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Senate Rural and Regional Affairs Committee Inquiry on the Murray Darling Basin

Submission
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Introduction

The National Irrigators Council welcomes the opportunity to contribute to the Committee's inquiry. We do so however with some disappointment about the way that this has come about.

Obviously, we are disappointed to see allegations of misuse of water and we have been disappointed to hear the preliminary findings of the NSW Government's Matthews report which have confirmed that compliance in NSW has not been adequate and that some allegations remain unresolved.

It is essential that the community and water users can have confidence that water is going where it is intended. NIC has zero tolerance for water theft; it robs neighbours, communities and the environment. The law in New South Wales includes gaol and fines of up to \$2.2 million; if an offence is proven, then the sanctions should be applied.

However, we are also very disappointed to see the many ill-informed comments that have followed this public discussion. Comments that fail to understand the water market, have very little idea of the work irrigators have done over the past twenty years as part of a massive water reform process, which fail to appreciate the efficiency of and contribution irrigated agriculture in the basin makes and, most importantly, which undermine the basin plan.

Australia's political leaders need to be considered in their response to claims about irrigators and the Murray Darling Basin plan.

After many decades of argument, a bipartisan basin plan was agreed in 2012. It meant significant sacrifice for irrigators and major social and economic pain for basin communities but it held 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.

When the basin plan is fully implemented 75% of the water that goes into the catchment will NOT be diverted. The majority of water in every river in the system is – quite properly – left in the river for the environment. That includes the Barwon Darling.

Irrigators extract a small portion of the water in our basin rivers, they use it to produce more than 40% of Australia's agricultural product. That includes most of our fruit and vegetables; almost all our grapes, oranges, plums and pears; most of our wine; almost all the rice and almonds and all of our cotton. It is all produced by farmers who year in and year out take the risks to produce our food and fibre and who in doing so employ tens of thousands of Australians directly and indirectly.

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. To do that there must be an environment where frank dialogue can occur with Government officials.

NIC has played a significant role in assisting with the implementation of the Basin Plan; NIC has challenged elements of the Plan at appropriate times, we have advocated for improvements and argued our case, engaging our members and broader stakeholders on key issues.

There has been too much progress under the Basin Plan to change course. The MDBA estimates that the contracted water recovery in the Murray–Darling Basin, as at 30 June 2017, is 2,083.3 gigalitres (GL), which is 75.8% of the way toward meeting the 2,750 GL surface water recovery target outlined in the Basin Plan.

Under the SDL Adjustment measures, progress is also being made, with a significant package of measures put forward by the states towards the 650 GL target under the SDL Adjustment Mechanism. Preliminary advice provided to Ministers at the 16 June 2017 Murray-Darling Basin Ministers meeting noted that the SDL Adjustment Mechanism indicated the package is likely to achieve an SDL offset in excess of 600 GL, and that there was a ‘high level of confidence’ that the final SDL AM outcome, combined with remaining contracted water recovery projects, would be sufficient to fully offset the remaining water recovery ‘gap’ in the southern Basin.

It is critical that the inquiries emerging from recent media stories do not impede progress on the rollout of the Basin Plan to continue to meet statutory requirements. 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.

Why does Australia grow cotton?

- **Cotton is a desert plant – it’s suited to our climate and it is only planted when there is water available**
- **It’s a natural fibre we all use**
- **Australia is the world’s most water efficient cotton producer**
- **Over the last 10 years Australian cotton growers have reduced chemicals by 90%**
- **The industry creates jobs in more than 152 country communities**
- **The people who work on Australian cotton get fair work & fair pay**

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 2014-15, the total Gross Value of Irrigated Agricultural Production (GVIAP) for Australia was \$15.1 billion, which rose by 3 percent (or \$509 million) over the previous year. The total Gross Value of Agricultural Production (GVAP) was \$53.6 billion, an increase of 5 percent from the previous year.

The three commodities with the highest GVIAP were:

- fruit and nuts (excluding grapes) at \$2.88 billion
- dairy products at \$2.83 billion; and
- vegetables at \$2.68 billion.

Combined, these three commodity groups accounted for 56 percent of total GVIAP for the 2014-15 year. *{Australian Bureau of Statistics}* This represents a gross value of irrigated agricultural production across the Murray-Darling Basin of \$1,135 per megalitre.

In making our submission the NIC will respond to the committee's terms of reference. In doing so NIC is guided by a series of principles which highlight the commitment irrigators have to a triple bottom line outcome from the basin plan. NIC is, of course, very happy to provide further evidence at a hearing.

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.



Recommendation 1: That the committee:

- ***Acknowledge the importance of Murray Darling basin irrigated agriculture to providing the food and fibre Australians consume and in generating export income, jobs and higher living standards for all Australians.***

Response to terms of reference

(a) **Allegations of theft and corruption in the management of water resources in the Murray Darling Basin.**

The ABC 4 Corners program televised on 24 July 2017 raised a series of issues including:

- Allegations of water theft suggesting that billions of litres of water, purchased by taxpayers to return to the environment under the Murray-Darling Basin Plan, were being pumped out by some irrigators in northern New South Wales.
- Revelations of recordings of the NSW Deputy Director General of the NSW Department of Primary Industries, allegedly offering to share internal 'de-branded' government information with a group of irrigators.

Subsequently ABC Lateline aired a story suggesting that one farmer in the Border Rivers area of Queensland had used what was alleged to be an illegal structure to retain water from overland flows. The commentary around the story suggested this was 'preventing' water getting to NSW.

It must be noted at the outset that these media reports included unproven allegations against three farming operations. They made aspersions against one large operation (including using footage of their property while alleging water theft) but no substantive allegation.

The programs both went on to make broad but unsubstantiated claims about wider issues.

