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SUBMISSION TO THE SELECT COMMITTEE ON THE MURRAY-DARLING BASIN PLAN

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Summary Points

- A key rationalisation for the diversion of water in the Murray-Darling Basin from irrigation to environmental uses was the notion that the activity was leading to salinity with costs to both commercial agriculture and to environmental values. These concerns were misplaced – salinity has proven to be easily controlled and the water is less saline today than it was 35 years ago.
- The more contemporary scare centred on supposed global warming leading to climate change that would reduce the water available. Rainfall data has proven this to be unfounded – there has been no reduction in precipitation across the basin.
- The cost of the Basin Plan in de-rating the region's agricultural potential has been enormous, especially to the once prosperous communities living within the region. In aggregate terms this is likely to be in excess of $3 billion per annum with a serious impact on the ability of Australia to take advantage of the export opportunities stemming from the rapidly developing nations to our north.
- The measures adopted in the Basin plan were reactions to ill-founded and disproven concerns about human damage to the environment. The Commonwealth should cease incurring costs in preventing water use for irrigation and should start re-selling the water it has banked to those willing to pay for it.

1 About the Australian Environment Foundation

The Australian Environment Foundation is a not-for-profit, membership-based environmental organisation having no political affiliations, dedicated to informing and educating Australians about environmental issues and solutions to environmental problems.

The Australian Environment Foundation takes an evidence-based, solution focused approach to environmental issues. In this respect we support the great 19th Century biologist, Thomas Henry Huxley, who said, *'The deepest sin against mankind is to believe things without evidence'.*

Many of the Australian Environment Foundation's members are practical environmentalists – people who actively use and also care for the environment – appreciating that environmental protection and sustainable resource use are generally compatible. People are an integral part of the natural environment and provide the means to protect and enhance it; the health of each depends critically on the other.

2 The AEF approach

Wherever possible AEF considers a pleasing environment should be created or maintained. This cannot mean that the environment must be preserved in some

pre-human or even pre-modern state as this would make current living standards impossible.

What it does mean is that we prefer a combination of a developed environment that retains or enhances its attraction to humans, and more natural environments.

Our focus is on Australia. In terms of adverse environmental impacts we seek to pursue outcomes that benefit Australians. This has one set of meanings where those outcomes are self-contained within Australia, for example ensuring against over-exploitation of resources.

The notion of adverse environmental impacts has a different set of meanings when the environment to be enhanced or protected is global in nature. The most important example of this is supposed anthropogenic induced climate change. Should such global matters be of pressing concern, we need to be certain that preventing harmful activities being undertaken in Australia does not lead to those activities taking place elsewhere in the world with greater adverse effects. This would certainly be the case, for example, with coal mining if, as most authorities accept, Australian coal has fewer impurities and pollutants than coal from areas that would displace it should its mining be prevented in this country.

In pursuing beneficial outcomes, AEF's evidence based methodology recognizes the deficiencies of those who see an issue and clamour for its resolution without first evaluating the nature and extent of the problem. Such analysis is particularly important in assessing the costs each solution might entail and seeking out the solution that entails the lowest costs for an acceptable outcome.

3 The Murray Darling as an agricultural and environmental resource

Outside of the polar regions, there can be no areas of the earth that are untouched and unaltered by human presence.

But some are valued particularly highly, for example national parks, especially those that are designated World Heritage for their natural features.

Other valued areas involve considerable human modification – especially agricultural lands which have, by definition, been markedly modified. We gain considerable satisfaction from bucolic settings which have been transformed from wilderness that was either lushly covered with vegetation or, like most of Australia, semi-desert.

For the most part we prefer such land modifications to the land in its original state. Countryside that has been radically altered by human activity, like farmland in Europe, is particularly highly prized for its environmental values and, indeed, farm maintenance is offered as a rationale behind the costly European agricultural policies.

