Background

Southern Riverina Irrigators (SRI) is a peak irrigation advocacy group representing five landholder associations in the Southern Riverina of NSW. SRI landholders access water through Murray Irrigation Limited (MIL), which has a footprint of 748,000 hectares across 1200 hardworking farming families.

Since the building of Hume Dam in the 1930's and the subsequent arrival of irrigation, our region has continued to prosper, with the additional storage of Dartmouth Dam in the 70's this region has become a primary production powerhouse chiefly providing staple foods domestically and abroad. These industries include rice, wheat, corn, dairy, barley, canola, oats, peas, beans, beef, lamb and various horticultural enterprises making the Murray Valley a significant contributor Australia's fourth largest industry, agriculture. Agriculture is one of only two primary production industries upon which endless other industries in Australia can and do value add from.

SRI irrigators must operate their business with confidence and water reliability to remain viable. Confidence in basin governments and implementation of water policy is paramount if we are to have a sustainable, productive, and economically strong future not only for irrigators and the local community but for the nation.

SRI Submission into the Productivity Commissions Issues Paper on National Water Reform: Progress towards achieving the objectives and outcomes of the National Water Initiative.

Opening Statement

Southern Riverina Irrigators welcome the chance to provide stakeholder insight on the progress of the interjurisdictional National Water Initiative 2004 (NWI). Pre-empting the separation of land and water titles in 2007 and on the back of increased intervalley and interstate water trading, the NWI set out a series of guidelines agreed to by irrigation communities and state and federal governments across the basin. The intergovernmental agreement detailed the key objectives, actions and their timelines, which formed the basis of the key objectives within the Federal Water Act 2007 and Murray-Darling Basin Plan 2012, including optimisation of the triple bottom line, clearly identified in the Preamble of the NWI 2004 in points 2 and 5;

"In Australia, water is vested in governments that allow other parties to access and use water for a variety of purposes – whether irrigation, industrial use, mining, servicing rural and urban communities, or for amenity values. Decisions about water management involve balancing sets of economic, environmental and other interests. The framework within which water is allocated attaches both rights and responsibilities to water users – a right to a share of the water made available for extraction at any particular time, and a responsibility to use this water in accordance with usage conditions set by government. Likewise, governments have a responsibility

to ensure that water is allocated and used to achieve socially and economically beneficial outcomes in a manner that is environmentally sustainable.

The Parties agree to implement this National Water Initiative (NWI) in recognition of the continuing national imperative to increase the productivity and efficiency of Australia's water use, the need to service rural and urban communities, and to ensure the health of river and groundwater systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction. The objective of the Parties in implementing this Agreement is to provide greater certainty for investment and the environment, and underpin the capacity of Australia's water management regimes to deal with change responsively and fairly"

Water management in the Murray-Darling Basin is in absolute disarray as a result of consecutive governments not fully implementing the now largely mandated NWI 2004. Community engagement at local, state, and federal level has extremely poor as has the refusal to tap into the decades of knowledge and experience garnered by irrigators surrounding water management.

Considering drivers of reform, SRI will focus on various aspects of the NWI 2004 that have consistent themes with Water Act 2007 and that directly impact the reliability of the NSW Murray General Security license holder.

The reason many of these protective frameworks were tabled and adopted in the formulation of the NWI 2004, without the groundswell of community scrutiny that is observed presently today across newspapers and online media, is because there was extensive and genuine community consultation with the intention to inform change and help implement it. Objectives from the NWI 2004 that permeated through to the Water Act 2007 largely remain unachieved and or unimplemented, even though they have endured through some 25 renditions of the Water Act 2007, which is relevant because if they differed, which they do not, it would take precedence.

Basin water policy is influenced by the Murray-Darling Basin Agreement, internal state water management decisions, the Water Act 2007 and the MDBP - all with the underlying objective to balance social, economic and environmental factors for water management in the national interest of Australia.

While the objectives of various pieces of legislation acknowledge these values, the body of the collective acts and implementation of their policy, do not. Implementation of the Murray Darling Basin Plan (MDBP) and the consequent 110 plus reviews to date with an average of around 15 recommendations each, highlight monumental failings individually and unless their recommendations are politically palatable, they are sidelined. As each year passes more reports surface and do not change the direction of the triple bottom line failure, that is resource management in the Murray-Darling Basin. This is also evidenced by continued calls to can the plan with massive community support, host a royal commission into the MDBP and the Murray-Darling Basin Authority (MDBA).

Further to the above, 2019 saw the perfect example of how politically charged water management is within the basin and that is nearly devoid of any impartial socioeconomic or scientific analysis to inform its direction. The NSW Labor arm called for a Royal Commission into the MDBP and MDBA with unanimous support from the cross bench with the mirrored event occurring earlier in 2019 with the only difference being that the opposite sides of government were in power in the neighbouring states, with VICs LNP arm supporting a Royal Commission with the unanimous cross bench and the government voting against it.

For an 'independent' authority, documented decisions would indicate MDBA decisions have never been truly independent, nor consistent with a 'whole of basin' approach, as per the objectives of the Water Act 2007. Instead the Water Act 2007 and Basin Plan has ensured 74.56 per cent of water recovered for the environment has occurred in the southern basin, primarily in the Murray system (NSW/Vic), the Goulburn River (Vic) and the Lower Darling.

Social and economic impacts are not just confined to a reduction in irrigation entitlements, impacts extend to third party influences including industry, community, the environment, pricing and supply of water markets, stranded assets and concern around future operation and viability of Murray River system.

The Murray-Darling Basin Agreement and the Murray Darling Basin Plan have led to major inequities in Southern Basin water management. NSW Murray Valley General Security (GS) has incurred increased negative impacts because of basin agreement requirements to South Australia and changes to inflows from the Northern Basin.

Timeline for implementation of key actions

Schedule A of the NWI sets out the timelines and itemises actions for governments to implement their agreed directions. Setting them out clearly below, SRI will provide their position on the relevant sections: (full NWI 2004 Schedule A found in appendix A)

i) Water Access Entitlements and Planning Framework
ii) Water Markets and Trading
iii) Best Practice Water Pricing
iv) Integrated Management of Water for Environmental and Other Public Benefit Outcomes
v) Water Resource Accounting
vi) Urban Water Reform
vii) Knowledge and Capacity Building
viii) Community Partnerships and Adjustment

Water Access Entitlements and Planning Framework

Substantial completion of plans to address any existing overallocation for all river systems and groundwater resources in accordance with commitments under the 1994 COAG water reform framework.

The Cap - The Response of the Ministerial Council stated:
"In response to the issues raised by the Audit, the Murray-Darling Basin Ministerial Council at its June 1995 meeting decided to introduce an interim Cap on diversions of water from the Basin. In December 1996, this was confirmed as a permanent Cap effective from 1 July 1997. This was seen as an essential first step in establishing management systems to achieve healthy rivers and sustainable consumptive uses. In other words, the Council determined that a balance needed to be struck between the significant economic and social benefits that have been obtained from the development of the Basin's water resources on the one hand, and the environmental uses of water in the rivers on the other.
The Ministerial Council agreed that the Cap be defined as: "The volume of water that would have been diverted under 1993/94 levels of development". For reasons of equity, the Cap may be adjusted for certain additional developments that occurred after 1993/94. In terms of each State, it has been agreed that:
• for New South Wales and Victoria, the Cap is the volume of water that would have been diverted under 1993/94 levels of development, subject to two small allowances that will be made for Pindari Dam (NSW) and Mokoan Storage (Victoria)
• for South Australia, diversions should be capped at the level that enables the development of its existing high security entitlements. This represents a small increase in diversion over 1993/94 levels of development and is equal to the long-term average of 90% of the amount on very high security licences that existed in 1993/94" (MDBC n.d.)