Opening statements by the 4 Corners presenter included:

- *'more than a hundred years of greed, mismanagement and the plundering of one of Australia's most valuable resources'*
- *'billions of dollars of taxpayers' money was committed in the hard won deal to save the inland river system from the ravages of heavy agricultural use - particularly the thirsty work of irrigating the vast cotton plantations of northern NSW and southern Queensland',*
- *'far from saving the river, the implementation of the plan has helped create a financial windfall for a select few.'*

Commentary in the subsequent Lateline Queensland report included suggesting that the whole \$13 billion of public expenditure was in doubt and that the Plan was a 'house of cards'.

NIC would urge the committee to reject the use of ridiculous and exaggerated statements, like those above, designed to give the speaker media coverage but which insult thousands of hard working farming families (past and present).

4 Corners also made claims about the water market and ownership of water which were incorrect or misleading.

It is very hard for anyone who has looked objectively at this to see how these exaggerated and substantially incorrect statements were justified. They certainly did a grave disservice to the people who have worked hard and cooperatively over the past two decades of water reform.

The reports and editorial comments made no effort to present a balance or even meet a basic standard of proof on the specific allegations.

The NIC has made it clear, we have zero tolerance for water theft. It robs neighbours, communities and the environment. The law in NSW includes gaol and fines of up to \$2.2 million; the sanctions

should be applied, if an offence is proven. But, the vast majority of irrigators in the Basin do the right thing. They get angry if people steal water and right now they are also angry at having their reputation, hard work and even their product tarnished by unfair generalisations.

When the Basin Plan is fully implemented 75% of the water that goes into the catchment will NOT be diverted. The majority of water in every river in the system is – quite properly – left in the river for the environment.

Irrigators extract a small portion of the water in our basin rivers, they use it to produce more than 40% of Australia's agricultural product. That includes most of our fruit and vegetables; almost all our grapes, oranges, plums and pears; most of our wine; almost all the rice, almonds and cotton. It is all produced by farmers who year in and year out take the risks to produce our food and fibre and who in doing so employ tens of thousands of Australians directly and indirectly.



For more than a decade, irrigators – like other groups in the community – have worked together to participate in the development and implementation of the Murray-Darling Basin Plan. The Plan boldly seeks to achieve the essential balance between environmental outcomes and the social and economic health of our Basin communities.

We must all be able to have confidence that water is going where it is intended and Irrigators support compliance activity and the best possible metering.

In further debate, we do expect 'experts' and political leaders to understand that it was the 2004 National Water Initiative that dictated the goal of being able to trade water along connected river systems – that was a national agreement among Labor and Coalition Governments.

Assertions made in the 4 Corners story that implied that trading was introduced in the Northern Rivers at the behest of local irrigators were wrong as were figures about the % of water owned by one company. Comment made in incredulous tones expressing amazement about water owners making money from trading were juvenile and ridiculous.

We expect people who claim knowledge of the plan to understand that licences in different river systems, that developed over a century, are complex and that moving them all to be consistent with the Basin Plan is a slow and difficult process.

And we expect our political leaders to ensure that they separate, both with actions and rhetoric, the legitimate goal of ensuring public confidence in compliance, from actions designed by their proponents to take more productive water and destroy the critical foundation of the plan - which as the Hon Tony Burke said in 2012 was to balance the needs of the *“largest environmental asset on the continent and our most important production asset”*.

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 implemented, as long as the 2012 promise is kept that there will be no further negative impacts on communities.

NIC does not intend to deal in this submission with allegations made around so called secret meeting. It is up to Government to set the rules for its own officials to engage with industry and it is within the power of the NSW ICAC to look into that issue.

NIC would, however, make the very strong point though that unless industry and interest groups can have frank and sometimes confidential dialogue with Government officials then there is very little hope of implementing the remainder of the basin plan.

Since the 4 Corners allegations were made the NSW Government has released the interim report of the Matthews inquiry. This does raise serious questions about the effectiveness of the NSW Government's compliance activity and NIC takes that very seriously.

Unfortunately, it did not resolve actual substantive allegations against water users and that is very disappointing for all involved – particularly those very publicly accused.

NIC is happy as an industry peak body to work constructively on ensuring compliance regimes do an effective job and our industry is very willing to continue to work with Government – as they have been for the last 20 years – on ensuring the best possible metering and on implementing the massive changes we have seen to water resource management.

We strongly object to exaggeration of claims and the attempts by some to undermine the implementation of the basin plan.

In this respect, we would agree with the comment made by the Chief Executive of the MDBA Dr Phillip Glyde who told ABC Radio National on 27 July 2017 that:

In this respect, we agree with the comment made by the Chief Executive of the MDBA Dr Phillip Glyde who told ABC Radio National on 27 July 2017 that:

- My message would be that we've got to stay the course – there is no plan B.
- We're on track and we're going to deliver.

The water debate is often misunderstood; the detail that sits underneath the operation of the Basin Plan is complex for those who do not have a role to play in the successful implementation of the Plan. This includes the dynamic relationship in the participation of each of the Murray Darling Basin states.

Since the National Irrigators' Council was established in 2008 our members, across all Murray Darling Basin states, have been at the forefront of working with the Murray Darling Basin Authority (MDBA), with state and Commonwealth bureaucracies, with relevant state and Commonwealth Ministers towards the successful implementation of the Basin Plan. There has been significant progress in this endeavour. The MDBA estimates that the contracted water recovery in the Murray–Darling Basin, as at 30 June 2017, is 2,083.3 gegalitres (GL), which is 75.8% of the way toward meeting the 2,750 GL surface water recovery target outlined in the Basin Plan.

Under the SDL Adjustment measures, progress is also being made, with a significant package of measures put forward by the states towards the 650 GL target under the SDL Adjustment

Mechanism. Preliminary advice provided to Ministers at the 16 June 2017 Murray-Darling Basin Ministers meeting noted that the SDL Adjustment Mechanism indicated the package is likely to achieve an SDL offset in excess of 600 GL, and that there was a 'high level of confidence' that the final SDL AM outcome, combined with remaining contracted water recovery projects, would be sufficient to fully offset the remaining water recovery 'gap' in the southern Basin.