The Murray Darling Basin falls into this category of beneficially modified terrain. The river itself is best described as a "working river". It is the font of the region's agriculture as well as having benefits for recreational fishing and rural tourism. The river's course has been altered from its original situation which involved dramatic shifts especially in water flow where the river would alternate between flooding much of the region followed by a cessation or near cessation of flows. This is a reflection of the extreme variability of Australia's climate.

Few – at least openly – favour returning the Murray Darling to its original state[1]. What is at issue is the extent to which human intervention has taken place, the nature of such intervention and whether the intervention has had positive or adverse impacts for the nation.

The region is a vital part of Australia's agricultural production. This is a matter that is assuming greater importance now that the previously poverty stricken nations to our north are strongly growing. The increased importance of agriculture has been recognized as a priority by the government.

In 2005/6 the Basin produced around 39 per cent of Australia's agricultural output from around 14 per cent of its land area (20 per cent of agricultural land). The key to this prolificacy was the use of the river system's water for irrigation.

Over the past century, around half the average annual 24,000 gigalitres flow has been taken for agricultural purposes. This has involved the river itself being controlled by dams. Its flora, fauna and natural course have, accordingly, been markedly modified. In this respect it resembles some of the great and scenic rivers elsewhere in the world, for example the Rhine and the Mississippi. It differs from rivers like the Rio Grande where water extractions have been so extensive that very little flows into the sea.

4 The Basin plan

Irrigation has been a feature of the region for well in excess of 100 years but its extent increased rapidly in the 1980s and 1990s until the level of around 11,000 GL of diversions was reached. Concerns were expressed that this rapid change in the "natural"/"productive" split had harmed the environmental assets more than it had benefitted the productive nature of the area.

In the days before "global warming" induced climate change assumed its current fashionable level of concern, salinity in the Murray–Darling was the central issue adopted by activists to justify their assaults on commercial agriculture.

A key document was the Basin Salinity Strategy 2001–2015, which estimated that increased salinity brought costs of $294 million per annum to the basin. Yet

[1] One who does is the US academic Jarrad Diamond who in his 2005 book, *Collapse: How Societies Choose to Fail or Succeed* advocates farming in the Basin be discontinued before it collapses altogether (?). There is no evidence suggesting that such a collapse is likely or even possible.

data on the salinity of the Murray–Darling is at best ambiguous. Salinity levels upstream of Merbein are lower than they were in the early 1980s and are only seriously above these levels as the river approaches its mouth at the Goolwa Barrage. This is due to engineering work particularly in diverting highly saline water into evaporation pans.

Chart 1 shows average salinity in the years from 1982 to 2003. Chart 2 shows salinity at Morgan 1967-2011.