"The cap was introduced to correct the trend of increases in diversions across the basin for irrigation use, according to the Murray-Darling Basin Commission:

• River systems showing signs of stress

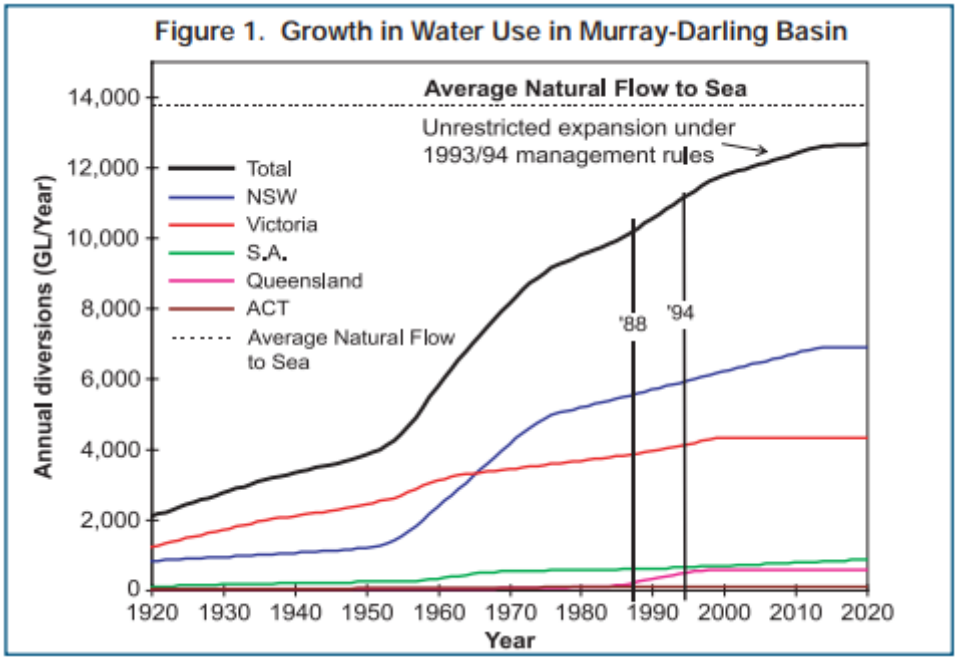
• *No certainty that the current riverine environment is sustainable with the current regime*

• *Increased growth in diversions would reduce security to existing irrigators*

• *No margin of safety for any further changes that will have an adverse impact on water quality (e.g. the emerging problems of dryland salinity)"* (MDBC n.d.)

NSW Murray Cap aspects

It is SRI's position that this cap was never necessary in the NSW Murray to begin with - which will be explained further below, our allocation system and resource determination was the cap equivalent mechanism but this was lost when federal agencies took over. The caps introduction was the catalyst for federal water reform and the buybacks which commenced in 2007 following the introduction of the Water Act. As knowledge has come online about compliance and accounting systems in the Northern Basin, vs those implemented in the Southern Basin, the reform should have taken a more targeted approach, to address the valleys that crossed their individual valleys level of take. The Water Act 2007 made the usage of the best available scientific and socioeconomic analysis mandatory to evolve as new information came online. However, when intertwined with federal and state politics, it resulted in a reform based on inaccurate assumptions, and outdated scientific and socioeconomic analysis, coupled with zero integrity around how much growth in take had occurred in the northern basin since 93/94.



(MDBC n.d.)

This claim is substantiated by NSW alone, as per the above graph. The two largest valleys of NSW are in the Murrumbidgee and Murray in the Southern Basin. Looking at the average extractions over a 5-year period that were used to garner the cap on diversions per valley at 93/94. In that period Southern NSW went through substantial reform, including:

1994: Cap benchmark for NSW and Vic - 30 June 1994 levels of development. NSW Murray has never breached this "sustainable" line in the sand. Critically long-term cap is calculated over a different period to Basin Diversion Limits (BDL) and Sustainable Diversion Limits (SDL). BDL and SDL are inclusive of the millennium drought year, so BDL tends to be lower than the cap.

1994: Announced allocations set to a maximum of 100 per cent, down from 130 per cent.

1997: Cap compliance commences

1997: Changes to reduce over allocation (questionable) and halve off-allocation volumetric limits. Supplementary entitlements introduced

1998: Rules allowing overdraw ceased. Carryover rules commenced and were adjusted over time. Works programs started to quantify and control unregulated usage while farm dam policy restricted growth.

2004: NSW Murray-Darling WSP agreed. Carryover rules settled at 50% of entitlements. Use limit increased to 110%

2006: Trade expanded across the southern connected Basin. (to date no government has introduced all the agreed terms in of the NWI).

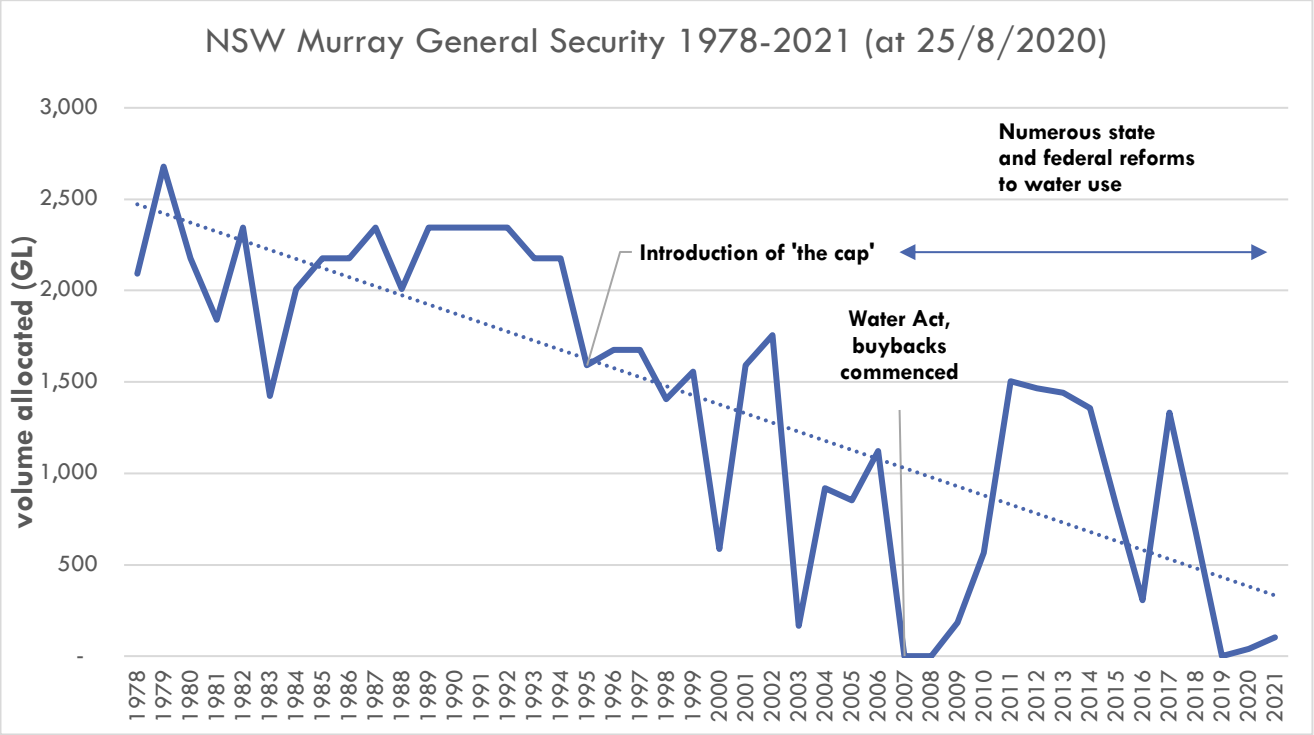
2006-2010: Millennium drought NSW Murray-Darling WSP suspended in 2006 (recommenced July 2011).

