



Submission to the
Productivity Commission's
five year review of the
Murray Darling Basin Plan

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Summary of key points

- Judgment on the progress of the Basin Plan must reflect whether the triple-bottom line - environmental, social and economic - objective is being met.
- Recognise that the Basin Plan is only partially implemented. Full environmental outcomes will take decades and current assessment needs to acknowledge the early stage the process is at.
- Ultimate success of the Basin Plan will be determined by outcomes, not just flows - environmental outcomes, social outcomes and ability to continue to produce food and fibre. It is important in considering those things that 'proxies' relating essentially to flow targets are not inflated above other long-term outcomes.
- Sustainable Diversion Limit Adjustment Measures (SDLAM) - integral to the Basin Plan. Projects are investments in modernising the way water is stored, conveyed and ultimately delivered within and across river systems.
- State governments must be able to adopt an adaptive approach to implementing SDLAM projects, they must be given the flexibility to modify projects and be encouraged to bring forward new proposals in the light of new knowledge - there is no downside to allowing maximum flexibility. Irrespective of the final shape of projects in an equivalent flow sense, there will be a full reconciliation in 2024.
- If State governments fail to deliver the agreed SDLAM projects or the projects fail to generate the envisaged benefits, it will be irrigators and ultimately irrigation communities who will be required to give up more water entitlement. In that sense, 100% of the risk is effectively being borne by food and fibre producers and irrigation communities.
- Efficiency Measures – The guarantee that the 450GL of so-called 'up water' would only be recovered if it came with improved, or at least no negative, socio-economic impacts is critical.
- Measures proposed in the Ernst and Young report need much more work before they could be implemented, however they offer a way forward and NIC supports using them as a basis for work.
- Productivity Commission should recognise that implementation of efficiency projects cannot be via a one-size fits all efficiency program.
- Northern Basin - NIC strongly supports the Northern Basin Review's inclusion of 'toolkit' measures. Getting positive environmental improvement is about "more than flow".
- Basin Plan had Northern Basin Review as a key inclusion. The Review results must be implemented.
- Constraints Management - Achieving Constraints removal will require detailed and extensive work to plan, map, engage and resolve community and individual concerns. This means genuine engagement with local communities.
- There is no magic bullet that will speed up the process; the only way it will be achieved is by thorough and painstaking work, and by decision makers being brave enough to revisit flow regimes if they are proven unrealistic.
- Assessment of water recovery as being 'cost effective' must take into account a full range of flow-on impacts and strategic value of targeted purchases. It should not be a simplistic assessment that only compares the dollar value per mega litre to the taxpayer.
- Cap Factors - Irrigators have concerns about the longer-term accounting for water and in particular adjustments that may be made to Cap Factors in various valleys.

- Water Resource Plans - NIC members are concerned about progress on the development and the difficulty meeting timeframes set out in the Plan
- Environmental watering - NIC agrees with a number of the points made last year in the Productivity Commission's National Water reform draft report regarding the importance of local input into environmental watering. It is vital to engage local communities in environmental watering planning and decision making.
- NIC emphasises again that to achieve improved ecological outcomes a range of complementary, or non-flow, measures must be implemented.
- NIC acknowledges the importance of water to indigenous communities in the Murray Darling Basin and the importance, wherever practical, of environmental water planning assisting those communities in meeting their social and cultural objectives.
- Water trading - rules applying to trade can be complex and any work to explain or make processes more transparent would be worthwhile. There is a need for greater public education about the water market.
- Compliance - NIC has zero tolerance for water theft. Water is a valuable and expensive asset and irrigators are disadvantaged if someone else is able to undercut them in their production costs.
- NIC supports implementation of the independent recommendations made at State and National level on compliance. Irrigators will work with Government's to achieve practical effective rules that comply with established water principles.
- The National Metering Standard should be revisited. That process must include engagement with manufacturers, the irrigation industry and other interested parties and should include provision to recognise reputable international accreditation (eg. US or EU).

NIC Guiding Principles

The objective of the National Irrigators' Council is to protect or enhance water as a property right and to champion a vibrant sustainable irrigation industry.

- A healthy environment is paramount
 - Sustainable communities and industries depend on it
- Protect or enhance water property rights
 - Characteristics of water entitlements should not be altered by ownership
- No negative third party impacts on reliability or availability
 - Potential negative impacts must be compensated or mitigated through negotiation with affected parties
- Irrigators must be fully and effectively engaged in the development of relevant policy
- Irrigators expect an efficient, open, fair and transparent water market
- Irrigators require a consistent national approach to water management subject to relevant geographical and hydrological characteristics
- Irrigators expect Government policy to deliver triple bottom line outcomes
- Regulatory and cost burdens of reform be minimised and apportioned equitably.

Why is Basin irrigated agriculture important?

Irrigation is a critical driver of Australia's potential to supply food and fibre, of jobs and of regional development. It plays a key role in meeting the ever-increasing global demand for Australia's clean, green produce.

Australia's irrigators are proud of the fact that they are among the world's most efficient producers. They are committed to sustainable production and the health of the environment and the rivers. Murray Darling Irrigators live and rely on the rivers and that's why a core National Irrigators' Council principle is 'a healthy environment is paramount - Sustainable communities and industries depend on it'.

Irrigated agriculture contributes to the social and economic wellbeing of rural and regional communities and to the national economy, producing goods such as milk, fruit, vegetables, rice, grains, sugar, nuts, meat and other commodities like cotton.

In 2015-16, the total Gross Value of Irrigated Agricultural Production (GVIAP) for Australia was \$15.0 billion, which rose by 3 percent (or \$509 million) over the previous year. Total GVIAP represented 27% of Australia's total Gross Value of Agricultural Production (GVAP) of \$56.0 billion in 2015-16.

The Australian Bureau of Statistics (ABS) Gross Value of Irrigated Agricultural Production 2015-16 figures show that on dollar values 78% of Australian vegetable production is irrigated, 90% of fruit and nuts; and 94% of grapes. For the Murray Darling Basin States the importance of irrigation is highlighted by the fact that 80% of NSW's vegetables are grown by irrigators, 76% of fruit and nuts and over 90% of grapes.

Victorians get 75% of their vegetables from irrigators, 95% of fruit and nuts and 97% of their grapes. In Queensland, its 74% of vegetables grown, 89% of fruit and nuts and 98% of grapes; and in South Australia 95% of the vegetables come from irrigators, 95% of fruit and nuts and 96% of their grapes.

Irrigators extract less than a third of the water in our Basin rivers, they use it to produce more than 40% of Australia's agricultural product. In doing so they produce tens of thousands of jobs in local communities across the basin – driving population retention, local business and viability of local services.

By supplying Australia's cities with fresh food and fibre and by growing some of Australia's key and fastest growing exports, Murray Darling irrigation contributes to a better living standard for every single Australian.

Introduction

The Basin Plan was agreed, with bipartisan support, in 2012 by the Federal Parliament and the Basin States. From the time, it was first proposed, by then Prime Minister Howard in 2007, negotiation was difficult. The Plan was a compromise and reviews of progress must focus on reviewing progress on the Plan as agreed.

It attempted to balance three difficult objectives, to, as the Act says in part, “promote the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes.”

These goals reflect the NIC’s objectives which include “a healthy environment is paramount” and concern to ensure that we have healthy regional communities and an ongoing capacity to produce the food and fibre Australians consume and export.

Any judgment on the progress of the Basin Plan must reflect on whether the much promised triple-bottom line - environmental, social and economic objectives - is being met.

No-one got exactly what they wanted out of the Basin Plan, and there are elements of the Plan that have caused significant sacrifice for irrigators and pain for basin communities, but it holds the prospect of providing some certainty for Australia’s most important food and fibre production area; and the opportunity to reverse and repair damage to the environment.

NIC supports the implementation of the Basin Plan and our members have worked to establish and implement the Plan. That’s not because the Basin Plan is perfect for irrigators, it is because we recognise that all parties need to accept the Plan, as agreed, and work toward it.

The Basin Plan was struck in 2012 and while that may seem a long time ago in political and media cycles, the Plan will not be fully implemented until 2024. While it is appropriate to review the progress of the Plan to date, those who criticize the environmental outcomes to date are very premature in their judgments. The MDBA and the CEWO both make the point repeatedly that the proof of the extent to which the environment is recovering is something that can only be properly measured over a minimum of a decade. That being the case, this Review should focus on whether things are on track and opportunities to improve implementation, not whether all goals have been met – particularly when that comes to the environment.

