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House of Representatives Standing Committee on Regional Australia

Inquiry into certain matters relating to the proposed Murray-Darling Basin plan

Submission by the National Irrigators' Council

June 2012

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1. Executive Summary

The National Irrigators' Council (NIC) is the peak body representing irrigators in Australia. NIC currently has 34 member organisations covering all MDB states, regions and commodities. Our members represent water entitlements of about 7 million megalitres. While this document has been prepared by the NIC, each member reserves the right to independent policy on issues that directly relate to their areas of operation, or expertise, or any other issues that they may deem relevant.

The NIC is in the position of being able to provide a national perspective regarding the Murray-Darling Basin Plan (the Plan). The NIC has found that the Draft Basin Plan in its current form is undeliverable and without changes there is the very real risk of catastrophic environmental, social and economic mistakes being made.

The National Irrigators' Council has previously identified environmental works and measures for the Committee (see NICs' additional submission to the Regional Development Australia Inquiry). We were pleased to see Attachment B1, 'Status of Environmental Works and Measures' (Recommendation 10) in the Australian Government Response to the House of Representatives Standing Committee on Regional Australia Committee Report: *'Of drought and flooding rains'* included many of these projects and given the Committee is already aware of these projects we are not proposing to discuss projects covered in either of those two documents in depth in this submission.

The National Irrigators' Council welcomes the opportunity to provide a submission to the House of Representatives House Standing Committee on Regional Australia. This submission will be outlining a number of new environmental works and measures which, in addition to the ones already identified by the Committee, would help provide an environmental, social and economic balance missing from the proposed Basin Plan.

We acknowledge the Committee Chair, Mr Tony Windsor's comments in a media release he issued on the 8th June 2012, in which he stated what the Committee was actually looking for: *"... is works and measures that can deliver outcomes that won't require anybody's individual water entitlements to be cut".* We believe we may be able to help the Committee identify additional projects that will achieve this.

The National Irrigators' Council has identified that there have been few environmental works and measures identified in South Australia. This is despite irrigators on Lake Alexandrina and Lake Albert identifying environmental management and infrastructure issues which need to be addressed to deliver a healthy working river. NIC notes that the MDBA has singled out investment in works to increase the fresher flows into the southern lagoon of the Coorong, as well as improving the management of the Menindee Lakes System, as 'urgent priorities'.

If environmental objectives can be maximised and achieved by using less water through building new or upgrading existing environmental works and measures, then the SDL should be continuously increased as these works and measures are implemented. This would offset the social and economic damage caused by removing consumptive water from communities while allowing for the watering of environmental assets.

The water accounting methodology in the proposed Basin Plan needs to be changed so that water recovery can include such things as rules changes, works and measures and efficiency projects. Any rule and operating changes must see the characteristics and reliability of water entitlements maintained and must have no third party impacts unless agreed to by all stakeholders.

Priority should be given to works and measures and efficiency projects identified under the localism model. In addition water recovery should not just be focused on privately held water entitlement and must also look at operational efficiency of water flows in the MDB already allocated to the environment.

Irrigators support the development of a Basin Plan and the principle that some water must be returned to the environment to ensure sustainable extraction into the future. We believe that the National Water Initiative (NWI) which was signed off by all Basin States and the Commonwealth Government in 2004 should remain the driver for water reform. That process sought to achieve economically efficient water use and investment that maximises the economic, social and environmental value of Australia's water resources.

It is our view that the current trajectory of reform is too heavily biased towards water as the only management solution, and that the environment takes precedence over people, communities and food and fibre production. Irrigators have been, and remain, committed to genuine reform. However, reform must take a sensible path that does not destroy communities and industries and maintains a viable, productive irrigated agriculture sector in the MDB.

We are also concerned that too much focus has been on academics duelling with the 'models' used in the development of the proposed Basin Plan, rather than on how the environmental water will actually be physically delivered to environmental assets to achieve the desired outcomes.

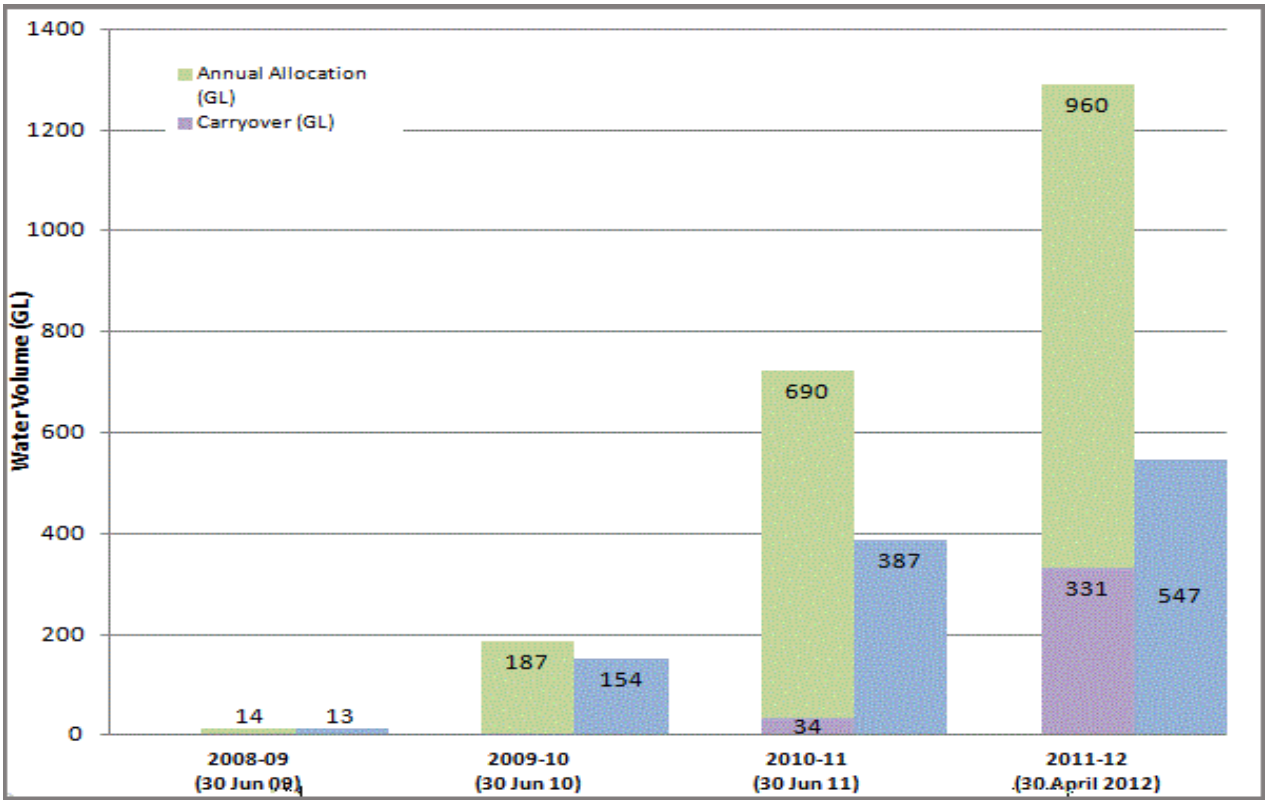
The inability to deliver water to where, when and how it will be needed in all climatic conditions under the proposed Murray Darling Basin Plan (MDBP) is a major constraint to the Parliament delivering a workable, practical and realistic MDBP by 2019.

