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By email to
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26th April 2018

I make this submission as a riparian landholder in the Queensland section of the Murray Darling Basin for more than 30 years. I have been closely involved in many aspects of water management for more than 25 of those years. This includes stakeholder involvement in numerous water planning and management processes in Qld and NSW; wetland and flooddplain advisory and management committees in both states; a member of the MDB Commission's Community Advisory Committee (2004-08) and The Living Murray Community Reference Group (2005-09); the MDB Authority's Northern Basin Advisory Committee (2012-16) and NSW Gwydir Environmental Contingency Allowance Operations Advisory Committee from 2005 to present) - to mention a few.

My comments are made in the context of the Murray Darling Basin Plan, the Matthews review of NSW water management policies and frameworks, the MDBA's Compliance review and, with regard to catchment scale implementation, informed by my understanding as a long term member of the Gwydir ECAOAC.

I am generally supportive of the approach the Productivty Commission is taking with this consultation process and thank you for the opportunity to comment.

There are a number of additional issues in the Basin Plan that I believe should be assessed as part of this review:

- the resilience of flow-dependent species and ecosystems to adapt to Climate Change.
- Changes to the ecological character of Ramsar listed wetlands
- Cultural outcomes for indigenous communities.
- Water quality trends

Basin Plan implmentation has been slow to date and while there have been some good outcomes, much greater improvements may have been seen had environmental water been better protected and actually watered some of the targeted areas. It appears there isn't sufficient information about exactly where e-water is going and what it is achieving nor of the impact of irrigation efficiency projects on return flows. It is not certain that these very expensive (compared to buyback) projects are indeed benefitting the environment.

With a number of Inquiries into water use and management in the MDB now underway, I actually see a case to pause the plan to (a) allow the Inquiries to make their recommendations and get inadequate and ineffective processes out of the picture; and (b) quantify the benefits (or otherwise) of return flows to inform whether water use efficiency projects are worth the investment. Providing effective monitoring and compliance is in place during such a pause, this time would also allow us to learn what the full amount of water recovered to date can actually achieve for the environment.

Furthermore, such a pause would allow time to fill the huge gap around the likely impacts of climate change and how communities adapt to it. The MDBA's adaptive management approach is dependent on accurate data, sound science and modeling. I am acutely aware that NSW does not have / has not been using accurate data and I personally have no confidence whatsoever in the modelling that underpins its

Floodplain Harvesting Policy, particularly with regard to the Gwydir and Border Rivers catchments.

α. the extent to which adopting a different definition of 'neutral or improved socioeconomic outcomes' for efficiency measures to what is in the Basin Plan would affect the likelihood of projects being delivered on time and on budget

Discussion of the socio-economic impacts of efficiency measures to date has been focused on *negative* impacts on *irrigators*. An entirely different conversation emerges when the positive benefits of improved environmental condition are taken into account. For example, tourism expenditure in 2016/17 was $7.5 billion, up from $1.8 billion over the last 5 years. (MDBA (2017) Social and economic benefits of environmental watering)

The definition of socio-economic outcomes should be broadened to include all the impacts of environmental water recovery and across all sectors, not just irrigation. Community profiles published by MDBA show that the most resilient communities are those with diversified economies, and that employment growth is occurring in sectors other than agriculture – and particularly in tourism (https://www.mdba.gov.au/publications/mdba-reports/southern-basin-community-profiles)

Socio-economic indicators need to adequately reflect community well-being. This should be a high priority for indigenous communities which underscores the need for the cultural flows research work to be intergrated into the evaluation framework and for clarity regarding cultural outcomes.

c. whether there are other novel approaches to recovering water for the environment, such as purchase of entitlement options, that may contribute to Basin Plan outcomes while achieving neutral socioeconomic outcomes

Opportunities exist to make strategic purchases decisions that will deliver other environmetnal benefits and particularly water quality and salinity outcomes. CSIRO's 2009 method (http://www.csiro.au/files/files/pqha.pdf) for determining which areas are best suited to irrigation assigned a red 'traffic light' to land that should ideally be transitioned out of irrigated and into dryland agricultural production. Considering land capability and risks to water quality could identify areas for targeted water recovery and environmental restoration projects. The reduction in salt loads in the red zones could save as much as $50 million in mitigation costs over 30 years.