It is critical that the activities under the various inquiries emerging from the 4 Corners program do not impede progress on the rollout of the Basin Plan to continue to meet statutory requirements. 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. The Northern Basin review clearly showed the downturn inflicted on many communities in the Northern Basin, including the flow on effects from the loss of jobs due to the implementation of the Plan in the north.

When the Basin Plan was first conceived as part of the Water Act 2007, and in good faith, Basin communities understood the principle that some water would be returned to the environment for the broader benefit, including to ensure sustainable extraction into the future. NIC has long supported a balanced Basin Plan with a triple bottom line outcome, reflected in healthy viable communities and a sustainable environment for the future. The implementation of the Plan must occur in the manner that was promised, and that is, an unwavering adherence to the commitments given to the irrigation industry and Basin communities by the Government and the MDBA.

The Water Market

One quite disappointing aspect of the recent debate following media stories has been the complete lack of understanding of the water market demonstrated both by those commenting on 4Corners and by some subsequent comment.

The water market was not created to suit a few big owners. The market is the result of National initiatives agreed by Governments of all persuasions at State and Federal level from 1994 onward. It is a core part of the National Water Initiative (NWI) principles from 2004. These principles put in place the goal of being able to trade along connected systems.

Greater ability to trade is actively advocated by bodies such as the ACCC, including in their most recent submissions to the Productivity Commission review of the NWI.

At its core, the water market is about efficient allocation of water. Water will go where it generates the most effective return and its pricing will ensure that it is used most efficiently. In that sense, it is fair to say that the water market has been one of the biggest drivers of Australia's world leading position as an efficient water user. It is also the basis of the Commonwealth's ability to acquire environmental water, if water was still attached to land that process would have been virtually impossible.

Water trading has very strict rules. Owners can't bank water, except to the extent carry over is allowed and a private investment in water is worthless if it is not ultimately used on a crop.

Creating a market for water has inevitably meant that it is traded and that means corporate owners are able to buy significant amounts. Smaller farmers have often chosen to sell entitlements or trade allocations if it suits their needs. That is exactly how a market is supposed to work and some of the commentary on this in and subsequent to 4Corners was ridiculous.

4Corners attempted to imply that there was a problem with entitlements being sold (voluntarily) to two large water owners on the Barwon Darling. They also said, incorrectly, that two companies owned 70% of Barwon Darling water, In fact less than 6% of Barwon Darling water is available for any type of extraction.

The program implied there was something wrong with the Websters company owning a large water portfolio and then selling it in a dry year. That misses several pertinent issues:

- The Websters water is not all in the Northern Basin, a large part is in the Southern Basin and you can't trade between the two.
- In a dry year the Northern basin licence produces nothing because there is no flow;
- In a dry year in the Southern Basin general security water allocations are very low, naturally annual crops like cotton and rice are not planted and the more secure types of water are often sold to those who need it for permanent plantings like nuts and grapes. That is an example of the water market working the way it is intended;
- There are strict restrictions on trade throughout the system these are based on physical constraints. You can't buy water from the Murray for example and then use it in the Barwon Darling.

The water market is by no means perfect and there is still some way to go for the market to mature and provide the visibility industry would like to see. But those issues are really about Government administration of the transfer processes they are not about the behaviour of the market.

NIC notes that a call for more visibility is one of the recommendations of the interim Matthews report. Greater visibility of trading and speed of information is a reasonable objective. Transparency in this space should be the same as on the stock market – recognising, though, that there is no single exchange.

Water licences are exactly the same as a property right. Banks lend against them and they have a value. Any change to the value of that property right impacts on the value of a family or company's assets.

The productivity Commission's draft report on National water reform has looked carefully at the water market and made a number of recommendations. Overall it has concluded that water trading has been one of the big success stories of water reform, it has produced measured economic benefit, allows better ability to cope in drought conditions and encourages efficient use of the resource. It is also the basis of environmental water holdings providing the mechanism for Governments to acquire and hold water and for it to be traded to produce additional environmental benefits.

(b) Investigation and public disclosure by authorities, including the New South Wales Government and the Murray- Darling Basin Authority, of reported breaches within the Murray-Darling Basin, including the Barwon Darling Water Sharing Plan.

And

(c) Actions of member states in responding to allegations of corruption and the potential undermining of the Murray-Darling Basin Plan

Recent media allegations have focused on some parts of the Northern Basin, in NSW around the Barwon Darling and in Queensland in the Border Rivers. This is a very small part of the overall basin and the issues and characteristics of the areas are quite specific.

Nevertheless, these areas of specific allegations have been broadened by many to suggest that compliance is an issue more broadly and to make (unproven) allegations of corruption.

NSW has taken quite significant action in initiating a review by Ken Matthews that has already produced an interim report and which has seen an intense and effective investigation. Issues in NSW have also been referred to ICAC.

It should be noted that ICAC has all the powers of a judicial review.

Queensland also announced an independent review of rural water metering to report in November.

In addition, in response to the 4Corners story we have seen:

(a) the actions of member states in responding to allegations of corruption and the potential undermining of the Murray-Darling Basin Plan.

- The Murray Darling Basin Authority is conducting an independent review and investigation.
- The Auditor-General is investigating compliance issues regarding water sharing in the Basin Plan
- Senate orders for the production of documents relating to the Four Corners allegations and the Barwon-Darling system; and
- This Senate Rural and Regional Affairs inquiry.

In addition to these steps, the matter was referred to this Senate Rural and Regional Affairs and Transport References Committee, for inquiry and report by 5 December 2017.

The Queensland Government has also instigated an independent review into rural water metering to examine maintenance and operation of meters and water use reporting. The review will work with the findings of any national inquiry and provide its initial findings by November 2017.

The responses from the Victorian and South Australian Governments would seem to indicate that they don't believe there are any issues with compliance in their jurisdictions. Though their compliance will be covered by the Murray Darling Basin Authority's review.