It will be at least two and a half years before the States have developed a 'long term environmental watering plan'. Nonetheless by the end of the coming financial year the latest Commonwealth Budget papers indicate that since 2004 the Government will have recovered and hold 2519 (Gigalitre) GL/y (LTCE) in held entitlements from Basin communities. In effect the proposed Basin Plan has already begun, with the CEWH currently operating without a 'long term environmental water plan'. In the absence of a 'long term environmental watering plan' it is hard to determine all of the environmental works and measures which will be needed and flexibility should be built into the water recovery mechanisms under the proposed Basin Plan to allow for new environmental works and measures to come online.

The National Irrigators' Council is aware that the Department of Sustainability, Environment, Water, Population and Communities has been developing a 'water recovery strategy discussion paper'. NIC believes it would be in the interests of the Committee to have this document, whether in draft or completed form, for the purposes of this inquiry. It is believed the paper contains a strategy on how the Commonwealth is proposing to recover water under the proposed Basin Plan. It would also be helpful for this document to be made public.

2. IF CEWH Cannot Use the Water it Already Has Does it Need Any More?

The *Water Availability and Water Use 2008-09 to 2011-12* graph on the CEWH's website shows that the CEWH has never used all of the water allocated to the entitlements it holds since it was spawned in 2008. Logically this raises the question that if CEWH cannot use all the water allocated to it, why does the Commonwealth Government need to recover another 1500 GL/y (LTCE) as recommended in the proposed Basin Plan.



(The figure above shows water availability and water use as at 30 June each year from 2008-09 to 2010-11, and as at 30 April for 2011-12.)

It is the NIC's understanding that it is a similar story with the 959 GL/y of held entitlement the Murray Darling Basin Authority recognises was recovered by the Government from 2004 – 2009 (this includes the 478 GL/y of long term cap equivalent water held in The Living Murray water account).

How does the Parliament believe the CEWH will be able to water the upper reaches of the wetlands throughout the MDB if it is unable to top-up or prolong 'overbank flows' (floods) because it must 'minimise' the very real risk of environmental water flooding cities, towns, villages and peoples homes'?

The conundrum for the Parliament is that it would take a severe flood crisis with damage to hundreds of homes and infrastructure to deliver water to the upper reaches of wetlands. Not even extreme green organisations believe deliberately flooding people's homes with environmental water to achieve an environmental objective would be politically acceptable.

3. Without Environmental Works and Measures Environmental Outcomes Will be Limited

It must be acknowledged in many realistic scenarios that without investing in Environmental Works and Measures it will not be possible to create the 'overbank flows', pulses, low flows, high flows or storage levels needed to achieve the environmental, social and economic outcomes desired by the Commonwealth Environmental Water Holder (CEWH) to deliver a health working river.

This issue was again highlighted in an ABC Online article posted on the 4th of June, 2012 which states;

> *The state's (NSW) Water Commissioner David Harriss says there are going to be problems in nearly every river valley getting that (environmental) water to icon sites. "Certainly to meet the large volumes from regulated flow in the lower reaches of the Murray River is going to be exceptionally difficult," he said.*
>
> *"It's going to be trying to line up high flows in the Murray, the Murrumbidgee, the Victorian tributaries, out of the Goulburn and water coming out of the Menindee Lakes. And that's never been done before; it's going to be extremely difficult."*

An example of just how difficult it is to deliver environmental water involves the February/March 2012 flood events in Queensland, New South Wales, ACT and Victoria. While these floods have caused extensive damage to communities in upstream locations, they have failed to produce any flood event in the mid and lower reaches of the Murray. The South Australian Government's River Murray Weekly Flow Report evidences this:

> *"The Bureau of Meteorology advised on 21 March (2012) that flows from the Murray, Murrumbidgee and Darling Rivers are not expected to cause any flooding or access problems to towns along the River Murray. Based on current flow projections, river heights at other forecast locations, such as Swan Hill, Robinvale, Echuca, Euston and Wentworth, are expected to remain below their respective minor flood levels."*

The South Australian River Murray Weekly Flow Report dated the 31st March 2012 states 'the peak flow (in SA) is forecast to remain under 65,000 ML/day and is projected to arrive during mid to late April 2012.' It states the inability of these flood events to continue down the river is '*due to large potential losses ... as a result of water flowing across expansive floodplains ...'*

The February 2011 floods caused hundreds of millions of dollars of damage and flooded hundreds of homes and properties, in Victoria alone. The flows from these floods peaked at 93,800 ML/day as they flowed across the South Australian border and the MDBA estimates sixty percent of the Chowilla Floodplains were inundated. The February/March 2012 floods damaged hundreds of homes and properties and caused extensive damage to public infrastructure including road and rail infrastructure throughout QLD, NSW and Victoria. Both these floods pale in comparison to the mega floods being demanded by some environmental organisations.

Some of the big environmental organisations are demanding flows of '... up to 125,000 ml/day for a week at least 13 years in a hundred' to water the Chowilla Floodplains in South Australia. They claim they do not want to see peoples' homes flooded. Yet without extensive and expensive environmental works and measures, such as more dams/water storages, relocating communities, levy banks, regulators, pipes and pumps, etc., this is exactly what would happen if these massive flows were to be created. It should be noted that the same environmental groups are against any more investment in environmental works and measures.

