

MURRAY DARLING BASIN ROYAL COMMISSION

Public Submission – Louise Burge

ISSUES PAPER ONE

Opening Statement:

The Murray Darling Basin Plan is symbolic, but not for its achievements in the long term for the environment nor Australia's national interests.

If the Water Act 2007 and the Murray Darling Basin Plan is guiding expenditure in the \$13 billion Water for the Future Program, the Basin Plan must be based around an honest approach to identifying what and where the problems actually are and focus efforts and investments, in specific areas to deliver sustainable environmental outcomes.

It is essential this is achieved in balance with social and economic values in all parts of the Basin, not a selected few.

The South Australia Royal Commission could be the only opportunity left to have an open conversation about the issues, free from political point scoring, advocacy or trade-offs which determine which regions fall, providing commercial benefit to some and disbenefits to others.

A key part of this would be to properly assess what environmental targets are valid, identify sustainable and cost-effective strategies to achieve outcomes and separate any influences of underlying commercial interests, that may also influence the reshaping of water use in the Basin.

To date this does not appear to have occurred and that includes within South Australia and the Murray Darling Basin Authority (MDBA) itself.

At times information described in this submission may at times appear confronting to 'beliefs or opinions' in South Australia. I encourage the SA Royal Commission to keep an open mind on any information provided.

While the terms of reference appear to focus on determining whether or not the Basin Plan complies with the Water Act 2007, it would be prudent in the National interest to explore whether the Act itself requires amendments.

Unless changes are made, the Basin Plan cannot meet the objects of the Water Act 2007. The Water Act 2007 has serious deficiencies and in future will not be considered an appropriate piece of legislation to reconfigure Australia's primary food bowl and guide the expenditure of over \$13 billion.

The Basin Plan's focus on a number and one component of an environmental measure (volumes of water), is neither a determinant of an environmental state or an appropriate tool against which the Basin Plan outcomes should be measured.

Further, the Basin Plan and its political framework (Water Act 2007) constrain every opportunity to improve decisions and to create a more adaptive and flexible plan that can incorporate new knowledge and find the best and cost-effective methodology to achieve outcomes.

When issues are raised or solutions offered, the Murray Darling Basin Authority (MDBA) refer back to the rigidity of the political framework either because they are obliged to do so or, as an attempt to shield themselves from scrutiny from original mistakes.

This is not acceptable. While the formation of the Water Act 2007 preceded the actual establishment of the Authority, many of the influencers or architects of the Act, subsequently took senior positions in the MDBA.

It is the MDBA's decisions that continue to advise the political process. Therefore, it is incumbent on the MDBA, to reflect on aspects of the Basin Plan where earlier assumptions may have been incorrect and to provide advice to relevant Governments and agencies on aspects that require change, or alternatives options that will prove more cost effective for the taxpayer.

The South Australian Royal Commission presents an opportunity to explore in more detail what were the key drivers that lead to the Water Act 2007 and the Basin Plan. Whether original assumptions made during that period, were correct and should updated information be included in decisions. These include:

- 1) The Millennium Drought (1998- February 2010)
- 2) South Australian objectives for the Coorong, Lower Lakes and Murray Mouth
- 3) Political, commercial and advocacy influences
- 4) Separation of Northern Basin and Southern Basin issues

The Australian public are educated that the Murray Darling Basin Plan is a scientifically robust and equitable approach to enhancing the environments of the Murray Darling Basin.

There is insufficient evidence to conclude this is the case. If it was, the current approach to achieving environmental outcomes would be revised.

Following finalisation of public expenditure of \$13 billion plus in taxpayer funds, it likely that:

- the Coorong will remain hyper saline and the Murray Mouth will still require dredging
- the lack of baseline flows in the Darling River system will not be addressed to any meaningful extent and;
- there will be a major wealth shift of water assets in the NSW Murray and Victoria's Goulburn Valley, from family farms to corporate or commercial interests in other regions

All indications to date would suggest that, the Water Act 2007 and Basin Plan is a political strategy, not an environmental one.

South Australians in particular have been subject to a protracted political campaign on the need for more water flows down the Murray River. Campaign themes centre on:

- 1) The Murray River is dead and dying
- 2) Flows of additional 'minimum' 2000GL out the Murray Mouth will result in a healthy Basin

- 3) The Coorong, Lower Lakes and Murray Mouth (CLLMM) ecological problems are the result of over extraction in the Murray River
- 4) The Murray Darling Basin waters are ‘over – allocated’
- 5) 2 million tonnes salt needs to be flushed out the Murray Mouth
- 6) Upstream extractions are negatively impacting South Australia

In order to address failings in the Water Act 2007 and Basin Plan, these issues require further investigation from the South Australian Royal Commission.

Equally, there also needs to be an educational component to clearly separate issues of public concern on the Darling unregulated River systems, to those on the highly controlled and regulated water management systems, on the NSW Murray and Victorian Goulburn Rivers.

This also includes an understanding on environmental health and regulatory differences between the Northern Basin Darling River Systems and the regulated Murray River systems (Southern Basin) upstream of the confluence of the Darling and Murray Rivers and how this affects water security in South Australia.

Calls for the Basin Plan to be implemented in full and on time fail to recognise its major deficiencies and ignores opportunities to make cost effective improvements in the implementation phase, benefitting all Australians.

To date **83% of the water recovered (2750GL) is from the Southern Basin** and that figure is likely to increase with the latest political deal (May 2018) on the extra 450GL.

There remains strong community concerns whether the Basin Plan in its current form meets the objectives of the Water Act across all States and regions equitably, cost effectively and sustainably (eg *optimising social, economic and environment outcomes in the use of Basin’s water resources in the national interest*).

The Basin Plan has set new Sustainable Diversion Limits in each of the Basin Valleys and this equates to a figure of 2750GL being recovered for environmental purposes.

- Of this 2289GL is to come from the Southern Basin – with provision for outcomes to be partially achieved through the Sustainable Diversion Adjustment Mechanism projects (605GL).
- The majority of impacts on irrigated agricultural production will occur in the NSW Murray and Victoria’s Goulburn Valley.

The Water Act 2007 and Basin Plan establishes very precise targets for the Coorong, Lower Lakes and Murray Mouth (CLLMM) – this is the only RAMSAR site in the Basin that has prescribed targets.

The Basin Plan has strategies to:

- Provide an additional 2000 GL to flow over the barrages (SA) Lake Alexandrina on a three-year rolling average
- Achieve Southern Coorong salinity targets through increased flows down the Murray River

- Lake Alexandrina salinity levels: 1000 EC salinity levels 95% of years and 1500 EC 100% of years
- Control of sedimentation in the Murray Mouth (depth and mouth openness targets)
- Environmental Watering Plans that prescribe new flow targets of 60 – 80 GL at the South Australian border (5 – 6 weeks annually)

The Royal Commission could facilitate more informed debate on the Coorong, Lower Lakes and Murray Mouth, current security of South Australia's share of water under the River Murray Agreement, physical limitations of Australia's southern storages and how historical episodes of severe drought, impact on water supply.

A common misconception is that the Basin Plan just affect irrigators.

Riparian landholders (private property on rivers/creeks systems – mid Murray) will incur substantial business and social impacts to achieve new flow targets for South Australia (via Murray River) but to date are not regarded as equal stakeholders to irrigation interests or to commercial interests in South Australia.