NIC has long argued the case for a balance between social, environmental and economic outcomes to ensure the Basin Plan is fair and workable. This relates directly to the confidence that irrigators and irrigation dependent communities have in the Plan. For more than a decade, irrigators along with other groups, have worked together to participate in the development and implementation of the Basin Plan. The Plan boldly seeks to achieve the essential balance between environmental outcomes and the social and economic health of our Basin communities. Our commitment remains to a viable, productive irrigated agriculture sector in Australia.

Irrigators have been, and continue to be, willing to work with all Governments and all other interest groups, including environmental groups, to ensure that the Basin Plan is fully implemented; as long as the 2012 promise is kept that there will be no further negative impacts on communities.

In general progress on the Basin Plan as outlined in 2012 could be considered to be on track. That doesn’t mean it has been an easy or smooth process and there are still significant challenges. However there is reason to be positive about what has been achieved so far:

- As at 31 December 2017 the [Federal Department of Agriculture and Water Resources showed that 2,106.4GL of surface water had been recovered](#) for the environment, 76.6% of

the first recovery target of 2,750GL. Only 6.7% of the groundwater target had been recovered but NIC notes that there is ongoing negotiation about groundwater recovery in Southern Queensland, with producers keen to participate.

- Projects estimated to be the equivalent of 605GL have been put forward as a part of the Sustainable Diversion Limit Adjustment Measures (SDLAM) amendment.
- The [Commonwealth Environmental Water Holder reports that](#) as of 31 January 2018, over 7,999GL of Commonwealth environmental water has been delivered to rivers, wetlands and floodplains of the Murray-Darling Basin.
- The MDBA's reporting on progress was able to show good early environmental results from the Basin Plan. This confirmed State based reporting showing positive impacts on native fish in some areas from environmental flows.

However, there are some key matters that have yet to be resolved and the final form of these matters will ultimately determine whether the Plan does deliver the promised triple bottom line and succeeds or fails.

These key matters include:

- Parliamentary agreement to and progress on the SDL offsets;
- The Northern Basin amendment;
- Constraints Management Strategies;
- Recognition that a healthy river environment is about more than just flow and commitment to complementary measures; and
- The need to ensure that efficiency programs to recover 450GL of "up-water" do not create negative impacts in communities.

For reasons that NIC considers to be purely political, certain parties now appear intent on distancing themselves from key elements of the Plan (such as the Northern Basin Review and a commitment that up-water would only be recovered in ways that would be socially and economically beneficial or at a minimum socially and economically neutral). NIC wishes to make it clear that its continued support for the Plan is now very dependent on all elements of the Plan, including these commitments, being included.

In this submission we talk about the importance of assessing outcomes and not just flow targets. However, in talking about flow targets and flows overall it is also important that any assessment compares like measures. It is not acceptable for example to compare Basin Plan calculations which are based on long term average flows with shorter term averages in drought periods.

The other key point we would like to make relates to separating the key parts of implementing the Basin Plan from issues which need to be addressed, but are separate to the Plan itself.

Compliance is critical to confidence in the operation of the river system and in the Basin Plan outcomes; NIC has strongly supported the need to address compliance and has endorsed the recommendations out of the large number of inquiries held federally as well as in NSW and Queensland. No matter what the water sharing framework or policy around water use compliance is critical.

However, the overall implementation of the Basin Plan should not be put on hold because of concerns over compliance. Compliance is an ongoing job, strong compliance regimes are needed no matter what the overall policy is.

It is critical that the inquiries emerging from recent media stories do not impede progress on the rollout of the Basin Plan. Irrigation communities seek certainty above all and a clear space that enables the Plan to continue under its many and sometimes complex moving parts, for both the sake of their respective industries and irrigation dependent communities.

In making our submission NIC will respond to the committee's discussion paper questions. In doing so NIC is guided by a series of principles which highlight irrigators' commitment to a triple bottom line outcome from the Basin Plan. NIC is happy to provide any further evidence if required.

Responses to information requests

1. Approach to assessing the Basin Plan

The Commission welcomes feedback on its approach to assessing the Basin Plan.

National irrigators Council has consistently said that the Basin Plan objectives rely too much on flow measures rather than environmental outcomes.

It would be a concern if the proxies used by the Productivity Commission reflected this same narrow criteria. As the discussion paper indicates, the ultimate success of the Basin Plan will be determined by outcomes not just flows - environmental outcomes, social outcomes and ability to continue to produce food and fibre. It is important in considering those things that 'proxies' relating essentially to flow targets are not inflated above other long-term outcomes.

NIC recognises that flow indicators have been used in the Basin Plan and remain key targets, those targets however fail to recognise that the health of the river is about more than just flow.

The NIC has said consistently that we believe it is vital that overall health of the river is considered and that the future Basin Plan include complementary measures. It is noted that the Commission refers to complementary measures later in the report, however we would suggest they need a higher profile in determining success as well.

For instance, what progress is being made to address cold water pollution, fish passage or what impacts is the Plan having on feral pest species (including terrestrial species like pigs). In looking for appropriate measures the Productivity Commission needs to consider the work undertaken by a variety of authorities, including MDBA's recent environmental review, reporting by the CEWH and work undertaken within relevant Basin State agencies.

The measures utilised by the Productivity Commission must also include social economic impact data and the capacity to produce food and fibre as these were both key objectives of the Basin plan. NIC notes a reference in the background paper to looking at progress of water recovery and looking at the cost or efficiency of water recovery.

While NIC understands that the Productivity Commission must have regard for cost efficiency, Council urges the Commission to look beyond simplistic arguments around the merits of buyback. The Commission needs to understand that when the Commonwealth recovers water entitlement through investment in modernisation programs at the system or on-farm levels, it is a co-investor, rather than a sole funder. For example, if the Commonwealth pays \$1500/ML for water that has a market value of \$850/ML, the irrigator surrendering the related entitlement is required to re-invest the market value to modernise their operation and the Government is paying the above market 'premium' of \$650/ML. Such co-investment by the Commonwealth needs to be seen as a concrete commitment to structural adjustment – and in a form that is likely to have a more lasting effect than attempts to create "alternate futures".

NIC would note also the approach to reporting on whether water recovery is meeting target objectives i.e. timeframes. It does appear to the NIC that most timeframes are currently on track however it would be worthwhile considering whether in light of knowledge gained since the Basin Plan was

introduced any of the timeframes should have recommendations for change. In particular are timeframes for the recovery of 450 GL of so-called 'up-water' realistic and would better long-term result be able to be achieved if the timeframes were extended?

2. Risks to achieving Plan objectives

The Commission is seeking information on:

- a. *risks that may prevent Basin States from successfully implementing SDL adjustment projects*
- b. *the extent to which adopting a different definition of 'neutral or improved socioeconomic outcomes' for efficiency measures to what is in the Basin Plan would affect the likelihood of projects being delivered on time and on budget*
- c. *whether there are other novel approaches to recovering water for the environment, such as purchase of entitlement options, that may contribute to Basin Plan outcomes while achieving neutral socioeconomic outcomes.*

Risks on Sustainable Diversion Limit (SDL) Adjustment projects

It is important to understand where the risks in these projects lie and NIC welcomes the Productivity Commission looking into the area.

It needs to be very clear that the SDLAM projects are an integral part of the Basin Plan as agreed in 2012. Such projects are not, as some seek to portray, taking back water from the environment, they are critical to achieving environmental outcomes.

It is important that the Commission understands that the 605GL adjustment that is contemplated is not a risk in terms of the Plan's water recovery goals. If in the final analysis, the projects failed to generate the related efficiencies there is a provision in Plan that would allow the gap to be recovered by way of acquisition of additional water entitlement.

Many of the projects require a significant amount of work; that is not a criticism of the projects or even at this stage of the process. It is early days for most of the projects and there is a substantial amount of planning still to be undertaken. We support that process and advocate extensive community consultation as a part of it.

It is vital that implementing the SDL adjustment measures projects, State governments are able to adopt an adaptive approach, they must be given the flexibility to modify projects (with the Commonwealth's concurrence) and be encouraged to bring forward new proposals in the light of new knowledge - there is no downside to allowing maximum flexibility. Irrespective of the final shape of projects in an equivalent flow sense, there will be a full reconciliation in 2024.

