



# **National Farmers' Federation**

Submission to the

## **Senate Rural Affairs and Transport Standing Committee Inquiry**

into

## **The Management of the Murray-Darling Basin**

17 December 2010



Member Organisations



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# 1. Executive Summary

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The NFF has been a strong advocate in support of water reform in Australia. If done appropriately the development of a new Basin Plan can add to what we have already achieved – unfortunately the Guide as it stands will not deliver in this intent.

NFF believes the Government must show leadership to deliver a robust workable Basin Plan that truly delivers a balanced Plan. This requires early instruction to the MDBA on what the Government expects the final Basin Plan to look like. It will also require a fundamental change to the way in which the Basin Plan is being developed to be inclusive of the Basin's communities and particularly the States. Otherwise, the Commonwealth risks the withdrawal of State support and a Basin Plan that is unworkable.

NFF believes the Guide is so fundamentally flawed that it cannot be used as a basis for moving forward and we need a new approach. There is a better way, which ultimately will also be good for the environment.

The preferred NFF options looks to a discussion on what environmental outcomes are desired as the starting point, i.e. what environmental assets are key and what are the trade-offs? Once this has been developed, in a manner that all stakeholders can engage in a discussion about, what are the desired environmental outcomes we seek to deliver in regard to these assets? Then, what are the smart ways, leaving no stone unturned, to deliver these outcomes? Clearly, non-flow issues cannot be dealt with via water quantity solutions. For flow related solutions, what environmental works and measures will deliver outcomes for least water, what river operations changes are required, what policy changes might require less water for the environment and a requirement to count all environmental water products?

While this submission deals with the issues under the purview of the MDBA, NFF believes this new approach must be supplemented by significant infrastructure investment, both on-farm, through irrigation systems and environmental infrastructure, as well as significant investments in R&D so farmers have the tools to adapt. Lastly, the tools we are already developing as part of water reform, such as water markets, must be transparent and used in sequence with an overall package, not one tool favoured over another.

Importantly, where any gap between the Cap and new SDLs remains, the NFF supports the Government continuing to invest (infrastructure, efficiency and purchase) to close the gap.

NFF stands ready to work constructively to progress water reform in Australia, but we will not stand by and let a flawed Guide translate into the destruction of our communities and industries, particularly when there are smart, better ways of delivering the outcome.

## 2. The National Farmers' Federation

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The National Farmers' Federation (NFF) is the peak national body representing farmers and, more broadly, agriculture across Australia. It is one of Australia's foremost and respected lobbying and advocacy organisations.

Since its inception in 1979, the NFF has earned a formidable reputation as a leader in the identification, development and achievement of policy outcomes - championing issues affecting farmers and dedicated to the advancement of agriculture.

The NFF is dedicated to proactively generating greater understanding and better-informed awareness of farming's modern role, contribution and value to the entire community.

One of the keys to the NFF's success has been its commitment to presenting innovative and forward-looking solutions to the issues affecting agriculture, striving to meet current and emerging challenges, and advancing Australia's vital agricultural production base.

The NFF's membership comprises of all Australia's major agricultural commodities. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations collectively form the NFF.

The NFF recently implemented a re-structure of the organisation. Through an associate category, a broader cross section of the agricultural sector is able to become members of the NFF, including the breadth and the length of the supply chain.

Each of the state farm organisations and commodity councils deal with state-based 'grass roots' issues or commodity specific issues, respectively, while the NFF represents the agreed imperatives of all at the national and international level.

### 3. Introduction

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The NFF welcomes the opportunity to make a submission to the Senate Rural Affairs and Transport Standing Committee Inquiry into the Management of the Murray-Darling Basin (“Inquiry”). The NFF welcomes the scrutiny of the Australian Parliament on the most significant water reform attempted to date.

The development and subsequent implementation of the Murray-Darling Basin Plan (“Basin Plan”) is a significant task – and one that has not been attempted anywhere else in the world. Importantly, water managers from across the globe are actively looking at this process and to the lessons that could be applied in their own backyard.

However, for the Basin’s communities, this process comes on top of around 20 years of water reform as well as enduring the worst drought in over 100 years generally, and the worst drought in over 300 years for the southern Murray-Darling Basin (“MDB”). With this background, it should have been no surprise that the Basin’s communities have rejected the Guide to the proposed Murray-Darling Basin Plan (“Guide”) particularly because the Guide is solely focussed on the environment.

The NFF has made a substantial submission to the Guide and this is attached for your information (see Attachment 1 from page 28). NFF will not seek to replicate the issues raised in this submission here. The NFF submission to this Inquiry will instead seek to address the terms of reference for the Inquiry but moreover, proposes an alternative process to that currently being considered by the MDBA.

### 4. Agriculture and Resilience<sup>1</sup>

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Australian farms and their closely related sectors generate \$133 billion-a-year in production – underpinning 12.1% of GDP. In the 30 years to 2003-04, Australian farms achieved an average multi-factor productivity growth of 2.8%-a-year – no other industry, with the sole exception of telecommunications and information technology, comes close to this achievement.

The gross value of Australian farm production (at farm-gate only) totals \$41.8 billion-a-year. While agriculture represents approximately 3% of Australia’s Gross Domestic Product (GDP), it is estimated that the sector represents more than 40% of the GDP of regional economies. Once multiplier effects are taken into account, this is as high as 70-80% in most small towns. While not all small towns are ‘farming towns’, a majority of them still are and the fortunes of these towns are aligned with the productivity and sustainability of the farms surrounding them.

Irrigation is a well-established and important feature of the agricultural landscape, especially in the Murray– Darling Basin. The challenge is to balance the use of water for production purposes while maintaining water quality and conserving the natural environment. The Murray–Darling Basin (MDB) is one of 12 drainage divisions in Australia and is comprised of 26 river basins.

The MDB covers an area of over one million square kilometres in southeastern Australia. Irrigated agriculture accounts for only a small proportion of MDB agricultural land use (2 per cent in 2005–06), but a significantly larger proportion of the region’s gross value of agricultural

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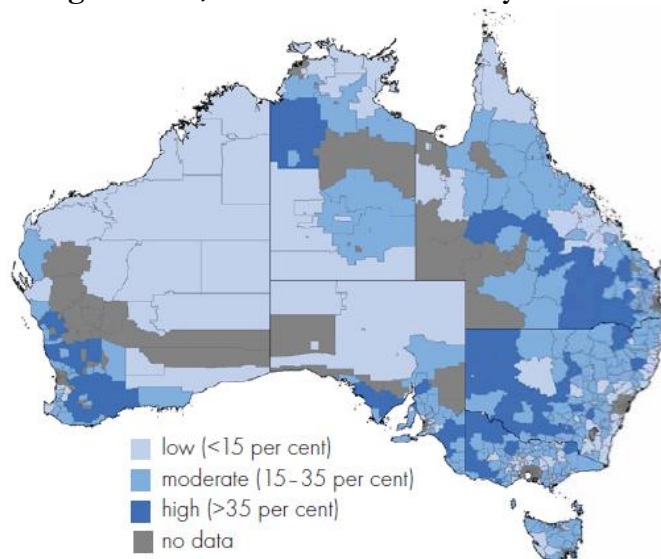
<sup>1</sup>Information sourced from [http://www.daff.gov.au/\\_\\_data/assets/pdf\\_file/0011/1812971/reg-impact.pdf](http://www.daff.gov.au/__data/assets/pdf_file/0011/1812971/reg-impact.pdf) and [http://adl.brs.gov.au/brsShop/data/atag glance2008\\_updated.pdf](http://adl.brs.gov.au/brsShop/data/atag glance2008_updated.pdf)

production (37 per cent in 2005–06). In 2005–06, the gross value of irrigated agricultural production in the MDB was approximately \$5.5 billion, representing around 45 per cent of Australian irrigated agricultural production and around 14 per cent of total Australian agricultural production.

The total size of the MDB economy—in terms of gross regional product (GRP)—was around \$59 billion in 2000–01, representing around 8 per cent of Australian gross domestic product (GDP). In 2006, the MDB accounted for approximately 10 per cent of total national employment, employing around 920,000 people in 2006, of these around 96 000 people were employed in agriculture (including both irrigated and non-irrigated production as well as services to agriculture).