2007: Inflows used in bulk assessment process revised (reduced) to use new minimum historical inflow data (carryover limits reduced at an interim level to deter hoarding).

2009: Basin Plan BDL defined – generally as State water management law as at 30 June 2009.

2011: A further 225GL is set aside or the equivalent of 181per cent of the full critical human needs for both Victoria and NSW (Southern Connected Murray including Hume and Dartmouth).

2019: 1 July 2019 SDL compliance commences.



The above reform measures up to 2007 halved take in the Murrumbidgee and NSW Murray, similar reform occurred in VIC where sales water was eliminated and they decided to take 50% of their water, 100% of the time, so how did NSW/VIC or the Southern Basin, given South Australia's static take (*ignoring of course how often they defer their entitlement and use e-water instead, shown in the audit commissioned by David Papps within the Department of Environment and Energy, 2017*) ever increase its extraction in this period that demanded federal reform to reduce take? Was the MDBA data, various government sanctioned reports and the other departments that far wrong? Or did the government facilitate to take the majority as required under the shaky science of the plan, because of the political landscape rather than what the system required? Zero cease to flow events in the Murray Valley since the introduction of Hume in 1936, never a critical human need category left unmet, so why did our end of the basin endure this reform and destroy our communities for the sake of our ecosystem, which apart from South Australia's negligence in their duty to protect the Coorong, Lower Lakes and Murray
This is shown in the graph below where the cap informative years being the 5 years prior to 93/94 where the NSW Murray extracted an average volume already below their determined 'cap'.

(NSW DPIE, 2020)
The above graph demonstrates the impact that legislative changes have had on the NSW Murray allocable volumes. When compared with the volumes of water available for the Murray Valley that communities and multigenerational families created businesses, schools, hospitals, industries as all primary production value ads comparing the 1980-2000 period with 2000-2020 period have had 59.3% of their productive capacity stripped, never to be returned. The Water Act 2007 and Basin Plan, the way they have been implemented by basin governments contravenes their own objectives. The MDBA translated these figures, whilst basin governments and the MDBA themselves promptly never changed direction using this new socioeconomic analysis. Their data showed that from 2001-2016 the region surrounding Wakool had suffered a reduction of 71.8% in their irrigated agriculture

sector, translating to families leaving the area in search of employment, with a reduction of 45.6% in the population of the area. How does this fit in with managing basin resources using the best socioeconomic and scientific analysis, when there are infrastructure solutions that do not require freshwater as the current regime does, presented in the recommendations. Is it in the national interest to shut down agricultural communities along the basin?

Northern NSW Cap aspects

In Northern NSW the government is only looking to license and cap northern basin extraction in June 2021, 10 years after the absolute latest date as per the NWI "*implementation of measures to address water interception by land use change activities on a priority basis in accordance with water plans***"** and not to mention the 14 years behind on *"implement metering and measuring actions."* Advice received from the DPIE in 2001 stated that *"floodplain diversions associated with works in place in the Murray Darling Basin prior to the end of the 1994 irrigation season will be considered within the NSW cap…in addition no further floodplain harvesting works will be permitted to prevent growth in water diversions" (*DPIE 2001*)* which has not been the case at all, growth and infrastructure developments have continued despite the advice from the DPIE in 2001, with aspects of how the NSW would need to stay under the cap.

This process is critical to fulfill obligations agreed to by NSW and Victoria to supply 1850GL to South Australia through Murray-Darling Basin Agreement commitments.

Consequent reduction of flows into the Darling River have had significant ramifications for downstream communities in NSW and Victoria as confirmed in a report commissioned by Tim Cummins & Associates and Alistair Watson

"there has been extensive irrigation development on the Upper Darling in the last twenty years following widespread application of techniques to capture overland flows in on-farm storages. This has enabled the growth of a profitable irrigated cotton industry. Expected flows from the Darling are thus now and will be in the future less than long-term averages, irrespective of other issues like climate change" (Cummins & Associates and Watson 2007)

The above is supported by page 123 & 124 of the Murray-Darling Basin Commissions 2000 "Report of the River Murray Scientific panel on environmental flows report *"The Menindee Lakes supply part (approximately 39%) of annual entitlement flows to South Australia".* & *"Development in the Darling River catchment, combined with the water harvesting function of the lakes and their high levels of evaporation, has reduced flow volumes by almost 50%."* (MDBC, 2000)

And again in the Murray-Darling Basin Authorities Assessment of environmental water requirements for the proposed Basin Plan: Lower Darling River System 2012, on page PG 8 - *"The Menindee Lakes scheme delivers water to South Australia to meet part of its annual entitlement (39% on average). As well as the allocation to South Australia, flows are released into the Lower Darling, to a maximum rate of 9,000 ML/d, to meet monthly target storage levels for Lake Victoria"* (MDBA 2012)

The above commentary by the experts employed by government and the overarching government agencies themselves have highlighted the failures of water reform in the Northern Basin. The argument posed by multiple individuals, agencies and departments of an ephemeral river system, ie the Darling River, is null and void when they continue to neglect their own measures they deemed absolutely necessary and in some cases with very tight time constraints, to ensure water was being used and managed in the most efficient manner possible. The only way to ensure efficient water use is to accurately measure and gauge usage, which governments knowingly continue to disregard.

The Water Act explicitly states mandatory aspects of water management to be included into the Basin Plan and the Water Resource Plans that inform them. No take is permitted within a resource plan area without accurate metering, licensing, and compliance, yet this continues in the Northern Basin to the detriment of the triple bottom line all the way down the system.

"22 Content of Basin Plan

Mandatory content of Basin Plan: 3 (i) metering the water taken from the water resources of the water resource plan area and monitoring the water resources of the water resource plan area" (Water Act, 2007)

Despite the hundreds of millions of dollars of public money, accepted by state and federal government to deliver this standard required by the basin, this volume of take remains unmetered, unlicensed, and unchecked. This shows the blatant disparity between a true "Sustainable Diversion Limit" definition and requirements in the Southern Basin Vs the Northern Basin. Meters in the Southern Basin are accurate to within 5% yet multiple forms of take in the Northern Basin are not metered at all. Is this in the National interest?

Water Markets and Trading

The ACCC is currently mid-way through a review of water markets and trading.

SRI has highlighted at multiple points over several years to departments, agencies, ministers, MDBA and the public that many of the problems identified in the NWI 2004 and scheduled at various points in time to be implemented would have fixed the wide ranging issues that we are faced with today. Especially given that in Schedule 3 of the Water Act 2007, namely "*Basin water market and trading objectives and principles*" (the schedule is found in Appendix 3 of this report and online with relevant definitions) legislates, at a federal level a multitude of the principles found in the NWI 2004, cited 37 times in the water act for exchange rates and trading zones to be an integral part of water markets, as they would protect "*third party interests*". These include the reliability of those wearing the conveyance of the river as per the Murray-Darling Basin Agreement and the ecological limits of the river systems, through not reducing water quality with water delivery via increases in suspended sediment, a key water quality objective of the Water Act/Basin Plan.