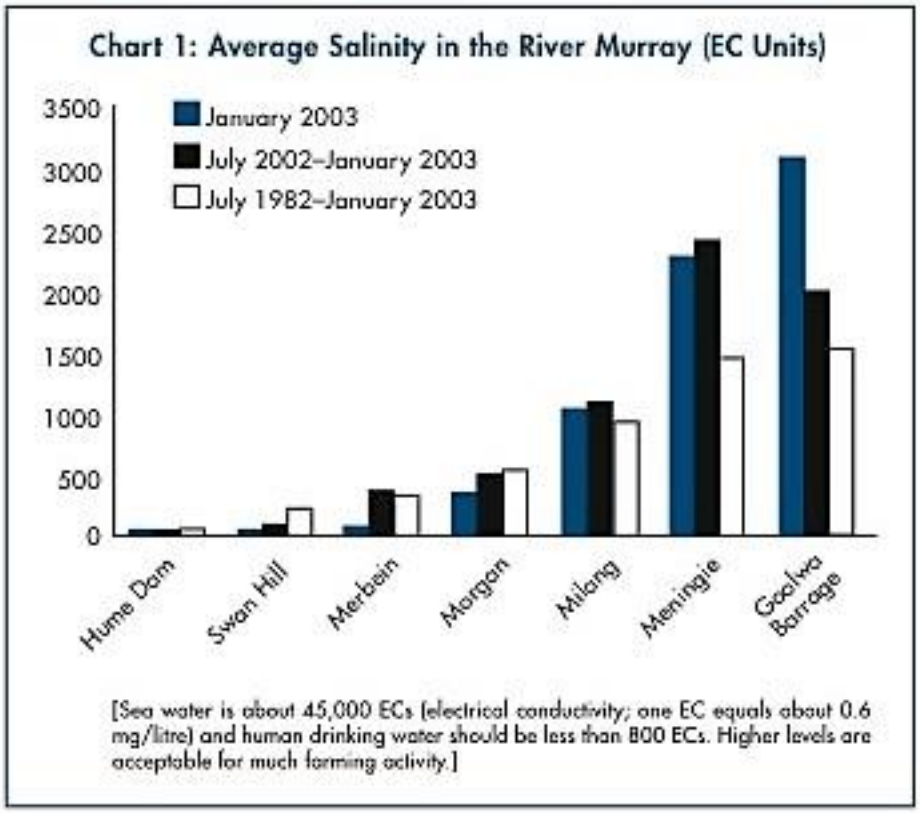
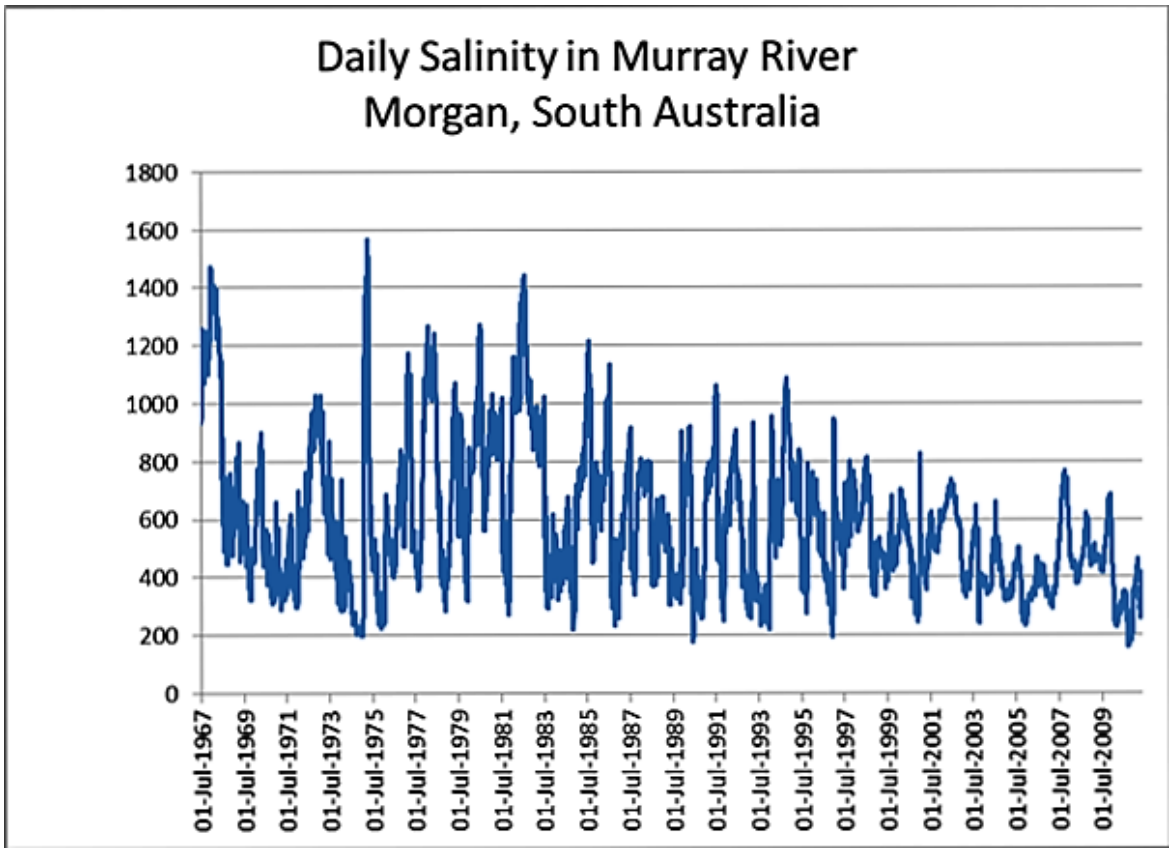