There is a misconception that SDL adjustment projects represent a risk to the Basin Plan's environmental objectives. The projects need to be seen as investments in modernising the way water is stored, conveyed and ultimately delivered within and across river systems. If State governments fail to deliver the agreed projects or the projects fail to generate the envisaged benefits, it will be irrigators and ultimately irrigation communities who will be required to give up more water entitlement. In that sense, 100% of the risk is effectively being born by food and fibre producers and irrigation communities.

Efficiency Measures and neutral or improved socioeconomic outcomes

This is a significant and very controversial issue for irrigation communities.

When the then Minister and Prime Minister announced that the Basin Plan would include 450GL of so-called 'up water' in 2012, their statement made it clear that this water would only be recovered if it came with improved or at least no negative socio-economic impacts.

The definition included in the Basin Plan as passed by the Parliament does not meet that commitment. The Basin Plan definition is a single property test. That is, if the property owner accepts funding for a project then that is deemed to have met the socio-economic neutrality test. The NIC and many other groups have made it clear that measures envisaged under the Plan, in particular on-farm efficiency programs, have external impacts and these must be considered.

These external impacts can take many forms – they may manifest as a loss of critical mass within a given industry; reduced demand for delivery services from a group-owned irrigation scheme; loss of economies of scale; reduced employment and/or increased reliance (and therefore increased pressure on) the temporary water market. These themes are explored in a recently released report by Ernst and Young (EY) and NIC strongly supports EY's findings that the recovery of up-water needs to be underpinned by further economic analysis, deliberate planning and very detailed industry and community involvement in the related planning.

NIC supports Basin governments pursuing measures outlined in the EY report. We recognise that many of those need much more work before they could be implemented, or even before potential gains in held water could be properly estimated. However, they do provide a way forward

We would urge the Productivity Commission in its consideration to recognise that implementation cannot be via a one-size fits all efficiency program such as the current COFFIE program.

Programs must be designed in consultation with communities, recognising individual characteristics of communities and irrigation districts and implemented with the support of communities. Programs need to include off farm efficiency works, system wide works and urban water saving.

Irrigators have opposed the 'up-water' component of the Basin Plan, noting that it was an 'add on' to the original Plan and many of our members remain resistant to it. However, NIC recognises that it is a part of the Basin Plan that was ultimately accepted by the Parliament in 2012. In this context, there is also recognition that the sector must engage with governments and with communities to determine how it could be achieved whilst, importantly, maintaining the commitment given by the Minister and the Prime Minister at the time it was made.

The Commission's point 2C links back in some respects to the points made around the recovery of water for the 450GL up-water component of the Basin Plan. The potential for additional water to be recovered for held water via better management of river systems and a range of other off farm initiatives certainly needs to be a focus.

There should also be a degree of flexibility that follows the development of new products in the water market. NIC has consistently supported the Environmental Water Holder trading water and using the proceeds to fund complementary measures to improve environmental health across the Basin. In theory we would also be willing to see temporary or allocation purchase noting, however, the very strong potential the CEWH has to influence the market and the need to avoid negative impacts.

3. Northern Basin

The Commission is seeking information on actions governments should now take to achieve SDLs in the Northern Basin.

NIC notes that the Commission's question has been overtaken to some extent by the Senate's recent disallowance of the motion to amend the water recovery target from 390GL to 320GL. NIC further notes that the disallowance motion was largely prompted by political opportunism and since then the Opposition, Government and even some crossbench Senators have indicated that they are not ruling-out the change recommended by the northern basin review.

It would be premature for government to proceed with recovery of water for 390 GL target before this issue is ultimately resolved.

NIC is calling on the government not take any action until the issue is finally resolved. We would certainly hope that happens well before the Productivity Commission delivers its final report and would hope that the final outcomes is the target set at the levels recommended by the extensive northern basin review.

In saying this we recognise that there are a number of questions that need to be answered and that information has been sought by opposition and others. NIC encourages government and opposition to continue to discuss those needs in particular to clarify issues of modelling, indigenous engagement and other questions. We also strongly supported the New South Wales government's actions in establishing a new compliance regime to ensure that, in medium to longer term, every reasonable person can have confidence that water is going where it is intended.

NIC strongly supports the Northern Basin Review's inclusion of so called 'toolkit' measures. These measures align generally with the complementary measures that we have been advocating for some time. Our members have consistently said that getting a positive environmental improvement is about "more than flow".

The toolkit measures we believe are critical in the Northern Basin include action on connectivity for native fish, eliminating cold water pollution, tackling animal and plant pest species (in the river and out) and projects to improve the river habitat (snagging etc). The toolkit measures also include protecting low and environmental flows again important measures to address river health. Our detailed position on the Northern Basin is included in our [submissions to the Northern Basin review](#).

In addressing this question the Commission might also consider the future of over recovered water. It has been acknowledged that over recovery has occurred in the Lachlan and potentially the Macquarie Rivers. At this stage there is no clear path for how this will be dealt with. It is understood that the NSW Government is committed to considering how to address over recovery within the process of developing WRPs but ultimately the Commonwealth must address the same matter as it will impact on the finalisation of water diversion cap factors

Currently the MDBA statements indicate that there is the potential for – but no commitment to – over recovered water being sold or traded as long as that is consistent with the CEWH's guidelines. NIC would suggest that once over recovery has been confirmed the Government needs to work closely with other water users in the relevant system about how the issue is resolved.

While NIC has long advocated for the CEWH to be able to trade water that it considers to be in excess of its requirements in a given year, this should not be considered a default position for what is a permanent level of over-recovery in the Lachlan and Macquarie catchments. In some areas that might include consideration of withdrawing the over recovery from the pool, thus enhancing reliability of entitlements for all water holders including the environment.

Not surprisingly given our comments, NIC would be reluctant to suggest areas where water could be further recovered in the Northern Basin at this stage and we would suggest it is also premature for the Productivity Commission to make recommendations in this regard.

Depending on where the process is up to, it may however be appropriate for the Commission to briefly review the process undertaken to achieve the Northern Basin Amendments.

4. Constraints Management

The Commission is seeking information on:

- a. why progress to remove constraints has been slower than expected*
- b. the implications of this slow progress*
- c. what can be done to ensure that constraints are removed in a more timely manner while managing impacts on third parties*
- d. strategies that are, or could be, put in place to increase the extent to which Basin Plan objectives are met when constraints cannot be removed.*

Constraints Management remains one of the key challenges of the Basin Plan. It is clear that the original Basin Plan underestimated the difficulties of removing constraints. Progress has been slow fundamentally because some of the flow regimes and timetables for Constraints Management indicated in Plan are unrealistic.

Constraints removal is a key part of the Sustainable Diversion Limit Adjustment Measures (SDLAM) package and that if this amendment is disallowed by the Senate, it will be impossible to address and remove the constraints which prevent the projected environmental flows reaching their targeted destinations, including the South Australian border. Noting also that if the SDLAM amendment is disallowed by the Senate NSW and Victoria will not longer be participants in the Basin Plan meaning the end of the Plan.

Constraints Management has been slow because it requires very detailed work in identifying amelioration requirements, engaging those who are affected and bringing them along. In particular, the risk of flooding of individual properties has proven to be an extremely volatile and emotional issue for those potentially affected.

To date this has been a stop start process, with a lack of clarity at individual property level about what proposals mean in practice. It is important that the process is not dominated by particular interests and that Government's engage widely in implementing it.

Governments and all those involved in the Basin Plan must recognise that resolving the issues will require detailed and extensive work to plan, map, engage and resolve community and individual concerns. In the context of the latter, this means genuine engagement with local communities.

There is no magic bullet that will speed up the process of achieving constraints removal; the only way it will be achieved is by thorough and painstaking work, and by decision makers being brave enough to revisit flow regimes when they are proven to be unrealistic

Clearly, there are serious implications if constraints cannot be removed or bypassed. At the highest level it seems it would be impossible to deliver the volumes of water required to achieve overbank flows and flows to critical environmental sites (particularly in South Australia) if constraints are not able to be addressed.

Those criticising failure to remove constraints need to be aware that every person involved deserves a fair hearing and an opportunity to offer a solution to their individual property problems. NIC recognises that in the long-term, achieving the flows dictated in the Basin Plan is going to cause some inundation of private property. However, this needs to be handled in a way which gives everyone involved the right to a fair hearing and the ability to avoid livestock losses, property or asset damage and personal hardship.