The fact that it is impossible for the river operators (or the Basin Plan) to physically deliver such large flows across the South Australian border without major natural flooding cannot be ignored. The current physical and policy-based constrains in the Basin mean that unless huge sums of money are invested in infrastructure, environmental works and measures, purchasing easements over private property and rule-changes, the flood events required will cause or exacerbate flooding to a large numbers of homes and private property and could cause extensive damage to upstream wetlands through overwatering.

Conversely, environmental works and measures proved to be invaluable during the devastating 'Millennium' drought. The Living Murray, 'Environmental Watering Report; 2007-08, October 2008' highlights that without regulators, pumps/pipes, escapes, off-takes and aqua dams it would have been impossible to provide any water to The Living Murray iconic sites during the 2007-08 water year. More needs to be done with environmental works and measures to ensure that in times of drought the small amount of available water will go further.

3.1. Recommended Environmental works and measures

In the words of the Australian Government, in their response to the House of Representatives Standing Committee on Regional Australia Committee Report: 'Of drought and flooding rains':

> *"Environmental works and measures have the potential to deliver more water-efficient environmental outcomes for the Basin's rivers and wetlands, thereby reducing the need to recover water from consumptive users."*

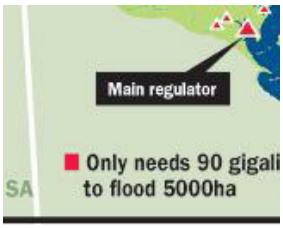
NIC fully agrees with this statement. Environmental works and measures reduce consumption and improve the effectiveness of environmental watering. NIC has recommended a number of proposed environmental works and measures in the past in an effort to be constructive. A table recommending these works, submitted in a previous submission, is included in attachment A.

NIC notes that the Federal Government has committed $400 million for environmental works and measures to be undertaken at Menindee Lakes and would like to see more than just feasibility and options papers undertaken.

One example of a project that can deliver an environmental outcome for significantly less water and at far less cost than purchase of entitlements is the proposed works for Lindsay Islands. Works at Lindsay Island will enable flooding of 30 per cent of the floodplain (about 5,000 ha), and reduce the amount of environmental water required for each event from 1,200,000 ML to 90,000 ML. To purchase allocation on the current market permanently to achieve this outcome without works would cost billions.

The Victorian Government has previously estimated the cost of these works (installation of a weir on the Lindsay River and eight smaller regulators to retain water on the floodplain) at $36 million. The works would enable flooding of river red gum communities, permanent and semi-permanent wetlands and provide permanent habitat for fish, turtles and frogs (including the endangered Growling Grass Frog) as well as increased breeding opportunities for water birds including species listed under international treaties.

The graphic below shows how the project would work:



Graphic courtesy The Weekly Times, 2010

NIC also thinks that it is very important that the argument that infrastructure upgrades are an expensive way of recovering water for the environment is quickly dismissed. This may be true in terms of returning water to the environment, but the commitments to infrastructure spending by both the Howard Government and the Rudd/Gillard Government are a reflection that this process is not just about recovering water. It is also about sustaining communities and that needs to be considered when weighing up "relative cost-effectiveness".

We are not arguing that infrastructure upgrades should be pursued at any cost. But they will deliver a better return to the nation in the long-run than the very blunt instrument of simply purchasing water with no care for the consequences for communities, family farms or food and fibre production. Buy-backs remove water from significant tracks of land, and hence remove that lands productive capacity. This in turn leads to a decrease in agricultural production and land values permanently, and therefore has significant long-term consequences for the Australian economy.

NIC is also calling for more transparency about the current progress of works, and investigations into potential works, in the Murray-Darling Basin. It is hard to make comment on such projects or to recommend projects when we are unaware of what is currently complete, what is still under progress, what is currently being investigated and what has not yet been considered.

By investing in more efficient environmental watering outcomes, the Government can deliver on its environmental objectives while limiting the damage to regional communities.

3.2. Lake Albert, Lake Alexandrina and the Coorong Need Environmental Works and Measures

3.2.1. The Barrages

The National Irrigators' Council is concerned that the Government's response to the Committee's previous report '*Of drought and flooding rains'* identified no environmental works and measures in what is collectively known as the 'Lower Lakes' in South Australia. This is despite irrigators on Lake Alexandrina and Lake Albert identifying numerous environmental management and infrastructure issues which, if not addressed, will see the continued degradation of Lake Albert, Alexandrina and the Coorong irrespective of how much water is recovered from upstream users.

According to the Murray Darling Basin Commission (MDBC), 'In 1931, the Commission decided after an extensive investigation that five barrages be constructed. Work on the barrages commenced in 1935 and was completed in 1940. South Australia's Engineering and Water Supply Department undertook the works, with costs shared equally by the Governments of Victoria, New South Wales, South Australia and the Commonwealth.'

The MDBC states the purposes of the barrages are to:

- *reduce salinity levels in the lower reaches of the River Murray and associated lakes;*
- *stabilise the river level, and normally maintain it above the level of reclaimed river flats between Wellington and Mannum, so as to provide irrigation by gravitation rather than pumping;*
- *during low flows, to concentrate releases to the ocean to a small area, and so scour a channel for navigation; and*
- *maintain pool water that can be pumped to Adelaide and the South Eastern corner of South Australia.*

Whilst there can be no doubt that the builders of the barrages did an excellent job and the longevity of their designs has been impressive, there is no doubt that much more efficient and effective technologies are now available. It would be practical to start planning and constructing new barrages during the life of the proposed *Basin Plan. Work should be undertaken into either:*

a) Replacing the existing barrages with fully automated, remote controlled flume gates to ensure Lake Alexandrina can be sealed almost instantly to limit the instances of 'reverse head' whilst still flushing salt out of the system; or

b) Moving all or some of barrages to a new location.

By the time the State Water Resource Plans need to be reviewed in 2034 (the NIC believes that all States should adopt 15 year schedules for Water Resource Plans) the barrages will be celebrating their centenary year and their operational life will have been extended numerous times. To continue to hold too ransom the social, environmental and economic health of up-stream communities with seventy year old barrages which leak like a sieve and take twelve hours to open and shut is like asking your local GP to only diagnosis and prescribe medicines developed during the 1930's.

The impact of rising sea levels as a result of global warming on the design of the new barrages would need to be taken into account. In looking at what is achievable nothing should be off limits if it can improve the environmental, social and economic outcomes across the Murray Darling Basin.