Chart 2



The Basin Salinity Management Strategy argued that the progress over the past decade will 'be cancelled within 20-50 years, and median salinity levels would exceed the Australian Drinking Water Guidelines for good water quality within 50-100 years.' The cause of this was said to be rising groundwater tables due to land use changes across the Basin. No evidence was ever presented to substantiate this. Indeed, the ABS 2002 Land Management and Salinity Survey indicated that only 0.5 per cent of the region was affected by salinity[2].

Those contemporary concerns about salinity in the area are ironic and are founded on an ignorance of the region's history. Salinity in the Murray Darling (and elsewhere in Australia) is a locally occurring issue and reflects a natural state of affairs. In this respect, when in 1829 the explorer Charles Sturt first saw what is now called the Darling River, he soon realized that its salt level made it undrinkable (he named it the Salt River)[3].

Actual evidence of the problem was inconsequential in informing the authors of a series of reports, which fuelled considerable alarm over the future productivity of Australian agriculture particularly in the Murray–Darling area. These reports cast doubt on the ability of irrigated areas to maintain their present environmental diversity and productivities.

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[2] http://www.abs.gov.au/Ausstats/abs%40.nsf/ b0462a212839e1e5ca256820000fe0de/ e3c62b38c2b153aeca256c8b0081eb9b! OpenDocument

[3] See Murray–Darling Basin Commission http:// www.mdbc.gov.au/education/encyclopedia/ water_and_land_salinity.htm

A report published by the ACF and NFF[4] called for an additional $3.7 billion of government spending annually and a total $6.5 billion to combat environmental distress and consequent economic loss. In all, the report sought an additional $60 billion 'capital investment' over the following decade with subsequent annual payments of $0.5 billion. The report claimed that degradation was costing at least $2 billion each year, and was increasing at an accelerating rate. Its "pie in the sky" estimate was that the investment expenditure it advocated would generate a 6.5 per cent annual return, for the next 100 years.

In Blueprint for a Living Continent[5], the Wentworth Group, largely comprising government and World Wildlife Fund (WWF) activists, echoed those demands for funding and amplified some of the rationales for the expenditure. It claimed that:

- 'two thirds of landholders report that their property values will decline by up to 25% over the next three to five years'
- 'dryland salinity is rising and 'could affect' 22 per cent of ultimate do land and that the sustainability of our agriculture is under threat.'

The Wentworth Group's report was laced with evocative phrases such as:

- 'Salt destroying our rivers and land like a cancer.'
- 'Many of our native plants and animals are heading for extinction.'
- 'About 50,000 km of streams have been degraded by sand deposition and sediments are moving off hill slopes much faster than soil is formed.'
- 'We are taking more resources out of our continent than its natural systems can replenish.'

None of these statements, like many other assertions in the report, ever stood up to scrutiny. But the political authorities nonetheless proceeded to de-rate the agricultural potential of the province.

The urgency of action was intensified by the prevailing concerns about anthropogenic induced climate change, concerns that were much enhanced by the incidence of the Millennium drought. That "Big Dry", which lasted from 1997 to 2009 seemed to validate notions that anthropogenic climate change would mean a steady reduction in the supply of water available.