Agriculture, fisheries and forestry industries are an important source of employment in Australia, with 280 923 people identifying themselves as being employed in these sectors in 2006 (see Figure 1 below). Many country communities remain vulnerable to industry change because they rely on a small number of industries for employment.

**Figure 1 Employment in Agriculture, Fisheries and Forestry**



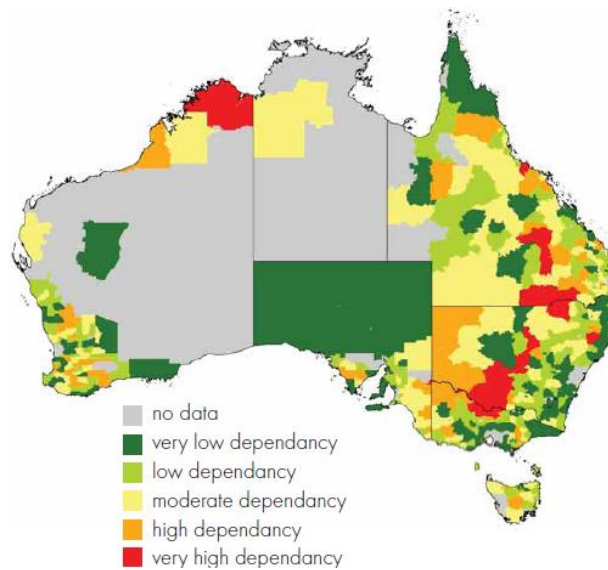
Changes in water access and water use in agriculture, due to a reduction caused by (shorter-term) drought and (longer-term) environmental allocations, will affect communities that depend economically on agriculture. Community dependence on water for agriculture is measured by resource reliance – volume of water used for irrigated agriculture, and livelihood reliance – the number of irrigated farms and downstream employment in agricultural industries and services. Communities in the Murray–Darling Basin, north and central Queensland and southwest and northwest Western Australia have the highest dependence on irrigated water for agriculture (see Figure 2 on page 8).

Social resilience describes a community’s general capacity to adapt to change. A resilient community demonstrates:

- sustained social vitality (for example, a measure of the proportion of skilled workers and persons of working age);
- minimal social distress (for example, a measure of household income and unemployment in an area); and

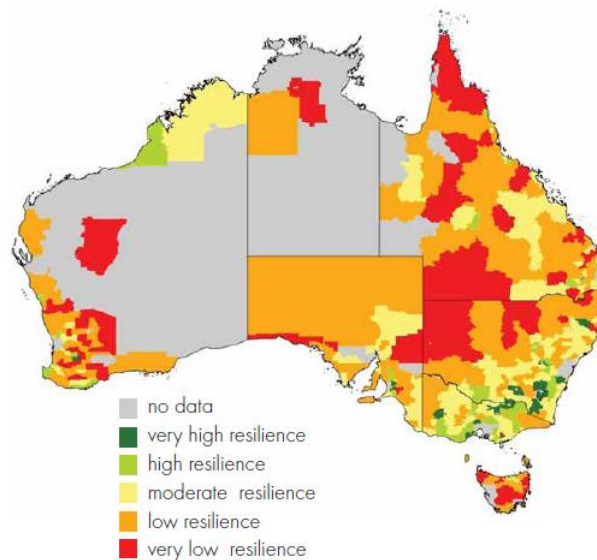
- enhanced social inclusion (for example, the extent of women’s participation in skilled occupations and the engagement of young people in educational activities).

**Figure 2 Dependency on water**



Using these measures, areas with lower social resilience occur in many remote and populated inland areas and often include communities with a high reliance on irrigated water supplies or employment in the irrigated agricultural sector (see Figure 3 on page 8).

**Figure 3 Social resilience**



## 5. Implications of Basin Plan for agriculture, food production and the environment

### Agriculture

The Guide to the Basin Plan suggests that between 3000 and 4000 GL/annum needs to be transferred from consumptive use to the environment. The Murray-Darling Basin Authority



(“MDBA”) noted that as much as 7600 GL/annum is required, but has ruled out this level due to the adverse consequences this will have on the social and economic fabric of the Basin.

The decision to select between 3000 and 4000 GL/annum was also based on the MDBA’s premise that cuts to water use of over 40% (for the 3000 to 3500 GL/annum scenarios) and over 45% (for the 4000 GL/annum scenario) would deliver unacceptable impacts to the social and economic fabric of the Basin. The MDBA has not provided an explanation as to why these percentages are appropriate – or for that matter, why lower or higher percentages were ruled out.

This approach is seen by the MDBA as complying with the provisions in the Water Act (and indeed its objects) to optimise social and economic – with this only being done after the minimum environmental water requirements are provided for. The MDBA clearly states that the environment’s water requirements can be provided for at 3000 GL/annum however, the trade-off is that this comes at a higher risk to the environment than other scenarios.

A Basin Plan implemented along the lines of that in the Guide will still have significant impacts on agriculture. This is because the cuts on which the MDBA have predicated their decision is based on all water users equally sharing the cut imposed by the new Sustainable Diversion Limits (“SDL”).

State legislation requires that state water managers allocate water according to a hierarchy that generally follows similar lines. First environment, second riparian or basic landholder rights, third town water supplies, industrial and recreation, fourth high security/reliability irrigation entitlements and finally general security/low reliability water entitlements. What this means is that agriculture will receive the remaining water after all other uses have been satisfied.

A further complication is the inclusion of interception and unregulated water uses. Previously, under the MDB Cap on Diversions (“Cap”), only regulated water use was included. What this means is that an ever-reducing pool of water is being shared with a new group of users. The MDBA believes that newly calculated watercourse Current Diversion Limit (“CDL”) (average use) is 10942 GL/annum and this figure includes unregulated use (whereas the Cap at 11183 GL excluded this use). The MDBA believes that the CDL for interception is 2732 GL/annum.

The States will also look at their ability to implement monitoring and compliance and the cost effectiveness of such measures. It is extremely unlikely that the States will choose to apply a cut and then monitor interception and unregulated use due to large numbers and smaller individual volumes involved.

Therefore, the impact on agriculture at a Basin scale of the proposed scenarios is markedly different to that estimated by the MDBA (see Table 1 on the following page). What this shows is that at the Basin scale, implementation of the proposed SDLs will see agriculture’s water use reduce by between 51% under the 3000 GL/annum scenario and 60% under the 4000 GL/annum scenario. This far exceeds the upper bounds of impact set by the MDBA itself. NFF would expect the MDBA to provide advice on whether the proposed SDLs remain satisfactory in this light.

Importantly, some including a group of around 50 scientists are advocating for the 7600 GL/annum scenario to be implemented. Table 1 shows that this would reduce water use for agriculture by some 92%. Effectively, this level will wipe out the entire irrigated agriculture sector in the Basin with major ramifications on the social and economic fabric of the Basin.

**Table 1 SDL scenarios and reduction in agricultural water use**

	<b>MDBA CONSIDERING THIS RANGE DUE TO SOCIO-EC IMPACTS</b>			<b>SCIENTISTS &amp; OTHERS</b>
Current Diversion Limit (CDL) - surface water <sup>2</sup>	10942	10942	10942	10942
CDL - interception <sup>3</sup>	2735	2735	2735	2735
Total CDL	13677	13677	13677	13677
Proposed SDL <sup>4</sup>	3000	3500	4000	7600 <sup>5</sup>
SDL	10677	10177	9677	6077
Less interception <sup>6</sup>	-2735	-2735	-2735	-2735
Less estimated regulated non-agricultural use <sup>7</sup>	-2188	-2188	-2188	-2188
Less minor unregulated surface water use <sup>8</sup>	-272	-272	-272	-272
<b>Residual Basin agricultural use</b>	<b>5482</b>	<b>4982</b>	<b>4482</b>	<b>882</b>
<b>Estimated Ag water use</b>				
80% of surface water CDL	8754			
Plus farm dams BLR CDL <sup>9</sup>	591			
Plus farm dams irrigation CDL <sup>10</sup>	1803			
<b>Total Estimated Ag Water Use</b>	<b>11148</b>			
<b>% reduction in agriculture water use</b>	<b>-51%</b>	<b>-55%</b>	<b>-60%</b>	<b>-92%</b>

NFF has also undertaken some analysis of the impacts to irrigated agriculture at a catchment scale. The analysis (located as an attachment to the NFF submission on the Guide) again shows how these new SDLs will be applied at a regional level and their impacts to irrigated agriculture in particular.