In the final stages of development of the Basin Plan, the former Federal Government did a deal with South Australia (2012). This resulted in an additional 450GL added to the Basin Plan figure of 2750GL. A condition was that additional water acquisition must be achieved with social and economic neutrality. With this deal expenditure on the Basin Plan was increased by another \$1.5 billion and within this, a figure of \$200 million was for 'relaxation of constraints'.

There was no scientific basis for this deal, nor cost benefit analysis or information on what 'overcoming' constraints will actually cost or mean to riparian landholders or tourism interests. The \$200 million was part of a political announcement by former Prime Minister Julia Gillard while visiting the Lower Lakes.

The definition of neutrality in the 2012 deal was and remains flawed, not only for irrigators interests in the NSW Murray and Northern Victoria's Goulburn Valley regions, but also for riparian landholders who are not recognition under the neutrality test at all. (note 1 x irrigator participating in an on- farm efficiency scheme, even in another state = neutrality)

In 2018, a further political deal as part of the Northern Basin Review and the Southern Basin Sustainable Diversion Adjustment Mechanism (refer Senator Sarah Hansen's Young disallowance motion), resulted in a reduction in 70GL water recovery for the Northern Basin, and commitment to the additional (450GL) which now appears no longer tied to the neutrality test.

The deal also included statements from Opposition spokesman on water, that the additional 450GL is to come from the Southern Basin.

Federal funding for the States to implement the Sustainable Diversion Adjustment Mechanism is now also tied to the 450GL. If States don't commit to achieving the 450GL, there will be no funds for the SDL projects. This would suggest the original intent of linking the additional 450GL to a 'neutrality test' (even with its failings) is no longer a Government(s) position.

- The Water Act 2007 and Basin Plan is heavily influenced by politics – South Australian, Federal and Northern Basin.
- Contradicts Australia's commitment to the United Nations principles of ecologically sustainable development – a balance of social, economic and environmental values.
- Reverses the principles of Australia's previous policies on *Total Catchment Management*
- Sets prescriptive processes and targets in legislation/regulations, preventing the adoption of new evidence, capacity to address errors in original assumptions or incorporating an adaptive or alternative approaches to achieving environmental outcomes.

Personal Impacts:

Our family finds itself caught between political interests. This includes:

- The 2007 Federal election campaign (*'save the Murray Darling Basin'/Federal takeover of water from the States*)
- South Australian political/election strategies and related marketing strategies
- State of politics between the three major political parties;
- Political influences of large irrigation industry interests
- Political campaigns and related misinformation in South Australia
- Murray Darling Basin Authority's (MDBA) incapacity to act as an independent authority
- Departmental preferences – influencing the drafting of the Water Act 2007
- Political failures that prevented the inclusion of robust science to underpin decisions

Elevated flooding risks was foreseeable in my interpretations of the Water Act 2007 and first draft of the Basin Plan – Guide to the Proposed Basin Plan (October 2010) and from discussions with the MDBA. Therefore, over the last seven years, I have taken a more detailed approach to understanding background issues leading to the Basin Plan. I have also been personally involved in many of the political and bureaucratic processes and hosted numerous field trip tours on specific issues to raise awareness on issues of risks.

Our family has already experienced major financial losses arising from decisions that directly relate to the Water Act 2007 and the Basin Plan processes and it is likely that further losses will be incurred in the future. These are in addition to self-funded expenditure to raise issues of concern.

This contrasts sharply with those who may have derived financial profit or benefit, from their involvement in Basin Plan programs. (eg via water recovery programs, consultancies, provisions of infrastructure etc).

Current impacts to date include:

- Environmental flows released in late 2010 without consultation with affected parties impacted on property access. Delayed harvest and subsequent rain event, resulted in our business experiencing >90% wheat crop losses (first harvestable crops post Millennium Drought)
- Sustainable Diversion Adjustment mechanism (Southern Basin Metering AS4747 Project)- water was acquired without compensation and transferred to the Federal Government
- Catastrophic Flood (Mid Murray October 2016), confirmation of risk factors identified to the Murray Darling Basin Authority (MDBA) since 2010. Elevated flooding risks (moderate, major, catastrophic) to increase in frequency, once the Murray Darling Basin Plan is fully implemented

It is important to explain the relevance of the October 2016 flood and how this links with the Basin Plan and Murray Darling Basin Authority's (MDBA) approach to risk, community consultation and its response to local knowledge.

Prior to the October flood 2016, a smaller September natural flood occurred. This was of the scale of the Basin Plan proposed flow targets for the mid Murray (= to or >77,000 ML/d.).

As the September flood diminished, the releases from the Hume Dam were reduced to normal regulated levels. At the same time, the Bureau of Meteorology was forecasting a further 100 ML of rain over the regions mountain catchments. This forecast and any associated flooding risks appears not to have been properly accounted for in MDBA decisions. Statements (post flood) from the MDBA in a public meeting (Corowa) also indicate that MDBA made incorrect assumptions in relation to the BOM forecast.

The BOM forecast rain event occurred and the MDBA then released 20% of the Hume Dam in one week.

In this region, smaller floods pre-fill rivers, creeks, forests and wetland systems. Once forest systems are pre-wetted, the risk profile for moderate or major flooding is elevated in the event of further major rain events over mountain catchments. This can occur via releases from Hume or from rain events over the Ovens and Kiewa catchments, or both.

The October 2016 flood was measured at 204,000 ML/d under the Tocumwal bridge and by the time natural flood recessions had occurred as waters moved down to South Australia, the flow equated to approximately 94,000 ML/d at the SA border. Once floodwaters reached the barrages this flow was estimated to be approximately 75,000 ML/day and three weeks after that water passed through the Murray Mouth, dredging sand deposits resumed.

The October flood event confirmed the risks stakeholders had been expressing over a seven year period. It also confirmed that the MDBA's reliance on large flow volumes to clear the Murray Mouth is not a sustainable nor cost effective solution. As with historical photographic evidence of past floods, the three weeks after the October 2016 floodwaters reached the Murray Mouth, dredging was resumed to clear sand deposits in the Murray Mouth.

Despite known risks, the MDBA is proceeding with its original intentions to raise the levels of the Murray River to meet MDBA watering strategies for downstream wetlands including the CLLMM and to achieve 80,000 ML/d flow target at the South Australian border.

There is no evidence to suggest, that infrastructure investments (past or future) could not deliver enhanced environmental flows to these sites, with less upstream flooding risk and still deliver similar environmental benefits. (eg This was the basis for the Living Murray infrastructure works – majority of which are now completed)

The MDBA's approach in the Basin Plan focusses on higher flow volumes down the Murray River. This involves 'relaxing constraints' (roads, bridges, private land impacts) and also means 'easements to flood' will now be placed over private land on the mid Murray (Hume Weir to Wakool Junction involving the Murray and Edward Wakool System) under the proposed Constraints Management Strategy.

It is possible to facilitate increased environmental flows through these river reaches with current Living Murray infrastructure works and additional private property works (eg to maintain property access) but flow levels must be realistic with flooding risks management strategies adopted, to ensure no elevation of moderate to major flooding.

- More realistic environmental flows targets would enable cost effective infrastructure investments to be strategically focused, improve Basin Plan implementation timelines and avoid private property impacts over broader areas.
- Lead to increased local community support for environmental flows
- Deliver broader benefits to the environment through on farm participation in riparian restoration programs, weed control, and direct participation in monitoring programs.

It is disappointing that the MDBA does not appear to value 'local knowledge' or take a 'lessons learnt' approach to elements of the Basin Plan which require urgent review. There appears to be a culture that MDBA view is always right, community consultation is a process just to complete and there is no capacity for the improvements to original assumptions.