Climate change featured as a rationale for action in studies by ABARE[6] in 2002, and was a major feature of a report by the Wentworth Group, who called themselves "concerned scientists", in 2003[7]. From this has developed an

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[4] National Investment in Rural Landscapes, NFF and ACF, May 2000
[5] http://www.wentworthgroup.org/wp-content/uploads/2013/10/Blueprint-for-a-Living-Continent.pdf
[6] http://econweb.ucsd.edu/~carsonvs/papers/353.pdf
[7] http://wentworthgroup.org/wp-content/uploads/2013/10/Blueprint-for-a-National-Water-Plan.pdf

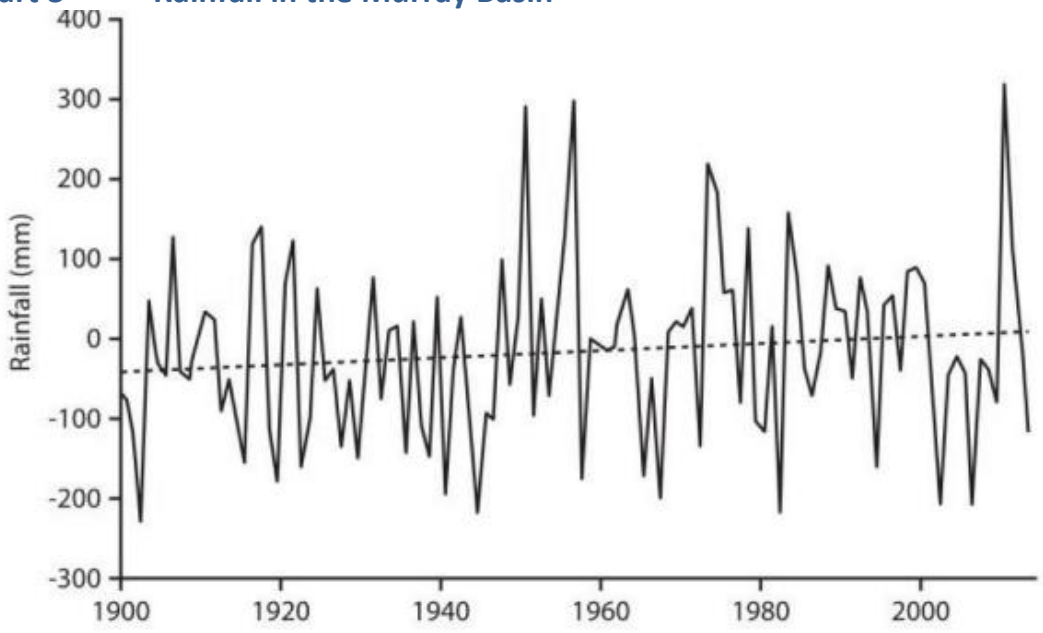
industry of government academics reporting on the region, eg Scofield[8], Potter[9], Garnaut[10], in the 2010 Final Report of the MDBA[11] and in many reports undertaken by CSIRO. (One CSIRO report, by Wenju Cai et al[12] commendably refused to ride this bandwaggon and stated that it found no evidence that the drought was caused by climate change).

Forebodings of a diminished amount of rainfall were said to be compounded by forecasts of lower run-off as a result of higher temperatures.

The outcome was the report, *Water for the Future*, which was described as, "a 10-year initiative, helping Australia plan for a future with less water. As part of the initiative, $3.1 billion will be invested in Restoring the Balance in the *Murray-Darling Basin* to purchase water entitlements from irrigators looking to sell".[13]

Evidence, however, indicates that the rainfall pattern of the "Big Dry" was not unusual, as can be seen from the following data.

Chart 3 Rainfall in the Murray Basin



Source: K. Stewart, "IPCC Dud Rainfall Predictions for the Murray-Darling Basin," KensKingdom, 4 April 2014, accessed 17 July 2014, http:// kenskingdom.wordpress.com/ 2014/ 04/ 04/ ipcc-dudrainfall-predictions-for-the-murray-darling-basin/ .

Analysing the same data, Moore and Quirk[14] found no discernable trend in the rainfall in the area from 1900 to 2007.