The MDBA announcement of an independent assessment of the *MDBA's Basin-wide Compliance Review*, will examine the legislative, policy and practical implementation of compliance in water management in the Basin. It is focusing on compliance at a whole-of-Basin level, and also considering on-the-ground compliance issues at specific locations in the Basin. The terms of reference for the review include:

- the appropriateness of and compliance with state laws and statutory instruments (including water resource plans), the terms and conditions of water licences and entitlements and any other relevant powers or approvals;
- the adequacy of water measurement and monitoring arrangements, including metering;
- the adequacy of penalty arrangements to suitably deter and punish non-compliant water use;
- the adequacy of governance and institutional arrangements necessary to ensure legally compliant water use; and
- steps required to improve confidence in water compliance and enforcement arrangements, sufficient to underpin the integrity of Basin Plan-compliant water resource.

It is proposed the MDBA review panel will provide a separate report to Basin ministers, including on the Authority's own role in compliance and enforcement practices, and ways in which these can be improved. The MDBA will deliver its report to the Council of Australian Governments (COAG) by mid-December 2017. The independent panel's report will also be provided to COAG.

At this stage the interim "Matthews" report is the most substantive piece of work on following up allegations.

The interim report released by Ken Matthews in mid-September included the following key findings:

- The overall standard of NSW compliance and enforcement work has been poor.
- Arrangement for metering, monitoring and measurements of water extraction in the Barwon-Darling river system are below the standards required.
- Certain individual cases of alleged non-compliance have remained unresolved for far too long.
- A lack of transparency in the system is undermining public confidence

Mr Matthews recommended the NSW Government implement a far-reaching reform package, including:

- Establishing a new NSW Natural Resources Access Regulator, which would operate at arm's length from the department and make decisions on the handling of alleged serious offences.
- Introducing a "no-metering, no pumping" rule, to ensure all irrigators install pumps and scrap self-reporting mechanisms like log books.
- Enabling the public to easily access all details of individual's water entitlements, licence conditions and water trading activities.

Broadly, NIC supports an effective and enforced compliance regime for all water users. Without this, the integrity of the water property right, reaffirmed under the 2004 National Water Initiative, is undermined. It is hoped that the proposed new NSW Natural Resources Access Regulator, operating at arm's length from the department and decision-making processes, will strengthen transparency and accountability. It is a concern though that there already exists numerous agencies in NSW with a role in water management, when NIC continues to call for a reduction in red tape and remembering that it is our members who are required to report at different times to these agencies, resulting in additional burden on their respective business operations.

Broadly, NIC supports an effective and enforced compliance regime for all water users. Without this, the integrity of the water property right, reaffirmed under the 2004 National Water Initiative, is undermined.

NIC agrees in principle with the Matthews recommendations and the irrigation community is willing to work through with Government the detail of how they can be implemented. In particular NIC agrees with separating compliance functions.

It is noted that the Matthews report predominantly finds issues with the resourcing and operation of the NSW Government's internal compliance activities. It implies that the failings of the NSW Government might allow non-compliance but it does not make any finding of broad non-compliance.

It is noted that the Matthews report suggests that better definition is needed of the Murray Darling Basin Authorities role in compliance including when it would use, what the report termed, its 'reserve power'.

NIC notes that some others have suggested that the Commonwealth should take over compliance activities. NIC wants to see effective compliance at State levels and we would encourage systems that in the long term involve state's exchanging information and staff to build better understanding and skills. We do not believe it is sensible to have the Commonwealth duplicating compliance staffing or replacing state based compliance.

Compliance is costly. Expenditure on one effective system in each state is justified, duplicating the systems is not.

Currently it is the water users including irrigators and the environmental water holder that pay for compliance via costs passed through to their fees. In 2016 IPART allowed the NSW Government to collect more than \$6 million from water users to fund compliance activities. It is a significant amount

and it comes on top of a range of fees recovered which irrigators would strongly suggest already see them subsidising Community Service Obligations or infrastructure in place which has a broader community or environmental benefit.

The point is that if the committee decides it is going to recommend increased resources for compliance and in particular compliance activity at a Commonwealth level that is duplicative then it should not expect irrigators to fund that with pass through costs.

Recommendation 2: That the committee –

- *Acknowledge the recommendations of the interim NSW 'Matthews' report and recognise that they show a willingness to deal with rectifying issues with compliance at a state level;*
- *Conclude that it is appropriate that primary responsibility for compliance rests with State Governments and that duplication of activity should be avoided;*
- *Recognise that any recommendation relating to additional resourcing of compliance activity should be financed by Government on behalf of all taxpayers not made an additional financial burden on irrigators and environmental water holders.*

(d) Use of Commonwealth-owned environmental water for irrigation purposes, and the impact on Basin communities and the environment

Media allegations about the use of Commonwealth owned environmental water by irrigators and some subsequent comment have confused real and acknowledged issues with unproven allegations.

It is important for the committee to carefully separate hearsay and unproven allegations from the real (and largely already known) issues that exist in some areas with the interaction of environmental water and irrigation entitlements.

Even if all specific allegations made in the media in recent weeks were proven to be correct then they still would NOT justify claims made by media and by some Members of Parliament that so-called theft of environmental water is jeopardising or undermining the basin plan.

That is not to say that there are not real issues in some areas between the legal extraction of water and environmental flows.

As a basic point, the committee needs to recognise that it will never be possible to completely prevent some cross over of environmental and commercial use of water. Delivering environmental water is not a precise science. Environmental flows may create secondary benefits for a landowner just as commercial watering on some private properties often creates environmental benefits (water going to wetlands on private land, or rice fields creating habitat for birds and frogs etc). Sometimes there will also be negative interactions – flooding for example or potential for increased bank erosion.

When it comes however to substantive allegations of use of environmental water by irrigators, those allegations need to be split up into actual allegations of illegal activity and impacts on environmental flow that arise from entirely legal pumping.

Interaction of legal extraction with environmental flows

This interaction occurs when the release of environmental water increases the flow in a river to a level which triggers an entitlement to extract water for irrigation. In these cases, the extraction of water by an irrigator is entirely legal and within their licence.

This applies to a limited range of licences on a limited number of rivers.