More recently, the MDBA's response to risk management arising from the October 2016 Catastrophic flood was to blame affected farmers for being "*irresponsible with their infrastructure*" (MDBA December 2016 minutes) . This is despite the fact the MDBA confirmed publicly (*public meeting in Corowa*) they discounted the Bureau of Meteorology (BOM) 100 ML forecast rain event.

The Central Murray Floodplain Plan failed between Tocumwal and Deniliquin as levee infrastructure, was unable to withstand the release, of 20% of the Hume Dam in one week. Levees were overtopped and the pressure of water caused over 50 Levee breaches between Tocumwal and Deniliquin (initial survey via SES Helicopter)

While the September and subsequent October flood did not involve environmental flows, both events confirmed local warnings in relation to proposed Basin Plan changes to run the Murray River above its natural bank capacity.

There are also specific examples where the MDBA's has misinformed the Federal and State Governments and Ministerial Council Meetings on important issues within the Constraints Management Strategy and then refused to correct such advice. (*specific details can be given*)

Equal frustrations with decisions of the MDBA are also shared by the people of the Lower Darling where concerns over lack of baseline river flows in the Barwon Darling also fails to gain MDBA responses or political traction

1. Lower Darling:

- concerns on lack of Basin Line flows to Menindee Lakes
- concerns on environmental releases in Menindee Lakes and what impacts such decisions have on water availability/security for human and stock needs

2. Relevance to Mid Murray: A lack of baseline flows down the Lower Darling does also have direct impacts on the NSW Mid Murray region.

- If insufficient baseline flows don't reach Menindee Lakes (because of dry seasonal conditions, drought or because of generous pumping rules Qld/NSW), water commitments to South Australia have to be made up by additional flows down the Murray River from regions above the confluence of the Darling and Murray Rivers
- MDBA has adopted a position that only 6% of flows from the Darling system reach the Murray. Given that much of the Darling River system (eg Floodplain harvesting) is not metered, licensed or monitored effectively, MDBA conclusions on flow contributions to the Murray from the Darling, should be open to question.
- This has led to water recovery decisions (Basin Plan) being focused away from the Darling and to date 83% of water recovered to date is occurring in the Southern Basin Murray region (upstream of the confluence of the Darling)
- May 2018 – Federal Political deal on the Sustainable Diversion Adjustment Mechanism, resulted in 70GL less water being recovered from the Northern Basin with the additional 450GL (2012 political deal with SA) to come from the Southern Basin.

NSW and Victorian Murray region together with Goulburn Valley, are not areas where 'overallocation' or 'over extraction' has occurred. The system of water management and sharing under the River Murray Agreement ensures South Australia receives its priority and secure share, prior to any allocation to irrigation interests. No water is allocated to NSW/Vic Murray irrigators unless the volumes in the dam are consistent with rules, sharing arrangements including a level of drought contingencies.

Despite this, the focus of water recovery under the Basin Plan is on these regions. It is not too difficult to draw conclusions as to why!

I can only describe the journey to date as emotionally draining, financially damaging with a further appreciation of how science, bureaucracy and politics, has failed the Australian people.

It is particularly distressing, when warnings on risks are ignored or covered up and where processes and decisions, can involve what appears to be, deliberate attempts to 'disempower' individuals, or groups to provide benefits to others. (*specific details can be provided*)

This has occurred both at MDBA and NSW Government levels. Equally political deals at the Federal Level with South Australia and how this has impacted MDBA decisions, require urgent review.

Often for those not impacted by floods or fires, it is easy to dismiss concerns raised about the need to manage risk. This has already occurred via public radio commentary and pre the 2016 flood with adverse comments within South Australia.

Our family and many others, have consistently stated to Governments and the MDBA, **we are prepared to work with them on facilitating environmental flows through this part of the Murray system.** However, new flow rates for the Murray must be realistic with property access protected and no elevation in flooding risks.

We also support the principle of the Sustainable Diversion Adjustment Mechanism but do not support) or the full suite of SDL projects proposed by the States (including SA) as these place a strong reliance on elevating flow regimes in the Mid Murray River to achieve Basin Plan targets.

Landholders are however extremely concerned that known flooding risks that can occur in this stretch of the river, have not been taken seriously.



October 2016 Flood Mid Murray (photos L Burge)



As part of the political campaign in South Australia to obtain more water under the Basin Plan, former South Australian premier Jay Weatherill claimed:

“farmers who are worried about flooding from the basin plan do not deserve compensation because they historically extracted too much water from the system”.

We find this statement particularly offensive.

People who experienced major floods in the Mid Murray may not be irrigators and of those impacted, they are described as family farmers with smaller- scale irrigation licenses. They have not been compensated or have been treated equitably in the Basin Plan processes.

The Southern Basin River Murray Agreement guarantees South Australia its share of water prior to irrigation allocation announcements to NSW and Victorian Murray irrigation licenses. SA is not short of water from upstream extractions in the NSW/Vic Murray or Goulburn River systems

Any flow shortfall from the Darling is also made up from NSW/Vic Murray supplies



October 2016 Flood : Elevated section of local road (shallow water) – kangaroos congregate in shallow water on a high section of local road - waiting to die of hypothermia (photo L Burge)

- In May 2018 , the Federal Government and Opposition achieved a political deal to circumvent SA Senator Sarah Hansen Young’s disallowance motion – the Federal Government ‘without prejudice offer document’ to avoid a proposed disallowance motion includes:
- 70 GL less water being recovered in the Northern Basin
- An additional 450GL of water to be acquired and delivered in the Southern Basin
- States are required to immediately commence strategies to acquire the additional 450GL as the Federal Government has tied any SDL project funding to achieving the additional 450GL and;

The Document also states:

- Implementation of the SDL Adjustment Mechanism including full implementation of constraints relaxation in the Southern Basin by 2024, will ensure the capacity of river managers to achieve flows of 80,000 ML/d at the South Australian border

Basin Plan Water Recovery Targets (2000 GL over the Barrages)

South Australian border flow target: (80,000 ML/day for specific periods)

There is no substantiated evidence that additional flow volumes to the Coorong, Lower Lakes and Murray Mouth and 80,000 ML/day flow target to the South Australia is required or that environmental outcomes cannot be achieved more effectively via more site-specific infrastructure investments (eg Including existing Living Murray Works and any additional infrastructure investments in the Coorong, Lower Lakes and Murray Mouth region)

SA has an entitlement share under the River Murray Agreement of 1850GL. The average flow to South Australia primarily sourced from the upper and Mid Murray region, is 4000 GL (*source MDBA*) with a long-term average of 5100 GL (*source MDBA*)

South Australia's revised plan of management for the Coorong, Lower Lakes and Murray Mouth (2010) *Securing the Future – A Long Term Plan of Management for the Coorong, Lower Lakes and Murray Mouth* also notes South Australia's average flows of 4000GL and goes on to state that is "the below average years which are of concern".