"Clause 31 & action 59. Water access entitlements will…vii) be recorded in publicly-accessible reliable water registers that foster public confidence and state unambiguously who owns the entitlement, and the nature of any encumbrances on it".

The water registries currently in place are grossly inadequate and do not come remotely close to satisfying the level of public knowledge of entitlement ownership mandated nor demanded publicly. Even though, also found in schedule 3 of the water act, is states *"4 Basin water market and trading principles (3) All trades should be recorded on a water register. Registers will be compatible, publicly accessible and reliable, recording information on a whole of catchment basis, consistent with the National Water Initiative."*

"Clause 58 iv) recognise and protect the needs of the environment; and v) provide appropriate protection of third-party interests." Channel capacity, as a result of the frequency and magnitude of downstream use, has reduced by 21.4% since 2008 (MDBC 2008), compared with December 2019 (MDBA 2019), this is contrary to a key component of assessing ecological impacts in the Basin Plan in

"Schedule 10 – key causes of water quality degradation 2bii) elevated levels of suspended matter…the volume or manner of release of water, resulting in back or bed erosion" (Basin Plan 2012)

"Clause 60 The States and Territories agree to establish by 2007 compatible institutional and regulatory arrangements that facilitate intra and interstate trade, and manage differences in entitlement reliability, supply losses, supply source constraints, trading between systems, and cap requirements, including & 60 ii) where appropriate, the use of water access entitlement exchange rates and/or water access entitlement tagging and a system of trading zones to simplify administration"

During an overbank transfer event the Commonwealth Environmental Water Holder pays 20 per cent losses on top of delivery, pre 2018 this was 30 per cent. The developing downstream productive sector (permanent plantings) has never paid an exchange rate on water. This severely disjointed approach by Local, State and Federal governments has reduced the reliability of general security entitlement holders and caused ecological damage, failing the NWI, Basin Plan and the Water Act.

SRI is in the process of covering this aspect with their ACCC submission and note it was encouraging to see these key failures highlighted by the ACCC interim report:

"*there is a disconnect between the rules of the trading system and the physical characteristics of the river system. For example, on-river delivery capacity scarcity, conveyance losses and adverse environmental impacts are not considered in the processing of trades that change the location of water use, except through some blunt and imprecise rules, such as limits on inter-valley* trade/transfers"

"there are scant rules to guard against the emergence of conduct aimed at manipulating market prices, and no particular body to monitor the trading activities of market participants

"there are information failures which limit the openness of markets and favour better-resourced and professional traders who can take advantage of opportunities such as inter-valley trade/transfer openings"

"water market intermediaries such as brokers and water-exchange platforms operate in a mostly unregulated environment, allowing conflicts of interest to arise, and opportunities for transactions to be reported improperly"

"Important information, such as allocation policies and river operations policy, which can significantly impact water pricing, are inadequately communicated to the irrigators and traders who rely on these to make business decisions"

"Exploration of potential market architecture reform including accountancy of conveyance losses and transmission loss applied to trades and delivery of water, along with investigation into the under-developed state of trading rules for unregulated systems in northern New South Wales including floodplain-harvesting"

"As trade volumes have increased and locations of trade have changed, problems with the current arrangements have begun to emerge."

Deliverability

The Murray River is approximately 2500 km from its headwaters in the Upper Murray to its outlet in the Southern Ocean.

• At Albury, the stream gradient of the Murray is 125mm/1km(5inches/km) down to Wentworth, which is a mere 33 metres above sea level.

• The Murray at the confluence with the Goulburn is still 1992 kms from the Murray mouth and a mere 124.9 metres above sea level.

• Natural physical constraints and geography mean river systems have exceptionally low amounts of fall along their courses.

• The Murray, Edward/Wakool system and Murrumbidgee Rivers have significant bends and water travel time is accentuated because of significant natural river bends in the rivers.

• Mildura is 878 kms from the Murray mouth but only 34.5 metres above sea level.

• The last 100km to the Murray mouth in SA falls at 12mm/km (half an inch/km).

• Transfers of water to South Australia incur major transmission/conveyance losses.

Flows to South Australia from the Murray River are affected by natural river system capacities and constraints including natural riverbanks, natural restrictions (e.g. chokes), inflows from Northern Basin, inflows from Victorian and NSW tributaries.

The MDBA define system constraints as structural constraints; physical barriers either natural or built; or non-structural constraints: operational rules either chosen by operators or formalised by agreements or legislation

Exceeding system constraints is recognised for increasing flooding risk and adverse environmental impacts such as bank slumping. It also creates agricultural pollution runoff and hypoxic blackwater events in warmer seasonal conditions.

Victorian Government: Fact Sheet Water supply and Demand; An assessment of water availability and horticulture water demand in the southern Murray-Darling Basin (2019)- Report summary:

• Horticultural demand is concentrated in the Lower Murray Region and physical system constraints limit the availability of water that can be traded or delivered to the region.

• Estimates for current horticultural water demand (i.e. from tree plantings like grapes, fruit and nuts including almonds) is 1,230 GL per year and will grow to 1,400 GL once all current plantings reach full maturity. (55% higher than recent estimates by the Australian Bureau of Statistics):

• If horticulture manages to meet this demand by purchasing water on the market, there would be little water left to supply other irrigated industries and there could be increased water market prices. During periods of extreme dry water availability horticultural water will demand all the surface water allocated for productive use in that particular year.

Water Resource Accounting

Metering:

"Clause 87 of the NWI the Commonwealth and Stated agreed that generally metering should be undertaken on a consistent basis in the following circumstances:

i. for categories of entitlements identified in a water planning process as requiring metering;

ii. where water access entitlements are traded;

iii. in an area where there are disputes over the sharing of available water;

iv. where new entitlements are issued; or

v. where there is a community demand"

The above clause was to be implemented by the end of 2007, fast forward to today, and there is still no accurate metering of flood plain harvesting take in the Northern Basin. QLD as per an MDBA 2017 compliance review has a compliance rating of 29 per cent for overland take, the Southern Basin employs meter reading to within 5 per cent accuracy as per AS4747 standards. Which is shown below in how NSW is 66% metered, representing the Southern Basin of NSW i.e. the Lachlan, Murrumbidgee and Murray Valleys and unmetered take in the Northern Rivers and Barwon Darling WRPs areas or 34% unmetered.