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

The 'toolkit' measures were developed by the Northern Basin Advisory Committee and proposed by MDBA as a not negotiable element of their recommended 70GL cut to the northern basin recovery target. The toolkit contains worthwhile policy and on-ground measures that should be funded and implemented by all States - regardless of the recovery target. In fact, a permanent Commonwealth government budget line item to guarantee funding for investment in NRM to maintain natural capital is long overdue.

Protection and caregul shepherding of e-water through the largely unregulated northern basin must be a high priority for action action.

Floodplain harvesting is a major component of total take in the northern basin.

The NSW government is in the process of implementing its floodplain harvesting policy (https://www.industry.nsw.gov.au/__data/assets/pdf_file/0005/145427/floodplain-harvesting-policy-consultation-paper.pdf) which will very significantly increase take in many northern valleys. At a time when when a number of inquiries are underway into NSW's record on water management it is nothing short of astonishing that such a blatant grab to take still more water out of our severely stressed rivers is even contemplated. The policy is based on questionable data and inaccurate modelling and puts planned

environmental water at risk of being taken and not benefiting the local assets for which it is intended.

NSW apparently proposes to legitimise more than 800GL of unmetered and unregulated take into new licenses and/or tradeable property rights. The granting of private property rights in water was a huge transfer of public wealth to private interests and should not be repeated at a time when the system is clearly under great stress. In my opinion, the system and the MDBPlan would be well served by converting unlicensed floodplain flows into e-water to be held by the CEWH.

It is abundantly evident that management based on averages has been a disaster for our rivers, wetland and floodplains, yet NSW intends to base new entitlements to take floodplain waters on whichever is the greater - recent climate records or the long term average. Further, it intends to allow unlimited carryover and annual use limits 5 times licenced entitlement .

To say that the FPH Policy is contrary to the spirit and intent of the MDB Plan would be to make a significant understatement. It is almost beyond belief that the NSW Government proposes to license all existing floodplain harvesting and *then* work out the volume likely to be taken - whilst acknowledging that *no-one knows how much water is currently being taken by this method of extraction.* This is totally unacceptable and tantamount to handing out signed but otherwise blank cheques. NSW taxpayers should be outraged.

It is my understanding that there is no metering of floodplain harvesting diversions and that estimates are likely to be gross under-estimations. This raises the question of the accuracy of the model inputs and it is unclear how irrigator behaviour, particularly how on -farm storages are being used, is incorporated. It is suggested that the short term average floodplain harvesting take during the relatively wet period 1998-2013 gives a more accurate representation than the long term annual average. But there is not a shred of evidence nor data – let alone analysis of flow data - to back up this claim. Accordingly, I personally have no confidence in the model. If this represents best practice water planning I have no confidence in the NSW process either.

It is unclear whether the modelling for the Gwydir includes accurate estimates for other natural inflows from unregulated tributaries including the Horton, Tycannah and Gil Gil subcatchments.

In discussion with some of my agency colleagues (multiple jurisdictions) they have opined that it is very highly likely that the proposed entitlements and rules for floodplain harvesting in the Gwydir will trigger very significant growth in flood plain harvesting in the northern valleys. The proposed measures will not be sufficient to control this growth. Impacts on already over-allocated and stressed systems such as the Gwydir and Macquarie, both Ramsar site catchments, will not become evident until long after they have occurred but it seems inevitable that their resilience would be sorely tested and changes to ecological character would occur.

Many of the MDB Plan targets for the Gwydir will be affected by the additional floodplain harvesting take if this policy is implemented. Floodplain vegetation condition and extent, particularly for coolibah and black box ecological communities; colonial waterbird breeding events; native fish ; and longitudinal connectivty – all the way to the Barwon - will all be negatively affected, especially downstream of major floodplain harvesting operations.

It is not clear - but seems doubtful – that the Environmental Water Requirements for the floodplains provided by overbank flows will be able to be met due to the increased take by floodplain harvesting should this policy proceed. If an account limit of 500% is implemented a massive increase in on-farm storage capacity is likely and overbank flows will become a thing of the past. Further degradation will be inevitable.

Data for estimated FPH take and observed data over the past 20 years needs to be made available. Estimates simply aren't good enough for community confidence nor the environment.

While these new conditions "will provide fairer outcomes for irrigators" I find myself wondering whether indigenous people with cultural obligations to protect and speak for rivers, stock and domestic users, floodplain graziers, towns with urban water supply needs and downstream environments will be collateral damage on the journey to a completely dead Darling River.