The analysis shows that all uses prior to formal irrigation entitlements, including interception, will be shielded from cuts. For irrigation entitlements, there will be quite wide ranging cuts depending on the State and the quantity of high reliability/security water products. In NSW high security water products are shielded primarily due to the smaller volume in comparison with other States. This is also likely to be similar in Queensland. For South Australia, in lieu of the MDBA's cuts of between 26% and 35%, South Australian irrigators will endure cuts of between 34% and 47%. The 4000 GL/annum level is only just outside the MDBA's maximum cut with the other scenarios coming under the MDBA's maximum cut.

For Victoria, there is a range of varying cuts up to 68% with substantially higher cuts (up to 100%) for some of the low reliability water products. For NSW's general security entitlements, cuts of up to 89% are a reality.

<sup>2</sup> As per Guide, includes major unregulated water use

<sup>3</sup> As per Guide

<sup>4</sup> As per Guide

<sup>5</sup> As per Guide – upper limit but not a proposed SDL

<sup>6</sup> Taken off as unlikely to be reduced by the States

<sup>7</sup> The Guide states that agricultural water use is 80%, this figure is 20% of surface water use. Unlikely to be reduced by the States and legislation generally prioritises this above irrigation water use

<sup>8</sup> As per Table 4.13, Vol 2, Part I, p. 181 of the Guide. Subtracted, as again, States are unlikely to reduce use due to large numbers of smaller water users

<sup>9</sup> As per Table 4.13, Vol 2, Part I, p. 181 of the Guide.

<sup>10</sup> Ibid

One might ask how these impacts could be attenuated. Indeed, continued water recovery by the Commonwealth will assist. However, there are a range of other factors that need consideration and inclusion:

- A discussion on the environmental assets, particularly a public discussion on what is to be protected by the Basin Plan and what is the responsibility of states – and what are the trade-offs that need to be made. Is it reasonable that the MDBA includes species, or is it more appropriate that the recovery of these is managed through their associated recovery plans under Federal and State environmental legislation?
- A discussion on what we want a healthy working river to look like. Obviously, Australia cannot reverse the fully engineered system that is the Basin's rivers and nor will Australia wish to go back to the highly variable river prior to regulation.
- Providing the appropriate solution to the environmental problem, in other words, non-flow causes cannot be treated with flow quantity solutions. This is more likely to require other options than the Basin Plan, particularly a discussion with the States on these issues and their solutions.
- In terms of the final environmental water requirement, this must be offset by:
  - Including all environmental water, not just what the Federal Government can control;
  - Implementing a program of environmental works and measures to get water into environmental sites and enabling environmental outcomes for least water possible;
  - Looking at river operations and what changes will deliver environmental outcomes (not more water just smarter use of all regulated water);
  - In determining critical human needs, ensure that alternative water sources are offset by the total drought demand (e.g. desalination and storm water harvesting); and
  - Investigation of policy changes (such as carry over) that may result in the environment needing less water entitlement. However, NFF urges caution here to ensure that third party impacts to other entitlement holders are avoided.

Some good examples are now being canvassed. For example, CSIRO has released a study commissioned by Water for Rivers that shows that replacing willow trees with natives will reduce water use. Victoria has looked at environmental works and measures for Lindsay Island, Gunbower Forest and Hattah Lakes, which will save approximately 833.8 GL/annum<sup>11</sup>.

Moreover, the Living Murray also included an environmental works and measures program. What are the identified water savings from this program and how can these be used to offset the environment's water requirements. For example, works commenced in January 2010 for a regulator and other associated works (the latter to better manage the water) for Chowilla that will

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<sup>11</sup> NFF understands that these figures require further work.

enable flooding of between 30% and 50% of the floodplain. The works will also contain fish passage<sup>12</sup>.

However, as identified by the MDBC, coordinated management of both environmental water and consumptive use can deliver benefits to both:

*“The watering of the Wakool system has shown that coordinating flows can provide benefits to both landholders and the environment. The 6 GL of Living Murray (TLM) environmental water combined with the 28 GL of NSW stock and domestic replenishment flow was able to provide the majority of landowners with access to stock and domestic water whilst also sustaining fish populations.”<sup>13</sup>*

It is imperative that the MDBA includes such approaches.

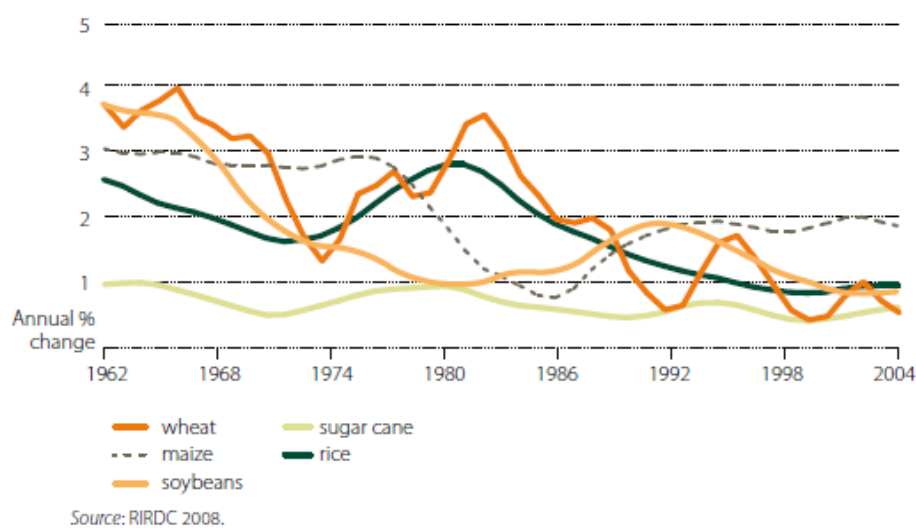
### Food Production

The United Nations advises that in order to feed a world population of nine billion people, by 2050 global food production must increase by 70%. Moreover, the Federal Government’s Inter-Generational Report projects Australia’s population to top 36 million by 2050.

Some of the drivers for food, aside from population growth, include rising living standards that in turn increase demand for more western diets and demand for alternative uses such as biofuels. On the supply side, food availability is affected by droughts, a trend in declining yields (see Figure 4 on page 12), increases in the cost of inputs, a run down in global stocks and the impact of Government regulation and subsidies.

At the same time, there are global pressures on agricultural land, e.g. urban expansion, environmental regulation and so on. Figure 5 (on page 13) shows that for the major food commodities, significant increases in land for production are needed in the future – particularly in comparison to current production areas. Figure 6 (on page 13) compares global demand for productivity against number of persons/area arable land. As can be seen, the former is declining and the latter increasing.

**Figure 4 Trends in global yield for the major food crops (annual percentage change)**

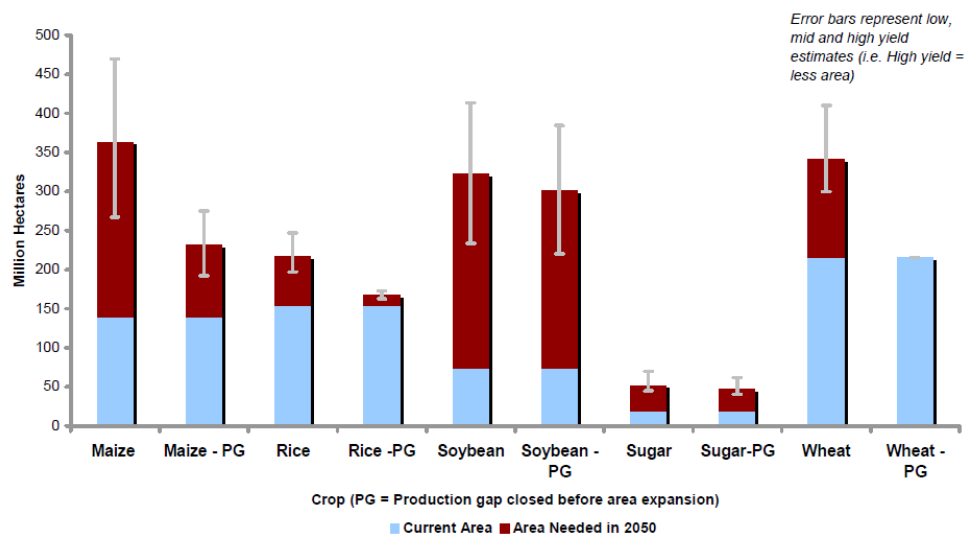


<sup>12</sup> MDBA 2010, *The Living Murray: Planned works for Chowilla Floodplain*

<http://www.mdba.gov.au/files/publications/MDBA-13574-Chowilla-Floodplain-v5.pdf>.