In developing the Basin Plan, the MDBA have accepted South Australian positions including the need for additional water to cover the 'below average years' and increase its share of Basin Waters by another 2000 GL (over 3 yr rolling average with a minimum of 650GL annually)

The Basin Plan provides:

- an additional 2000 GL to South Australia above the average flow of 4000 GL. This will ensure additional water to:
 - cover below average years (ie where Murray River flows to SA are under 4000 GL)
 - meet evaporative losses Lower Lakes (730-1000 GL per annum)
 - enables Lake Alexandrina levels to be maintained at 0.75 ADH despite dryer annual seasonal conditions or shorter periods of drought
 - Ensures a reliance on additional fresh water from the Murray River to scour out the Murray Mouth (90% of the tidal prism function was lost with the construction of the 7.6km of barrages as part of river regulation in 1939)

- A reliance on additional Murray River flows to scour the Murray Mouth in the absence of localised infrastructure solutions, is not sustainable or a cost- effective solution.
 - Will elevate flooding risks in the Mid Murray and sections of the Goulburn Valley(Vic)
 - Ignores previous scientific advice on alternative options (Report to Murray Darling Basin Commission *2000 River Murray Barrages, Environmental Flows ' An evaluation of environmental flow needs in the Lower Lakes and Coorong)*
 - Is contrary to Murray Mouth behavior identified in historical photos or following the October 2016 flood (Mid Murray) – 3 weeks flood passed dredging the Mouth was resumed

The MDBA have stated the target of 80,000 ML/d (SA border) could only be achieved if a number of rivers were running at above average flows (eg combination of high flows in the suite of Basin rivers). While this may appear comforting, the MDBA has not demonstrated which other rivers will actually contribute to the flows and by what 'end of valley' flow volumes and how they will manage flood risks in the Murray /Edward Wakool Systems and Goulburn River (Vic). All three systems interact during periods of major flood.

When originally setting the flow target of 80,000 ML/d (set number of weeks) at the South Australian border, the MDBA assumed it would elevate levels natural river banks in the Murray (Mid Murray section) to 77,000 ML/day. While proposals by NSW seek to reduce this level up to 30,000 (subject to investigations), such flows are still in excess of the natural river bank capacity

(Mid Murray region) including well above known river chokes (eg Millewa choke capacity =10,500 ML/d; Barmah choke capacity =8,000 ML/d).

There is no confirmation of how the MDBA would avoid risks of exceeding proposed new river operation levels in the Murray in the event of additional flows down the Ovens and Kiewa Rivers (Vic). Proposed operational levels for the Murray River (refer CMS /SDL business case- investigation of flows up to 30,000 ML) cannot be looked at in isolation as the Ovens and Kiewa unregulated flow events can quickly raise the level of the Murray River well above 30,000 ML.

A combination of a new flow height of 30,000 ML/day, combined with Ovens/Kiewa flows and or additional releases from Hume will see an elevation in flooding risk for communities upstream and downstream of the Barmah Choke and within the Edward Wakool system unless new flood risk management strategies are included in policy decisions.

The MDBA itself admit that flow targets at many sites including Chowilla (SA) cannot be physically met, yet despite this the flow targets remain in relevant literature and have guided water recovery and acquisitions by the Commonwealth environmental water holder.

Parliament of Australia: Senate Standing Committee on Rural and Regional Affairs and Transport

Hansard – Management of the Murray Darling Basin Inquiry quotes:

Ms Jody Swirepik, Executive Director, Environmental Management, Murray-Darling Basin

Authority

*“As Dr Dickson said, there are environmental outcomes we were trying to achieve and desirable flow regimes that we thought were linked to achieving those outcomes. We have made an assessment across the whole of the basin with that in mind. We set the environmental outcomes and desirable flow regimes from a purely environmental point of view—what we would like to actually achieve. We knew right at the very beginning that some of the flow regimes we were identifying, which we know are good for the environment, **are actually quite large floods.***

Within our full suite of indicators, for instance, 125,000 on the Riverland-Chowilla floodplain is a big flood in that part of the world. The floods in 2010-11, I think, got up to 93,000 and they flooded some towns on the way down. We knew that there were a suite of those indicators which were affected by the current constraints in the system.

Even where some of the constraints could be addressed, we still would not achieve those large flow regimes—and we did not actively target them when we did the modelling process because we knew they were unachievable.”

However, for transparency's sake we have reported on the full suite of those indicators”

Despite further acknowledgement by the MDBA that achieving a flow target of 80,000 ML/d primarily through additional flows down the Murray will be difficult, there has been no change in MDBA strategies or advice to Federal and State Governments.

Following concerns raised to Federal and State Governments of private property impacts linked to environmental flows in late 2010, the MDBA was instructed (in late 2012 approx) to prepare a Constraints Management Strategy.

In 2013, the MDBA's report could only conclude due to the complexities of the issues, '*further investigation is required*'.

In 2014, in spite of different recommendations from the MDBA's Yarrawonga to Wakool Junction Constraints Advisory Group, the MDBA's Annual Constraints Management Progress report (2014) reported that flows of 77,000 ML/d (Mid Murray) were '*feasible with community acceptance for further investigation*'

This was not the case. A strong community response to this report then led to NSW taking over community engagement on investigating issues related to the Constraints Management Strategy (CMS).

Despite NSW Ministerial promises and stakeholder's high hopes that new processes would lead to more equitable outcomes, this also was not the case.

The NSW process further disenfranchised affected stakeholders (eg riparian landholders in the mid Murray)

This reasons behind NSW approach and final decisions could be attributed to either or a combination of:

- Personal choices by an individual(s) within NSW Department of Primary Industries (conflicts of interest – is deemed an issue in specific decisions)
- Influence or relationships with 'larger irrigator interests', benefits accrued to irrigation interests if the CMS Strategy was included in the Sustainable Diversion Adjustment Mechanism (Basin Plan targets could be met - Northern Basin and Southern Basin irrigation regions benefitted as once targets was deemed as being met, his avoided direct Government acquisition of water)
- Pressure on the NSW Government by the MDBA/or politicians to deliver the Basin Plan in full and on time regardless of any prior assumption /or modelling mistakes
- Federal funding pressures applied to the NSW Government to deliver on Basin Plan flow targets to South Australia

At one NSW Irrigation corporation representative stated at a meeting: "***Louise, you have to look at the Greater Good***". This statement appears reflective of a range of decisions that have pre-determined 'collateral damage' in Basin Plan decisions.

Options to elevate flow rates for the Mid Murray under the Constraints Management Strategy, are also linked to how the MDBA scored projects in the SDL Adjustment Mechanism – higher the flow rate, the higher the score.

Conclusions may be easily drawn on why:

- A NSW risk assessment workshop precluded any discussions on SDL/CMS projects risks where they affected the Murray River regions
- Why conflicts of interest were overlooked in the preparation of the Yarrawonga to Wakool Junction Business Case
- Why SDL business cases in NSW were withheld or delayed, preventing stakeholder input prior to NSW submitting projects as part of the SDL Adjustment Mechanism
- Why both the NSW and Victorian Governments did not consult properly or supply copies of the Business Cases to representative stakeholders (Hume to Yarrawonga) or discuss proposals upstream (Hume to Yarrawonga) with the Yarrawonga to Wakool Junction stakeholders (river sections cannot be treated individually)
- Why the CMS project for the Mid Murray in the final list of projects (all States) submitted 30.6.17 to the MDBA and Federal Government, refers to “*with buffers for flows to 50,000 ML/d*”
- Why political decisions related to the additional 450GL specifically precludes riparian interests in the social and economic neutrality test.

Public expenditure on the Murray Darling Basin has been identified to date to be \$12 billion (but has also been referred to as \$13 billion), but as the basin plan implementation occurs, this figure will be substantially increased.

