adequate data is used to inform not only a baseline for current water-saving measures, but also projected savings under various climate change scenarios.

Additionally, when provided with incomplete and limited climate change scenarios, the capacity for the Committee, and others, to properly inquire into and report on the direct and indirect impact of the Proposed Basin Plan, is hampered, especially at the reporting stage. In order to provide meaningful and applicable recommendations, the Committee

²⁰ Water availability in the Murray-Darling Basin. Summary of a report from CSIRO to the Australian government, 2008. p5

²¹ Guide p34

²² See for example, Northern Region Sustainable Water Strategy, DSE 2008

²³ Draft Western Region Sustainable Water Strategy, DSE 2010 p48

must draw in the best available climate change science, and recommend that the MDBA do the same.

Lastly, opportunities for economic growth and diversification within regional communities might be missed when the full suite of scientifically informed climate change scenarios, and their ramifications are neither well-understood and articulated, nor, thoroughly explored.

Recommendation Fifteen:

In identifying, considering and reporting on socio-economic impacts, options for water-savings, and potential economic opportunities, the Committee classify and summarise the inherent current gaps in the climate change framework, scenarios and impacts provided by the Guide to the proposed Basin Plan. Where possible, the Committee should identify potential solutions and opportunities arising from their investigation in order to provide a more fully accurate picture of the suite of impacts, options and opportunities for the Basin and its communities.

Recommendation Sixteen:

In order for the MDBA to provide a more fully accurate picture of the suite of impacts, options and opportunities for the Basin and its communities, and particularly to judiciously prepare for the predicted impacts of climate change, the Committee should additionally call for a Basin Plan that:

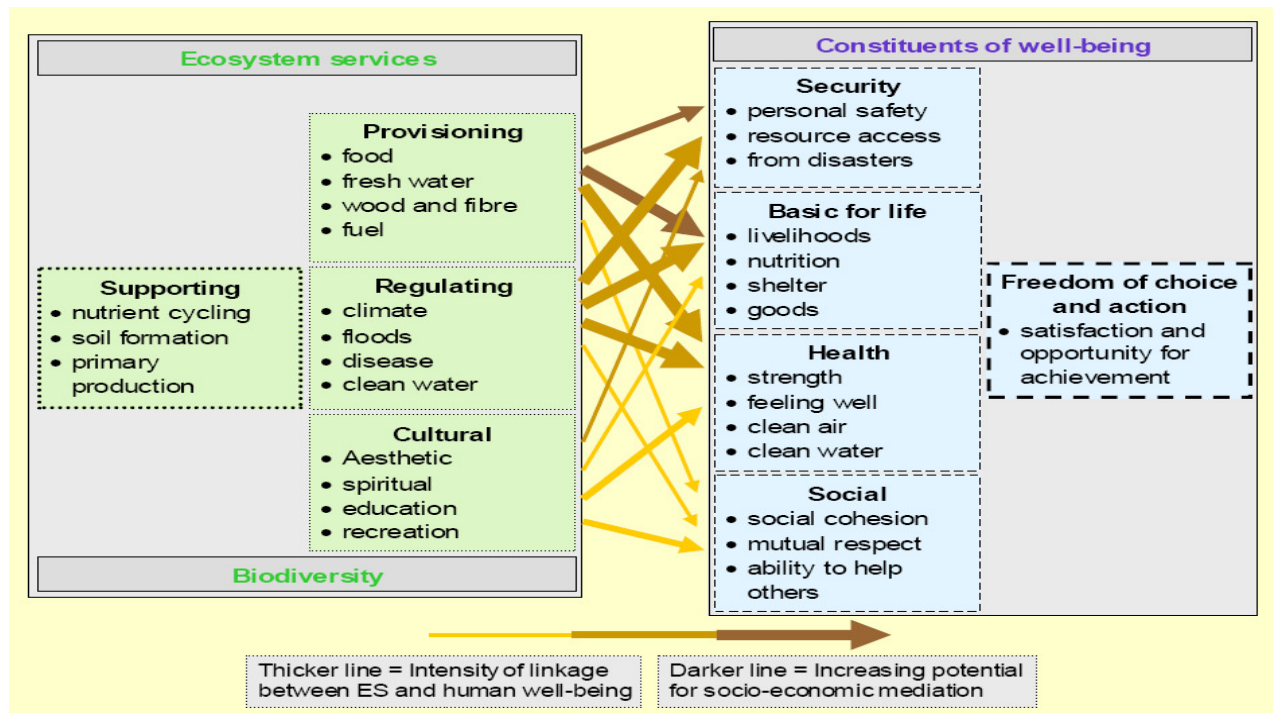
- **assesses the full range of possible climate change scenarios across the Basin, allowing for regional variation;**
- **develops different scenarios reflective of different inflow conditions;**
- **increases the allowance for any climate induced reduction in water availability from the current 3 percent to better reflect CSIRO future inflow scenarios.**