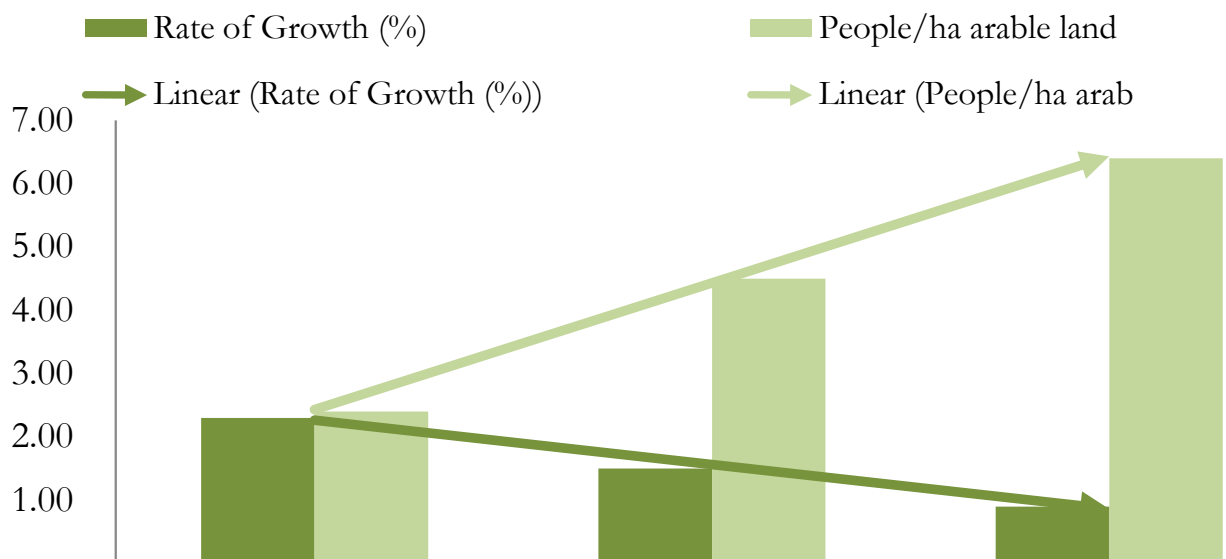
<sup>13</sup> MDBC 2008, Environmental Watering Report 2007-08, MDBC Publication Number 59/08, p.4

**Figure 5 Area needed to meet demand (food, feed and biofuels) for major commodities, 2050**



Source: FAO SAGF 2009

**Figure 6 Global Demand for Productivity Growth; productivity vs. available land (Source: FAO 2009)**



Australia farmers can play a major part in filling the food demands of this burgeoning world population. Moreover, today, some 93% of Australia’s daily domestic food consumption is grown and produced in Australia, and around 60% of total farm production destined for international markets. This export task represents 67% of the total gross value of Australian agricultural production.

The Basin Plan threatens both domestic and international food supply. Importantly, much of Australia’s overseas destinations are developing and least developed countries. Reduction in production due to domestic policies such as the Basin Plan will have a serious detrimental impact on those people with less capacity to adjust and adapt.

Moreover, as Australia’s population increases greater amounts of food will be retained for domestic use. This will also have a flow-on impact to countries importing food and that have low food security<sup>14</sup>.

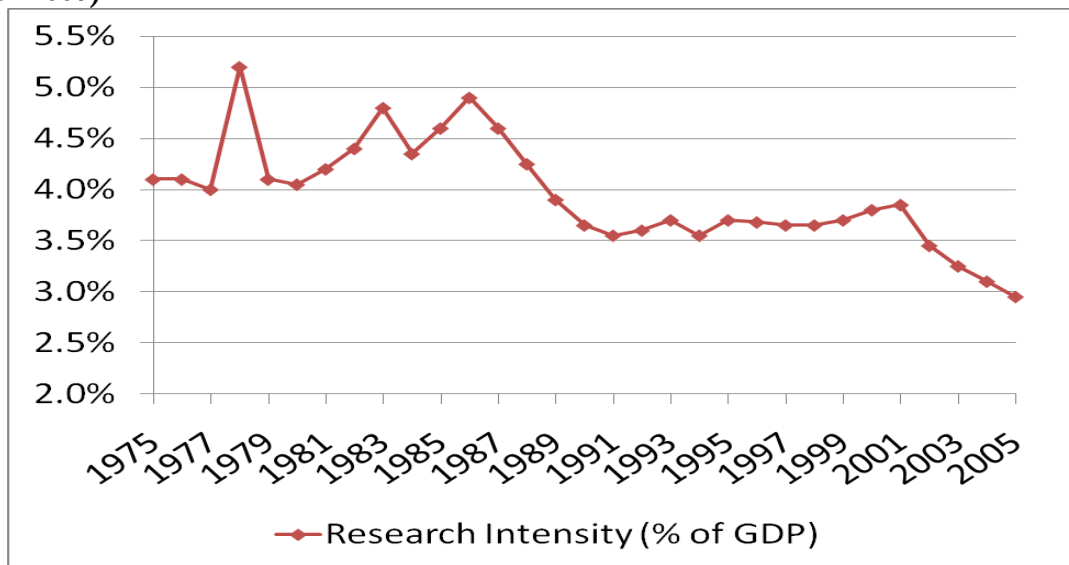
To this end, other programs and policies that maintain production must accompany any reductions in agricultural water use from implementation of the Basin Plan. This includes continued investment to allow the Basin’s farmers to produce more food from less water and importantly investment in research & development to allow farmers to adopt highly efficient and innovative agricultural production systems.

Research and Development

Australian farmers are alarmed at the petering out of the benefits of the so-called ‘green revolution’ in the 1960s and 70s. Over the past 30 years, Australian farmers have averaged annual productivity growth of 2.8% and agriculture is Australia’s leading growth sector.

However, on current funding levels (see Figure 7) and without a resolute vision, the days of cutting-edge growth are numbered with the declining trend in productivity growth in many parts of agricultural activity now becoming common.

**Figure 7 R&D investment as % of Agricultural GDP in Australia (Source: Mullen & Crean 2007)**



Farmers have always embraced innovation. Science-based solutions to nutrient deficiencies in soils, plant and animal breeding for Australian conditions, and emerging areas of biotechnology are here-and-now realities.

However, much of this research has been funded in partnership between agricultural industries and the Federal Government through the Rural Research and Development Corporations (RDCs). Australian farmers remain committed to this essential partnership.

Adopting a scattergun approach to research and development is not an option. In addition to cuts, agriculture has seen an increasingly fragmented approach to funding research and development by different agencies. A strategic approach is required to research investment in water. The approach needs to align new investments in research and development with existing

<sup>14</sup> Food security is essentially a measure of a country’s ability to feed itself and is expressed as a percentage.

investment frameworks, such as the National Primary Industries Research, Development and Extension Framework, in order to make best use of scarce research funding; to ensure it is complementary and builds on existing research; and that research outcomes are communicated to industries in a consistent way.

Government cuts to research investment must stop. But more than that, a commitment to a broader strategy to support long-term productivity gains in agricultural sectors is now vital. The link between expenditure on research and development and productivity growth is well established; along with the productivity benefits that flow from improving the adoption of knowledge and new technologies by industries<sup>15</sup>.