Resolving system constraints for example have not been assessed yet and therefore the total costs in infrastructure works to permanently amend the height and system of Murray, Murrumbidgee and Goulburn River regulation and river heights affecting communities/towns/roads/bridges remains unknown.

The 80,000 ML/d flow target appears also linked to the MDBA policy requirements for “Pre-Requisite Policy Measures’.

NSW and Victoria are **required** to implement this MDBA policy (eg piggybacking environmental flows on top of regulated or unregulated flows - Murray River). This is prior to any actual assessment of the scale of impacts on private property or additional flooding risks that are likely to occur, if there are no flood risks management strategies, included in future policy decisions on Murray River or Hume Dam operations

The Pre – *Requisite Policy Measure* proposal also includes suggestions that commercial interests may also utilise components of this policy to order and receive their irrigation entitlements. This confirms stakeholder concerns that the Constraints Management Strategy has dual purpose.

- 1) To deliver environmental flows
- 2) To find mechanisms to bypass the known capacity restrictions in the Murray River to meet new irrigation demands downstream of the Barmah Choke

The provision of commercial benefits for existing or new irrigation developments downstream of the known Murray River capacity constraint areas (eg Barmah choke) should not influence MDBA decisions on the Basin Plan.

Issues relating to this and potential influence for commercial benefits in the CLLMM region, should also be explored.

ROYAL COMMISSION TERMS OF REFERENCE:

1) & 2) Whether the Water Resource Plans defined by the Act and Basin Plan will be delivered in full and in a form compliant and consistent with the Basin Plan by 30th June 2019 and if not the reasons for this.

The Basin Plan has unrealistic and prescriptive date requirements that have been proven inadequate for the complexities involved in the Basin Plan. This will not diminish but only increase as the details of these complexities becomes more evident.

Political timeframes therefore are not realistic for the scale of change that the Water Act and Basin Plan is implementing.

The Water Resource plan for the Murray and Lower Darling for example, is required to incorporate a range of decisions that also include:

- Sustainable Diversion Adjustment Projects many of which involve river or dam operational rule changes for example:
 - Enhanced Environmental Cues
 - Snowy Water License Call out Provisions
 - Hume Dam Airspace Management and Pre-release rules
 - Structural and operational changes Menindee Lakes
 - Hume to Yarrawonga Constraints Management Strategy
 - Yarrawonga to Wakool Junction Constraints Management Strategy
 - Goulburn River Constraints Management Strategy
 - Murrumbidgee Constraints Management Strategy
 - Yanco Creek Offtake Proposals
- Pre Requisite Policy Measures

Consultation and feasibility risks even at preliminary stages have not yet been done at sufficient levels to inform Water Resource Plan decisions. Therefore, it is not practical or feasible for decisions relating to the above SDL projects, to be incorporated in Water Resource Plans by 30th June 2019.

The Constraints Management Strategy in the Southern Basin is also highly complex .

- The Strategy will involve negotiating 'easements to flood' on all affected private property on the Goulburn River and downstream of Hume Dam in the Mid Murray and Edward Wakool system. (Easements to flood - Murrumbidgee River)
- MDBA and NSW processes have caused significant stakeholder concerns and there is now a lack of trust in Government processes (equity issues for riparian landholders is seen as a major issue in Basin Plan decisions)
- The complexities involved in even assessing at a preliminary level for 'over coming' constraints (roads, bridges, private property impacts) remains no further advanced than the MDBA original desktop investigations in 2013

It can also be safely assumed that considerable work has to be done to re-engage, to build trust and equity with this section of stakeholders. The capacity to make decisions within the Murray and Lower Darling Water Resource Plan by 2019 is most unlikely.

It is highly likely therefore that completion of Water Resource Plans by 2019 may take either of the following positions:

- Water Resource Plans will focus on information known to date and make provisions for new decisions based on investigation of the SDL and/or rule changes proposals associated with projects
- Water Resource Plan timeframes will be amended

3)

Whether the Basin Plan in its current form, its implementation, and any proposed amendments to the Plan, are likely to achieve the objects and purposes of the Act and Plan as variously outlined in ss.3, 20, 23 and 28 of the Act and the 'enhanced environmental outcomes' and additional 450GL provided for in s.86AA(2) and (3) of the Act respectively

The Water Act 2007 and Basin Plan continues to attract criticism, in particular the lack of balance between social, economic and environmental issues. There are equally important concerns as to whether the Water Act and Basin Plan will allow sustainable environmental outcomes to be met.

This can be attributed to the way the Water Act 2007 is constructed and why this approach was taken.

There are strong arguments that the Water Act 2007 requires review, including whether the Water Act 2007 enables the MDBA to truly act as an independent authority as per the original political intent.

It is also questionable when considering Australia's national interests, why there is such emphasis placed on international agreements to the extent they are.

It is public knowledge that to overcome State powers on Water, the Federal Government utilised section 51 (external affairs powers) of the Australian constitution, giving priority recognition to International Environmental agreements.

In June 2011 the Legal and Constitutional Affairs Reference Committee – A Balancing Act: provisions of the Water Act 2007 included the following recommendations:

- 1) *Australian Government publicly release legal advice on the Water Act 2007*
- 2) *Australian Government appoint an independent panel of legal experts to review all relevant legal advice relating to the Water Act 2007 for the purposes of recommending specific amendments to:*
 - a. *Secure legal underpinnings and certainty for all involved and affected*
 - b. *Optimisation of environmental, social and economic considerations*
 - c. *Murray Darling Basin Authority and the Minister are granted discretion to give appropriate weight to economic, social and environmental considerations in order to balance these interests against each other*

Constitutional expert George Williams has made public comments on his interpretation of the Water Act 2007.

In the journal excerpt: ***The Water Act and Murray Darling Basin Plan, May 19, 2011 Public Law Review (22 PRL9) By Paul Kildea and George Williams*, wording includes:***

The Water Act affirms the relevance of social and economic considerations while also making clear that they are secondary to the MDBA's and Minister's obligation to give effect to the relevant international agreements. This reflects the primary constitutional basis of the Act: that is, the federal Parliament's power to enact laws with respect to "external affairs" in s 51(xxix) of the Constitution, and in particular the aspect of the power that enables the federal Parliament to pass laws to implement obligations assumed by the federal executive under international treaties and conventions.²³

The suggestion that the MDBA can give "equal weighting [to] environment, economy [and] social impacts" is simply incorrect.³⁰ This is not permitted by the Water Act, and indeed to do so could risk the Plan being struck down by the High Court as being developed inconsistently with the terms of the Act. Suggestions that the Plan might "optimise"³¹ environmental, social and economic factors are closer to the mark, but only so long as they are read against the requirement that the plan comply with the relevant international environmental conventions.

It is prudent therefore to consider what conditions are actually imposed within such international environmental agreements.

RAMSAR core principle is the 'wise use of resources' and does not preclude human involvement or use of wetland material.

International Agreements such as the RAMSAR Convention are by nature voluntary, (wetlands are nominated for international recognition) with the nominating country retaining the rights to determine ecological character descriptions and plans of management.

Therefore, while it is argued that the Act must comply with international obligations on RAMSAR, RAMSAR itself is not the mechanism to control decisions. It is the nominating country that

controls decisions and in Australia, the Water Act 2007 provides the legal powers to implement Australia's decisions on international recognition agreements.

Examples for reference include: Coorong, Lower Lakes and Murray Mouth (SA) and the Barmah Millewa Forest in NSW.

In both cases, sites were nominated by Australia for international recognition as 'wetlands of significance', but it is Australia that defines the parameters for that recognition.