There has been no metering of water in the north on any consistent basis – something Bret Walker in the South Australia royal commission was critical of: *"Again, the delay in metering has been the subject of criticism in other investigations and seriously undermines the credibility of the New South Wales Government's determination to deal with this problem*." (SA Government, 2019 page 64)

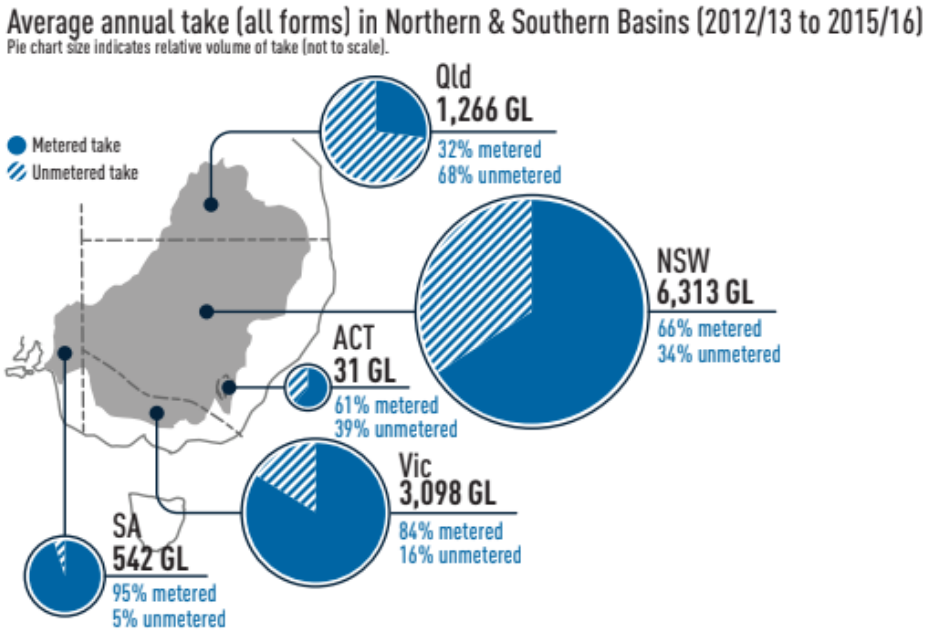


Figure 1: Average annual take (all forms) in Northern and Southern Basins (2012/13 to 2015/16)

Independent pricing regulator

In the WaterNSW pricing proposal to the Independent Pricing and Regulatory Tribunal (IPART) for a review on the 2017 2021 charges and to outlay the proceeding 2021-2025 period. Information is provided on the costing breakdowns to operate, incorporating a contribution from user's vs top ups from the government and a "pass-through" charge from the MDBA. The MDBA supports Basin Governments (as their agent) to implement and ensure plan compliance. Conflict around fixed pricing, usage based pricing, pass through charges from the MDBA to WaterNSW and onto water users and license holders, with other aspects such as Basin Plan implementation and compliance will only intensify over the years which is why the MDBA must be a split in two – as highlighted in the productivity commissions 5 year review of the implementation of the Basin Plan forming the "Murray-Darling Basin Agency and the Basin Plan Regulator." (PC 2018)

In the latest submission NSW Murray Valley General Security Entitlement Holders are expected to see charges increase by 6 per cent on behalf of Water NSW and 50 per cent by the MDBA while annual allocation reliability has reduced by 36 per cent.

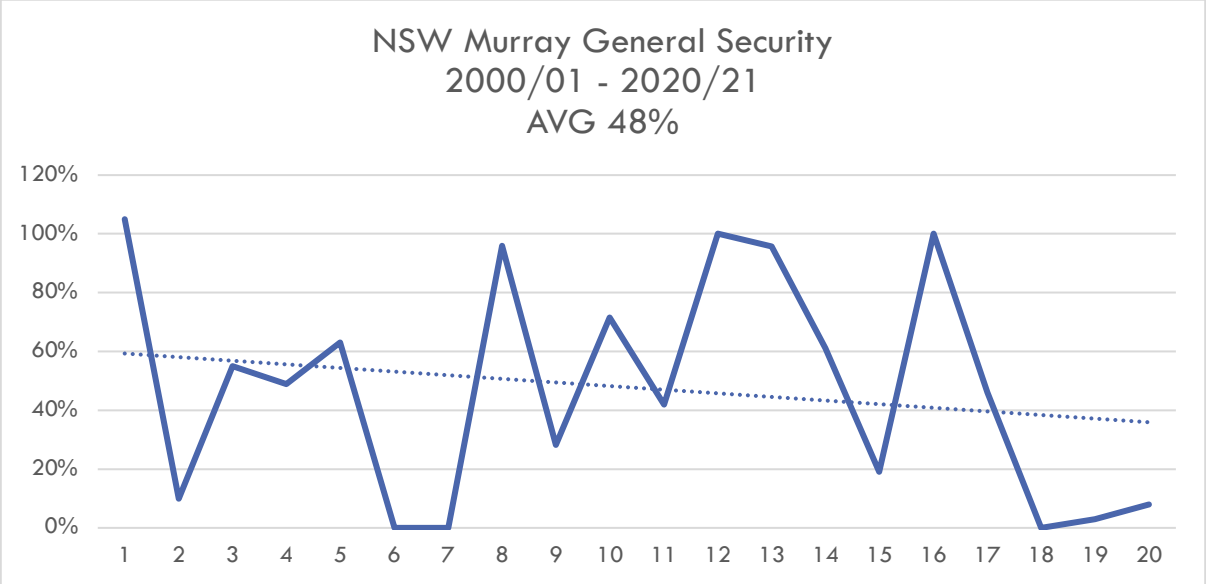
The NWI states

" Clause 65 Water Storage and Delivery Pricing 65. In accordance with NCP commitments, the States and Territories agree to bring into effect pricing policies for water storage and delivery in rural and urban systems that facilitate efficient water use and trade in water entitlements, including through the use of:

i) consumption based pricing;

& iii) consistency in pricing policies across sectors and jurisdictions where entitlements are able to be traded."

A 50 per cent increase for fixed and variable charges is not based on the principles of consumption pricing according to the NWI. The reliability of the NSW Murray General Security entitlement holders before the Water Act 2007 and the Murray-Darling Basin Plan, based on collected data was 84 per cent per annum, new average reliability is now 48 per cent representing a 36per cent drop in the consumptive pool. Shown in the graph below.



(WaterNSW, 2020)

If reliability continues to fall it is unrealistic for pricing to continue to increase. Southern basin farmers sit amongst the most innovative business operators in the world, but it is irrational to assume a perpetually increasing cost structure can be serviced by an equally reducing reliability. Leaving this mentality uncorrected, will continue to significantly impact the social and economic pillars of the triple bottom line of basin communities and result in a massive failure of Basin reform. The growing disparity between sustainable pricing and the reliability of a license must be corrected immediately.

Summary

It is important to recognise the state and federal failures of the multijurisdictional implementation of the National Water Initiative 2004, The Water Act 2007 and the Murray-Darling Basin Plan and which regions are impacted the most by successive governments failures to implement this legislation and why they have chosen not to, even though they are in power. The various aspects of this failure to implement all lead back to one underlying objective in the Water Act 2007, of which it is having a massive negative impact on: *"to promote the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes".* This means that this Act is being failed and thus must be addressed and change direction, like any other piece of legislation that is categorically failing what it was intended to achieve.

Even the failures of the previous reviews conducted by this organisation, the Productivity Commission on the NWI, surely it has been addressed previously, that various aspects of these key legislative instruments remain idle and are damaging entire valleys of Basin communities, dependent on protection via policy from the way in which water markets have evolved over time and how the Water Act 2007, MDBP and Murray-Darling Basin Agreement all intertwine and weigh on each other.

These valley, state, interstate and federal jurisdictions, Murray-Darling Basin Agreement, as a result from downstream demand, downstream obligations, severely reduced inflows, ecological targets,

governed by the Basin Plan and managed by the CEWH are based on modelled flows completely devoid of any empirical evidence or adaptive management components, even though their development is legislated to be based on "*the best available science and socioeconomic analysis*" which is a moving target as the chose reduces and more scientific analysis and socioeconomic evidence comes online, are all having negative impacts on the Southern Connected system.