3.2.2. Meningie Narrung Lakes Irrigator Association – Five Point Plan

One of the documents released by the Murray Darling Basin Authority with the latest version of the proposed Basin Plan was the 'Proposed Basin Plan Consultation Report'. In this report The MDBA

Chair, Craig Knowles, made nine recommendations based on the feedback from the consultations undertaken by the MDBA. The recommendations in the main could not be delivered by the MDBA, yet provided some practical, realistic and deliverable solutions to the environmental issues in the Basin. Recommendation Seven states:

> *'Investment in environmental works and measures will boost environmental outcomes for the Basin. There are many opportunities to improve environmental outcomes through works and measures, but the MDBA singles out investment in works to increase the fresher flows into the southern lagoon of the Coorong, as well as improving the management of the Menindee Lakes System, as urgent priorities.'*

Despite an estimated twenty-four million megalitres of water flowing across the South Australian border, since the drought broke in late 2010, Lake Albert is still experiencing water quality issues, with salinity levels still too high.

The current problems in Lake Albert have been exacerbated by a Bund built across the Narrung Narrows during the drought. According to an Adelaide Advertiser story this Bund has not been removed despite the SA Environment Department chief executive Allan Holmes stating "*we will have to do some clean-up work and dredging work once the water levels are stable, to remove the sediment from that main channel"*. Eighteen months later nothing has happened and locals are still waiting for water they can use.

Until the Bund is fully removed poor water quality could continue to plague Lake Albert and local communities long after it should. This is not an isolated example of Government ineptitude but is fast becoming symbolic of the dishonest argument run by some that simply adding water will fix water quality and environmental issues in the MDB.

This is not merely the opinion of 'upstream irrigators'. It is supported by the Narrung irrigators and locals. These locals also claim that issues in Lake Albert are being further compounded because the causeway built in the 1960's was poorly designed and as a result has changed the direction from which water flows into Lake Albert from Lake Alexandrina.

We would strongly urge the relevant State and Federal Governments to immediately provide funding for feasibility studies to be undertaken as soon as possible into each of the five projects identified by the Meningie Narrung Lakes Irrigator Association. These projects are widely known as the Five Point Plan.

The Five Point Plan Consists of:

1. *Removing the Narrung Ferry Causeway to help return the entrance to the Narrung Narrows to nearer its original state.*
2. *Clearing the remnants of the Narrung Bund along with the silt wave that the Bund's construction caused (as promised by the South Australian Government).*
3. *Dredging the Narrow's (linking Lake Alexandrina to Lake Albert), preferably close to the 1960's bathometry.*
4. *A connector (channel and/or a pipeline) at the Southern End of Lake Albert to the Coorong*
5. *Returning natural flows to the southern end of the Coorong. (South East drains)*

(photo courtesy Meningie Narrung Lakes Irrigator Association)

3.3. Controlling and eradicating invasive species is an important environmental works and measure

The National Irrigators' Council has repeatedly stated that the proposed Basin Plans current strategy of simply adding water is in danger of not providing a healthy working river. This stems from Recommendation Nine of the Proposed Basin Plan Consultation Report which warns that unless environmental watering is integrated into broader natural resource management the benefits of reforming water use would be:

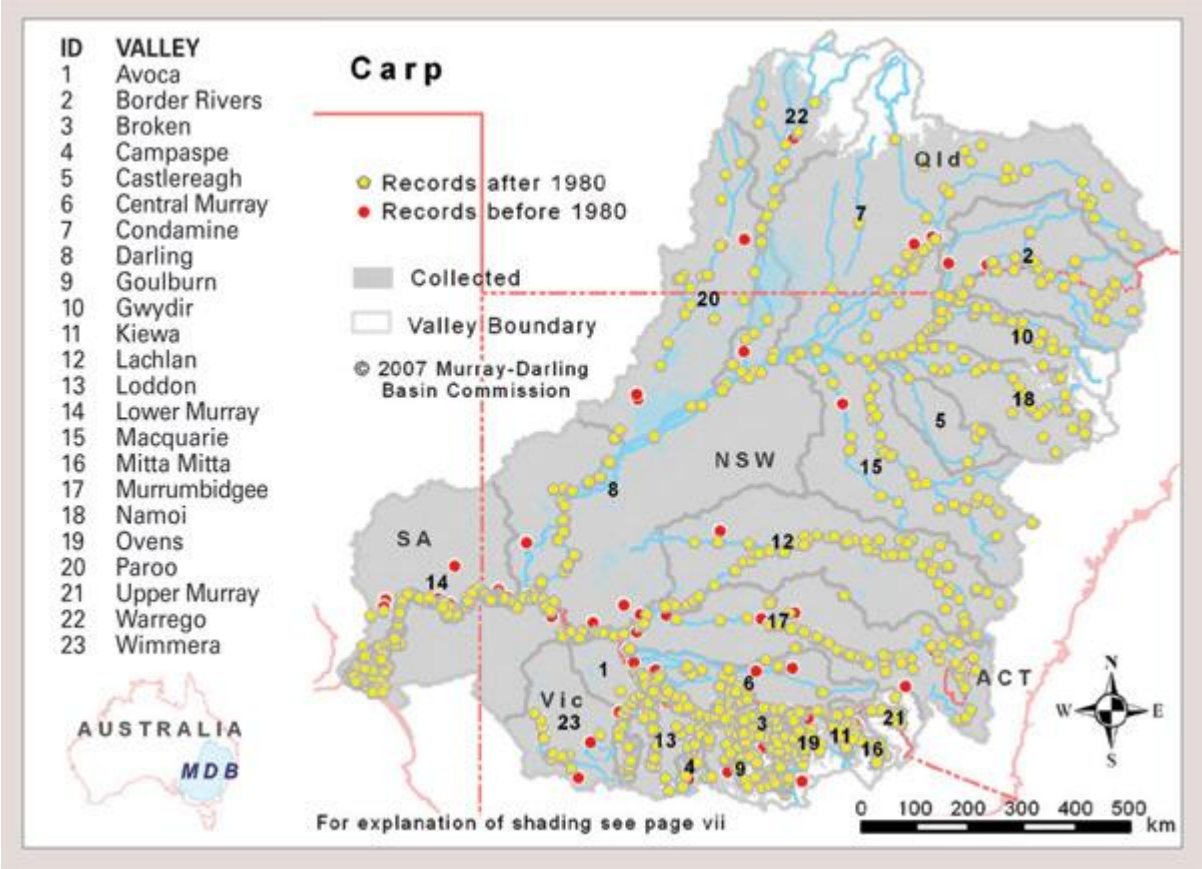
> *'... undermined by environmental degradation stemming from a lack of investment in natural resource management.'*