Government must work with infrastructure operators to identify where existing or new infrastructure offers an opportunity to bypass a constraint. Government and river operators must recognise that infrastructure owners are obliged to seek a fair return for the use of their infrastructure, including for long-term impacts and replacement costs.

The Commonwealth and Basin States need to explore every opportunity to utilise privately-owned irrigation infrastructure to deliver water efficiently and to overcome system constraints e.g. the use of MIL's system to overcome some of the limitations imposed by the Barmah Choke. However, the use

of privately-owned systems cannot be assumed by governments and needs to be the subject of proper contract negotiations.

Governments may need to look at whether new infrastructure might be used to overcome limitations in the capacity to deliver overbank flows in some areas.

5. Recovery of water for the environment

The Commission is seeking information on:

- a. *the extent to which the Australian Government's strategy to recover water in areas where gaps remain will be cost effective, align with the Basin Plan's environmental objectives, and be transparent*
- b. *risks to achieving water recovery targets by 1 July 2019 and, where not already addressed under current arrangements, how any shortfalls may be resolved*
- c. *examples of water recovery (both infrastructure projects and purchases) that have been either well implemented or had major deficiencies, including risks to securing contracted but not yet delivered water from water saving infrastructure projects.*

It would appear from the information included in recent reports that the Government has been largely successful in recovering environmental water. Assuming the Northern Basin target is eventually amended by 70GL (to 320GL) and the 605GL of SDLAM package of measures is allowed, then there are few valley specific surface water targets remaining to be met.

There remain shared recovery targets in the Northern Basin even if the Northern Basin amendment is reintroduced and approved. There is also a substantial ground water recovery target remaining in Queensland which is dealt with in some more detail later in this section.

The exception to this is the 450GL of so called 'up-water'. Clearly, this is a task still to be undertaken and one which must be undertaken in a way which meets the commitments on socio-economic impact.

As a general point, NIC would strongly suggest that assessment of recovery being 'cost effective' must take into account a full range of flow-on impacts and strategic value of targeted purchases. It should not be a simplistic assessment that simply compares the dollar value per mega litre to the taxpayer, as has been suggested by some.

It is true that on a straight dollar cost to taxpayers, buyback is generally cheaper than recovery of water through infrastructure investment. However, such simplistic assessments ignore the flow-on impacts in communities, the value of future production and employment opportunities. The MDBA's recent review of the Southern Basin, along with its prior review in the North, demonstrated very clearly that buyback has a detrimental impact on communities. A number of previous reviews have also provided evidence of that point.

Buyback has been shown by government and independent inquiries to be a very blunt instrument and those who advocate its continued use do so for self-serving purposes. Recovery of water entitlement through governing co-funding is a strategic approach which goes some way to honouring government commitments to a balanced Plan and is a tangible form of structural adjustment.

It was clear from the Northern Basin Review that the only areas with positive outcomes overall where the areas where recovery had been achieved through infrastructure projects.

It is critical that flow-on impacts be taken into account.

NIC finds some of the criticism of the on-farm investment, to date, hard to accept. The most spurious of the criticism to date has been from a prominent academic who has argued that irrigators should not be encouraged to become more water efficient because that will result in less run-off to river systems

Efficiency works on farm and in system have been very successful and there are numerous examples of areas where production has been able to either increase or at least over the same while substantial quantities of water and return to the environment. NIC supports an ongoing role for Government in supporting efficient use of water and greater productivity (including separate to the Basin Plan), noting however the comments above about the importance of implementing future Basin Plan programs in a way which does not produce negative outcomes for communities.

There have been many efficiency projects funded and implemented from the Basin Plan. Most have been very successful though, of course, there will be varying levels of success, and depending on local circumstances, quite varied costs per ML of water recovered.

As mentioned above there is a substantial groundwater recovery target remaining in Queensland. This target has been the subject of extensive negotiation between the irrigators, the Queensland and Federal Governments. Irrigators in the area are keen to resolve the issue and see the recovery undertaken, indeed they have been proactive in offering solutions. It appeared a few weeks ago that the Commonwealth and Queensland may have been close to agreeing but at the time of writing this again appears to have stalled.

This is different type of recovery to surface water but if it is still not resolved as the Commission undertakes its draft report it would be worth a closer look. To be clear, irrigators recognise that the recovery needs to occur, they want it settled on a fair basis and they are frustrated by the inability of Government to make a decision.

When it comes to specific recovery projects (question 5C) there are, of course, numerous examples of successful projects.

NIC's members and the groups the Commission is consulting with in communities would be able to provide information on projects at local levels. NIC is aware of a number of areas where investment in infrastructure for water recovery has been extremely successful. The Trangie-Nevertire scheme on the Macquarie for example where channel lining, some piping and technology improvement reduced losses from 40% to 5% returning 29GL to the environment, or on a bigger scale, the huge savings made in the Murrumbidgee and Coleambally schemes.

The risk posed by uncertainty on Cap Factors

Irrigators do have concerns about the longer-term accounting for water and in particular adjustments that may be made to Cap Factors in various valleys. Changes to the cap are likely to mean two things: an increase in the amount of water to be recovered by the Commonwealth and a demand by banks for increased equity where irrigator borrowings are underpinned by encumbrances against their water entitlements. Irrigators were promised that the Basin Plan would deliver them greater certainty but the Commonwealth's desire to amend cap factors across the Basin will do exactly the opposite.

There are only two catchments where the case to amend the cap factors has been proven – in the Gwydir and the Macquarie and the related adjustments have been recommended by the MDBA (via the Northern Basin Review). NIC notes that in recent times the MDBA has preferred to indicate that cap factors are a matter for the Basin States to determine within the development of their Water Resource Plans – but ultimately these plans have to be accredited by the MDBA. For the avoidance of doubt, NIC will consider any attempt by the MDBA to alter cap factors in other than the Gwydir and the Macquarie as a redrawing of the proverbial 'line in the sand' and a matter which it would cause it to reconsider withdrawing its support for the Basin Plan.

6. Structural Adjustment

The Commission is seeking information on:

- a. *what specific assistance has been provided to help communities adjust to the Basin Plan*
- b. *the extent to which this assistance has supported particular industries or regions*
- c. *evidence that this assistance has facilitated adjustment that would not have otherwise occurred and has contributed to meeting the intended outcome of the Basin Plan, including more resilient industries and communities with confidence in their long term future*
- d. *whether future structural adjustment assistance is warranted, and if so, what lessons can be learnt from past programs.*

NIC notes that one of the key decisions made when the Plan was introduced in 2012 was that a focus on efficiency measures for water recovery would minimise the need for structural adjustment funding.

Recent social economic studies in the Northern and Southern Basins by the MDB confirm that buyback has a much more serious socio-economic impact than measures which recover water through efficiency. This submission has dealt with the regional impacts of buyback versus infrastructure funding for efficiency above. It is a clear cut case.

Anecdotally, it would appear that structural adjustment funding provided so far during the implementation of the Basin Plan has been ineffective. Presumably, if it had been effective then we would not have expected to see the large drops in employment which some towns have experienced as a result of water buyback and which have been detailed in the MDBA's socio-economic studies (among others).

Structural adjustment funding, where it is provided, must be targeted in ways which ensure long-term economic activity for a community.

NIC is concerned with suggestions made by some that buyback should be used as the major way to recover water (justified by simple cost) but with adjustment funding delivered to communities via investment in government services.

The academics who make this suggestion fail to acknowledge that funding provided by Government for these programs is generally one-off capital funding. That means that programs must be able to generate ongoing benefits. Where funding is directed to infrastructure, particularly efficiency programs, the ongoing benefit is achieved by maintaining or expanding production.

It isn't possible to match that ongoing benefit by funding Government services. These services require recurrent funding, which is not envisaged under any of the Basin Plan programs, and is unlikely to be provided instead of capital funding.

Well targeted structural adjustment funding can have a positive impact on communities but it must be applied in a way which builds up a community's competitive advantage and provides for a long-term increases in jobs and production. It should not be about photo opportunities or providing one local business with a competitive advantage over another.