The problem has been well known for some years. Indeed, the Commonwealth purchased environmental water in the Northern Basin with the full knowledge that this was an issue.

The example used in recent media stories is of Class A water in the Barwon Darling. These licences have existed for a considerable time; they reflect the fact that the area has extremely variable and extremely unreliable rainfall. In essence, this type of licence specifies that a certain (capped) amount of water can be extracted when the river reaches a specified height at specific points. For example, a particular flow over the weir at Burke.

When the river reaches that level the licence holder is entitled to extract water.

The modern problem with this occurs when the specified river height is achieved because the environmental water holder has released water with the intention of achieving an environmental benefit down river. The irrigator with the class A license is perfectly legally entitled to pump from this flow.

This situation is a problem for achieving environmental objectives but it is very clearly not water theft.

It is also not a wide spread problem. The vast majority of irrigation licences, particularly those on regulated rivers, do not have this characteristic. Class A licences in the Northern Basin represent three one hundredths of one percent of the Murray Darling basin's flows.

The negative impacts of this interaction do need to be addressed and the CEWH and MDBA have raised the issue in the past. NIC is aware that at least one large irrigator has offered to negotiate this with the CEWH but at this stage the offer has not been activated.

A solution to this problem must involve irrigators, the NSW Government and the CEWH.

The Irrigation entitlement is a property right and it would be neither fair nor legal to remove it without adequate compensation. It is noted that the Northern Basin review proposed a way forward with resolving this issue and the passage of proposed amendments to the Plan would include the obligation for the NSW Government to address it.

Recommendation 3: *The committee acknowledge:*

- *that irrigators with certain classes of licences including, Class A Barwon Darling licences, are legally entitled to extract water when the river reaches specified levels or flows.*
- *that basin states have been well aware of the potential for these flow levels to be achieved via environmental water releases since the basin plan was agreed.*
- *That the negative impact on achieving the objectives for environmental flows in the areas these licences exist should be addressed in a cooperative way that recognises that a water licence is a significant financial asset for a farmer or company;*
- *Amendments to the basin plan proposed as a part of the Northern Basin review will assist in starting a process of resolving these issues.*

Did changes to pump sizes or specifications enable more water to be taken? Pump size has been a theme of a number of media allegations. The core point to note in this is that the size or capacity of the pump does not change the overall amount a licence holder is licenced to pump. NIC understands that removing specifications for the size of a pump was something that was consistent with the National Water Initiative (NWI) and the NSW Water Act 2000; it was not something specifically introduced for the Barwon Darling.

It might be theoretically true to say that restricting to smaller pumps reduces the amount of water taken because an irrigator would be physically unable to extract their entitlement in the time the river was at a high enough level. If this is the argument, then it is a poor way to regulate a natural resource.

In practice, the size restriction is unlikely to have made much difference to overall take – it is the overall amount that should be regulated not the equipment used to extract it.

Allegations of Illegal Extraction of Environmental Water

The National Irrigators Council has no tolerance for illegal extraction of water. We support effective compliance activity from state governments. Irrigators pay a high price for water, it is a major component of their business cost and in order to compete on a level playing field it is critical that every water user has the same cost basis.

If a water user is stealing water then they impact not only the health of the river and downstream communities but also other water users.

NIC would note that irrigators directly pay for compliance via the charges for water. In NSW those charges passed on to irrigators are determined by IPART. The charge already raise a large amount of money and we would be very reluctant to see that charge increased particularly when it appears from the Matthews report that the existing funds are not being effectively used.

It should be noted that the media stories on water theft recently made some broad allegations of what they implied was widespread water theft. This general allegation was not supported by evidence with allegations against three specific farming operations (from two ABC reports), none of which have been proven at this stage.

As in almost any area of regulation throughout Australian society (road rules etc) it is probably impossible to completely guarantee that everyone will do the right thing. That is why comprehensive compliance is so important. NIC is aware that NSW has in the past had quite good compliance backed up by very severe penalties, however the recent Matthews report would seem to indicate that the compliance standards are now not up to the task.

However, irrigators can confidently say that the vast majority of irrigators do comply. In most river systems, the commercial licenced irrigators use modern meters and have a very high level of accountability.

It is very important for the committee to understand that on most of the Murray Darling the way that licences work gives the irrigator an allocation of water which they then order with very accurate measurement and accountability.

The committee, for instance, should be familiar with the large irrigation schemes in the Southern basin where an irrigation infrastructure operator delivers water to customers. In schemes like Murrumbidgee, Murray, Coleambally and Goulburn Murray, every litre of water is measured with live information via telemetry returned to the IIO control centres. The same applies to the schemes further down the system in the Western Murray and South Australian Murray.

Generally private extraction from regulated rivers also has that same very high standard. In the Gwydir Valley for example Executive officer Zara Lowien, has pointed to the “complete scope of transformation” around compliance, saying “our valley has very sophisticated, irrigator-owned system.... We are extensively metered and irrigators see the value in reliable, accurate compliance measures.”

Example: World leading water efficiency and measurement

Irrigation districts including Goulburn Murray, Coleambally & Murrumbidgee have installed world leading irrigation infrastructure developed in Australia and built in Shepparton Victoria. The company Rubicon says on its web site “a well designed and managed gravity-fed surface irrigation system has the potential to deliver on-farm application efficiencies in excess of 85% and up to 95% on the right soils”.

The company is exporting its equipment to the US, Mexico, Chile and China



The picture above is from Rubicon’s hydraulics laboratory, where its metering systems are extensively tested and calibrated.

The norm right across the basin is of irrigators using modern highly accurate meters on their systems.

Australia is a world leader when it comes to irrigation efficiency and crop water use efficiency – and it is also a world leader when it comes to metering and regulation.

While the recent Matthews report has identified real issues with the management of compliance in NSW, those findings do not justify a broad conclusion that metering is inaccurate or non-existent for the overwhelming majority of licenced irrigators.

For those cases where water theft is alleged there are essentially two ways it is alleged to happen. First is via unmetered, inaccurate pumping and second through illegal structures that might result in retention of water for which a licence is not held.