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8 http://press.anu.edu.au/apps/bookworm/view/Basin+Futures+Water+reform+in+the+Murray-Darling+Basin/5971/ch04.xhtml

9 http://www.mssanz.org.au/modsim09/G6/potter.pdf

10 http://www.garnautreview.org.au/pdf/Garnaut_Chapter6.pdf

11 http://www.mdba.gov.au/kid/files/1562-CD2B-CC-and-AqEco-FinalReport.pdf

12 http://wattsupwiththat.com/2011/01/21/csiro-climate-variability-caused-drought-not-climate-change/

13 https://www.environment.gov.au/resource/restoring-balance-murray-darling-basin

14 https://quadrant.org.au/opinion/doomed-planet/2010/10/muddle-on-the-murray/

Although, abstracting from the rainfall trends themselves, there is much discussion on the reduction in *flows* in the system[15], [16] there is little data to support such claims. Flows are even more variable than the rainfall and range from 117,907 GL in 1956 to only 6,740 GL in 2006.

Notwithstanding claims about global warming and associated effects on agriculture, it is well established that the warming that has taken place is far less than that which has been forecast. It also might be added that the prospect of these higher temperature and associated anthropogenic climate change have been arrested by the self-proclaimed success of the Paris Climate Change UNFCCC meeting where governments unanimously agreed to limit the increase of global temperatures to well below 2°C from pre-industrial levels and to pursue measures to limit the increase to 1.5°C, (on the basis of satellite evidence, more than half the latter target has already taken place).

The Basin Plan nominated the following seven priorities:

- Gwydir Wetlands: *Improve the condition and maintain the extent of wetland vegetation communities in the Gwydir Wetlands (including Ramsar sites) by restoring hydrological connectivity and a flow regime that meets ecological requirements.*
- Mid-Murrumbidgee wetlands: *Improve the condition of wetland vegetation communities in the mid-Murrumbidgee wetlands through a winter or spring fresh.*
- Macquarie River: *Improve native fish habitat within the Macquarie River below Burrendong Dam, by restoring a more natural flow regime and managing cold water pollution.*
- Connectivity in the River Murray system: *Improve riparian, littoral and aquatic vegetation (e.g. Ruppia tuberosa) and native fish populations, by increasing ecosystem connectivity through coordinating water delivery in the River Murray system.*
- Winter flows for fish in the southern Basin: *Improve survival, recruitment and condition of native fish populations, by providing winter flows to tributaries and creeks of the River Murray and through the barrages to the Coorong.*
- Native fish in the northern Basin: *Improve survival of native fish populations by enhancing and protecting dry period refuge habitat in the northern Basin.*
- Waterbird refuge: *Maintain waterbird habitat, including refuge sites and food sources, to support waterbird populations across the Murray–Darling Basin. Support waterbird breeding where feasible.*

To effect the benefits as they are now expressed, relatively recent reversals of the water extractive regime involve diverting 2,700 gigalitres per annum (out of 7,000 gigalitres "high security" water available) from productive agriculture to uses designated as "environmental". Originally green groups were calling for over 7,000 gigalitres to be returned to the river from productive use but this was recognized as likely to bring about a devastating economic loss.

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[15] http://www.abc.net.au/news/2015-10-23/murray-darling-inflows-on-par-with-2002/6879280

[16] http://www.clw.csiro.au/publications/waterforahealthycountry/mdbsy/pdf/Murray-FactSheet.pdf

There is a "cap" on direct purchases to achieve the 2,700 GL goal of 1,500 GL with the remainder to be achieved by water savings programs. Depending on the definitions used, around 2,000 GL has now been acquired from irrigation and allocated to environmental purposes.

A property right was recognized in the water allocations of irrigators, and these allocations were reduced through the Commonwealth buying them in the marketplace. Irrigators were therefore, with one important reservation, amply compensated. That reservation goes to the costs involved in supporting the infrastructure of the irrigators who had not opted to sell their water. Although the costs involved in channel maintenance and other such works were deducted from the price the selling irrigators received, the actual costs are non-linear – the loss of a significant user brings more than the proportional loss in terms of costs to the remaining users.