NIC is unaware of how much funding has been provided directly in the form of structural adjustment to date, but commitments via programs like strengthening Basin communities have been very small when seen in the context of the entire Basin. In NIC's travels across the Basin, it sees plenty of evidence of negative social and economic consequences of the Plan and little evidence of successful structural adjustment other than that achieved through investment in water efficiency at the system and on-farm levels.

7. Water Resources Plans

The Commission is seeking information on:

- a. *the main risks to remaining WRPs being finalised and accredited by mid 2019*
- b. *how, and to what extent, recent measures to make the WRP accreditation process more efficient and streamlined have sped up the preparation of WRPs and whether there are opportunities to further streamline the accreditation process for WRPs*
- c. *other ways WRPs or associated planning processes (e.g. consultation, modelling inputs) could be changed to better meet the objectives of the Basin Plan*
- d. *how effective Basin States have been in consulting with all relevant stakeholders*
- e. *the main risks to planning assumption work being finalised on time.*

NIC members are concerned about progress on the development of water resource plans (WRPs) and the likelihood of meeting timeframes set out in the Plan. Clearly that concern is greatest in New South Wales which has 20 of the 33 of WRPs to finalise and has undergone significant changes in staff in the relevant departments.

The development of NSW's WRPs has been complicated by reorganisation of all of the roles and responsibilities of its public water authorities/agencies and the related staff turnover. The requirement for NSW to further deal with the issues alleged in a recent Four Corners program, and the succession of government inquiries that were subsequently generated, has further complicated the delivery of those WRPs.

The NSW irrigator groups that are members of NIC report that the process of developing the WRPs is bordering on chaotic because of the many competing issues that the relevant agencies are dealing with and the lack of corporate knowledge of those charged with delivery of the WRPs. Quite apart from the particular challenges faced in NSW, NIC has serious reservations about the MDBA's ability to process a large number of WRPs, once they are received, in what will be a short period of time. In sum, NIC and its members lack confidence in the WRP process.

The rejection of the Northern Basin review by the Senate has placed another risk in this area. It is now not clear what the SDL target will be in the Northern Basin and that makes it difficult to finalise WRPs. It is critical that Government work with all stakeholders, including opposition and cross bench parties, to reintroduce the Northern Basin amendment, to enable progress on the WRPs to continue.

8. Environmental Water management

The Commission is seeking information on:

- a. *how environmental water planning under the Environmental Management Framework is, or is not, facilitating achievement of the Basin Plan's environmental objectives within legislated timeframes, and what improvements should be made.*
- b. *how effective and efficient the delivery of environmental water is — including through coordination among owners of held environmental water, managers of planned environmental water and other stakeholders — and how any barriers could be reduced*
- c. *whether Australian and State Government objectives for the delivery of environmental water align, any examples of where this has not been the case, and how differences are resolved through the Environmental Management Framework*
- d. *the extent to which the Prerequisite Policy Measures (PPMs) assumed to exist under the Basin Plan will be in place by the target date of 30 June 2019, so that the Plan's environmental objectives can be achieved under the SDLs agreed by governments, and how any identified concerns should be addressed*

- e. *any opportunities to better integrate environmental water planning and management with natural resource management programs and complementary works to facilitate achievement of the Basin Plan's environmental objectives.*

Management of environmental water will be one of the key ongoing roles for Government once the Basin Plan is fully implemented. It is a complex task that must be focused on planning the use of water in way which produces positive environmental outcomes and where possible positive flow on outcomes for communities and local economies.

It needs to be managed with a high degree of cooperation with other water managers and in a way which builds on natural events. NIC would add that it is critical that the informal 'good neighbour' policy adopted by the last and current Commonwealth Environmental Water Holder (CEWH) continues into the future.

NIC agrees with a number of the points made last year in the Productivity Commission's National Water reform draft report regarding the importance of local input into environmental watering. "Localism" is mentioned further on but in general it is vital to engage local communities in environmental watering planning and decision making.

NIC would also acknowledge the importance of water to indigenous communities in the Murray Darling Basin and the importance wherever practical of environmental water planning assisting those communities in meeting their social and cultural objectives.

With regard to the Environmental Management Framework NIC notes that it is intended to:

- co-ordinate the planning, prioritisation and use of environmental water on both a long-term and an annual basis
- enable adaptive management to be applied to the planning, prioritisation and use of environmental water
- facilitate consultation, co-ordination and co-operative arrangements between the Authority, the Commonwealth Environmental Water Holder and Basin States.

As part of the 2017 evaluation of the Basin Plan, the Murray Darling Basin Authority (MDBA) has evaluated the effectiveness of the Framework, examining whether:

- the key components of the Environmental Management Framework have been delivered or on track?
- there are effective processes to coordinate planning, prioritisation & use of environmental water, and
- the principles to be applied in environmental watering are influencing the behaviour of environmental water holders and managers?

NIC notes that the MDBA's evaluation says, in part, that:

- the Basin-wide Environmental watering strategy was delivered in November 2014
- the long-term watering plans were delivered in November 2015 in Victoria, South Australia and Queensland.
- Further long term watering plans are on track to be delivered in NSW, ACT, Queensland and South Australia in June 2019
- State annual environmental watering priorities are being delivered by 31 May each year as agreed; and,
- Basin Annual environmental watering priorities are being delivered by 30 June each year.

In terms of effectiveness of delivery and coordination NIC has noted a number of positive assessments in recent times of environmental watering events. In particular, events where experience of previous efforts has been used to determine the best way to coordinate Commonwealth flows with natural flows or State water holder releases.

We have noted a number of positive assessments of this work on fish breeding in some areas along with other results and the MDBA 5-year review highlights early positive results from the Basin Plan overall but also specifically on watering events.

Anecdotally (and in a number of the reviews) it is clear that there is still a lot of learning to do about the most effective timing of events and how to ensure best results. That is not surprising given the early stage the Plan is at and the relatively new science of environmental water management.

We would continue to strongly encourage close cooperation and communication between all levels of management of rivers along with river experts and local communities. We need to communicate that the expectation is that it will take time to get arrangements right. In terms of barriers, NIC is aware that there are different arrangements in each state for water and catchment management which may lead to differing levels of success. We note the Commission's very positive comments last year's National Water reform report regarding arrangements in Victoria. While it is not NIC's place to advocate one set of arrangements over another, NIC agreed with many of the points the Commission made.

In terms of question d) on pre-requisite policy measures, we know that beyond the Environmental Management Framework, measures such as PPMs, mechanisms to protect environmental flows and the proposed relaxation of operational and physical constraints are intended to enhance the benefits of environmental watering.

State Governments are better placed to respond to the Commission's related questions. That said, NIC knows from its interactions with senior government officials working to implement the Basin Plan that there are very significant matters of detail in relation to PPMs, protection of environmental flows and the relaxation of operational and physical constraints that remain unresolved. NIC suggests that the resolution of these matters by 30 June 2019 cannot be assumed.

Progress on constraints measures, some of which form part of the suite of projects embedded in the 605GL of SDL projects, are dependent on a successful outcome in the related legislative instrument (or disallowance motion) currently in the parliament. We have commented further on constraints above.

In response to question e) NIC has long advocated that to achieve improved ecological outcomes (which we support) a range of complementary, or non-flow, measures (referred to earlier in this submission), should be examined. These are measures which are complementary to the use of environmental water.

NIC supports the capacity of the CEWH to trade held water and has advocated that the proceeds of trading should be used to fund complementary measures. Basin state water Ministers have requested Basin officials to undertake the necessary work to examine complementary measures. It is not clear what progress is being made on this work.

Any investment approach should involve a range of measures designed to support the Basin Plan's environmental objectives over the short, medium and long-term to ensure native species have the greatest opportunity to thrive. Such an approach will deliver the Basin Plan's environmental objectives over time without further collateral damage to regional communities.

The Northern Basin Review also made recommendations about the need to implement complementary, or non-flow, measures. In 2017, the Productivity Commission as part of the review of National Water Reform, has itself endorsed the need for an outcomes focus, and included a series of strong draft recommendations about environmental water management and complementary measures. Such complementary waterway management activities, or complementary measures, fall into two categories, fundamental interventions or actions required to achieve improved ecological

outcomes in our river systems, or new opportunities for operation and management of environmental resources.

NIC has detailed complementary measures in many of our submissions including previously to the Commission. The summary of some is included below for completeness.