As mentioned above, non-existent or inaccurate meters are the exception not the norm for commercial irrigators (ie for those whose business is irrigation as oppose to water users who just take stock and domestic water for example).

Nevertheless, NIC notes the findings of the recent NSW Matthews interim report which was extremely critical of the NSW Government’s compliance efforts. The Interim Matthews report made a number of recommendations on metering

Interim Matthews Report recommendations on metering:

- a) Make the requirement for metering universal: 'no metering, no pumping'.
- b) Remove all scope for self-reporting, such as log books in lieu of fully operational water meters.
- c) Enforce modern Australian metering standards and bring forward the date to which certain current non-compliant meters are 'grandfathered' in the Barwon–Darling and other systems.
- d) Reduce tolerance for argued differences in conditions between northern and southern areas of the Murray–Darling Basin. Standards and rules (e.g. metering) should be basin-wide unless the need for exceptional northern arrangements can be convincingly demonstrated to other states and the MDBA.
- e) Reinforce a mandatory requirement for meter readers to report defective, inoperable or apparently tampered-with meters in real time. Require random and more frequent meter reading schedules. Enforce random cross-checks of meter readings. Publish meter readings in real time.
- f) Publicly specify unambiguous responsibilities for metering costs: purchase, installation and maintenance are costs to irrigators; stream gauging, meter reading, etc. are costs to government, albeit largely cost recovered through IPART

There will be practical implementation issues with some of the Matthews recommendation but in general the philosophy of 'no metering, no pumping' as endorsed by the NSW Government, is sound. The committee should note though that as mentioned above, the vast majority of commercial irrigators already have modern meters.

Nevertheless, the industry is prepared to work with Government to ensure that there is universal use of the most technologically appropriate meter for each licenced water user. We want to achieve a system that gives the community confidence that water is going where it is meant to. In many cases those meters will be telemetric meters able to supply real time data. Obviously that ability is limited in areas with no mobile coverage.

The Matthews recommendation d above is one that will need discussion. The difference in conditions is very real, it is a different climate and on an unregulated river the licences are tailored for event based flows (ie you cant ring up and order water). There is no reason that the take can't be metered (as it is in most cases) but it is important that the compliance process recognises that there are often multiple licenses in operation.

The Matthews point C above does need to be clarified. Particularly what is meant by 'modern Australian metering standards', the National Water Initiative attempted to introduce an Australian standard for metering but even though the meters being produced and installed in Australia are world's best and extremely accurate. Very few are accredited under that Australian standard as it has proved impractical for manufacturers. More detail on this is included in other matters.

It should also be noted by the committee that it is generally not possible to meter water collected from overland flows. Nevertheless, these are regulated and licenced based on the structures on a property to retain water.

The second way water can be illegally taken is through unapproved structures on a property or a water course. That includes things like illegal block banks. A recent ABC Lateline story included this type of allegation in relation to one property in the Border Rivers region.

Water take from overland flows etc is regulated in all basin states however it is often a difficult and complex area. Particularly if a structure predates more recent regulation. They are also not always as easy to identify by regulatory authorities.

In the ABC Lateline Queensland example, the applicable legislation dictates that an assessment of all structures on the property needs to be made (by the property owner) to work out how much water they would divert or retain and this must be consistent with the licence. The regulator authority is able to audit that work. The question raised by this story – and to be fair an as yet untested and unproven allegation – is that the Queensland authorities had not undertaken any verification work.

Regulating these structures is a huge job because it is not just commercial irrigators it is all landholders running all types of farming operations who can have these types of structures. Many structures are also historic and the rules in place often allow pre-existing structures to stay.

Again, it is important to keep in perspective the issue of environmental water being used for irrigation. Whether it is legal or illegal it is a very small part of the overall amount of environmental water and it is possible to resolve with effective compliance activity or in the case of legal interaction, negotiation.

The Commonwealth Environmental Water Holder (CEWH) has very good records of where and how much water they own. They report extensively on its use and on the results. In general, those reports demonstrate that, right across the basin, environmental water is reaching its intended targets and is starting to produce positive results in what will be a long process of environmental improvement.

Regulated rivers make up most of the major irrigation use in the basin. 76% of the environmental water owned by the Commonwealth is in the Southern Basin. NIC has not heard any serious suggestion that this area is seeing substantive theft of environmental water, the same goes for the regulated rivers in the Northern basin.

As outlined above, this is not an issue that threatens the basin plan – the legal interaction needs to be dealt with constructively and not exaggerated in an attempt to undermine the plan or score political points. Illegal use should be tackled by effective state based compliance and the NIC is very happy to work with Basin Governments to ensure that happens.

(e) Operation, expenditure and oversight of the Water for the Environment Special Account.

NIC understands that the Water for the Environment Special Account was established for a specific purpose, and we have not seen any evidence to suggest that its funds have been directed incorrectly. NIC notes that the Department provides an annual report on the use of the funds and in 2015-16 that report indicated expenditure of approximately \$4m on work on constraints and the COFFIE scheme.

NIC is not aware of expenditure in the 2016-17 financial year.

This account is in place to fund measures associated with the proposal to achieve an additional 450GL in efficiency measure savings known as 'up-water'.

NIC does have significant concerns about the planned operation and expenditure in this area.

When the additional 450GL of up-water was announced as a part of the Plan by the then Prime Minister Gillard and then water minister the Hon Tony Burke, their statements were very clear in stating that this would only be delivered if it came with improved or at least no negative community impact.

NIC has argued that the socio-economic impact test must be improved for the efficiency projects as part of any spending on achieving 450 GL 'up-water'. Noting that the 450GL measure was an 'add on' to the Basin Plan, NIC's position remains, that there should be no acquisition of 450GL of 'up-water' until the existing 2750GL recovery target is met and until the 650GL under the SDL adjustment mechanism is achieved.

Recognising, however, that debate is likely to continue on the 450GL it is important to ensure that the 'game changing' implications of recent socio-economic impact work are taken into account.