The Basin prioritises downstream demand, water for the environment even when it is not needed and unmetered, unlicensed, and non-compliant take.

It highlights an aspect of the divide between what is seen as important in the urban centres or where most of the voting power and therefore political sway resides, as opposed to the regional centres that have been voicing these concerns without change, despite the backing from legislation, remain idle. As stated earlier when these failures present themselves in health, transport, or education they are at least attempted to be rectified, however in water, they just roll on with another report, to be shelved along with the other 110 reports and zero meaningful change in direction. Meanwhile regional communities continue to suffer.

Recommendations

There are various options available through policy reform or infrastructure solutions to government that are not being implemented because of political palatability.

SRI believe the recommendations below will correct current failures and fit in line with managing this precious resource with a true national interest.

1. Quarantine remaining funds left under the $13.2billion Murray Darling Basin Plan, principally the 450GL for WESA and the 605GL SDL suite of 36 projects, on the basis the 450GL has prohibitively high socioeconomic costs while the 605 SDLs will actually further impact reliability.

2. Maximise net economic returns to the Australian community from existing basin water resources, without increasing use and impacting other valley or water license holders.

3. Quarantine funds until a Federal Royal Commission has been delivered on the Murray-Darling Basin Plan and Murray-Darling Basin Authority with terms of reference to be decided by community stakeholders involved in irrigation.

4. Investigate why the MDBA will not permit changes to the Basin Plan when evidence is compelling to do so.

5. Investigate the basis buybacks were justified upon, 75 per cent of all MDB buybacks have occurred in the Southern Basin while collectively these valleys have never breached sustainable caps from 93/94 through to 2007 - the premise of the federal water reform

6. Establish a scientific tribunal to independently evaluate why the MDBA has circumvented the academic sanctity of a peer reviewed report and not adhered to the best available science as identified in the SA Royal Commission.

7. A review into whether regulatory changes to the Water Act and Basin Plan have impacted reliability and viability of regional businesses, and if so, seek adequate compensation.

8. Fully implement the National Water Initiative 2004.

9. Localised decision making with longstanding organisations including landholder groups must be paramount along with stability of governmental employees who are often shifted from department to department.

10. No further buybacks from the productive sector, outright or for efficiency projects.

11. Audit, measure and evaluate environmental water and centralise operations into the CEWH, ensuring environmental water is used for environmental purposes only and not sold or swapped.

12. Flood years and major rainfall events must be factored into environmental water allocation to provide a mechanism to deduct water from the environment for productive use.

13. Re-assess, using empirical evidence against modelling to gauge ecosystem requirements, as several peer reviewed reports indicate the magnitude and frequency of watering is not consistent with the needs of the ecosystems.

14. Clearly define trading zones. Develop and apply exchange rates to water traded into different valleys to ensure delivery losses are not socialised to users with permanent entitlements but to the individual demanding water at specific location. This must be published transparently to notify businesses of delivery risks associated with expanded or greenfield developments.

15. Suspend FPH until accurate metering, licensing and real time compliance of take (using available telemetry) is implemented, ensuring no negative downstream consequences to the triple bottom line. Take in the northern basin far exceeds the licensing limit of 210GL and must be reduced accordingly.

16. 100GL to be shared equally between VIC/NSW by turning on and operating the federally funded Adelaide de-salination plant at full capacity. Decreasing Adelaide's reliance on the Murray River will ease channel capacity concerns and losses and return 100Gl to the productive sector.

17. As stated in the NWI 2004 and Water Act 2007 it is imperative a federal water registry is brought online to state unambiguously the ownership of the water entitlement. This has been legislated since 2004 and is yet to be delivered.

18. Move to a user pays system for permanent entitlement water charges. If a particular valley is on zero allocation because of drought, then the irrigator should not bear any costs, this should be underwritten by federal government in the national interest.

19. Review the Murray Darling Basin Agreement, schedule 1 of the Water Act as it prioritises 1850GL of water to the SA border (based on river heights for paddle steamers) in all but the driest of years, often leaving NSW licenses on zero even when the Darling River is dry and not contributing.

20. South Australian loss and dilution flows to be re-credited to the productive sector in NSW and Victoria as they were set aside when Dartmouth was built. Salt interception schemes at various points are no longer impacting water quality and according to the SA Government, 350GL of this 696GL dilution flow ends up in the Lower Lakes.

Infrastructure Solutions

There are various viable infrastructure solutions awaiting commissioning by the federal government as individual or joint state ventures. These will to create wealth and employment and increase business opportunities while harnessing the natural assets of this great nation in a sustainable way. The water savings once completed to be split evenly between the states that share hydrological connection and have foregone water to achieve a previous target.

21. Simultaneously build Lock Zero and automate the barrages consistent with Ken Jurys 'A Better Way' 2016 and Professor Peter Gell's peer reviewed report - Watching the tide roll away – contested interpretations of the nature of the Lower Lakes of the Murray Darling Basin

22. Reinstate the historical average flows into the Lower Limestone Coast PWA unconfined aquifer that traditionally flowed into the Coorong at, according to the SA Government, 425GL/y. Additionally, according to GeoScience Australia, groundwater discharge was an important factor affecting flow and water quality in the Coorong. This is a key and yet misguided target of the Plan where the MDBA is targeting 660GL/y of discharge through the barrages into the Coorong, which due to the hydrological topography will not travel from the northern end of the Coorong to the southern.

23. The Clarence Scheme - In 1985, Jack Beale (a former NSW Minister for Conservation and Environment) as chairman of the Water Resources Foundation of Australia presented a proposal for a full investigation of the hydro-electric scheme, which he described as a "sleeping giant of water, power and natural wealth". This scheme could divert two million megalitres (four Sydney Harbours) annually to the Murray-Darling Basin. Pump storage of 3000 megawatts could provide peak electrical load to NSW and Queensland and would provide much-required inflows into the Basin with multiple value add opportunities as it moves downstream.

24. Ocean Connection - Pipe (+valve) Infrastructure through Coorong sand dunes to allow marine waters into the southern lagoon. Ocean water replaces the loss of freshwater flows from SE of SA which are currently diverted by drainage schemes away from the Coorong and out to the ocean. Reducing hyper salinity in the southern lagoon delivers ecological health and native fish benefits while providing potential to revive the Mulloway industry.