Research is not ‘just another line item’ in the budget, it represents the future. Evidence and experience shows that it takes 30 to 40 years to bring embryonic research ideas to a point where 95% of the country has adopted the research<sup>16</sup>.

Despite the worst drought on record, Australia’s farm exports earned the country \$31 billion in 2008, which represents 15% of all Australian merchandise exports.

Eroding funding for agricultural research and development reduces Australia’s capability to contribute to global food production, reduces Australia’s national science capacity and exacerbates the global food security problems of tomorrow.

Agricultural research and development is a sound investment. It has been demonstrated to deliver returns – at a rate of \$11 to every \$1 invested – and is a prudent and appropriate strategy for driving growth in the Australian economy.

Anything less is shortsighted and, ultimately, self-defeating in terms of Australia’s national interest.

### Environment

The Water Act provisions relating to the Basin Plan seek to improve the environment. However, many but not all environmental problems relate to water quantity. The MDBA believes that the current construct of the Basin Plan does not provide the flexibility for the MDBA to consider other solutions. Nor does it allow the MDBA to consider the most efficient and effective way to manage water delivery to environmental sites, which will lead to a reduced environmental water requirement but with improved environmental outcomes. Such approaches will assist in reducing the negative impacts on the socio-economic fabric of the Basin.

Of note is that in recent weeks, with substantial rain, runoff and flooding that is occurring in many parts of the Basin, nature is responding in a way that no Basin Plan can do. Wildlife is teeming, breeding events are occurring and trees are regenerating. The biggest problem of recent years has been the significant and ongoing drought. No amount of regulation could resolve this.

### *The Sustainable Rivers Audit*

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<sup>15</sup> ABARE 2009, *Raising productivity growth in Australian agriculture*, ABARE Issues Insights 09.7, November 2009

<sup>16</sup> Wednesday 29 September 2009, House of Representatives Standing Committee on Primary Industries and Resources hearing into assisting Australian farmers to adapt to climate change, evidence given by CRC Future Farming Dr Kevin Goss and Mr Mick Poole, citing the example that it took 30 to 40 years to bring no-till farming systems from an embryonic idea to a point where 95 percent of the country is using those techniques.

The Basin Plan and the Commonwealth Government's water acquisition program rely heavily on the Sustainable Rivers Audit (SRA) and in particular to improve the environmental condition of catchments rating poor or below.

Some key observations about the SRA:

- The SRA is a snapshot in time, with only one round of sampling taken during the worst drought in over 100 years and in the southern Basin, in over 300 years. Even the SRA committee itself notes this limitation and states that *“Extreme drought in some valleys before and during sampling will have affected the sampled communities but it is too soon to judge the magnitude of the effect”*<sup>17</sup>.
- *“When valleys are ranked by Ecosystem Health rating, the Lower Murray and Darling valleys were toward the middle. This indicates that impacts are not simply cumulative from headwaters to the mouth of the Murray”*<sup>18</sup>. This brings into question the use of end-of-system flows by the MDBA as a determinant of environmental health and the primary objective to restore environmental health.
- *“Many upland and montane zones were rated Poor or Very Poor, and these can contribute significantly to their overall Valley status. These low ratings were often related to the dominance of alien fish species in upper catchments”*<sup>19</sup>.

For ecology, NFF understands that what is important is the trend over time. In other words, is the trend continuing to decline or improve? If it is improving, then the management actions are addressing the environmental concerns. As the SRA has only undertaken one round of sampling, it is doubtful that any individual, Government or organisation is in a position to be able to say anything substantive about the trends.

Hearsay does not assist. One of the common key messages used by environmental groups is that *“[w]e've lost 90% of the Basin's floodplain wetlands”*<sup>20 21 22</sup>. However, a report on risks for the MDBA debunks this myth: *“Loss of wetland extent has been reported as high as 90%, but no evidence was found to support such estimations”*<sup>23</sup>. The report and the MDBA's risk approach recognise the need to improve this knowledge base.

The realistic solution is that the Basin Plan must be very clear in its environmental objectives. This is also important to enable the MDBA to undertake the Basin Plan's monitoring and compliance and review functions. In its recently released report the National Water Commission (NWC) notes the review of environmental water can only happen if:

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<sup>17</sup> Sustainable River Audit website, Report and Key Findings, available online: <http://mdba.gov.au/sustainable-rivers-audit>.

<sup>18</sup> Ibid

<sup>19</sup> Ibid

<sup>20</sup> ACF 2010, *New opportunity for a strong Murray-Darling plan*, media release 7 December 2010, available online: [http://www.acfonline.org.au/articles/news.asp?news\\_id=3255](http://www.acfonline.org.au/articles/news.asp?news_id=3255).

<sup>21</sup> ACF 2010, *Public knows Basin balance is out of whack*, media release 11 November 2010, available online: [http://www.acfonline.org.au/articles/news.asp?news\\_id=3222](http://www.acfonline.org.au/articles/news.asp?news_id=3222).

<sup>22</sup> ACF 2010, *Time for Basin Authority to get on with its job*, media release 28 October 2010, available online: [http://www.acfonline.org.au/articles/news.asp?news\\_id=3200](http://www.acfonline.org.au/articles/news.asp?news_id=3200).

<sup>23</sup> Pollino, C.A. & Glendining, N.S., 2010. *Risk Management Strategy for the Basin Plan*, Integrated Catchment Assessment and Management Centre, Australian National University, Canberra, p. 8.



- Ecological values, environmental objectives and environmental water provisions have been clearly determined and articulated; and
- Monitoring is in place to assess ecological responses and condition<sup>24</sup>.

### *Environmental Knowledge*

The MDBA admits that the environmental knowledge base is quite poor but represents “best available” now. MDBA also has advised that better information is available for Ramsar sites than other environmental assets.

However, there are also gaps in the knowledge base of Ramsar sites. For example, a Ramsar Snapshot Study<sup>25</sup> notes “[c]urrently Australia does not have a systematic reporting process to allow government stakeholders and other resource managers to gain an overarching view of the state of Australia’s Ramsar estate at any given time”. Importantly the study advises that threats to Ramsar sites include “water regulation and use, water quality degradation, habitat loss, pest species” but there is little information on the scale and magnitude of the threats<sup>26</sup>. Moreover, where the management plans are in place, only 19% are fully consistent with the Ramsar management principles. When released the report advised only half the Ramsar sites had ecological character descriptions. In terms of the Basin Plan, perhaps the most damning information was the observation of the degree of integration between water resource allocation process and water management requirements of the Ramsar wetlands:

*“Overall the water requirements were described as ‘well known’ at 11 sites and ‘partly known’ for another 15 sites. These results indicate that there is a fundamental knowledge gap in the key environmental driver of most (inland) Australian Ramsar sites.”<sup>27</sup>*

Perhaps one of the critically missing pieces of ecological knowledge is what the tipping points for environmental assets are. In other words, given various water availabilities, what are the points at which environmental degradation occurs that cannot be undone? For example, how many years and at what depths of water can red gums be watered before they die and likewise what is an acceptable level of tree loss for droughts (is it 1%, 5% or 20%)?

Another missing piece of information is the legacy effect of past degradation factors and whether past actions are improving, halting and having no effect. Moreover, how the legacy effect is separated from future recovery actions.

There are perhaps only three ways to improve ecological knowledge. The first requires a long-term investment in research and development in ecological knowledge of each environmental asset. This would be a substantial undertaking and a judgement for Governments particularly in terms of investment and knowledge gained.

Second, an iterative learning process that seeks to improve knowledge in response to the application of a range of measures (flow and other solutions). Third, by seeking local knowledge and local solutions.

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<sup>24</sup> National Water Commission 2010, *Australian Environmental Water Management Report 2010*, NWC, Canberra.

<sup>25</sup> BMT WBM, 2007. *Ramsar Snapshot Study - Final Report*, prepared for The Department of the Environment and Water Resources, Brisbane.

<sup>26</sup> Ibid

<sup>27</sup> Ibid

All three have merits and all have different fiscal outcomes.