Complementary Measures

a) Carp control through the release of the Carp Herpes virus

Carp make up around 80% of the fish biomass in the Murray Darling Basin, and this level of presence costs the nation up to \$500 million in lost opportunity annually. Empirical evidence clearly shows carp impact on water quality, plankton levels, the frequency and duration of algal bloom, native fish, macrophytes and water birds¹. Unfortunately, much of this impact is wrongly attributed to productive water-users.

Research has shown that a carp specific virus known as Cyprinid herpesvirus 3 is highly effective on the carp species present in Australia. International case studies indicate the virus will kill 70-100% of carp in a native population within a very short time. The virus also has been shown to only affect Common carp and Koi carp (same species) and that it not impact adversely on other fish species, birds, reptiles, amphibians, mammals or crustacea.

While the types of environmental flows built into the Basin Plan might deliver some benefits to some valuable components of the ecosystem, they are also known to increase carp breeding if delivered onto floodplain habitats during warmer months.

In 2016, NIC welcomed the Australian Government's announcement of a \$15 million to undertake the necessary work with a plan to release a carp-specific herpes virus into waterways. The National Carp Control Program, led by the Fisheries Research and Development Corporation is leading the process, the focus of which work is to:

- Undertake research and development to address key knowledge gaps
- better understand and manage risks around carp control
- plan for an integrated approach to control carp in Australia's waterways
- build community awareness and understanding of the proposal to release the carp virus;
- identify and address stakeholders' and communities' concerns about that proposal
- develop detailed strategies for carp control and subsequent clean-up; and,
- support national coordination on all elements of the Plan's development.

To ensure that carp numbers do not rebuild after release, it will be necessary to employ additional measures to suppress carp and promote recovery of native fish communities (with the latter being estimated at 10% of pre-existing condition). With 30-40% of the freshwater fish species in the Murray-Darling now listed as threatened or conservation dependent, it will be critical that a series of policy actions are put in place sufficient to recover stocks.

While carp is the biggest threat to the health of aquatic ecosystems across the Basin, other factors are contributing to the decline of native species, including:

- degradation of habitat and water quality;
- overfishing;
- thermal pollution; and,
- barriers to fish migration.

Significant social and economic benefit, derived from improved inland fish resources, is likely to occur as a result of the eradication of carp and the rectification of the above matters.

NIC recommends that the any carp biocontrol program and improvements to environmental flow delivery need to be accompanied by parallel efforts to:

- re-establish populations of locally extinct native fish species through re-stocking following carp removal
- mitigation of cold water pollution at four priority dams
- restore native fish habitat along river reaches within priority river valleys through the Murray-Darling Basin.

b) appropriate management of cold water pollution

The importance of water temperature for breeding, feeding, growth and larval survival in native fish species has been well understood for over a decade, as is the impact of cold water pollution on aquatic organisms and river health in the Murray-Darling Basin. A study in 2014 noted that mortality levels in Murray cod eggs can reach 100% at 13 degrees Celsius, and that low water temperatures can dramatically reduce growth rates in species including Freshwater catfish and Murray cod, and can cause up to 30% mortality in Silver perchⁱⁱ. All of these species are 'listed' under either national or state environmental legislation and over 2500km of riverine environment is now understood to be affected by thermal pollution in the Murray-Darling Basin.

There are cost effective engineering solutions to cold water pollution and these measures must be afforded a proper place in the Basin Plan.

c) improvement of fish migration through fishways along the Barwon-Darling & tributary catchments

Many native fish species are now known to migrate during various stages of their life and barriers to migration are now listed as a key threatening process in state and Commonwealth threatened species legislation.

Future-focussed investment from the MDBA in the Sea to Hume program has seen fish passage restored to over 2225 km of riverine habitat by installation of fishways at 15 barriers in the southern MDB. Reinstatement of fish passage at 13 barriers in the main stem of the Darling, Barwon, Paroo and Warrego Rivers would reinstate continuous access 5180 km. This outcome would exceed the Sea to Hume program, which is currently, and rightfully, lauded as one of the largest ecological rehabilitation projects undertaken in Australia. Tributary fishways also open up significant kilometres of passage and improve environmental outcomes associated with instream site specific indicator sites.

d) restoration of native fish habitat

A healthy habitat is vital to the condition of native fish communities. Numerous studies throughout Australia have demonstrated the value of restoring fish habitat for native fish communities. In the Condamine River for example, habitat improvement along the Dewfish Demonstration Reach resulted in significant increases in Golden perch (5 x increase), Murray cod (from absent to captured every survey), Spangled perch, Bony bream (11 x increase), Carp gudgeon (1200 x increase), and Murray-Darling Rainbowfish (60 x increase).

Re-snagging in the lower Murray resulted in a threefold increase in Murray cod, and was estimated to significantly increase overall population sizeⁱⁱⁱ. It would also result in lower flow thresholds being required if re-snagging occurred at lower heights to provide adequate habitat that is submerged for periods long enough to be of benefit.

e) feral animal control in wetlands such as the Narran Lakes, Gwydir Wetlands and Macquarie Marshes.

Feral pigs are one of Australia's most successful and widespread invasive species. Their success is largely due to their omnivorous diet, comprising mostly green grasses and herbs. They also eat a variety of native vertebrate species including reptiles, amphibians, birds and mammals.

Feral pigs have been present in the Macquarie Marshes since 1896 and they threaten important native wildlife species in the marshes such as the snipe, storks and ibis.

Studies undertaken on the stomach content of feral pigs in the Macquarie Marshes have revealed grasses, roots, ferns, fruits, crops, frogs, lizards, snakes, turtles, birds, mammals, invertebrates and carrion. Five different vertebrate species were found, including eastern bearded dragon, barking marsh frog, green tree frog, spotted marsh frog and De Vis banded snake.

In recent years, pig populations in the Gwydir region have exploded. This is partly due to the delivery of environmental water to wetland areas during dry-sequences as this is assisting the pigs to survive during drought.

f) Riparian land management

The health of our waterways is inextricably linked to the surrounding land and land use.. Grazing management adjacent to water ways is essential to maintain stream bank stability and limit erosion, sedimentation and poor water quality.

Riparian buffers should continue to be encouraged in high risk and vulnerable locations as should programs to encourage improved grazing and cropping strategies upstream, to limit poor quality runoff. It is critical that measures be implemented to mitigate the significant damage occurring due to livestock and feral animals on icon sites such as Gwydir Wetlands, Macquarie Marshes and Narran Lakes, beneficiaries of government water.

g) Weeds

Weeds are well known as a significant threat to Australia's natural environment and primary production industries. They displace native species, contribute significantly to land degradation, and reduce farm productivity. Aquatic weeds continue to spread through flooding, moving the plants to other waterways. Many aquatic weeds have been introduced or have colonised new waterways.

Invasive species, including weeds, animal pests and diseases, represent the biggest threat to biodiversity after habitat loss. Weed invasions change the natural diversity and balance of ecological communities, threatening the survival of many plants and animals as the weeds compete with native plants for space, nutrients and sunlight.

It is estimated that nationally, the impact of invasive plants continues to increase with exotic species accounting for about 15% of all flora. This figure is increasing yearly by about ten new species per year.

Summary

In summary, a more integrated, holistic Plan focused on non-flow measures is the key to undoing the damage that has been, and continues to be, done to communities. Such a focus would:

- deliver equivalent ecological outcomes required to meet Basin Plan objectives that will not be met through existing water recovery measures
- lead to the rehabilitation of native fish species
- improve productivity within aquatic ecosystems
- increase the resilience of threatened species
- improve social and economic prosperity from aquatic resources
- contribute to the achievement of cultural water objectives.

Focus on 'localism'

Improved environmental outcomes can be achieved by engaging local people, who are based in catchments and who have water knowledge and are able to work with environmental water planners to identify initiatives that make full use of opportunities on public and private land.

Environmental Water Holders (state and federal) must work with local stakeholders to outline the specific objectives they want to achieve out of their environmental water portfolio for each valley in which water is held, reflecting the 'localism' approach. Objectives must be based on clearly defined ecological and hydrological baselines. Baselines must be evidence based and publicly available.

We welcome the current approach of the CEWH in acknowledging the importance of local information and experience in being able to effectively manage and deliver Commonwealth environmental water.

The *CEWH Investment Framework* (detailed earlier) is a further opportunity for community engagement and awareness in the management of environmental water. We look forward to the Framework facilitating closer engagement between the CEHW, through local engagement officers, and communities. We expect as a result, collaborative partnerships in the effort to identify potential projects designed to deliver positive environmental outcomes for community and broader benefit.