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Appendix

APPENDIX A:

Key Actions	Date	IGA paragraphs	Responsibility
Implementation			
▪ Establish a National Water Commission	end 2004	10	All Parties
▪ Jurisdictions to develop implementation plans.	June 2005	8	States[1]
▪ Substantial progress towards implementation of this Agreement	2010	8	All Parties
Water access entitlements and planning framework			
▪ Implementation of the framework: - substantial completion of plans to address any existing overallocation for all river systems and groundwater resources in accordance with commitments under the 1994 COAG water reform framework - Legislative and administrative regimes amended to incorporate the elements of the entitlements and allocation framework in this Agreement	end 2005 end 2006	26 (i) 26(ii)	States States
▪ Water access entitlements to be defined and implemented	immediate	28-34	States
▪ Water to meet environmental and other public benefit outcomes identified in water plans to be defined, provided and managed.	immediate	35	States
▪ Water plans to be prepared along the lines of the characteristics and components at Schedule D based on the following priorities: - plans for systems that are overallocated, fully allocated or approaching full allocation; - plans for systems that are not yet approaching full allocation	 end 2007 end 2009	 39-40 39-40	 States States
▪ Substantially complete addressing overallocation as per NCC commitments. ▪ substantial progress toward adjusting all *overallocated* and/or *overused* systems	2005 end 2010	41 43 - 45	States All Parties
▪ Risk assignment framework to be implemented immediately for all changes in allocation not provided for in overallocation pathways in water plans	immediate	46-50	States
▪ Water plans to address indigenous water issues	immediate	52 - 54	States
▪ Implementation of measures to address water interception by land use change activities on a priority basis in accordance with water plans	no later than 2011	55 - 57	States
Water markets and trading			
▪ Adoption of publicly accessible, compatible systems for registering water access entitlements and trades consistent with Schedule F: - pathways leading to full implementation; and - full implementation.	 end 2004 end 2006	 59 59	 States States

Key Actions	Date	IGA paragraphs	Responsibility
Water markets and trading (cont.)			
▪ Establish compatible institutional and regulatory arrangements that facilitate trade, including arrangements consistent with principles in Schedule G	end 2007	60	States
- re institutional barriers to trade			
- remove barriers to temporary trade	immediate	60(iv)(a)	States
- remove barriers to permanent trade up to an annual threshold of 4 percent	immediate (except for southern MDB)	60(iv)(b)	States
- review impact on trade of interim threshold	2009	60(iv)(b)	States
- full removal of barriers to trade	end 2014		
▪ Complete the following studies and consider implementation of any recommendations:			
- review of water products	June 2005	61(i)	All Parties
- new approach to sharing delivery capacity and extraction rates among users	June 2005	61(ii)	All Parties
- feasibility of establishing market mechanisms such as tradeable salinity and pollution credits to provide incentives for investment in water-use efficiency and farm management strategies and for dealing with environmental externalities	June 2005	61(iii)	All Parties
▪ Relevant Parties (Commonwealth, NSW, Victoria and SA) agree to:			
- take necessary steps to enable the use of exchange rates and/or tagging for interstate trade;	June 2005	63(i)	relevant Parties
- reduce barriers to trade in southern MDB and establish an interim limit on permanent trade out of water irrigation areas of 4 percent per annum	June 2005	63(ii)	relevant Parties
- NSW make legislative changes to remove barriers and permit increased trade up to the interim limit;	June 2005	63(ii)(a)	NSW
- Vic and SA make change to remove barriers and permit increased trade up to the interim limit	June 2005	63(ii)(b)	Victoria and SA
- review actions to assess whether relevant parties have removed barriers to achieve interim limit	June 2005	63(iii)	relevant Parties
- study into mechanisms necessary to enable interstate trade	June 2005	63(iv)	relevant Parties
- review outcome of actions by NSW	end 2007	63(v)	relevant Parties
- NWC monitor impacts of interstate trade	ongoing	63(vi)	NWC
- review the impact on trade under the interim threshold.	end 2009	63(vii)	relevant Parties
Best practice water pricing and institutional arrangements			
▪ Complete commitments under the 1994 COAG Water Reform Framework to bring into effect pricing policies for water storage and delivery in rural and urban systems	end 2004	65	States

Key Actions	Date	IGA paragraphs	Responsibility
Best practice water pricing and institutional arrangements(cont.)			
▪ *Metropolitan* - Continued movement towards *upper bound pricing*; - development of pricing policies for recycled water and stormwater; - review and development of pricing policies for trade wastes; and - development of national guidelines for water accounts. ▪ *Rural and Regional* - full cost recovery for all rural surface and groundwater based systems: - continued movement towards *lower bound pricing* per NCC commitments; and - achievement of *upper bound pricing* for all rural systems, where practicable.	 end 2008 end 2006 end 2006 end 2006 ongoing ongoing	 66(i) 66 (ii) 66 (iii) 66 (iv) 66 (v)(a) 66 (v)(b)	 States States States States States States
▪ Consistent approaches to pricing and attributing costs of water planning and management	end 2006	67	States
▪ Investment in new or refurbished water infrastructure to continue to be assessed as economically and ecologically sustainable before being approved	ongoing	69	States
▪ Release of unallocated water	ongoing	70 - 72	States
▪ Environmental externalities managed through a range of regulatory measures	ongoing	73	States
▪ *Benchmarking efficient performance* - independent, public, annual reporting of performance benchmarking for all metropolitan, non-metropolitan and rural water delivery agencies - develop nationally consistent report framework	 ongoing 2005	 75 76	 States All Parties
▪ *Independent pricing regulator* - independent pricing bodies to set and review prices or pricing processes for water storage and delivery and publicly report.	ongoing	77	All Parties
Integrated management of environmental water			
▪ Recognising the different types of surface water and groundwater systems: - effective and efficient management and institutional arrangements to ensure the achievement of the environmental outcomes; and - where it is necessary to recover water to achieve environmental outcomes, to adopt the principles for determining the most effective and efficient mix of water recovery measures.	 immediate ongoing	 79(i) 79(ii)	 States States

Key Actions	Date	IGA paragraphs	Responsibility
Water resource accounting			
▪ Benchmarking of accounting systems	mid 2005	81	All Parties
▪ Consolidated water accounts			
- Develop and implement robust water accounting	end 2006	82	All Parties
- Identify situations where close interaction between surface and groundwater exist	end 2005	83	All Parties
- Implement systems to integrate the accounting of surface and groundwater	end 2008	83	All Parties
▪ Environmental water accounting:			
- develop an environmental water register and annual reporting arrangements; and	mid 2005	85	All Parties
- apply the environmental water register and annual reporting arrangements.	mid 2006	85	All Parties
▪ Implement information measures	ongoing	86	All Parties
▪ Metering and measuring actions:			
- develop metering and measuring actions; and	end 2006	88	All Parties
- implement metering and measuring actions.	end 2007	88	All Parties
▪ National guidelines on water reporting:			
- develop national guidelines on water reporting; and	mid 2005	89	All Parties
- apply national guidelines on water reporting.	end 2007	89	All Parties
Urban water reform			
▪ Implementation of demand management measures, including:			
- implementation and compliance monitoring of WELS, including mandatory labelling and minimum standards for agreed appliances;	end 2005	91(i)	States
- develop and implement 'Smart Water Mark' for garden activities;	end 2006	91 (ii)	States
- review effectiveness of temporary water restricts and associated public education strategies, and consider extending low level restrictions to standard practice; and	end 2006	91 (iii)	States
- implement management responses to water supply and discharge system losses including leakage, excess pressure, overflows and other maintenance needs.	end 2006	91 (iv)	States
▪ Encourage further innovation in urban water use including:			
- develop and apply national health and environmental guidelines for water sensitive urban designs for recycled water and stormwater;	end 2005	92(i)	All Parties
- develop national guidelines for evaluating options for water sensitive urban developments in both new urban sub-divisions and high rise;	end 2006	92 (ii)	All Parties
- evaluate existing water sensitive urban icon developments;	end 2005	92 (iii)	All Parties
- review institutional and regulatory models for integrated urban water cycle planning and management and develop best practice guidelines;	end 2006	92 (iv)	All Parties
- review incentives to stimulate innovation.	end 2006	92 (v)	All Parties