However, what is clear is that if all else fails, and despite the Basin Plan, various Government water recovery programs for the environment will mean a permanent targeting of this water for improved outcomes for the environment, providing the water is used wisely and managed to obtain clear outcomes. With 58% of the water in the Basin used by the environment, and this has been increased with a range of recovery efforts, only better outcomes for the environment are possible.

## **6. Opportunities for national reconfiguration of rural and regional Australia**

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NFF believes this term of reference may be focussed on Northern Australia. NFF notes that a significant body of work has already dealt with this issue. Moreover, the newly formed Northern Australia Ministerial Forum will focus initially on:

- Indigenous employment and skills shortages
- Infrastructure priorities
- Opportunities to improve service delivery
- Water
- Energy

NFF believes this work will address concerns about development of Northern Australia more generally and specifically, its water resources.

However, the NFF notes that there are initiatives within irrigation regions that seek to “reconfigure” how these areas operate. Perhaps the best example of these is Victoria’s Food Bowl and new irrigation initiatives such as Tasmania’s irrigation development. These options may be relevant to other areas of the Basin but will need both local and political will to achieve outcomes that benefit the regional area as well as the Government policy initiatives. However, flexibility will be required to explore such approaches. This appears to be currently missing or very much constrained in terms of the existing proposals.

## **7. Water use efficiency**

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NFF notes that there is unexplored potential to deliver greater water use efficiency and therefore deliver on both agriculture and environmental outcomes.

In terms of agriculture, there will be a range of projects at delivery system (for river and channel based) as well as on farm. The range of projects is likely to cover distributional efficiency (how the system is operated), infrastructure (pipes and sealing leaks) through to agronomic (crops requiring less water).

The question here is the cost effectiveness of the works given the water saved. Even the Commonwealth has put some boundaries on this issue. As an example, some have sought that all earthen channels are lined and/or piped to ensure the most efficient use of water. While this might be true, the cost of doing so is prohibitive.

In 2001, Murray Irrigation undertook a LWRRDC study into water inefficiencies and the cost of resolving these. The most interesting aspect was an assessment of the system losses that showed that water management was the cause of the biggest loss of water, not true losses. Importantly, an assessment of the feasibility must include commercial incentive (assessed against the cost of water and the affordability of increased water charges) and be technically and operationally feasible.

**Table 2 Murray Irrigation System Efficiencies (Source: Murray Irrigation)**

<b>Loss Type</b>	<b>True Loss</b>	<b>Est. Volume (GL)</b>	<b>%<sup>28</sup></b>	<b>Works and est. Cost</b>
Evaporation	Yes	39.2	2.51%	Piped; not feasible (cover channels would save 18 GL; cost unknown)
Seepage	Yes	15.6	1.0%	Piped not feasible (sealing seepages would save 7 GL <sup>29</sup> )
Escapes <sup>30</sup>	No	60	4.65%	Capital \$74.15 M Annual operating \$1.85M
Dethridge Wheels	No	103.6	8%	Replacement of wheels
Channel filling <sup>31</sup>		20	1.3%	Piping not feasible

Further research and development is needed, particularly for agronomic efficiencies. NFF notes that a Water Use in Agriculture cross-sectoral R, D & E strategy is currently being drafted under PISC but will then need implementing (and funding). On the downside, the closure of Land & Water Australia and the CRC for Irrigation Futures will not assist providing the R, D & E. Moreover, the National Program for Sustainable Irrigation has only six months funding left. All this does not auger well when trying to undertake more efficient practices.

In terms of projects, NFF suggests that the appropriate organisations to do this are:

- State owned water delivery businesses;
- Private Irrigation Infrastructure operators;
- Individual farmers or groups of farmers;
- NRM regional organisation such as CMAs;
- State water agencies; and
- MDBA.

In terms of environmental efficiency, there is now some agreement to move forward and investigate options. NFF believes that significant gains can be made that will reduce the water required for the environment (as opposed to just allocating the savings against SDL gaps). The

<sup>28</sup> The percentages are of total diversions. The average delivery system loss component is 17%.

<sup>29</sup> Murray Irrigation has undertaken a program of sealing with plastic particularly areas where the seepage was significant and it would be cost effective.

<sup>30</sup> Escape water is water lost from the end of the delivery system to downstream uses. This primarily arises from ordered water not being taken at the farm and in some cases inaccurate off take diversions. Is minimised by installation of automated gates.

<sup>31</sup> Estimated filling 40 GL less end of season take 20 GL = net loss 20 GL.

areas include river operations, environmental works and measures and policy changes such as improved carry over for the environment (but the latter must be with no impacts on other entitlement holders). Likely organisations that could investigate these will be similar to the above list, with perhaps the addition of State environmental agencies.

All the above should be afforded the ability to make full and thorough investigations. Any viable prospective projects should be incorporated when making decisions on the environment's water requirements, i.e. not to merely close the gap.

### *Mining and gas extraction*

There is currently a lot of concern about the impact of mining and particularly coal seam gas extraction, on the Basin's aquifers.

The National Water Commission (NWC) is finalising a project, which looked at potential local and cumulative impacts of mining on groundwater, and will release reports and tools<sup>32</sup> for use by the mining industry and regulators. The NWC has also recently released a position statement<sup>33</sup> on coal seam gas that recognises the economic contribution of the industry but also notes that the impacts to adjacent surface and groundwater systems can be significant and long term if not well managed. The Federal Government also recognised this by putting numerous conditions on recent approvals and the establishment of a Ministerial Advisory Committee<sup>34</sup>.

There is also a project underway looking specifically at the Liverpool Plains.

What is evident is that there is a clear mistrust by local communities and farmers in particular, on whether there is sufficient independent knowledge and science of the impact of both mining and coal seam gas extraction on aquifers. There are calls for independence and informed decision making.

NFF recognises that the interface between mining and agriculture is a contentious issue. As a result, the NFF and the Minerals Council of Australia have signed a Memorandum of Understanding<sup>35</sup> that will allow a dialogue to occur between representatives of the mining industries and agriculture in order to develop a national framework of principles for integrated land use planning and management.

The NFF recognises that a similar discussion will be beneficial with the petroleum industry.

## **8. Foreign Ownership**

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As food security concerns escalate around the world, Australian agriculture and its supply chain is increasingly seen as being a strong investment prospect for international investors (particularly from regions such as the Middle East and China). Significant interest in the issue has resulted in many to question whether this is a good or bad thing.

In addressing this issue, it is important to note that foreign investment has been an integral part of Australian agriculture for many years. Global companies have been attracted to Australian

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<sup>32</sup> Reports and projects are outputs from the Cumulative Impacts of Mining on Groundwater study: <http://www.nwc.gov.au/www/html/629-effects-of-mining-on-groundwater.asp?intSiteID=1>.

<sup>33</sup> <http://www.nwc.gov.au/www/html/2959-coal-seam-gas.asp?intSiteID=1>.

<sup>34</sup> <http://environment.gov.au/minister/burke/2010/mr20101210b.html>.

<sup>35</sup> The MOU is available on the NFF website: <http://www.nff.org.au/read/1847.html>.

agriculture by numerous elements. These include Australia's reputation for high quality and safe production, our proximity to key Asian economies, counter-seasonal production for the northern hemisphere, relatively low levels of sovereign risk and a productivity record that is the envy of agricultural producers around the world. Australia is a top level food and fibre producer so it is no surprise that as a result we have seen much interest from foreign companies.

The common consensus is that this investment in our agricultural assets (including water) has been largely a positive for Australian farmers and regional communities in delivering significant amounts of capital into our production systems. This capital has improved our efficiencies and ensured that our farmers can continue to compete in a highly distorted global marketplace for agricultural commodities. At the same time our farmers have benefitted from the additional competition that these companies have brought to the supply chain and in many instances leveraged off the family operated farm structure that continues to dominate the Australian agricultural landscape. The relationship between foreign investment and farming has been an overwhelming win-win.

However, in 2007 and 2008, the world's attention was drawn to what is now known as "the other GFC" – the Global Food Crisis. In this light, is a new wave of foreign investment in Australian agriculture and its assets starting to emerge – one based on food security concerns?