Ecosystem services

Environment Victoria welcomes the inclusion of the Inquiry's TOR that relates to opportunities for economic growth and diversification within regional communities. We believe there are both realistic and vibrant opportunities that should be properly considered by the Committee, the MDBA, governments, communities and other stakeholders. We wish to draw the Committee's attention particularly to the burgeoning ecosystems service provision sector.

Figure 1. The links between biodiversity conservation, ecosystem services and human wellbeing

Source: Millenium Ecosystem Assessment.



The Act has an objective ‘to protect, restore and provide for the ecological values and ecosystem services’ of the MDB.²⁴ It further defines ecosystem services as a sub-set of environmental assets. However the *Guide to the proposed Basin Plan* scarcely mentions ecosystem services, instead giving considerable focus to ecosystem functions, which are defined as ‘the fundamental physical, chemical and biological processes that support the Basin’s environmental assets’ and are in turn a sub-set of supporting and provisioning ecosystem services.

Ecosystem services are attracting increasing international attention. Loosely defined as ‘the benefits people receive from ecosystems’,²⁵ they have traditionally been entirely taken for granted and not given any financial value.

However initiatives such as the Millennium Ecosystem Assessment have begun to explore the links between biodiversity conservation, the provision of ecosystem services and human wellbeing (see Figure 1), and developed methods to give value to the ecosystem services that wetlands provide.²⁶ This approach has been developed by the

²⁴ Water Act 2007 s3(d)(ii)

²⁵ Ramsar Convention 2005, c11

²⁶ See for example *Ecosystems and Human Wellbeing: Wetlands and Water*
http://www.eoearth.org/article/Ecosystems_and_Human_Well-

United Nations Environment Program through its Economics of Ecosystems and Biodiversity (TEEB) project which has recently released its synthesis report 'Mainstreaming the economics of nature'. Among TEEB's conclusions and recommendations are the following:

'Ecosystem conservation and restoration should be regarded as a viable investment option in support of a range of policy goals including food security, urban development, water purification and wastewater treatment, regional development, as well as climate change mitigation and adaptation'; and further that

'[f]ailure to incorporate the values of ecosystem services and biodiversity into economic decision making has resulted in the perpetuation of investments and activities that degrade natural capital. Including the full value of biodiversity and ecosystem services in decision making can be achieved if their sustainable management is recognized as an economic opportunity rather than as a constraint on development'.²⁷

TEEB has attempted to quantify the economic value of the ecosystem services provided by the Murray River in 2007, using a variety of different sources of information (Table 2).²⁸ The estimate of \$4.7 billion pa does not include the whole range of ecosystem services described by TEEB, so the final value for services provided by this one river system would be higher.

The *Guide to the proposed Basin Plan* fails to give any assessment of the ecosystem services provided by the MDB or an account of the value they provide. Ecosystem services provide a vital link between ecological and socio-economic values. Their omission from the development of the Plan risks missing the opportunity to assess and explain the links between a healthy ecosystem and the wellbeing of people in the Basin, as well as allowing the decline in natural capital to continue.