Key Actions	Date	IGA paragraphs	Responsibility
Community partnerships and adjustment			
▪ Open and timely consultation with all relevant stakeholders in relation to: pathways for returning overallocated systems to sustainable extraction levels, periodic review of water plans, and other significant decisions affecting the security of water access entitlements.	ongoing	95	States
▪ Provision of accurate and timely information to all relevant stakeholders in relation to the progress of water plan implementation and other issues relevant to the security of water access entitlements.	ongoing	96	States
▪ Address significant adjustment issues affecting water access entitlement holders and communities that may arise from reductions in water availability as a result of implementing the National Water Initiative	ongoing	97	All Parties
Knowledge and capacity building			
▪ Identify the key science priorities to support implementation of the National Water Initiative and where this work is being undertaken. ▪ Implement any necessary measures to ensure the research effort is well coordinated and publicised, and any gaps are addressed.	ongoing ongoing	101(i) 101(ii)	All Parties All Parties

APPENDIX B)

SCHEDULE F: GUIDELINES FOR WATER REGISTRIES

The Parties agree that water registers will be established in each State and Territory and will:

1. contain records of all water access entitlements in that jurisdiction, and trades of those entitlements, including their location;

2. be of sufficient standard to achieve the characteristics of secure water access entitlements contained in the Agreement;

3. contain protocols for the protection of third party interests that:

(i) require the holder of a registered security interest to be notified prior to any proposed dealings in relation to the water entitlement, and requiring the consent of such interests to any proposed transfers;

(ii) allow only authorised dealings;

(iii)require the registration of permanent transfers of the water entitlement and encumbrances that affect the entitlement, such as mortgages and other security interests;

(iv)enable lenders to procure the registration of their interest independently of the holder of the entitlement (to ensure the rights of the entitlement-holder are sufficiently protected);

(v) prioritise competing dealings;

(vi)manage time lags between date of lodgement for registration and actual registration of dealings, as such time lags may affect priorities; and

(vii) allow for the discharge of the security interest, in conjunction with the transfer of the entitlement to a new registered holder;

(viii) ensure that lenders are only affected by a subsequently registered interest where the lender has consented to the subsequent dealing;

(ix)assist in the process of identifying water specific or unregistered interests.

4. be administered pursuant to certain procedures and protocols, based on land title office manuals and guidelines that exist in various States and Territories that seek to minimise transaction costs for market participants;

5. be publicly accessible, preferably over the internet, and include information such as the prices of trades and the identity of entitlement holders; and

6. enable resource managers to monitor and accumulate trade and water use volumes accrued under water entitlements in a separate water accounting system."

Appendix C:

Schedule 3—Basin water market and trading objectives and principles

Note: See section 4.

1 Definitions

In this Schedule:

exchange rate means the rate of conversion to be applied to water to be traded from one trading zone and/or jurisdiction to another.

trading zones means zones established to simplify administration of a trade by setting out the known supply source or management arrangements and the physical realities of relevant supply systems within the zone so that trade can occur within and between zones without first having to investigate and establish the details and rules of the system in each zone.

water access entitlement tagging means an accounting approach that allows a water access entitlement that is traded from one jurisdiction or trading zone to another jurisdiction or trading zone to retain its original characteristics when traded to the new jurisdiction or trading zone (rather than being converted into a form issued in the new jurisdiction or trading zone).

2 Objectives and principles

This Schedule sets out:

(a) the Basin water market and trading objectives; and

(b) the Basin water market and trading principles.

Note 1: These objectives and principles are relevant to the formulation of:

(a) the provisions of the Basin Plan (see item 12 of the table in subsection 22(1)); and

(b) the provisions of water management plans for particular water resource plan areas (see subsection 22(3)); and

(c) the provisions of the water market rules (see paragraph 97(1)(b)).

Note 2: These objectives and principles are based on those set out in clauses 58 to 63 and Schedule G of the National Water Initiative when Part 2 of this Act commences.

3 Basin water market and trading objectives

The objectives of the water market and trading arrangements for the Murray-Darling Basin are:

(a) to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading; and

(b) to minimise transaction cost on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions; and

(c) to enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time; and

(d) to recognise and protect the needs of the environment; and

(e) to provide appropriate protection of third-party interests.

4 Basin water market and trading principles

(1) This clause sets out the Basin water market and trading principles.

(2) Water access entitlements may be traded either permanently, through lease arrangements, or through other trading options that may evolve over time, if water resources are physically shared or hydrologic connections and water supply considerations would permit water trading.

(3) All trades should be recorded on a water register. Registers will be compatible, publicly accessible and reliable, recording information on a whole of catchment basis, consistent with the National Water Initiative.

(4) Restrictions on extraction, diversion or use of water resulting from trade can only be used to manage:

(a) environmental impacts, including impacts on ecosystems that depend on underground water; or

(b) hydrological, water quality and hydro-geological impacts; or

(c) delivery constraints; or

(d) impacts on geographical features (such as river and aquifer integrity); or

(e) features of major indigenous, cultural heritage or spiritual significance.

(5) A trade may be refused on the basis that it is inconsistent with the relevant water resource plan.

(6) Trades must not result in the long-term annual diversion limit being exceeded. That is, trades must not:

(a) cause an increase in commitments to take water from water resources or parts of water resources; or

(b) increase seasonal reversals in flow regimes;

above sustainable levels identified in relevant water resource plans such that environmental water or water dependent ecosystems are adversely affected.

(7) Trades within overallocated water resources (including ground water resources) may be permitted in some cases subject to conditions to manage long-term impacts on the environment and other users.

(8) Where necessary, water authorities will facilitate trade by specifying trading zones and providing related information such as the exchange rates to be applied to trades in water allocations to:

(a) adjust for the effects of the transfer on hydrology or supply security (transmission losses) or reliability; and

(b) reflect transfers between different classes of water resources, unregulated streams, regulated streams, supplemented streams, ground water systems and licensed runoff harvesting dams.

(9) Water trading zones, including ground water trading zones, should be defined in terms of:

(a) the ability to change the point of extraction of the water from one place to another; and

(b) the protection of the environment.

The volume of delivery losses in supplemented systems that provide opportunistic environmental flows will be estimated and taken into account when determining the maximum volume of water that may be traded out of a trading zone.

(10) Exchange rates must not be used to achieve other outcomes such as to alter the balance between economic use and environmental protection or to reduce overall water use.

(11) Trade in water allocations may occur within common aquifers or surface water flow systems consistent with water resource plans.

(12) Trade from a licensed runoff harvesting dam (that is, not a small farm dam) to a river may occur subject to:

(a) a reduction in dam capacity consistent with the transferred water access entitlement; or

(b) retention of sufficient capacity to accommodate evaporative and infiltration losses; or

(c) conditions specified in water resource plans to protect the environment.

(13) Compatible institutional and regulatory arrangements will be pursued to improve intrastate and interstate trade, and to manage differences in entitlement reliability, supply losses, supply source constraints, trading between systems and cap requirements.

(14) The transfer of water allocations and entitlements will be facilitated (where appropriate) by water access entitlement tagging, water access entitlement exchange rates or other trading mechanisms that may evolve over time.

(15) Institutional, legislative and administrative arrangements will be introduced to improve the efficiency and scope of water trade and to remove barriers that may affect potential trade.

(16) Barriers to permanent trade out of water irrigation areas up to an annual threshold limit of 4% of the total water entitlement of that area will be immediately removed, subject to a review by 2009 by the National Water Commission under paragraph 7(2)(h) of the *National Water Commission Act 2004,* with a move to full and open trade by 2014 at the latest.

(17) Subject to this clause, no new barriers to trade will be imposed, including in the form of arrangements for addressing stranded assets.