The current criteria for socio-economic outcomes in the Basin Plan at Section 7.17(2): *Neutral or improved socio-economic outcomes*:

- (b) The efficiency contributions to the proposed adjustments achieve neutral or improved socio-economic outcomes compared with the outcomes under benchmark conditions of development as evidenced by:
 - (i) the participation of consumptive water users in projects that recover water through works to improve irrigation water use efficiency on their farms; or
 - (ia) the participation of consumptive water users in projects that recover water through works to improve water use efficiency off-farm; or
 - (ii) alternative arrangements proposed by a Basin State, assessed by that State as achieving water recovery with neutral or improved socio-economic outcomes.

NIC contends that the test outlined at point (b)(i) is completely inadequate being effectively a 'single person' test rather than a community impact test. In effect, an individual's willingness to accept the money is the only community impact test this involves. This test breaches the promise made when the measure was announced.

NIC welcomed the recognition of concerns about this test by Basin water ministers and their decision to engage Ernst and Young to investigate socio-economic impacts and alternatives for delivery of the 'up-water'. That report is due to be handed to Ministers in December.

Independent socio-economic impact work undertaken by the MDBA has confirmed over the past year that removal of water from productive agriculture can have significant negative impacts in surrounding communities. In some Northern Basin examples, the impact on small country communities is proven to be more than eighteen times greater than the impact on Adelaide from the closure of the Holden plant.

NIC would expect our political representatives to be cognisant of that potential impact in any recommendation.

At this stage, the special account is proposed to be mainly used for an on-farm efficiency program called the Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) program. This program is completely inadequate, it is untargeted and fails completely to assess impact on communities or irrigation scheme viability.

If this remains the core use of these funds then they will cause significant harm to irrigation communities.



Recommendation 4: *That the Committee recommend that:*

- *efficiency measures aimed at meeting the 450GL 'up-water' goal only proceed if they are able to meet the original commitment that they either improve, or have no negative impact on, communities as determined by a more thorough community impact test.*
- *The use of the Special Account funds for the COFFIE scheme be rejected and Basin Governments be asked to propose alternative arrangements as allowed by section 7.17(2)(b)(ii) of the basin plan which meet the promise of improved or at least no negative impact on communities.*

(f) Related matters.

Trading of Environmental Water

Most recently, the Commonwealth Environmental Water Holder (CEWH) released a discussion paper titled *Development of a Framework for Investing in Environmental Activities*. The changes to Section 106 of the Water Act 2007 following the review of the Act, will enable increased flexibility for the CEWH to sell water allocations if the proceeds are used for water acquisitions or environmental activities. Under the legislation, the CEWH can only invest in environmental activities that will improve environmental outcomes from the use of Commonwealth environmental water, and are undertaken for the purpose of protecting and restoring environmental assets in the Basin.

Under these changes, the option of selling water allocations and investing the proceeds in environmental activities will be considered along with other available water management options. These include carrying water allocations over into the next watering year, or purchasing water at another time or place.

NIC has been constant in our advocacy for increased flexibility in relation to the proceeds from the sale of water by the CEWH, including the carryover of water allocations. We have argued for a shift from numbers, to a greater focus on outcomes, particularly against the backdrop of the review of the Northern Basin which clearly demonstrates that the acquisition of more water for the environment will only deliver a questionable level of environmental benefit while resulting in higher levels of social and economic pain.

It should be noted that Basin Water Ministers have reaffirmed their support for complementary environmental projects in the Basin and will consider further advice at future Water Ministers meetings on how best to embed complementary measures in the implementation of the Basin Plan.

Improved ecological outcomes can be achieved through a range of non-flow, or complementary measures, similar to those used as part of the Caring for Our Country program, and improving riparian management. A package of measures, designed to deliver the Basin Plan's environmental objectives over time, and with short, medium and long-term outcomes must form the basis of any approach, to ensure that native species have the greatest opportunity to thrive.

Such 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.

These measures include:

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 shows the impact of carp impact on water quality, plankton levels, the frequency and duration of algal bloom, native fish, macrophytes and water birdsⁱ. 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.

NIC welcomes the Australian Government's announcement in 2016 of a \$15 million investment to undertake the necessary work with a plan to release a carp-specific herpes virus into waterways. The work will focus on:

- Planning for introduction of a carp biocontrol agent, including:
 - public consultation
 - virus preparation
 - monitoring and research
 - planning for release and clean up
- International case studies to inform clean-up methods, along with field-based research to determine carp biomass levels. Areas important to social amenity will also be mapped to inform prioritisation of clean-up efforts.
- Research will be undertaken over the next two years to improve the precision of carp biomass estimates in the Murray-Darling Basin, and to identify options for use of harvested carp biomass following the release of the virus.

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). We note that 30-40% of the freshwater fish species in the Murray-Darling are now listed as threatened, or are conservation dependent without appropriate measures in place 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 any carp biocontrol program and improvements to environmental flow delivery must be accompanied by parallel efforts to:

- re-establish populations of locally extinct native fish species through re-stocking following carp removal
- mitigation 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 recent study 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 an appropriate place in the Basin Plan.

c) improvement of fish migration through fishways

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 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, 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, the explosion of pig populations in the Gwydir is partly due to the delivery of environmental water to wetland areas during dry-sequences, where pigs are assisted 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 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.

A more integrated, holistic, plan focused on non-flow measures is the key to undoing the damage that continues to be done in 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

Recommendation 5: *That the Committee recommend the implementation of complementary, or non-flow measures, in keeping with the increased flexibility for the CEWH to sell water allocations if the proceeds are used for environmental activities, such as:*

- Carp control through the release of the Carp Herpes virus*
- Appropriate management of cold water pollution*
- Improvement of fish migration through fishways*
- Restoration of native fish habitat*
- Feral animal control in wetlands*
- Riparian land management*
- Weed eradication.*

National Metering Standard

The National Water Initiative required the development of a national metering standard. In 2009 a National Framework was agreed which was intended to be enforced from 2010. Unfortunately, aspects of the frame work (outlined in part below) have proven to be impractical for manufacturers to achieve. The framework itself included recognition in the notes of the practical difficulties in achieving 'pattern' approval via an approved laboratory.