[being: Wetlands and Water: Wetlands and Water: Ecosystems and Human Well-being#Responses for the Wise Use of Wetlands](#)

²⁷ TEEB (2010) The Economics of Ecosystems and Biodiversity - Mainstreaming the economics of nature- A synthesis of the approach, recommendations and conclusions of TEEB

²⁸ TEEB (2010) Estimates of monetary values of ecosystems, Appendix C

Table 2. Estimate of the value of ecosystem services provided by the Murray River.

Source: TEEB

Ecosystem Service	Valuation Method	Source	Total Value (\$m/year)
Recreation and tourism	Market Prices	Howard, 2008	2,970
Food production	Market Prices	Australian Bureau of Statistics, 2008	1,600
Water Quantity (environmental flows)	Contingent Valuation	Bennett, 2008	80
Water Quality (no salinity)	Avoided Cost	Connor, 2008	18
Total Economic Value			4,668

The approach to key ecosystem functions is also poorly articulated in the Guide and the relationship between ecosystem functions and environmental watering is not defined. These are major omissions and may cause the Plan to fail to meet the objectives of the Act for ecosystem services.

Recommendation Seventeen:

In developing recommendations about the suite of opportunities for economic growth and diversification within regional communities, the Committee should:

- articulate the connection between ecosystem services and human well-being;
- identify and value the full range of ecosystem services provided by the MDB; and
- identify investment requirements and opportunities (public and private) in ecosystem protection and restoration, given the viable socio-economic returns to be gained from this sector.

Recommendation Eighteen:

In order to properly plan for the future prosperity of Basin communities and to support the values that underpin regional prosperity generally, the Committee should call for a Basin Plan that:

- articulates the connection between ecosystem services and human well-being;
- identifies and values the full range of ecosystem services provided by the MDB;
- includes investment in ecosystem protection and restoration in its socio-economic analysis, as a basis for achieving policy goals in food security, regional development and water purification and wastewater treatment.

Pathways to transition in irrigation areas: targeted modernisation for multiple benefits

The key to successful transition for the irrigation areas in northern Victoria is integration of buyback and modernisation which will allow highly efficient, high value irrigation to continue in the most productive areas while water buyback is targeted into areas which are less suitable for long term irrigation. These areas can be prioritised for transitional assistance.

CSIRO carried out a pilot study in the Torumbarry Irrigation Area (TIA) to investigate the potential for targeted investment in reconfiguration and water purchases to provide multiple benefits.²⁹

These benefits include increasing the value of agricultural production and ecosystem services, and reducing water delivery costs and salinity loads. The study concluded that irrigated land use in the area could be reconfigured using the 'Traffic Light Concept' into three planning zones based on soil, environmental and location characteristics.

Different water investment strategies would be applied in each zone:

- Green – Sustainable Irrigation: Priority locations for investment in irrigation infrastructure modernisation and efficient water delivery. Low priority for water purchases unless they provide particularly low cost water;
- Amber – Environment and Amenity: Priority locations for investment in rural amenity and ecological restoration. Encourage change in land use from irrigation to biodiversity and carbon plantings. High priority for water purchases based on potential for water delivery cost savings, public good environmental and salinity benefits;
- Red – New Dryland: Priority locations for investment in new dryland farming. High priority locations for water purchases.

²⁹ Crossman, N, Connor, J, Bryan, B, Summers, D and J. Ginnivan (2009) *Reconfiguring an irrigation landscape to improve provision of ecosystem services*, Socio-Economics and the Environment in Discussion, CSIRO Working Paper Series 2009-07, CSIRO Available at <http://www.csiro.au/files/files/pgha.pdf> [Accessed 1 July 2009]