The impact of introduced pest animals on ecosystems cannot be understated and when their removal can have enormous environmental benefits as was recently highlighted by the CSIRO ECOS magazine article published on the 7th May 2012, titled ; 'Macquarie Island is back in bloom' which reports;

> *'Scientists are astounded at the rapid recovery of native vegetation on Australia's sub-Antarctic Macquarie Island – affectionately known as 'Macca' – after the launch of a massive program to eradicate introduced rats, mice and an overwhelming rabbit population.'*
>
> *'I thought it would take a lot longer for the vegetation to start springing back,' says Australian Antarctic Division (AAD) plant ecologist, Kate Kiefer. 'But when I arrived on the island last October, I was just astounded at the recovery of the Pleurophyllum hookeri, the native silver-leaf daisy ...'*

Both carp and Water Hyacinth which are discussed in detail below are just two examples of invasive animals which are cause severe environmental damage in the Murray Darling Basin.

3.3.1. Invasive Animals - Carp (Cyprinus carpio)



(Courtesy MDBA – Alien Fish Fact Sheets)

Carp are causing considerable damage to the health and water quality of creeks and rivers in the Murray Darling Basin. A female carp can lay one million eggs in a breeding season and can reach sexual maturity at twelve months. Over their natural range, carp live up to 15 years, with reports of individuals living up to 24 years.

The Sustainable Rivers Audit (used by Governments to rate the health of 23 River Valleys in the MBD) shows the hydrology of eighteen of the twenty-three Valleys is rated as moderate to good, or good. The Audit states that it confirms the '*well-known decline of native fish in the Basin'*, and that *'common carp were overwhelmingly dominant, being 58% of total fish biomass'* across the 23 valleys. As a result, fish health in 20 of the valleys rates extremely poor – poor.

A South Australian Research and Development Institute paper from March 2010 titled; 'Biological Information and age structure analysis of large-bodied fish species captured during the Lake Albert fish-down, October 2009' funded by the South Australia Government reported that

> '*a total of 98 tonnes of fish were removed from Lake Albert by commercial fishermen during October 2009. This comprised of 74 tonnes of common carp (76%), 23 tonnes of bony herring and 1 tonne of golden perch and redfin perch.'*

A media release issued by the Government's own expert body on feral pests, the Invasive Animals Co-operative Research Centre, is warning the 'carp are coming' with numbers in the Lower Darling already exploding by 4000 percent. Numbers are also on the increase in other valleys. Following the drought breaking rain and floods across the MDB, there are reports by keen fisherman that well over 90% of the fish they catch are carp.

Dr Andrea Glanznig, CEO of the Invasive Animals CRC has clearly warned the Government its current plans spell bad news for our native fish when he stated;

> *"Perversely, delivering environmental flows to iconic wetlands on the Murray floodplain can also enhance carp spawning and recruitment."*

The Commonwealth Government has received Ministerial Advice from the Commonwealth Government's Threatened Species Scientific Committee calling on the Government to list introduced fish as a key threatening process under the EPB&C Act. This was rejected on the 11/11/11 by the Federal Environment and Water Minister, the Hon. Tony Burke.

The Ministerial advice states that:

> *'In Australia, 43 non-native freshwater fish species occur in the wild, and of these, 34 have established populations. Five of the species established in Australia were nominated by the International Union for Conservation of Nature (IUCN) as among the world's 100 most invasive species. These are: carp, Mozambique tilapia, eastern gambusia, rainbow trout and brown trout.'*

The Ministerial Advice makes it very clear that introduced fish have caused the local extinctions of some native fish and are continuing to threaten native fish and frog populations through predation, disease, habitat loss and competition for food.

There can be no doubt when carp, known as the 'rats of the river' are on the rampage, its means tough times for our native fish, yabbies, macroinvertebrates and water quality. Unless the Government broadens its efforts beyond removing the amount of water communities are allowed to use, carp will continue to decimate our native fish, yabbies and other macroinvertebrates.

Controlling with the ultimate aim of eradicating carp from the MDB should be a national priority and funding should be immediately made available to fast-track (if appropriate) control measures including the Koi Herpes Virus.

The Koi Herpes Virus (KHV) is a disease of carp, koi and goldfish caused by a virus. The Invasive Animals CRC is undertaking research into the potential of KHV as a biological control agent for carp in Australia. It is undertaking assessment of KHV in the laboratory against Australian native species and carp strains. If the Government believes there is potential for the Koi Herpes Virus, then a whole-of-government approach would be needed to ensure we get the maximum impact when it is released.

In the meantime there is funding available under both the Clean Energy Future - Biodiversity fund and the Caring for Country program which could be used to fund carp control and eradication programs as well as further our understanding of the environmental triggers needed to ensure sustainable levels of native fish in the MDB.

The need for better research into freshwater fish ecologies has been recognised by the Commonwealth Government, yet action has been slow to materialise. It is clear from what is known that simply adding water is not the sole answer. The Department of Sustainability, Environment,

Water, Populations and Communities, Action Plan for Australian freshwater fishes makes it clear that lack of knowledge is hindering the conservation and management of native fish stocks in the MDB. Under the heading 'Lack of Knowledge' the plan states;

> *'Many aspects of the biology and ecology of native fishes are poorly known. In addition nearly all of the above threatening processes are inadequately understood. Options for the conservation and management of threatened and non-threatened species are inhibited by lack of knowledge. Appropriate research is seldom funded and there are few long term monitoring programs to allow proper assessment of the effects of threatening processes.'*

3.3.2. Invasive Weeds – Water Hyacinth (Eichhornia crassipes)

(Flowering Infestation of Water Hyacinth: Photo P Sullivan)

The National Irrigators' Council (NIC) has previously called on both the State and Federal Governments to increase funding to fight the invasive weed menace which has being exacerbated throughout the MDB by major floods and the two wettest years on record.

Invasive weeds are a major issue in Australia and State and Federal Governments must be ready to fight new infestations when and where they occur following major flood events.