I note that it would be possible for irrigators to be compensated for these new licences via an amendment to the NSW Water Act 2014. There is no mention of compensation for the above-mentioned stakeholders who will suffer extraordinary hardship – and would certainly prefer to live on and have access to a healthy river.

I have preciesly ZERO confidence that, if implemented, this policy will end well, at least unless:

- An audit of floodplain harvesting works and infrastructure is conducted in all catchments. There should be no increase in floodplain harvesting above current WSP estimates while this audit takes place. Estimates of take need to be improved and made public.
- There should be no licensing of rainfall runoff and any interception of runoff should be offset by a reduction in other types of take.
- New water infrastructure *plans* need to be assessed and approved before any new licences are granted. The practice of retrospective approvals must end!
- All entitlements to floodplain harvesting need to be made transparent, public and updated once they have been more accurately estimated. Transparent reporting is also needed on any new entitlements.
- "no meter, no pumping."

I sincerely hope that the MDBA will pay extremely close attention to NSW's water resource plans when they are submitted for accredition. I understand that NSW is moving to a 2 document water planning model and I am deeply concerned that important catchment-scale water extraction details might not be provided in the over-arching document submitted for accreditation. A forensic examination of the sub-ordinate policies and plans will be required to ensure the model inputs are accurate and that the correct version has been used. For community trust and confidence NSW must be and must be seen to be complying with the spirit and intent of the Basin Plan.

SDL adjustments

In my opinion, legislation must give certainty for the return of 450GL of water for the environment - as specified in the original Basin Plan agreement - to ensure the total amount of 3200 GL is /will be recovered before approval of any SDL projects.

The Wentworth Group of Concerned Scientists has conducted a detailed assessment of the 37 projects proposed for SDL adjustment and developed a set of 12 conditions based on Basin Plan requirements. Only ONE of proposed SDL projects meets all 12 conditions. The Wentworth Group concludes that many of the projects have unknown or unacceptable governance arrangements and some Victorian projects do not represent value for money, being more expensive than the agreed $1900/ML offset. (Environmental Defender's Office, Victoria 2018)

The effectiveness of the proposed infrastructure measures to deliver equivalent environmental outcomes have yet to be assessed.

a. why progress to remove constraints has been slower than expected

Progress has been slow for a number of reasons:

- Concerns about the third party impacts of constraint management have eroded support for

the projects. Communities remember the damage caused by flooding but sometimes forget that it was caused by an extreme rainfall event and not ("bird-water") an environmental water release. The volumes of held environmental water are small in comparison and rarely cause prolonged periods of flooding. Environmental water managers and their well-informed environmental watering advisory committees have to make very judicious use of planned and held e-water and in my experience would never make one very large single-event release. Its use is carefully planned to mimic natural flow patterns, create variability in the flow regime and meet specific targets and outcomes.

- Environmental watering has been held responsible for a number of blackwater events. In fact, environmental water can be used to both mitigate and reduce the risk of blackwater events, and removing constraints would reduce the risk further. In addition to its role in mitigating the impacts of blackwater events already in progress, environmental water can be used to reduce the risk that they will occur. Black water is caused by the build-up of organic matter on the floodplain. More frequent environmental watering can reduce the level of build-up. However constraints continue to obstruct the delivery of environmental water to floodplains and until these are dealt with the full benefits of environmental water as a risk management tool will not be realised.

b. the implications of this slow progress.

Governments have listened to community fears about constraints management projects and their commitment has wavered. These projects are only being pursued to the extent that they provide a potential SDL offset as part of the package of measures for consideration in the SDL adjustment.

For healthy eco-system functioning, floodplains are as important as in-channel and low-lying sites. Failure to manage physical constraints means that crucial floodplain sites will not receive environmental water potentially leading to accusations that the CEWH has more water than can be delivered for environmental purposes. This in turn leads to increased pressure to sell 'surplus' water back to irrigators. The CEWH does not have too much water but does have an inability to deliver it to achieve floodplain objectives.

The lack of progress in managing constraints is having an impact on the recovery of the 450 GL of upwater. If constraints are not dealt with , upwater will fail to achieve its full potential. Slow progress on constraints is being used by opponents of upwater to undermine the case for its recovery.