The CLLMM for example was listed in 1985 and it was noted the Coorong's Southern Lagoon was 'hyper saline'. (Reference to elevated salinity levels were also observed in historical records in the late 1800s and in 2006 correspondence to RAMSAR where it noted state of decline extending > 25 -30 yrs.)

Detailed ecological character descriptions and plans of management were not developed until mid 2010 – just prior to the release of the Guide to the Proposed Basin Plan (October 2010).

The SA ecological character descriptions and Plans of Management (2010) portray the CLLMM as being a predominantly freshwater system with the emphasis on maintaining ecological character being defined by water sourced from the Murray River.

This is subject to differing scientific opinion and is not necessarily consistent with historical records and scientific reports, including in more recent documents. The MDBA agrees with a revised history that the Lower Lakes were not estuarine (*Sim/Muller references – A fresh history of the Lakes*)

It is also widely considered today in SA, that the barrages were installed in 1939 (conversion of Lower Lakes to permanent freshwater systems) because of 'over extractions' by upstream states. This ignores historical evidence and that barrages constructions were part of Murray River regulation and earlier concepts for improved navigation.

There is also little understanding of the environmental impact of SA South East Australia Drainage Scheme (1860's – 1974) and the Upper South East Drainage and Flood Mitigation Scheme (1990s) which have also played a critical role in changes to ecological condition. The focus on Murray River flows to the Coorong in the Basin Plan ignore natural historical flows from the SE of SA.

The Barmah Millewa Forest's ecological character description (described NSW State Forestry) and nominated by the Federal Governments for international recognition under RAMSAR, was consistent with its 150 year history as a working forest.

Arguments that focus on the Water Act 2007 giving effect to international Agreements therefore must include recognition that it is the nominating country that retains control of such sites, including ecological character descriptions and plans of management. Political decisions on a site's description, plans of management or its future use under 'wise use' principles, can be altered in conjunction with discussion with RAMSAR.

Legal conditions relating to individual sites recognised by RAMSAR and noted in the Water Act Basin Plan (eg CLLMM), are defined by the original described preferences of the nominating State.

Murray Darling Basin Authority Independence:

The above example (CLLMM) highlights concerns about the capacity or willingness of the MDBA to abide by its charter to be an independent organisation and ensure robust science underpins decisions.

The Authority has not demonstrated the capacity to adequately review science or documentation provided by the States. It also appears to have selectively adopted various positions based on 'available information' or personal preferences to achieve outcomes.

In setting specific flow requirements to achieve salinity levels for example, the MDBA quotes SA claim that 2 million tonnes of salt must be flushed out to sea. Despite requests no evidence of this figure has been made public either by the MDBA or South Australian Government.

A South Australian Government Technical Report to reduce salinity in the Lower Lakes: Development of Flow Regimes to Manage Water Quality in the Lower Lakes, SA 2010/05 states,

"The environmental water requirements recommended through this program have been presented by the South Australian Government to the Murray–Darling Basin Authority (MDBA) for use during the development of their Basin Plan."

*"For the 700, **1000 and 1500 EC** targets respectively, average annual inflows (IAVE) of 4850, 2850 and 1850 GL were required. These equated to annual average barrage outflows (BAVE) of 4000, **2000 and 1000 GL** respectively. For ecological and operational delivery purposes it is not appropriate to implement a flow regime based on a constant annual inflow and outflow target. However, this analysis provided an understanding of the magnitudes of flow volumes required to meet salinity targets in Lake Alexandrina and the corresponding impact of those inflow volumes on Lake Albert salinity"*

The Basin Plan specifically includes water quality targets for Lake Alexandrina achieved via increased flows down the Murray River.

- A target of 1500 EC 100% of years
- A target of 1000 EC 95% of years
- Including a water recovery target of 2000 GL over the Barrages on a three year rolling average.

The Basin Plan is also consistent with flow objectives and strategies outlined in South Australian for the CLLMM. 'Securing the Future – a Long Term Plan for the Coorong, Lower Lakes and Murray Mouth (June 2010) which establishes SA Government policy positions for increasing 'end of system flows' as the primary mechanism, to achieve environmental outcomes in the Lower Lakes and Coorong.

When this issue is raised, the MDBA reject this assumption and describe that if the flow targets for the CLLMM are achieved, this delivers overall environmental benefits for a number of other sites in the Basin.

Closer examinations would suggest this is not the case. There is no transparency or evidence around these sites, to underpin the scale of additional water recovery under the Basin Plan.

The Living Murray 2004 scientific Reference Panel had previously identified that 1500 GL with infrastructure investments could deliver a 'healthy working Murray River'. Living Murray infrastructure works in the Southern Basin have now been completed to the extent where watering events can now utilise them.

Public opinion and evidence to date, would also confirm that the 'end of system flow targets for the CLLMM are not achieving specific benefits in the Northern Basin.

The Act's capacity to achieve its own objects are also compromised by sections of the Act which place restrictions on how environmental matters are framed or achieved.

Such objectives for the CLLMM are further entrenched in the Sustainable Diversion Adjustment Mechanism through the '*limits of change*' conditions.

This is seen as inequitable and precludes the capacity to seek alternative options to deliver localised environmental objectives and reduce the risks for other sections of the Basin (water recovery and/or flooding risks), including to riparian landholders in the Mid Murray and Goulburn regions.

The Act's objects refer to:

"optimise social, economic and environmental outcomes arising from use of the Basin Plan waters in the national interest"

In the Southern Basin, it is argued the Basin Plan does not optimise social, economic or environmental outcomes in the national interest. The Lower Darling region would also argue against the Basin Plan on similar points, pointing out that Basin Plan does not address lack of baseline flows in the Northern Basin -Darling system.

Public calls for full implementation of the Basin Plan ignores that the majority of water is being recovered in the Southern Basin and therefore will not result in major flow increases down the Darling.

The Basin Plan boundaries are based on maps that describe inflows parameters for Basin Catchments:



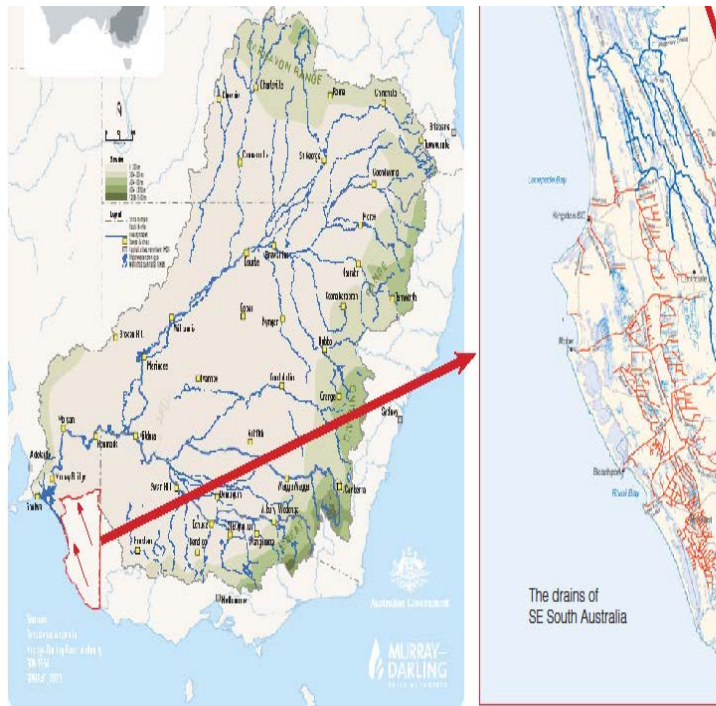
Basin Plan = 2750GL

Northern Basin

- Total inflows 13,547 GL/y
- Basin Plan water recovery target 390GL less 70 GL

Southern Basin

- Total inflows 15,959 GL/y
- Basin Plan recovery target 2289GL (includes 605 GL offset projects)
- + an additional 450GL



MDBA's – Basin Plan boundaries are defined by catchment inflow maps. These exclude SE of SA as part of the Basin (inflows to Coorong not considered)

The Basin Plan however sets specific flow targets for the Coorong from the Murray River (*not from SE of SA*)

Murray River flows are to replace natural flows to the Coorong from SE of SA which are currently re-directed out to sea via South East Drainage Schemes

The MDBA's reliance on Basin catchment inflow maps and replacement of natural flows in one catchment not geographically or physically linked with another, is not consistent with accepted principles within Catchment Planning.