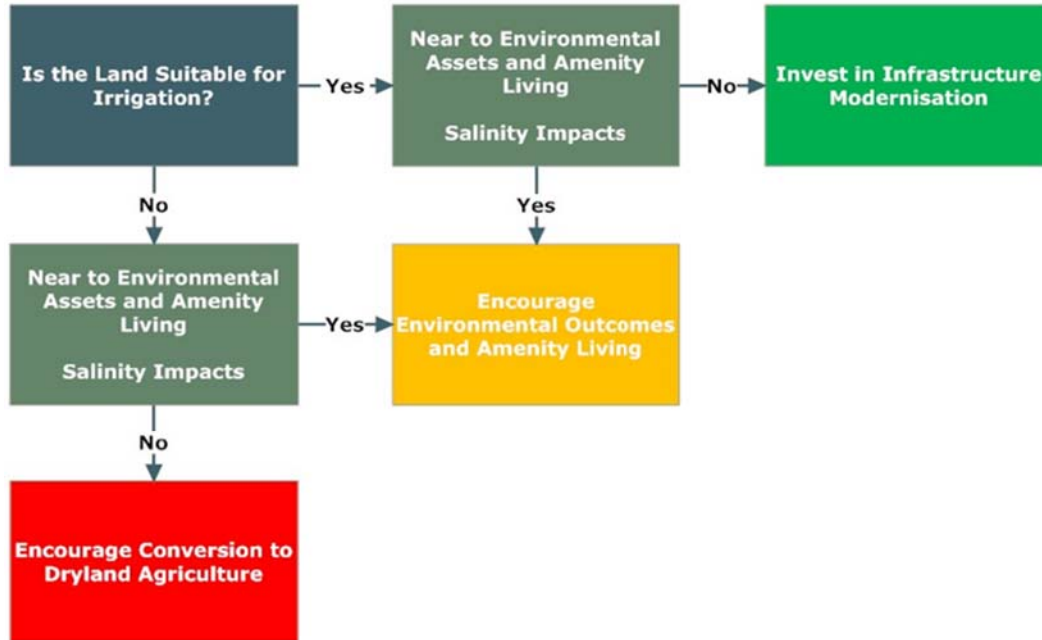


Figure 2. 'Traffic Light' Decision-making Framework

Source: Crossman *et. al.*

The environmental and economic benefits that can be achieved by using this reconfiguration design in the TIA are significant:

- 20 percent of the water used for irrigation can be returned to the environment – approximately 60 GL
- Water delivery infrastructure operation, maintenance and replacement cost savings in the order of 40 percent
- Agricultural profitability could increase by 24 percent
- Cessation of irrigation in the 'red' zones would reduce salinity measured at Morgan (the key reference point) by up to 13EC. This equates to a cost saving of more than \$50 million over 30 years in salinity mitigation.
- Over 10 million tonnes of CO₂ equivalents sequestered annually by encouraging planting in the 'amber' zones.³⁰

The study shows that if the same volume of water is allowed to leave the district in an unplanned way, these benefits will be lost and the value of agricultural production will decline rather than increase.

³⁰ *Irrigation reconfiguration and modernisation. Landscape-scale investment planning for multiple benefits. Summary.* Source: Goulburn-Murray Water, June 2009