9. Water quality and salinity objectives

The Commission is seeking information on:

- a. *any inconsistencies between the various national water quality guidelines and the water quality management plan requirements in WRPs and whether these inconsistencies are being resolved and managed*
- b. *the adequacy of the actions of water managers to achieve the water quality objectives of the Basin Plan.*

NIC does not have a detailed comment on this question. We have made comment under other questions about the reliance on flow rates as the measures or targets for the Basin Plan. In that sense we would probably suggest again that outcomes need to be the targets and those logically include water quality. It is recognised that there are many targets for salinity at various points built into the Plan and it certainly appears that water managers are very conscious of those.

NIC would note that one of the major success stories of the last 30 years has been the reduction in salinity. That is one reason we find some arguments criticising efficiency programs so illogical.

NIC would emphasise again that water quality must involve creating a healthy aquatic environment and that needs investment in complementary measures.

10. Water trading

The Commission is seeking information on:

- a. *whether the Basin Plan trading rules advance the water trading objectives and outcomes stated in chapter 5 of the Plan*
- b. *whether changes to state trading rules made to date as part of implementation of the Basin Plan adequately recognise and protect the environment and third party interests*
- c. *whether implementation of the Basin Plan has improved access to market information and what further actions Basin States, irrigation infrastructure operators or the MDBA might need to take*
- d. *whether processes for reviewing Basin State trading rules — including the roles of the MDBA and the water trade working group — are sufficiently transparent, evidence based and consultative.*

The water market was introduced to ensure that water went where it would be used most productively and generated the best return. At that level, the water market is working as intended. NIC has as one of its fundamental principles protecting and enhancing water property rights and we support the water market.

There are significant complexities in the rules applying to trade along the system. Where these reflect real physical and geographic constraints then they are reasonable, it is important these are reviewed regularly to ensure they are appropriate.

NIC notes, for example, concerns about the physical capacity to deliver water downriver in the Murray and notes this could be exacerbated by new developments requiring larger transfers down the river. This issue points to the need to note that constraints on trade may change over time, not just as a result of work to overcome physical constraints, but because of changes in where water is intended to be used or in the types of crops being grown.

That suggests that trade rules may need to be able to be reviewed to incorporate some of these issues (to the extent that is possible in an open market environment).

While NIC understands the frustration that sees some irrigators call for a cessation of water trading or restrictions which would close the market to other than irrigators, it considers such calls unrealistic.

The rules applying to trade can be complex and any work to explain or make processes more transparent would be worthwhile.

There is a need for greater public education about the water market.

Media reports last year, made it clear that there is a poor understanding of the market. The market was put in place by Australian Governments, it wasn't put there at the behest of small groups of irrigators in particular river systems and it shouldn't come as any surprise that once there is a market people will seek to make money from it.

A clear lack of public knowledge about the water market was exposed in some of the erroneous (or perhaps deliberately misleading) comments made in media reports last year about water trading in the Northern Basin and the Barwon Darling in particular.

On a more general level NIC supports Governments working to speed up processing times of trades, ensuring some constancy of times and improving timely information flows. The market is difficult to understand and it is often not easy to use or access.

NIC made a number of additional comments on the water market in our submission the Commission for [the National Water Reform inquiry \(April 2017\)](#) which may also be relevant for this inquiry.

11. Critical human water needs

The Commission is seeking information on:

- a. *risks to meeting critical human water needs (CHWN) under the Basin Plan, how the Plan addresses these risks, and what, if any, further measures are required*
- b. *any concerns about provisions in WRPs relating to CHWN under extreme conditions.*

NIC has no comment on this area, other than to continue to agree with the priority given to CHWN under the Basin Plan. NIC is not aware of any current issues which would make the threat under extreme conditions (ie serious drought) any greater than it currently is.

CHWN remains the priority in all proposed water sharing plans.

12. Compliance

The Commission is seeking information on:

- a. *risks to the MDBA's ability to monitor and enforce compliance with the Basin Plan and WRPs from July 2019, and what, if any changes should be made to address these risks*
- b. *the extent to which non compliance with the Basin Plan will be addressed by recent changes to compliance and enforcement announced by governments*
- c. *any further changes that should be introduced to increase water take compliance across the Basin.*

NIC recognises that significant compliance issues have been identified by independent reviews in New South Wales and at Commonwealth level over the past eight months. We strongly support action to ensure that an effective compliance regime is in place.

NIC has zero tolerance for water theft. Water is a valuable and expensive asset and irrigators are disadvantaged if someone else is able to undercut others in their production costs.

We note the findings of the Commonwealth's review undertaken by the MDBA and the independent expert panel which suggested that the MDBA had some work to undertake to become an effective Commonwealth compliance agency. The review did acknowledge that State Governments should retain primary responsibility for compliance, we agree that is the appropriate responsibility and would be concerned at any duplication.

The combination of recommendations from New South Wales, federal government and other inquiries has produced an extensive list of actions in the compliance area. These will take some years to implement and while Productivity Commission consideration of these actions is relevant, it might be premature to make significant additional recommendations without first allowing the existing ones to be implemented and bedded down.

Queensland is also currently undertaking a review of compliance. As the review has not been finalised NIC is not aware of the recommendations it might make but again we would welcome recommendations which provide assurance for all owners and users of water along with the community more broadly.

NIC would emphasise some important points on reform proposals in this area. Firstly compliance requirements must be effective, including cost effective, and practical. They must be achievable and not set up to fail.

Compliance must be properly resourced, with adequate on the ground compliance officers. The cost of this must be shared recognising that there is a broad community benefit from compliance as well as a cost appropriately born by irrigators.

One key area of recent reviews and commentary has been protection of environmental water in unregulated rivers. NIC recognises that this is an issue that needs to be addressed and points out that irrigators in the Northern Basin have been indicating a willingness to cooperatively address this for some time. It must be noted that in doing this a core principle remains that water entitlements

have the same characteristics, ie that one ML of General Security water in a particular river has exactly the same characteristics whether it is held by an irrigator or the CEWH. This is a fundamental principle, changing it would undermine the water market.

NSW action on compliance & meter standards

The New South Wales government has announced an extensive range of actions to address compliance problems identified in independent reports.

NIC is confident that overall the process being undertaken by New South Wales will address issues that have caused a loss of public confidence in compliance in New South Wales and the need to ensure a 'culture of compliance' in New South Wales.

It is noted that irrigators continue to fund compliance activities in New South Wales. We do expect that money to be spent wisely and effectively. We do not believe increases in those charges are currently justified. Compliance has a community benefit as well as a benefit to irrigators and any increase in funding should be shared across the community.

As mentioned above, irrigators support strong compliance action and we support the practical implementation of recommendations made by independent reviews, one caution we would introduce into this is to ensure that consultation occurs to make implementation practical.

This applies to expectations and standards on metering and measuring. It is important to build confidence based on measures that are practical and deliverable.

It is possible to meter all significant take from watercourses, it is not possible to meter overland flows, in those cases the take needs to be 'measured' rather than metered.

In the Basin overall, 90% of take from watercourses is metered, while 70% of overall take from all surface water is metered. In the Southern Basin, including Southern NSW, Victoria and South Australia, 98% of take from watercourses is metered with 74% from all watercourses (a figure that depends on flooding). Small users including stock and domestic generally are not metered.

The Northern Basin is different. It has huge variability including flooding overland flows. The MDBA says that in 2015-16 30% of overall take in the Northern Basin was 'metered' – that does not mean the other 70% was not 'measured'. 2015-16 was a high rainfall year and take from overland flows are much harder to meter. They can however be measured.

MDBA's compliance review said: *Harvesting of overland flows (also called floodplain harvesting) in the Northern Basin is the most prominent example of non-metered take - with recent estimates of annual take as high as 210GL. Farm dams and forestry plantations are also instances. For these forms of take, the hydrometric network and hydrological modelling are the way in which estimates are derived.*

It is important that there are accurate methods to quantify non-metered take. MDBA review recommendation is that "95% of take by non-metered floodplain harvesting is measured by accurately calibrated storage level recorders by 30 June 2022". Ministers have accepted this and a pilot has been completed in the Gwydir Valley that will form the basis of new measurement systems for floodplain harvesting in NSW as part of the licensing of this water take under Supplementary licences.