For this reason, the NFF has been supportive of the Federal Government initiating two inquiries into foreign ownership of Australian agricultural assets. The ABS will survey agricultural businesses during 2011 while Rural Industries Research and Development Corporation (RIRDC) will carry out a separate study on the history of foreign investment in the sector and the reasons behind it. These studies are a reaction to community concerns and designed to elicit fact from fiction.

NFF has welcomed these studies<sup>36</sup> for the transparency this will provide and believes that policy judgements on this issue should not be made until the resulting information is to hand.

## **9. A More Robust Basin Plan Process**

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NFF has been advocating to the MDBA and to the Government for a better process – one that will deliver on environmental outcomes but also minimise the social and economic impacts. A balanced robust Basin Plan is one that will provide for the environment, maintain food production and have vibrant sustainable communities.

NFF has never advocated for no change. In fact, NFF has been a strong supporter over a long time for water reform. Nevertheless, this water reform must deliver on the triple bottom line. Moreover, this can be done.

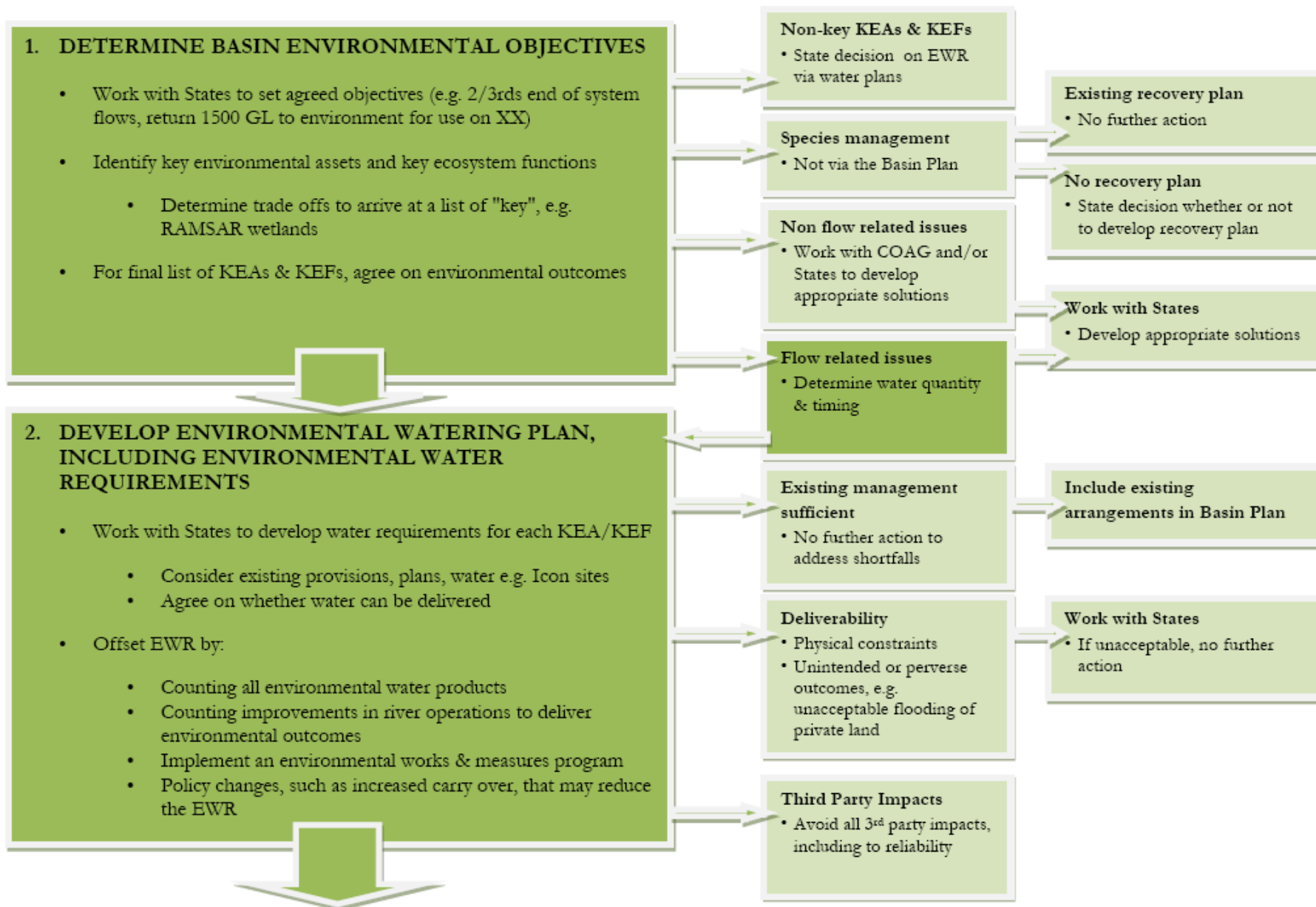
Figure 8 on page 22 shows what a better process might entail. Essentially, the MDBA could claim that the existing process meets those boxes coloured in the darker green. However, the process clearly omits those lighter green coloured boxes.

An important differentiation on the NFF proposal is also that the MDBA and indeed the Government, needs to work with the States to deliver such an outcome. The statement issued by the Chair of the MDBA, Mr Mike Taylor, on his resignation, points to such an approach:

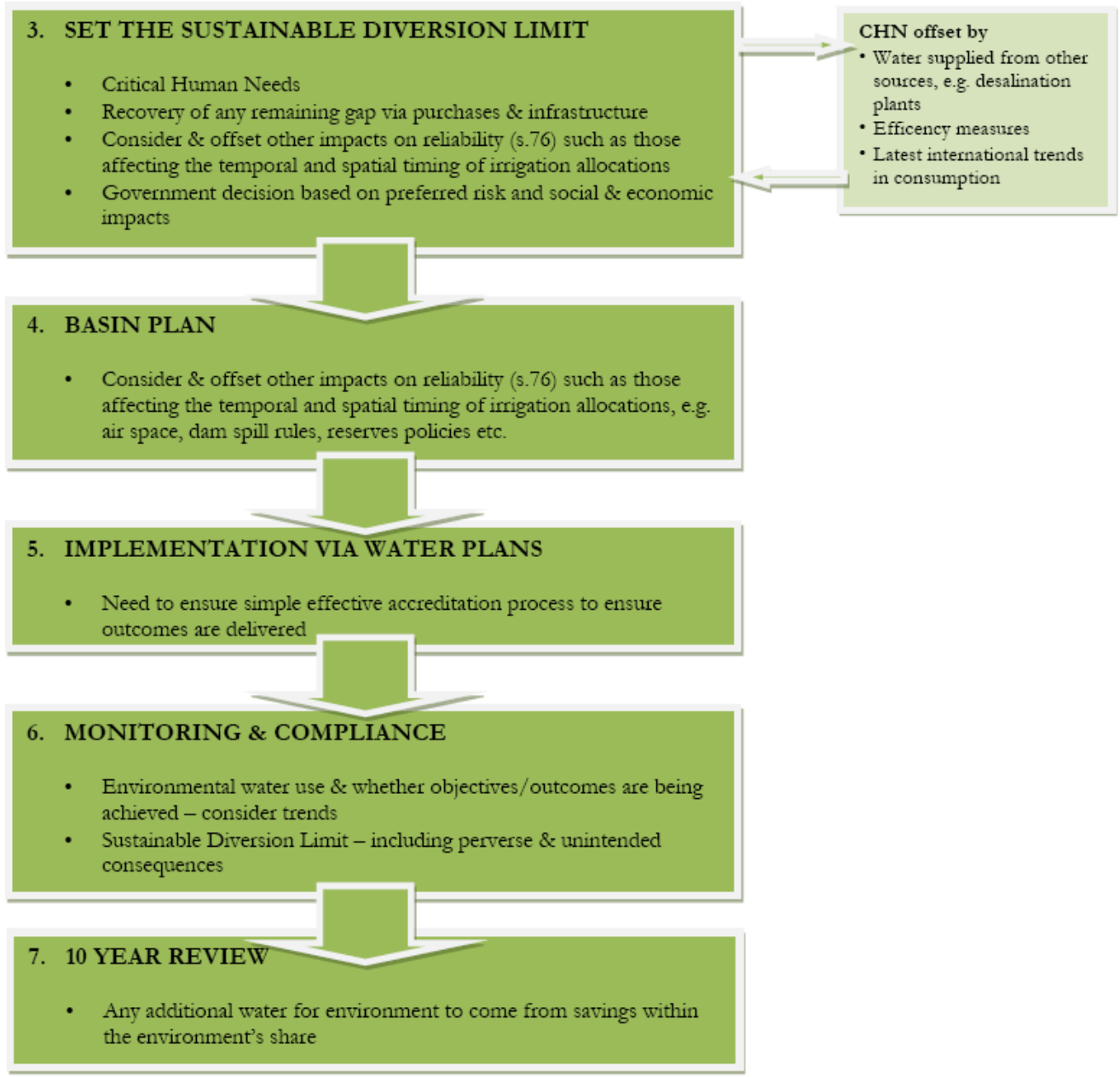
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<sup>36</sup> <http://www.nff.org.au/read/1870.html>.