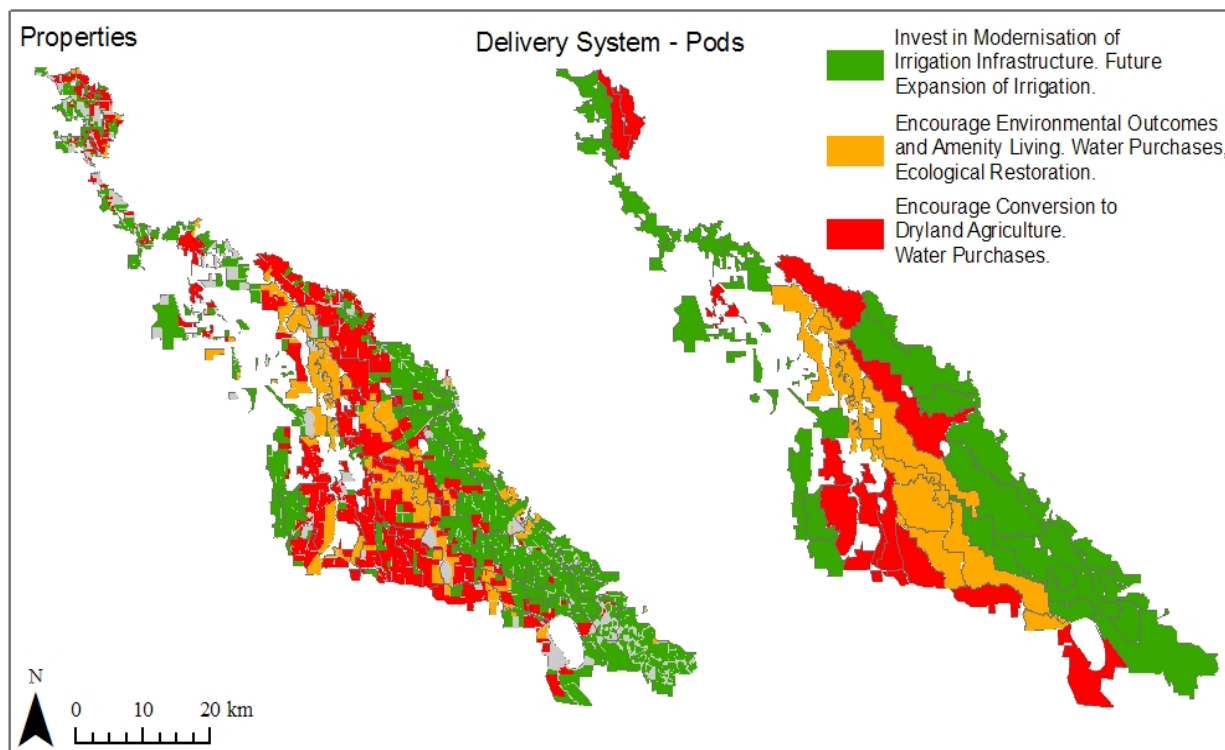


Figure 3. Landscape-scale irrigation reconfiguration in the Torrumbarry Irrigation District³¹

The CSIRO traffic lights approach has been used by the Northern Victoria Irrigational Renewal Project (NVIRP) as an input to establishing the zones for exemption from the 4 per cent limit on water trade. The exemption zones give effect to the Victoria-Commonwealth agreement to allow trade out of irrigation areas to the Commonwealth where it complements the modernisation program³². However the exemption zones depend heavily on the design of the modernised backbone which was determined before the traffic lights approach was devised, and do not necessarily allow for the whole range of benefits envisaged by CSIRO.

Recommendation Nineteen:

When considering options for water-saving measures or water return on a region-by-region basis, a variety of decision making processes (pertaining to the questions of where to focus modernisation, buyback and transitional assistance), are investigated and reported on. In particular, the Committee should consider employment of the CSIRO ‘traffic lights’ approach, based on land capability, climate and location, to help decide which areas should be prioritised for investment in sustainable irrigation, and

³¹ Crossman, N, Connor, J, Bryan, B, Summers, D and J. Ginnivan (2009) *Reconfiguring an irrigation landscape to improve provision of ecosystem services*, Socio-Economics and the Environment in Discussion, CSIRO Working Paper Series 2009-07, CSIRO

³² http://www.nvirp.com.au/downloads/Communications/4_Exemption_Fact_Sheet_FINAL.pdf

which should be retired from irrigation and targeted for buyback and transitional assistance.

Recommendation Twenty:

That the Committee report definitively on the merits and otherwise of the CSIRO 'traffic lights' approach.

Conclusion

Environment Victoria believes there are some key omissions and flaws in the Guide that mean that the Committee is potentially hampered in fully investigating and reporting the real impacts of the Guide on regional communities, including agricultural industries, local business activity and community wellbeing.

We are similarly concerned that opportunities for diversification, and the associated socio-economic benefits, will not be identified and explored in full. Opportunities may thus be overlooked and potentially foregone. This could partly result from the fact that the costs of *not* taking action to secure the environmental health of the Basin are yet to be fully quantified and communicated by the MDBA.