Non-urban metering framework included in the 2009 National Framework for non-urban metering

Non-urban meters shall comply with the following key requirements of the Metrological Assurance Framework to ensure an acceptable level of confidence in meter performance. All non-urban meters shall be:

- Pattern approved by the National Measurement Institute (NMI) where available
- Laboratory verified by a Verifying Authority under the National Measurement Act 1960 (Cth), prior to installation
- Suited to the intended purpose, installation configuration and operating conditions
- Installed in compliance with the Pattern Approval certificate and the appropriate Australian Standards
- Validated by a certified validator after installation and before water is taken through the meter under an entitlement
- Maintained periodically in accordance with the Pattern Approval certificate and relevant Australian Standards or Technical Specifications (eg ATS 4747)
- Periodically validated by a certified validator on an ongoing basis
- Able to provide an acceptable level of confidence without in situ verification that performance of the meter is within the maximum permissible limits of error ($\pm 5\%$) in field conditions
- Re-verified (either in a laboratory or in situ when and where practical and preferred³) by a Verifying Authority or certified licensee under the National Measurement Act 1960 (Cth) following maintenance affecting the metrological performance of the meter
- Audited on a regular basis by water service providers, government agencies or independent auditors in accordance with implementation plans.

The framework document itself included as notes under the above framework:

“Where pattern approval is not available for meters or measuring devices (see section 4.6, Limitations of Pattern Approval), a contemporary meter or metering system approved by the relevant jurisdictional department or agency would be acceptable. Use of an approved meter must still provide an acceptable level of confidence that it will perform within the maximum permissible limits of error in field conditions ($\pm 5\%$)” and

“In situ re-verification may not be possible where very large meters or measuring systems are used in high capacity applications; or where physical access is a safety concern; or where adequate facilities are unavailable; or where costs are prohibitive. However, even where it is possible to undertake in situ re-verification, laboratory re-verification may be selected as the preferred option.” (Commonwealth of Australia, 2009, p. 4)

As the above notes would seem to predict it has been impractical for manufacturers to meet the standard, particularly for high volume equipment. NIC understands only two hydraulic laboratories are accredited in Australia and the volume of work they have means they have been unable to undertake the work in reasonable time frames or for reasonable cost.

Meanwhile manufacturers themselves have their own laboratories that are enabling them to produce meters that well and truly beat the standards required.

There have however been steps on meeting the requirements for a “certified validator”, though there is some work to do with roll out. Irrigation Australia Limited runs accredited training programs to provide licenced installers or validators as required in the NWI. The aim of the requirement was to ensure that all meters were installed by properly accredited installers. The Irrigation Australia accreditation has been taken up strongly in Queensland and forms a good base for ensuring that accredited installers are utilised across the system.

Keeping in mind, though, that some irrigation companies also have their own well trained and experienced installers and as they deliver water to customers at a per ML charge they have a strong interest in ensuring that every drop is measured.

It is suggested that if the Committee wants to pursue in detail the implementation of the NWI standards in this area that it should also speak to Irrigation Australia.

It is very clear that from the time the NWI principles were put in place to now there have been massive improvements in the standard of measurement. This is very clearly illustrated by the massive advances in technology in schemes in the Southern Murray Darling basin.

Australian irrigators and irrigation systems are using very high tech exceptionally accurate meters in most locations. MACE meters and the metering produced by Rubicon Water (who have their own world class hydraulics testing laboratory) are world’s best standard.

The point in bringing this to the committee’s attention is that in looking at any recommendation on meter standards it is important to know that the 2009 standard has proved to be poorly considered.

Menindee Lakes

The recent media stories seem to have resulted in quite a bit of comment about the Menindee Lakes and the Lower Darling. As the NIC understands it there are some points that don’t seem to be well understood about the basin plan and the Menindee lakes in particular:

- Once the basin plan is implemented including the adoption of the Northern Basin review an average year’s flow will result in more water getting to Menindee lakes than is the case under the baseline scenario;
- The sustainable diversion limit for the Northern Basin does not change if the Menindee lakes are reconfigured to save water from evaporation;

- Reconfiguring the Menindee Lakes does not mean more water can be taken for consumptive use up river;
- Reconfiguring the Menindee Lakes if it occurred would provide a saving in evaporation which would result in more water flowing down the lower Darling to the Murray and to South Australia. Assisting with meeting the Basin Plan targets;
- If the NSW Government goes ahead with building a pipeline from the Murray to Broken Hill it may help to facilitate reconfiguration of Menindee Lakes but it will not result in any additional water being made available to irrigators up river from the Lakes.

About the National Irrigators Council

The National Irrigators' Council (NIC) is the national peak body representing irrigators in Australia. The Council supports thirty-one (31) member organisations across the Murray Darling Basin states, irrigation regions and the major agricultural commodity groups. Council members collectively hold approximately 5,000,000 mega litres of water entitlements.

The national body is the policy and political voice of those who use water for commercial agricultural purposes, producing food and fibre for local consumption as well as making a significant contribution to Australia's export income.

The national body is funded by irrigators, for the benefit of irrigated agriculture which provides jobs in rural and regional communities. Members are not individual irrigators but members of their respective representative organisations. An irrigator is defined as *'a person or body with irrigation entitlement for commercial agricultural production'*.

Member organisations are located in irrigation regions across Australia within the Murray-Darling Basin and beyond. They represent a diversity of organisations from irrigation infrastructure operators, individual irrigators, processors through to agricultural commodity groups who produce and value add food and fibre for domestic consumption and significant export income.

The NIC advocates on behalf of irrigated agriculture and aims to develop projects and policies to ensure the efficiency, viability and sustainability of Australian irrigated agriculture and the security and reliability of water entitlements. The NIC advocates to governments, statutory authorities and other relevant organisations for their adoption.

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