Figure 8 NFF view of a more robust Basin Plan Process



NFF view of a more robust Basin Plan Process continued...



*“A successful plan would require both the Commonwealth and States to work together on a comprehensive range of policy, planning and implementation issues....While the Authority has an important part to play, it is neither empowered nor equipped to undertake the entire complex task.”<sup>37</sup>*

Mr Taylor also points out that the decision on a sustainable Basin Plan would require far more than a decision by the Authority on how much water ought to be transferred to the environment. In other words, the outgoing Chair has clearly indicated the need for a different process, which encompasses the States and delivers on a truly balanced and sustainable management of water in the Basin. NFF can only agree.

The difference between the NFF proposal and the process outlined in the Guide is that the Guide can only seek to deal with the environment by flow quantity alone. Many of the causes for environment concerns do not relate to flow quantity. For example, the Sustainable Rivers Audit states that the reason for the poor rating of many catchments is alien fish in upper catchments. This is about pest management and its resolution cannot be simply dealt with via water quantity. Moreover, looking at end-of-system flows as a measure of environment health cannot be justified. Again the Sustainable Rivers Audit states:

*“When all valleys were ranked by Ecosystem Health rating, the Lower Murray and Darling valleys were toward the middle. This indicates that impacts are not simply cumulative from headwaters to the mouth of the Murray.”<sup>38</sup>*

What is also required is some clarity on the MDBA roles in regard to the Basin Plan, what the Government expects to see in the Basin Plan and perhaps most importantly, how the balance is to be delivered, i.e. via the Basin Plan or other mechanisms. A water recovery and a structural adjustment program is a start but is not the only or best solution. A more comprehensive program must include:

- Determining the trade off between key environmental assets, key ecosystem functions, productive base and key environmental outcomes on which the environment’s water requirement is based. It is the NFF’s view, given the external powers basis for the Water Act, that this list encompasses Ramsar wetlands. Those assets etc that are determined to be non-key are a decision of the States on whether to provide additional water.
  - Species are not included as key environmental assets. Recovery plans under state and federal legislation should provide for recovery measures. For those without a recovery plan, a decision of the relevant jurisdiction is required on whether a recovery plan is needed.
- Any environmental issues caused by non-flow drivers.
  - The appropriate solution must be negotiated between the State and the Commonwealth, e.g. removal of floodplain barriers, fish passage, pests and weeds.
- For flow related issues:

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<sup>37</sup> Murray-Darling Basin Authority 2010, *Plan for the Murray-Darling Basin – Role of Authority Chair*, statement issued by the MDBA on the resignation of Mike Taylor, 7 December 2010

<sup>38</sup> Sustainable Rivers Audit Report Key Findings and Recommendations. Available online <http://mdba.gov.au/sustainable-rivers-audit>. Accessed 1 December 2010.



- Determine whether existing provisions deliver against the agreed environmental outcomes. If so, include the provisions in the Basin Plan. If not, determine additional water requirements.
- Offset the additional water requirements by:
  - The inclusion of all environmental water – both public (State and Commonwealth) and private and including all held and planned/rules based water.
  - The implementation of an environmental works and measures program to reduce the environment’s water needs while maximising environmental outcomes. This may include a trade-off in the level of outcome to be achieved against the additional costs of doing so, e.g. by installing regulators and pumps is the optimal outcome watering 60% of a floodplain with 20% of the required water. If such measures are reasonable, is this an acceptable cost and benefit rather and a near perfect natural watering regime?
  - Investigating changes to river operations to deliver environmental outcomes. This is not about additional water but using the existing water to deliver both extractive use and environmental outcomes. A good example is the dropping of Steven’s Weir during autumn/winter to allow revegetation of the Edward River banks, which in turn reduces bank slumping.
  - Determining if the proposed environmental water requirements are deliverable given physical constraints (e.g. chokes) and unintended and perverse outcomes for private landholders (e.g. flooding). An agreement with the landholder might be required. Otherwise, this may rule out delivering some environmental water.
  - Investigating changing certain policies to allow less water to be used to deliver better environmental outcomes. This might mean increasing the carry over provisions for the environment, providing there is available airspace and the environmental water is the first to spill. The caveat NFF places on this option is that there should be no third party impacts to other entitlement holders. The current example is the Barmah Millewa Forest Allocation.
- Setting the SDL
  - The Government has agreed to offset the SDL by water recovered. NFF supports this; however, it should be noted that the previously mentioned measures will significantly close this gap.
  - In terms of the arrangements for critical human needs and the associated conveyance water, this must be offset by:
    - Water able to be substituted from other sources, e.g. stormwater harvesting and desalination;

- Efficiency measures; and
  - International trends in average water use.
- Actions or alternatives that would ameliorate any impacts from non-SDL reliability impacts, e.g. impacts through the prioritisation of water for the environment in Spring at the cost of irrigation allocations and preventing the “ceasing” of individual carry over to use for other water users.

The above will deliver a balanced Basin Plan that delivers on a long-term sustainable environment, enable food and fibre to continue to be produced at levels comparable to today and leaves a vibrant Basin community intact. However, the Government must show leadership and clearly show how and when the above will occur. It is the view of the NFF that this needs to happen as part of the proposed Basin Plan. To do otherwise will mean a duplication of effort by the MDBA and significantly risk the ongoing goodwill and support of the States. Moreover, the discussion with the States must commence immediately.

Many of the extreme conditions experienced by farmers and the environment over the past decade are now being resolved. Many of the wetlands are full, the Lower Lakes are 92% full and water is flowing over the Barrages and is flushing the Coorong. Water will fill remaining wetlands as it passes through the system – most of these located either in the Lachlan and west of Barham on the Murray River. The Basin is now alive with fish and birds, and breeding events are underway. The vegetation of the Basin is recovering and new trees are germinating.

The significant rainfall events currently occurring over much of the Basin has bought valuable time to enable the MDBA and Government to put in place a good process and deliver a robust Basin Plan.

In the end, however, if the above fails to deliver the approach described by the NFF, then the NFF does support a bipartisan approach to changing the Water Act.

## 10. Conclusion

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The NFF welcomes the scrutiny of the Australian Parliament on the most significant water reform attempted to date. A critique of the Basin Plan is included at Attachment 1, which should provide the Parliament the confidence that the current process is flawed. This submission seeks to address the specific terms of reference sought by the Inquiry but moreover, proposes an alternative process to that currently being considered by the MDBA.

In the end, while the MDBA’s job is to draft the Basin Plan for consideration of the Minister, Government and Cabinet, it is the Government, via the Minister, who will submit it to Parliament for consideration as a statutory instrument. Any Government would be wary to present such a contentious document to Parliament as a minority government.

NFF encourages the Government to seek balanced solutions and to specify clearly to stakeholders and the Basin’s community how it will deliver this balance when the MDBA is adamant that it cannot deliver this via the Plan.

In the end, if this cannot be done, NFF will propose changes to the *Water Act 2007* (Clth) to enable a balanced plan to be delivered. The Council of Australian Governments (COAG) may also need to review the current completion timeframes.

# NFF Contact

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# Attachment 1 – NFF submission to Guide

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