SE of SA is not within Basin Mapped Catchment boundaries but the Basin Plan set specific primary targets to use Murray River flows to replace historical flows to the Coorong (*now redirected out to sea – SA South East drainage schemes*)

The focus on flow volumes as a primary measure of environmental health is also inconsistent with Australia's 20-year policy position of Total Catchment Management.

The Basin Plan does not provide equity in either environmental or social and economic outcomes.

Environmental outcomes in some regions will be enhanced, but others may be diminished (due to over watering in the Mid Murray/river bank slumping/elevation of CARP numbers resulting from the reliance to achieve 'end of system' flows from the Murray)

Murray River bank erosion is a serious risk and this will also lead to increased turbidity, reduce river capacities and private property impacts on the direct edges of the Murray.

The 2012 MDBA's Regulatory Impact Statement (RIS); deemed the impacts of the Basin Plan on irrigators to be 'modest' based on the following:

- Water is being acquired through Water for the Future Program (ie buyback or on farm or scheme efficiency projects)
- The Sustainable Diversion Adjustment Mechanism (Southern Basin) which enable projects to offset irrigation impacts

It is widely acknowledge now that the MDBA and the RIS severely underestimated the economic impacts of water recovery in the NSW Murray Region and Northern Victoria's Goulburn Valley.

Any impacts to riparian landholders arising from loss of their land or elevated flooding risks have not been considered in any social and economic report at all.

4)

Whether underlying assumptions in the original modelling used to develop the objects and purposes of the Act and Basin Plan have been sufficiently adjusted for the impact of improved technologies.

There is no evidence that underlying assumptions used in the original modelling underpinning the Water Act 2007 or Basin Plan were accurate or have been reviewed to the extent where new information is being utilised in MDBA subsequent decisions.

Instead, the MDBA retain original assumptions (even if proven incorrect) and indicate an approach that avoids scrutiny of those assumptions or attempts to introduce new information.

The Water Act 2007 and Basin Plan have legislative and regulatory restrictions embedded that specifically preclude capacities to adopt and implement new information.

This may also explain the reluctance of the MDBA to incorporate new information in their documentation (post 2012) and to provide documented updates to politicians (eg Ministerial Council Meetings) on areas of the Basin Plan that need review.

5) And 12)

- ***If the Basin Plan is unlikely to achieve any of the objects and enhanced environmental outcomes, what amendments should be made to the Basin Plan or Act to achieve those enhanced environmental outcomes and to achieve outcomes associated with the 450 GL.***
- ***Whether the Basin Plan in its current form, its implementation, and any proposed amendments to the Plan are adequate to achieve objects and purposes of the Act and Basin Plan***

Terms of Reference assumes that the Water Act 2007 and the Basin Plan as instruments for public policy and taxpayer expenditure of this scale are valid and in their current form should be implemented.

The MDBA approach to the Basin Plan requires major review. In setting targets for water recovery, modelling assumptions and scientific documentation relied on by the MDBA in development of the Basin Plan, appear to have serious failings.

Mistakes are compounded by the original wording of the Water Act 2007, the subsequent boundaries around the Basin Plan and the lack of scientific rigor accompanying decisions.

It calls into question whether the MDBA has acted as a truly independent organisation.

The MDBA did not instigate its own scientific information for the purposes of creating a new Basin Plan. It relied on 'available' information including information provided by the States.

It is highly questionable whether the MDBA reliance on 'scientific data' or information was actually fit for purpose. Decisions risks were heightened by restrictive political timeframes and a new authority and board of management that did not necessarily have sufficient experience in water management, to enforce major changes to water use in the Murray Darling Basin.

To continue on an implementation pathway without recognising major deficiencies is not in Australia's National Interests.

There is already clear evidence that the Water Act 2007 and the Basin Plan as currently worded cannot provide sustainable long -term outcomes in the Murray Darling Basin.

This is because of the Water Act and Basin Plan places strong reliance on increasing 'end of system' flows from the Murray River as the primary mechanism to achieve environmental outcomes.

This approach therefore should be considered inconsistent with achieving broader environmental objectives for the Murray Darling Basin as a whole.

The Water Act and Basin Plan is also inconsistent with water conservation strategies under climate change predictions.

The potential to achieve stated objectives is further degraded under Climate Change predictions where rainfall in the Basin will reduce and Lower Lakes barrages will be overtopped by the Southern Ocean under sea level rises.

An adaptive management approach to achieving environmental outcomes would also assist with climate change strategies, water conservation and individual business capacities to deal with drought. The opposite is occurring.

The volumes of water being recovered for the environment is driving up water prices increasing production costs and reducing farm business capacity to invest or prepare for drought.

The inclusion of additional infrastructure, adaptive management and complementary measures is critical to achieving environmental outcomes and reducing financial pressures on irrigation businesses. This approach would also bring major benefits for riparian landholders in the mid Murray as such options would enable a more realistic approach to managing environmental flows.

The MDBA have shown no willingness to provide updated advice to the Federal and State Governments on specific areas where the Basin Plan can't work or where the current approach will not achieve sustainable outcomes.

The current approach can be likened to a 'runaway train', everybody knows there is a train wreck to occur but there is an incapacity or desire, to do anything about it.

There are major changes required to the Water Act 2007 and Basin Plan.

These include but are not limited to:

- The need for a more flexible and adaptive approach to achieving its own objects
- Capacity to recognise new knowledge and incorporate additional strategies to achieve environmental outcomes
- Recognise that the MDBA Board and staff did not have sufficient water management experience or adequate timeframes to develop a new Basin Plan reflective of the complexities that are involved.
- Review the science underpinning the Basin Plan, including the Sustainable Rivers Audit,
- Removal of specific conditions that limit the inclusion of additional or more sustainable options for the CLLMM
- Enable updated scientific information to influence MDBA decisions
- Capacity to amend existing or include new projects as part of the Sustainable Diversion Adjustment Mechanism
- Review the MDBA structure and operations to assess whether the MDBA has acted within its charter of an independent authority – there is sufficient documentation to suggest it has not.

7), 8), 9) , 10) illegal works, compliance, enforcement, monitoring and any impacts on the Water Act and Basin Plan objectives

It is not clear where metering standards (AS4747) for irrigation extractions as agreed under the National Water Initiative have been rolled out across Queensland, Victoria , South Australia.

The Southern Basin Metering Project has been applied in the NSW Murray and Murrumbidgee, any new meters (2018) may be subject to the new policies of the NSW Governments outlined in the NSW Water Reform Action Plan.