Of particular concern is Water hyacinth which was spreading throughout the Gwydir wetlands. The NSW Government has stated that:

> *'The greatest concern for this aquatic weed (Water Hyacinth) is that a flood could create a massive dispersion, with a significant risk of the weed spreading to the Murray-Darling system which would have massive environmental implications.'*

In the past year two major floods have damaged homes in Moree and properties in the Gwydir Valley as the Gwydir River, which usually ends as terminal wetlands, has flown into the Barwon-Darling River system.

There are now grave concerns that this insidious aquatic weed which to date has defeated all control measures will escape into the wider Murray-Darling river systems and create an environmental nightmare.

The NSW Department of Agriculture website states that:

> *'Water hyacinth is justifiably called the world's worst aquatic weed due to its ability to rapidly cover whole waterways. '*

In Australia, it forms dense, impenetrable mats over the water surface. Specific impacts include:

- blocking irrigation channels and rivers
- restricting livestock access to water
- destroying natural wetlands
- eliminating native aquatic plants
- reducing infiltration of sunlight
- changing the temperature, pH and oxygen levels of water
- reducing gas exchange at the water surface
- increasing water loss through transpiration (greater than evaporation from an open water body)
- altering the habitats of aquatic organisms
- restricting recreational use of waterways
- reducing aesthetic values of waterways
- reducing water quality from decomposing plants
- destroying fences, roads and other infrastructure when large floating rafts become mobile during flood events, and
- destroying pastures and crops when large floating rafts settle over paddocks after flood events.

Water hyacinth will rapidly take over an entire waterway. Under favourable conditions it can double its mass every 5 days, forming new plants on the ends of stolons. It also grows from seed which can remain viable for 20 years or longer. This enormous reproductive capacity causes annual reinfestation from seed and rapid coverage of previously treated areas, making ongoing control necessary.

If Governments do not increase funding for surveillance, control and eradication for this and other weed threats in the Murray Darling Basin they would be guilty of allowing an environmental catastrophe to unfold.

A healthy working river system is about more than just adding water.

4. Using Markets to Mimic Natural Flows

4.1. Urban Water

During the 'Millennium' drought towns and cities, including Melbourne, Adelaide and Canberra, increased their reliance and take from the Murray Darling Basin. Melbourne for example built a one-way pipeline to the MDB and was granted a 75 GL/y entitlement to pump water from the Basin when Melbourne's water supplies fell below thirty percent. Also the Australian Capital Territory (ACT) is building a new $400 million dam twenty times bigger than the one it is replacing and ACTEW has purchased 4.145 Gigalitre (GL) of high security water entitlements and 12.523 GL of general

security entitlements to pump through its brand new $140 million 12km underground pipeline which is capable of pumping 100 megalitres per day.

According to the ACTEW website

> *'the objective of the Murrumbidgee to Googong Water Transfer is to help secure the water supply for the ACT and surrounding region in the future, allowing us to deal with frequent, longer and more severe droughts without having to endure high-level water restrictions for extended periods.'*

Adelaide's reliance on the River Murray also increases during times of drought. During the last drought Adelaide was one of the greatest users of Murray Darling Basin water, despite not actually being located in the Basin. Also it should be noted that both Adelaide and Melbourne now have desalinisation plants available in dry times which weren't available during the previous drought.

There are many cities and towns throughout the Murray Darling Basin who, in generally average to wet years, may have surplus water entitlements. These cities and towns may be interested in entering a paid leasing or options arrangement with CEWH to lease this surplus water to the environment. The income generated by the lease could then be put towards other local government projects. However it is recommended that sensible triggers be built into the leasing or options arrangements to ensure that water is always available to the urban communities.

This idea is enticing for those communities who stand to lose a large chunk of their economy through the 'buy-back' regime, as it provides another revenue stream for these communities. Also this idea is attractive for the cities associated with the basin. These cities could use the profits generated by such a lease to off-set some of the costs associated with their recent water projects, i.e. dams, pipes and desalination plants. These projects are currently directly attributing to large increases in peoples water bills.

The Governments has repeatedly stated that they wish to mimic natural weather events and cycles when watering key environmental assets. Through this scheme, there could potentially be hundreds of thousands of megalitres of surplus urban water released to CEWH, under lease or options arrangements, to service the environment. It should be noted that CEWH already has the ability to trade in water entitlements.

4.2.Agricultural Water:

4.2.1. Trading under the RiverReach program

RiverReach is another program that could potentially provide part of the solution to the Basin Plan. While the final report is some weeks away, it appears likely that, under certain conditions, River Reach could provide up to 500GL of water to the environment, without taking essential water away from irrigators and the communities that depend on them. River Reach is currently a Commonwealth funded trial project being run by the National Irrigator's Council.

RiverReach is essentially another way to trade water. It provides for both the leasing of parts of water entitlements and the purchase of options over parts of these entitlements. It provides a mechanism to match the often complementary water needs of different water users in the basin system, and hence ensure water is put towards its most productive use.

The main idea behind RiverReach is that it provides an instrument for irrigators to keep the core water they need, but at the same time lease a fraction of their entitlements to another stakeholder.

An irrigator may choose to do this if the price they could receive for the lease would be more profitable then the income they would generate through putting that part of their entitlement to productive use. For example an irrigator may use 70% of their entitlement to water their summer crops, and may use the remaining 30% to water stock feed. In a wet year, when there is generally already a large amount of feed available for stock, the productivity of this last 30% of entitlement is limited. Therefore it may be more profitable for the farmer to lease this water.

The two main benefits of this scheme from the perspective of the irrigator and their community are that:

a) The ownership of the water remains with the irrigator and the community. Once the term of the lease expires the water will return to the irrigator.
b) The income generated by the lease will remain in the community and is likely to be re-invested in the farm, potentially in water efficient projects. This benefit can be contrasted against the buy-back scheme. Recent economic analysis show that the income generated by the permanent sale of water, through buy-backs, will usually leave the local community as the person who sold the water moves on to start a new life. Also buy-backs leave irrigation farms, located on some of the most productive land in Australia, without an entitlement. These farms are generally too small to be productive as dry-area farms and hence become a complete waste of established irrigation land.

For CEWH the benefit of this scheme is that large amounts of water should potentially be available for lease in wet years. CEWH has repeatedly stated that they would like to 'top-up' natural flood events. Therefore, using RiverReach, CEWH could potentially acquire a large amount of water to achieve this in the years that floods occur.