We deplore the fact that the outcry that followed the release of the Guide has likely obscured many crucial issues in the debate on social, economic and environmental outcomes. We here identify the opportunities and benefits provided by a healthy Basin, the optimisation of social and economic outcomes, the veracity of socio-economic data used in the Plan to date, the costs of continuing 'business as usual' and opportunities for whole of government approach and integrated investment as key areas of concern. We encourage the Committee to look at these in detail.

We particularly draw the Committee's attention to the experience and results of the CSIRO pilot study in the Torumbarry Irrigation Area. We believe this is but one example of the priorities and methodological options of which the Committee, and indeed the MDBA, should avail themselves when investigating and reporting on both the options for water-saving measures or water return on a region-by-region basis, and the opportunities from economic growth and diversification within regional communities.

In particular we encourage the provision of ecosystem services to be included and elevated in any consideration of alternative socio-economic futures for regional communities in the MDB. As such we have provided information describing the nature and scope of these ventures.

Environment Victoria trusts that the Committee, in all its powers, will thoroughly investigate and report as per its terms of reference, as is pleased to have been able to

make a contribution to the Committee's deliberations, and ultimately to those of the Parliament of Australia. We request an opportunity to present our views to the Committee at one of its hearings, and look forward to the confirmation of details to do so. We finally request that the Committee hear expert evidence from Professor Quentin Grafton and Professor Mike Young, as their viewpoints are expert in the economics of water management.

Recommendation Twenty-One:

That the Committee hear expert evidence from Professor Quentin Grafton, from the Crawford School of Economics, Australian National University, and from Professor Mike Young, Research Chair, Water, Economics and Management, School of Earth and Environmental Sciences, University of Adelaide.

Summary of Recommendations

Recommendation One:

That the Committee identify and factor into its investigations and reports the nature and extent of oversights, omissions and flaws in the framework provided by the Plan.

Recommendation Two:

That the Committee, in its investigation into and reporting on the impacts of the Proposed Plan, consider and communicate the benefits and opportunities of water reform for the environment, the economy and the Australian people.

Recommendation Three:

As implementation of sustainable diversion limits that will restore environmental health are essential to the securing the long term future of human communities of the Murray-Darling Basin, Environment Victoria recommends that, given the failure to date to thoroughly assess all repercussive costs and benefits of returning between 4,000 and 7,600 GL to the environment, the Committee:

- **acknowledge and describe the limits of the Proposed Basin Plan when considering the direct and indirect impact of the Proposed Basin Plan on regional communities, including agricultural industries, local business activity and community wellbeing; and**
- **in doing so identify and quantify the gaps and the nature and scope of their potential impacts on regional communities, including agricultural industries, local business activity and community wellbeing.**

Recommendation Four:

That the Committee call for a strong Basin Plan; one that fully considers all implications of returning between 4,000 and 7,600 GL to the environment, whether those implications be positive or negative, environmental, social and economic.

Recommendation Five:

That the Committee, when investigating and reporting on social and environmental impacts, and not inconsistently with the Act, maintain an approach whereby the determination of environmental requirements is first agreed and understood, and that social, economic and environmental outcomes are subsequently optimised in the implementation of that environmental requirements determination.

Recommendation Six:

That the Committee recommends the MDBA, with regard to consideration of social and environmental impacts, and not inconsistently with the Act, maintains its approach of determining environmental requirements first, and then subsequently optimises social, economic and environmental outcomes.

Recommendation Seven:

That given the potential unreliability of the socio-economic data used to inform the Technical Background to the Guide, and indeed given the incomplete nature of the initial survey work that was undertaken with communities, Committee members, in their deliberations:

- purposely avoid reliance on 'extreme scenarios' in assessing socio-economic impacts; and
- widen the scope of its sources of data, including provision of cognizance of Commonwealth Government commitments for compensation and transitional support.