The NSW section of the Northern Basin has not been required to meet NWI metering standards, or updated standards to reflect the latest technologies.

Some flexibility is required around requirements for meters, to ensure standards are commensurate with actual volumes pumped. For example low volume pumps may require appropriate technologies to reflect low levels of use.

However for larger irrigation extractions, equity issues should apply across the entire Basin.

In responding to this question in the Terms of Reference, this submission makes particular comment on the Northern Basin, but it is important to equally ask the **same questions for water management and accountability in South Australia.**

South Australia:

At this stage, it is not clear what metering standards are being applied in South Australia and whether the levels of metering, enforcement and compliance, meet national standards agreed to under the National Water Initiative.

It is also not transparent how additional environmental flows across the SA border will be monitored, measured and metered. This is essential to ensure separation of additional environmental flows from commercial use once flows reach the SA border.

In South Australia, it is publicly acknowledged flows to the barrages and to the Murray Mouth are **based on estimates only**– not actual meter readings. Estimations of flows are also noted in various historical and current official documents (MDBC /SA)and a variety of other reports which underpin the Murray Darling Basin Plan.

Therefore it is reasonable to question whether this lack of data is appropriate to underpin claims by South Australia for more water from upstream states to be achieved through the Basin Plan.

Currently there is no information from the MDBA on how proposed environmental flows volumes to South Australia will be assessed and reported. Given the significant expenditure of taxpayer's funds, it would be appropriate to ensure new reporting measures by SA Water, will provide this information in a fully auditable manner.

In order to ensure public confidence, reporting would need to account for:

- SA entitlement flows (1850GL)
- Conveyance flows
- Dilution flows and SA Additional Dilution flows
- Any additional above average flows
- Commercial extractions (eg irrigation or industry extractions)
- Accurate measurement and re measurement of environmental water
- Flow volumes being returned to the Coorong from South East of SA Drainage Schemes (SDL project)
- Flow volumes from SE of SA currently directed out to the Southern Ocean
- Tidal inflows into the 11% of the remaining estuary
- Marine flow volumes re entering Lake Alexandrina during Southerly swells

As South Australia is the major beneficiary of the Basin Plan, full transparency in a manner that the public can monitor is even more critical, particularly when upstream regions are required to comply with MDBA water recovery targets, Water Resource Planning and Sustainable Diversion Adjustment Mechanism reconciliation audits by 2024.

Full transparency and metering by SA is also required with other specific targets for CLLMM that the Basin Plan water recovery targets are to meet.

- Basin Plan target - 2000 GL of environmental water flowing over the barrages
- Basin Plan salinity target for Lakes Alexandrina.1000 EC 95% of years, 1500 EC 100% of years.
 - Full beacon measurement and reporting of salinity (EC) targets
 - Separation of salinity contribution points eg local groundwater salinity inflows, Southern Ocean salinity influences (sea water can enter Lake Alexandrina when barrages gates are open during Southerly swells)

- Basin Plan target flows for the Coorong,
 - Full reporting and traceability of how Murray River flows enter the Coorong's (note: *This may include the requirement for more accurate measuring systems, evidence of separation of marine flows, local flows and new methods to physically detect Murray River freshwater influences on the Coorong*)
 - What percentage of Murray Flows reach which section of the Northern Lagoon
 - What percentage of Murray Flows reach the Southern Lagoon of the Coorong and how far does Murray Water Flow the full 143 km of the Coorong.

Northern Basin:

There have been a number of political drivers that lead to the Water Act 2007 and Basin Plan.

Media reporting of the effects of drought on the Coorong, Lower Lakes and Murray Mouth combined with on-going reporting of conflicts between floodplain graziers and irrigators in the Northern Basin and Queensland, were catalysts for the scale of political response during the 2007 Federal Election campaign.

There was limited public understanding of just how severe the Millennium Drought was on the Southern and Northern Basin, nor how water in the Basin is actually managed.

There have however been longer term concerns about extraction levels in the Northern Basin and whether sufficient rules are in place to ensure baseline flows occur throughout the Darling system.

Northern Basin systems of management are different from the regulated systems of the South and a different approach to monitoring, enforcement and compliance has been taken historically by the NSW and Queensland Governments.

In the Northern Basin, the lack of measurement, monitoring and data on flows appear inadequate for the MDBA to determine that only 6% of flows contributions from the Northern Basin contribute to Murray flows to the end of system.

This assumption has influenced the MDBA's water recovery strategy under the Basin Plan.

The SA Royal Commission may wish to consider the following issues and timelines in the Northern Basin:

- June 1992 Interim Un-regulated Flow Management Plan for the North-West (a Plan to operate for the 1992/93 Irrigation Season)
- 1993/94 Intention to replace 1992 Interim Plan with comprehensive State Policy and Valley by Valley management Plans

Some of the Plans objectives included:

- Off-allocation and pumping B&C Class license operations would not be permitted unless riparian flow targets are met
- Algal suppression flows would be re- instated

- Flows for fish migration would be required
- All Barwon-Darling licenses for on-farm irrigation storages will be required to fit approved time/event/flow meters before October 1992.
- Others with allocation greater than 1200 ML or an authorised area greater than 80 hectares will be required to install an approved time./event/flow meter on irrigation pumps before October 1993

1992 Interim Unregulated Flow Management Plan for the North-West includes the following statement:

“The time for unfettered use of unregulated water is now over”

This submission will not address specific issues of compliance, enforcement or in river metering as these issues have been covered extensively in media programs.

There are however a number of concerns with the NSW Government’s responses.

The NSW Government Water Reform Action Plan will build standards for monitoring, measurement and enforcement in the Northern Basin.

The question is will they be sufficient or be in a timely manner to influence water recovery decisions in the Basin Plan. All indications are that implementation of new conditions in the Northern Basin plan will be well after decisions on water recovery and Basin Plan implementation requirements are completed.

New metering measures will not lead to reduce extraction levels, but may improve future reporting.

Strategies outlined to protect environmental flows will assist with achieving improved baseline flows conditions. However it seems inequitable to the Southern Basin, that environmental flows are expected to provide a proportion of baseline flows in the Northern Basin.

The opposite situation occurs in the NSW Murray region where no irrigation extractions can occur at all unless a full suite of conditions are met. These include:

- Baseline/conveyance flows for river operations
- Provision for environmental needs
- Town, human , stock and domestic needs (*basic rights)
- South Australia entitlement flows/irrigation flows
- SA Dilution flows
- Hume and Dartmouth storage reserves
- High Security irrigation entitlements
- Irrigation carryover entitlements

Once these are in place, then annual allocation announcements on NSW Murray General Security entitlements are permitted based on available water in mountain and other storages.

This submission does not support the NSW Water Reform Action Plan in its current form.

NSW Water Reform Action Plan:

- Floodplain harvesting will not be subject to metering requirements or standards,
 - a system of ‘measurement’ and self reporting will apply
 - Works constructed on or before 3 July 2008, or for which a valid application under Part 2 or Part 8 of the Water Act 2012 or the Water Management Act 2000 was made on or before that date are eligible under this policy
 - This provides provision for retrospective license approvals
- River pumping will now be required to meet NSW State-wide standards consistent with the National Water Initiative but implementation will extend to 2024

13) Any other related matters

There are a range of additional issues that I would welcome an opportunity to discuss in more detail directly with the SA Royal Commission, as part of any formal inquiry process.