It is important not to assume that compliance can be achieved just with technology. There will always need to be adequate compliance officers on the ground, building knowledge and links with irrigators and communities.

The NSW Government is currently undertaking consultation about its proposed framework for metering. In part it currently says:

- *Accuracy: meters must meet the Australian Standard 4747 Meters for non-urban water supply. This standard focuses on the accuracy of meters*
- *Pattern approved: all meters must be pattern approved. Pattern approval means the design of these meters has been verified by the National Measurement Institute (NMI) to meet national metrological specifications. There may not currently be pattern approved models for every type of meter, such as open channel meters. Interim arrangements may need to be developed for these meters until the market responds.*
- *Installation and validation: meters must be installed correctly. The NSW Government will develop an installer accreditation and competency framework with which all meter installers will be required to comply. While this is being developed, all meters must be installed or recertified by a Certified Meter Validator which appears on the Irrigation Australia Meter Validator/Installer list (see www.irrigationaustralia.com.au).*
- *Seals: all meters must have tamper-proof seals.*
- *Maintenance schedule: meters must be maintained by an accredited installer every five years. This ensures that meters are maintained to an acceptable standard and remain accurate.*
- *Data capture: the meter must have the capacity to record: volumetric flow rate and the date, time and duration of water taken. Data loggers allow for this data to be captured. This is important for the data to be auditable and verifiable.*
- *Transmission of data: it is proposed that all meters have telemetry, or some mechanism that allows for the information captured by the metering equipment to be remotely collected by WaterNSW and reviewed by regulators*

In principle, we agree that accurate measurement is critical and the NSW objectives are sound. We would caution though, that there needs to be transition processes in particular for requirements like compliance with AS4747.

So far that standard has proved difficult for manufacturers to comply with - some might say impractical. If the standard for AS4747 was to be in place now not only would most of the very modern meters in NSW not comply but nor (as NIC understands it) would the meters in South Australia and Victoria.

This is a problem that is a direct result of a very poor process of developing the National Metering Standard (NMS). It was a process that developed an aspirational but impractical standard with no real consultation with irrigators and meter manufacturers. NIC understands that there isn't a single meter i.e. one that can be used in a river or large-scale open channel irrigation system that has been pattern approved. The approval process requires meters to conform to many parameters under many conditions and there are only two laboratories in Australia that can undertake such work – the related testing takes months.

The Commission needs to understand that even very modern meters being funded under modernisation programs are not compliant.

This is a very significant problem and it results in the industry being given an impossible task. They can't comply because, through no fault of their own, there is no appropriate compliant meter available.

NIC would suggest that this is an important area for the Commission to make a strong recommendation. The National Metering Standard should be revisited and revised. That process must include engagement with manufacturers, the irrigation industry and other interested parties and should include provision to recognise reputable international accreditation (eg. US or EU).

13. Monitoring, evaluation and reporting

The Commission is seeking information on:

- a. *how well current arrangements for monitoring, evaluation and reporting support the delivery of the objectives of the Basin Plan; and how they could be improved to increase the likelihood of the objectives being met*
- b. *whether there is a clear delineation of responsibilities for monitoring, evaluating and reporting on the Basin Plan, and, if not, how it could be improved*
- c. *the usefulness of the MDBA's Framework for Evaluating Progress and its recent application in evaluating the Basin Plan*
- d. *how data and information obtained through monitoring, evaluation and reporting could be made more useful for decision making and evaluation of the Basin Plan (including how to make this data and information more outcomes focused)*
- e. *the general information required to provide confidence to communities and others that the Plan is being implemented well and is achieving its objectives*
- f. *whether processes are in place to monitor key risks to the continued availability of Basin water resources.*

The Basin Plan sets out formal processes for regular evaluation and review by the MDBA and now by the Productivity Commission. The recent review conducted by the MDBA was useful and it provided very clear evidence about the impacts of recovery of water on communities, the early environmental results and so on.

In a period where the Plan is still being implemented that is very useful.

The official review processes are currently being supplemented by a plethora of other analysis via parliamentary and judicial inquiries; analysis of parts of the Plan or parts of the system by various agencies; and reviews from organisations with particular agendas.

This has presented the public with a somewhat confused assessment of the Basin Plan implementation to date. In some respects that is inevitable. The Basin Plan is the result of years of debate and argument, it is a contested area and those with particular agendas are inevitably going to be attempting to support their view with what they might claim to be 'independent' work.

In the longer term, it is critical that formal reporting arrangements include regular reporting on all the objectives of the Basin Plan by the MDBA, CEWH and with an external review by the Productivity Commission. All reports need to focus on outcomes and impacts. To be clear, such review and reporting must be in the context of the triple bottom line objectives of the plan i.e. environmental, social and economic objectives and against the commitment made to irrigators, and the communities that depend on them, about their futures being more certain and more sustainable.

While the Basin Plan is still in the process of being implemented, the reviews will necessarily have a different focus to what might come when it is fully implemented. The MDBA's work on community impacts recently is critical input to decisions still to be made on implementation.

Point f in the Commission's paper opens up an interesting question. NIC has certainly noted comment from some saying that climate change is not built into the Basin Plan calculations and questioning base line estimates used regarding water resources.

NIC's view is that while there are a number of Basin Plan estimates we could also argue, it would not be helpful to be doing that while attempting to implement the Plan.

In many previous submissions, NIC has made the strong point that the risks on climate variability need to be appropriately shared, not carried only by irrigators. NIC is not opposed to monitoring 'risks to the continued availability of Basin water resources' but would be concerned if that became a vehicle to revisit the whole basin plan.

While irrigators and farmers in general are very aware of climate variability and certainly welcome research into its impacts, the Basin Plan does not provide for new SDLs to be established within the life of the Plan. Irrigation allocations do vary according to climatic conditions in that allocations are based on availability of water, that variability also applies equally to water owned by environmental water holders. In that sense there is a very real measure of responsiveness to climate variability already built into water management in the Basin.

NIC would argue that when the Basin Plan is finally fully implemented it will need time to settle in, be monitored and some considerable time to see environmental benefits fully flow through. For irrigators and basin communities, 2024 needs to mark successful implementation of the Basin Plan and a period of certainty in water regulation not the start of a new process.

14. Institutional and governance arrangements

The Commission is seeking information on:

- a. *whether current institutional and governance arrangements provide for sufficient oversight of the plan and support engagement with the community*
- b. *whether there are risks to the achievement of the objectives of the Plan that arise from the current institutional and governance arrangements*
- c. *what improvements can be made to ensure that institutional and governance arrangements are fit for the next phase of implementing the Plan.*

We are still at an early stage of implementation of the Murray Darling Basin Plan and at this stage it would appear that the overall governance arrangements are working reasonably well. In the longer term government will need to consider whether policy and regulatory functions need to be further separated and whether that has implications for the future direction of the Murray Darling Basin Authority.

The long-term governance of the CEWH should also be considered. NIC has noted criticism of the current structure for lacking independent external governance.

NIC supports environmental water management having far greater input from communities and a far greater local focus. We also support, in principle, the recommendations made in the previous Productivity Commission report the National Water Initiative relating to better coordination of environmental water management.

The CEWH has a very big job in working through how to develop management and planning structures that achieve that local focus at the same time as meeting its basin wide obligations. It is noted that it will now also have a growing role in the water market with active trading, management of the biggest water portfolio in the country and potentially large sums of money raised from trading and available for disbursement to projects.

This does raise the question about whether the current structure will remain fit for purpose. NIC does not have a firm view on the question but feels that an independent board structure needs to be considered as part of the CEWHO's future.

ⁱ Vilizzi, L., Tarkan, A.S. and Copp, G.H., 2015. Experimental evidence from causal criteria analysis for the effects of common carp *Cyprinus carpio* on freshwater ecosystems: a global perspective. *Reviews in Fisheries Science & Aquaculture*, 23(3), pp.253-290.

ⁱⁱ Lugg, A. and Copeland, C., 2014. Review of cold water pollution in the Murray–Darling Basin and the impacts on fish communities. *Ecological Management & Restoration*, 15(1), pp.71-79.

ⁱⁱⁱ http://www.depi.vic.gov.au/_data/assets/pdf_file/0013/282001/Murray-River-resnagging-fact-sheet-2014.pdf