Recommendation Eight:

That given the potential unreliability of the socio-economic data used to inform the Technical Background to the Guide, and indeed given the incomplete nature of the initial survey work that was undertaken with communities, the Committee call for a Basin Plan that:

- reflects Commonwealth Government commitments for compensation and transitional support, the Committee recommend that the MDBA;
- takes existing government Water for the Future commitments into account in its assessment of the socio-economic impacts of SDLs; and
- reduces its reliance on 'extreme scenarios' in assessing socio-economic impacts, and widen the scope of its sources of data.

Recommendation Nine:

That in order to

- adequately quantify impacts of the proposed Basin Plan on regional communities (including agricultural industries, local business activity and community wellbeing);
- investigate opportunities for economic growth and diversification within regional communities; and
- provide an accurate summary of options for water-saving measures or water return on a region-by-region basis

the Committee properly interrogate the consequences of any 'business as usual' approach in the MDB.

Recommendation Ten:

The Committee recommend that the MDBA assess, catalogue and communicate to Basin communities, and to other Australians, the economic and social costs of environmental decline resulting from

- current levels of water-extraction from the MDB;
- any constitution of a 'business as usual' approach in the MDB; and
- recommend ways of effectively communicating this information.

Recommendation Eleven:

That the Committee input the opportunities and benefits of government programs that invest in regional Australia into investigation of the entire spectrum of direct and indirect impacts, options for water-saving measures, and opportunities for economic growth and diversification. Further that assessment is made of the benefits and opportunities for current cross portfolio Australian and state government investment in the MDB to both offset any negative economic impacts from reducing the over-use of water in the MDB and to elevate the potential of, and investment in, alternative economic futures.

Recommendation Twelve:

That the Committee call on the Minister for Regional Australia and the Parliament to oblige the MDBA to prioritise and require a whole of government approach that makes best use of integrated investment opportunities that can assist to offset negative economic impacts from reducing the over-use of water in the MDB, and elevate the potential of, and investment in, alternative economic futures.

Recommendation Thirteen:

When considering the impacts of the proposed Basin Plan, the Committee recognise and take into account progress already made towards meeting SDLs, in Victoria, and elsewhere.

Recommendation Fourteen:

That to assist the ongoing facilitation of community acceptance of SDLs in northern Victoria, and of SDLs elsewhere, the Committee investigate and recommend to the

MDBA that they recognise progress already made towards meeting SDLs, take these into account in future SDL calculations, and identify key steps and processes to ensure this information is communicated clearly to those impacted directly and indirectly by the proposed Basin Plan, including regional communities and agricultural industries.

Recommendation Fifteen:

In identifying, considering and reporting on socio-economic impacts, options for water-savings, and potential economic opportunities, the Committee classify and summarise the inherent current gaps in the climate change framework, scenarios and impacts provided by the Guide to the proposed Basin Plan. Where possible, the Committee should identify potential solutions and opportunities arising from their investigation in order to provide a more fully accurate picture of the suite of impacts, options and opportunities for the Basin and its communities.

Recommendation Sixteen:

In order for the MDBA to provide a more fully accurate picture of the suite of impacts, options and opportunities for the Basin and its communities, and particularly to judiciously prepare for the predicted impacts of climate change, the Committee should additionally call for a Basin Plan that:

- assesses the full range of possible climate change scenarios across the Basin, allowing for regional variation;
- develops different scenarios reflective of different inflow conditions;
- increases the allowance for any climate induced reduction in water availability from the current 3 percent to better reflect CSIRO future inflow scenarios.

Recommendation Seventeen:

In developing recommendations about the suite of opportunities for economic growth and diversification within regional communities, the Committee should:

- articulate the connection between ecosystem services and human well-being;
- identify and value the full range of ecosystem services provided by the MDB; and
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Recommendation Twenty:

That the Committee report definitively on the merits and otherwise of the CSIRO 'traffic lights' approach.

Recommendation Twenty-One:

That the Committee hear expert evidence from Professor Quentin Grafton, from the Crawford School of Economics, Australian National University, and from Professor Mike Young, Research Chair, Water, Economics and Management, School of Earth and Environmental Sciences, University of Adelaide.

For further information regarding this submission, please contact
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