The benefit of the options product is that CEWH will have the ability to 'lock-in' water, at a very small price, to insure water is available if needed. However if this water is not required, CEWH will avoid paying the full-price for the water.

Alternatively CEWH may choose to lease surplus water they hold back to irrigators and other water users. The income generated by the lease could be put towards two uses (however many more may be identified by CEWH):

a) CEWH may use the income generated to pay for the VERY costly exercise of managing the water they hold, or for funding environmental works and measures and efficiency projects.
b) CEWH may use the profits to lease water in Valleys where the water can be fully utilised. For example currently CEWH cannot utilise all the water they hold above the Barmah Choke due to the constraints in the Choke. CEWH could therefore lease its entitlements above the choke to the irrigators in that Catchment. It could then use the profits generated to fund the leasing of entitlements from catchments below the Choke, to allow for the watering of the environmental assets downstream of the Choke.

As demonstrated, RiverReach provides a tool for irrigators and CEWH to manage the MDB's water resources in a much smarter way, which has very minimal impacts for irrigation communities. It provides for the balancing of the social, economic and environmental needs of the Basin.

RiverReach is currently being trialled by the National Irrigators Council. NIC has spoken with hundreds of irrigators, and most irrigation and commodity industry representatives regarding the product. There seems to be a real appetite for such an innovative product. The concept and benefits of River Reach have been recognised by representative bodies such as the NSWIC and NFF, irrigation corporations, significant groups such as Ricegrowers, Cotton Australia, Dairy Australia and several

water brokers. Importantly it was developed in collaboration with the Australian Conservation Foundation.

However at this stage the Government is refusing to partake in the trial. We hope that if a market could be established for such a product, then the Government would be a willing participant in the market.

With RiverReach it is hoped a central exchange on a website can be established where willing market participants can conveniently meet. However we have been unable to establish a 'live' trial of the market because, through operating a market involving lease and option products, it would be considered to be operating a market in derivative products, and by law would require a market license to do so. To purchase a market license is beyond the means of expensive and time consuming. There would need to be further government assistance in establishing such a market.

A final report of the trial of the RiverReach program will be provided by NIC to the Commonwealth by July 31. For further details please visit www.RiverReach.com.au.

4.2.2. Trading under the Current Market System

Currently the Commonwealth Environmental Water Holder (CEWH) has relied on the purchase of permanent water entitlements, at the expense of rural communities and is still has over $1 billion allocated to make further water purchases.

As a result, we are proposing that CEWH investigate whether any further water purchases could be made on the temporary market rather than the permanent market. The benefit for CEWH is that if they are unable to utilise this water, they can choose not to make the purchase again in the following year. This will significantly reduce CEWH's large costs associated with managing the water they hold.

Another benefit is that CEWH will have the flexibility to purchase water from the Valleys located relevant to the environmental assets that need the additional water. For example in some years more water may be required from the Northern System to increase a flow coming down the Darling River, while at the same time there may be a significant amount of water already flowing through the Murray, hence little water would need to be purchased in the Southern system. In other years the opposite may be the case. Utilising the temporary trading system will allow CEWH to have a more flexible water portfolio which is better equipped at meeting the environmental needs of the Basin system.

The benefits for the irrigators and their communities are the same as those highlighted in the RiverReach section above.

5. Increased investment in research, development and extension is needed to adjust to a future with less water.

Recommendation 14 of the 'Drought and Flooding Rains' report is one of the most important yet largely ignored recommendations from the Committees inquiry into the Murray–Darling Basin water reforms, namely: *"that the Commonwealth Government focus greater investment into research and development to improve irrigation efficiency".*

If we do not substantially increase funding for agriculture research, development and extension services the nation's food security will be severely compromised. We cannot keep doing more with less.

While Recommendation 14 was adopted "in principle" by the government, this in principle support has not stop the Government from previously abolishing Land and Water Australia, or the Irrigation Futures, Cotton and Forestry Cooperative Research Centres. The Cotton CRC is scheduled to finish at the end of June and many long term research projects will be lost.

We are only too aware that science in this country is underfunded and our productivity is declining because of it. We need increased funding for the practical scientific endeavours that will enable us to produce more with less and also to better understand the environment in which we live.

We are however, concerned that the prostitution of scientific opinion in Australia is devaluing science in general and turning some scientists into activists, often resulting in a high degree of mistrust which is unfortunately increasing. The lack of dialogue between farmers and scientists is creating levels of mistrust that will increase unless addressed.

Irrigators are front line environmentalists and food producers. We are not Luddites. We take research and apply it on a daily basin in our operations. Without it we would not be internationally competitive.

Agriculture in Australia is recognised as the best enabler of new technology of any industry in the country. The drought saw farmers embrace a range of new technologies, proving that necessity is the mother of all invention yet, it is also obvious that we need extension services that take the research from the lab to the paddock.

This is particularly true of the "precautionary principle" concept. While it has a role to play, it is being used far too often by some scientists to justify their advocacy. When the precautionary principle is coupled with the old "trust me, I'm a peer-reviewed scientist with heaps of journal articles to my name", facts often become the first casualties. There needs to greater 'ground truthing' of scientific concepts before they are endorsed as facts.

Increased Research, Development and Extension funding should be a priority for State and Federal Governments.

6. Conclusion

The National Irrigators' Council is worried a 'bad' basin plan will cost thousands of jobs, put pressure on food prices and threaten family farms and regional communities and will not deliver healthy working rivers. Irrigators want a healthy working river system we rely on it more than most. However we need a balanced plan that considers the needs of people, communities and food and fibre production as well as the environment. The current ideology of "just add water" is not a solution to a complex web of environmental problems in the basin.

NIC has repeatedly outlined the importance of the Government and the MDBA considering options other than just buyback to recover the water required for the environment. The use of environmental works and measures to recover water is critical to ensuring that not only are our rivers healthy, but that our communities are strong and we can maintain production of quality food and fibre.

The people of Australia are now the largest irrigator in Australia and are scheduled to hold over 2519 GL/y (LTCE) by the end of the 2012/13 Financial year and peoples Representatives should be asking

questions now of how environmental water held by the Commonwealth Environmental Water Holder can be physically delivered onto environmental assets.