5 Costs of the plan

Although irrigators are mainly compensated (in the price they receive for their water rights) for the cost of foregone production from diminished water use, this does not mean an absence of costs. The water is the essential ingredient that converts low value activities into those with a higher value – in some cases without irrigation water the land would be valueless for agriculture. Water provides this ingredient for two types of crops: perennial tree crops like almonds and fruit; and occasional seasonal crops, like rice which in many places is planted only in particularly wet seasons.

In establishing the overall costs of the diversion of water from productive to environmental usages, a reasonable guide is provided by estimates of the Australian Dairy Industry Council (ADIC), which notes that the price for water has increased to over $250 per ML when at a time of relatively high rainfall prices would be of the order of $30/ML.

The ADIC estimates uses costs of milk production foregone –and as milk is a relatively low value-added produce of irrigation within the area, this is likely to be a conservative estimate. Its submission notes that the 120 GL was sold from the Goulburn Murray district. It estimates that the water would have been sufficient to produce additional milk with a farm gate value of $144 million, $360 Million in the region as a whole. On this basis the farm gate worth of the 2,700 GL currently planned to be diverted is $3.2 billion per annum. This is over one fifth of the gross agricultural value produced in the basin, although some of the land might have had agricultural value without irrigation.

6 Benefits of the current regime

AEF firmly believes in evidence based research to determine the costs and benefits of interventions by government so that the tradeoffs are readily evident.

It is not apparent that the present regime was entered into on the basis of such estimates. It is true that the MBDA set out watering priorities identified above,

but it does not offer any value as to the worth of each of these and how much the achievement of different goals within each priority might cost. Nor does it, in its reports, quantitatively indicate the success to date of the measures it has implemented.

It is difficult to see how such extractions can have improved the river's environment. After all, if the objective was to restore the basin into something closer to its original condition, instead of "giving the trees a drink" we would have been alternatively starving then flooding those same trees, and yet there are no voices favouring the former at any time.

The many government reports on the Basin point to the areas where it would be desirable to see the environment improved. But in no case do the reports indicate the cost of doing this satisfactorily. Nor do they indicate what is lost as a result of the outcomes that are claimed to be beneficial.

Jennifer Marohasy has over a number of year studied the river system as a scientist. In her evidence before the Committee (Submission 286) she successfully demolishes a number of myths about the poor health of the Murray created by those hostile to modern agriculture. AEF commends her submission to the Committee and, as indicated in our interim submission, AEF supports the case she has made for the removal of the barriers at the mouth of the Murray which have in Lake Alexandrina created an artificial freshwater lake at the cost of some 3000 gigalitres of water, which could otherwise have supported productive agriculture within the Basin.

7 Concluding Comments

There are trade-offs between use values and conservation values. Though rarely is the choice a dichotomy, in many cases the priority is on the latter. In Australia this is true of certain forests and the Great Barrier Reef. In the case of the Murray Darling basin the priority must be its values as the nation's foremost agricultural region. But in meeting those values it is important that we maintain an environment which is pleasing to humans. Getting this balance has proved to be politically difficult.

The interventions to date have not had a major quantifiable benefit on the environment of the river but have surely imposed very substantial costs, on our initial estimate some $3.2 billion a year, in lost agricultural output. This may amount to over one fifth of the region's agricultural income. In the context of an area subject naturally to exceptionally variable climate and water flows, this is a devastating blow and indicates that the people of this region have been ill-served by the national politicians who take decisions on their behalf.

It would be tragic if the disruption and the costs to the taxpayer and especially to the community in the Basin were to have been incurred as a result of hysteria whipped up by green activism and fed by government funded reports, many of which are of doubtful merit.

At the very least, the committee should recommend a review of the costs and benefits of the present policy. In the interim we would recommend a cessation of acquisitions from irrigators and of other measures involving taxpayer outlays. Indeed, we would argue that, as a revenue measure, some of the acquisitions banked by the Commonwealth be re-sold to irrigators.