If environmental objectives can be maximised and achieved by using less water by building new or upgrading existing environmental works and measures, then the Sustainable Diversion Limit should be continuously increased as these works and measures are implemented. This would offset the social and economic damage caused by removing consumptive water from communities and would also allow for the watering of environmental assets.

To have any realistic hope of achieving real and durable improvements in environmental health, the basin needs to be managed holistically, incorporating all the factors that impact on environmental health and managing them in concert with the Commonwealth Environmental Water Holder (CEWH) water assets. The *Water for the Future* program must be implemented in concert with a boosting of investment in the *Caring for our Country and Clean Energy Future – Biodiversity Fund* or other land and catchment management programs.

To date Governments are too inclined to focus on the numbers in this process and ignore the outcomes. The outcomes can be achieved better by holistically managing all factors affecting them, rather than focussing on only one, albeit very important, factor in water.

We would be willing to appear at any public hearing the House Committee on Regional Australia are holding to expand on any of the topics discussed in this submission and previous submissions by the NIC to the previous *'Of Droughts and Flooding Rains'* inquiry held by the Committee into reforms in the Murray Darling Basin.

7. Attachments

Attachment 1:

Proposed Projects					
Hattah Lakes (b)	Construction of a pumping station to supplement natural flows from the Murray River into the lakes, 3 regulators and 3 levees to manage flows within the lakes, excavation of small sections of the natural creek beds to increase the frequency of natural inflows	Mallee CMA, DSE, MDBA, GMW and Parks Victoria	20m		Will allow restoration of a natural flooding regime with small floods every 2-3 yrs and larger floods every 8 (when water is available). This will restore the role of the lakes as a drought refuge for water birds and other water dependent species, provide breeding habitat for waterbirds and support threatened flora and fauna species.
Gunbower Forest (b)	Installation and refurbishment of regulators and levees, widening and deepening of channels, erosion control works to increase the frequency of flooding.	North Central CMA, DSE, MDBA, GMW and Parks Victoria	7.5m		Allows the structures to be operated at smaller volumes of water and for a considerable proportion of water to be returned to the Murray River after the required flooding period.
Murrumbidgee River Efficiency Project (a)	Project to improve water delivery service and efficiency to users. Generate water savings, create increased farm productivity by more closely matched irrigations delivery with crop water demand; and improve the health of wetlands and the riparian environment of the river system	Water for Rivers	approx 55m	not yet known	Currently only in investigation stage. Water savings returned to Snowy and Murray Rivers.
The Murrumbidgee Computer Aided River Management Project (CARM) (a & d)		Water for Rivers	80m	80GL (40GL to Snowy)	Aims to increase water delivery, security and efficiency, increase farm productivity and increase river health.
Lock 15 Euston Weir and Fishway Upgrade (a)	Upgrade Lock 15 weir navigable pass and fishway to comply with the latest flood safety and operational requirements	MDBA and TLM	12.5 m	nil	Protect structure from erosion, improve structural integrity of the weir, upgraded fishway will enable small aquatic species to pass through the weir
Lower	Development of levied	Victorian	30m	nil	prevents intentional flooding of

Goulburn Floodplain (g)	floodway of approx 10,500ha and buy up of 9,700ha of floodplain	Govt			private land, enables provision of
Red Gum Forests along the River Murray Floodplain (g)	Various works (most still in feasibility or proposal stage) along Murray River	Victorian Govt	Possibly up to 155 m	nil	Planning in conjunction with local CMA's. Will protect Red Gums, provide habitat and provide connectivity between large floodplain forests
Kerang Wetlands (g)	Build channels to divert Torrumbarry IA water around 4 of the lakes.	Victorian Govt	15m	not yet known	Aims to deliver water savings, improve system operation and provide significant environmental improvements through a more natural wetting and drying cycle in the Kerang Lakes
Campaspe River (g)	Construction of fishways to give connectivity from Lake Eppalock to the Murray River. Provide an alternative pathway to deliver high environment floe rates to the Murray River concurrently from both the Campaspe and Goulburn systems	Victorian Govt	6m	not yet known	Irrigator led project. More than 70% Campaspe IA farmers (who control more than 90% of irrigation entitlement) have decided to sell
40 priority wetlands in Northern Victoria (g)	Capitalise on environmental opportunities from irrigation modernisation. Extensive upgrade of existing or construct new infrastructure to deliver water to 40 sites. Complements NVIRP & provides mechanism to deliver water recovered for environment	Victorian Govt	36m	nil - utilising existing savings & improving their delivery	Developed in consultation with CMS's, NVIRP, water authorities and Parks Victoria. Some sites have been designed and are ready for construction, others are still in feasibility stage.
Broken River (g)	Provide fish passage at the last remaining fish barrier in the Broken system, from Lake Nillahcootie to the Murray River	Victorian Govt	5m		Capitalise environmental outcomes from modernisation of irrigation infrastructure on the Broken River. 285km made available for fish migration. Last remaining large infrastructure project required in the Broken River to improve ecological outcomes of decommissioning Lake Mokoan
Barmah Forest (g)	Construction of a fishway, removal of a levee and construction of a regulator on the Gulf and Kynmer Creeks	TLM and Victorian Govt	3.5m	nil	Aims to reduce the inflow threshold required and enable management of inflows for flooding and to prevent fish stranding behind an existing regulator. Detailed designs are

					complete but due to budget constraints in the EWMP, there is no funding available to complete this project
Loddon River (g)	Provide fish passage at the last remaining fish barriers in the Loddon System. Modification of GMW weirs to enable delivery of environmental water to priority sites in the Loddon system	Victorian Govt	4m	nil	Provide 340km of connectivity for fish below Lake Laanecoorie to the Murray River. Significant increase in the benefits of existing and future water recovery in the Loddon system
Ovens River (g)	Provide fish passage at the last remaining manmade fish barrier in the Ovens River. Will also improve the OHS issues associated with the weirs operation by modernising the infrastructure.	Victorian Govt	2m	nil	Provide 795km of connectivity for fish below Lake William Hovell and Lake Buffalo.

Attachment 2: **House of Representatives Standing Committee on Regional Australia Inquiry into the impact of the Murray-Darling Basin Plan in Regional Australia Submission by the National Irrigators' Council December 2010**

Attachment 3: **House of Representatives Standing Committee on Regional Australia Inquiry into the impact of the Murray-Darling Basin Plan in Regional Australia Supplementary Submission by the National Irrigators' Council February 2011**