The combination of constraint relaxation and an additional 450 GL upwater could substantially increase environmental benefits, with 4 more flow indicators being met for the River Murray (17/18 as compared to 13/18 for the upwater alone) and the potential to benefit large areas of natural wetlands and floodplains in the lower Murray. Doing both conjunctivevly creates more than the sum of the benefits of each individual action. (MDBA (2012) Hydrological modelling of the relaxation of constraints in the southern connected system)

c. what can be done to ensure that constraints are removed in a more timely manner while managing impacts on third parties

In my opinion, the most significant implication of not removing constraints is the impediments they present to environmental water managers' ability to deliver e-water to the intended ecological assets.

Key measures that are required to speed up the removal of constraints and to ensure Basin Plan objectives can be achieved if constraints cannot be removed include:

- Significantly increasing funding to relocate roads, bridges and other affected infrastructure

- Establish flood easements by buying back affected properties and,
- Investigating other ways to achieve required outcomes if constraints can't be removed

Proponents, jurisdictions and affected communities require a change of attitude to constraints management. The many benefits of constraints management have been repeatedly underestimated and ignored. They include:

- **Maximising the benefits from limited environmental water available**

It is in everyone's interest to gain the maximum benefits from water returned to the environment, to which communities and taxpayers have made a very significant contribution. Making optimal use of environmental water will reduce the need for future water recovery.

- **Resolving long standing problems of minor flooding in rural and urban areas**

Minor flooding in towns and urban areas can disrupt the use of public infrastructure such as low-lying roads, caravan parks, playgrounds and sporting facilities. Repairs and maintenance costs to local, state and federal governments have traditionally been a drain on finances and resources Creating easements to allow environmental water delivery would also allow for the passage of minor flood events and reduce inconvenience to landholders. Making use of available constraint management funding to upgrade low lying infrastructure such as roads and bridges is an obvious benefit to communities.

- **Upgrading aging levees and flood control measures**

Many flood protection levees in the southern connected basin are in disrepair and at risk of failure, with ownership and responsibility for management disputed.

- **Increased flood protection**

Jurisdictions are investing heavily in flood protection planning and infrastructure after the flood events of recent years. Integrating consideration of the delivery of environmental water into this process and pooling resources with constraints management would be a significant budget benefit.

- **Prevention of blackwater events**

- **Improvement in floodplain health** brings economic and recreational benefits, such as increased meat and wool production, tourism and fishing opportunities and improved ecosystem services.

d. strategies that are, or could be, put in place to increase the extent to which Basin Plan objectives are met when constraints cannot be removed.

If constraints cannot be removed a potential pathway to improving environmental outcomes would be to change river operating rules to prioritise environmental outcomes over irrigation water delivery. I understand this is being explored through the 'Enhanced environmental water delivery (Hydro cues)' project being developed by NSW, Victoria and South Australia as a supply measure.

Adequate protection of environmental flows is key to the success of the Basin Plan, with or without constraints management. The Basin Plan requires 'unimplemented policy measures' such as shapherding environmental water through the largely unregulated northern basin and particularly through the Barwon-Darling. It is encouraging that NSW is trialing a coordinated release from multiple northern storages to follow up on inflows from recent rains in Queensland. To rebuild trust in the process and the MDB Plan, NSW's commitment to protecting taxpayer owned water needs to be confirmed.

a. the extent to which the Australian Government's strategy to recover water in areas where gaps remain will be cost effective, align with the Basin Plan's environmental objectives, and be transparent

The Government's 1500 GL cap on water purchases is a severe limitation on the cost effectiveness of water recovery.

The Australian Government has consistently favoured infrastructure projects as a means of water recovery in recent years despite these being significantly more expensive. (Commonwealth of Australia (2014) Water Recovery Strategy for the Murray-Darling Basin) Much of the 'low hanging fruit' has already been recovered. There are also serious doubts about the equity and benefits of on-farm water efficiency programs as well as uncertainty about the impact on return flows. (http://www.abc.net.au/news/2017-07-27/murray-darling-300-billion-litres-of-environmental-water-lost/8748794)

The Turnbull Government has pursued a policy of targeted water purchases in conjunction with infrastructure projects. This has lead to some highly questionable purchases, such as the purchase in June 2017 of very low reliability water entitlements from Tandou station for double the market value as determined by the Government's own valuer. (see above) This purchase was made to facilitate the highly controversial Menindee Lakes supply measure, for which no business case has been publically released. (https://www.theguardian.com/environment/2018/apr/11/the-menindee-lakes-project-who-loses-and-who-really-wins). No justification for the high purchase price has been provided. The local community is deeply concerned about the purchase, the implications for Menindee Lakes as a recreational and tourism asset and the related Wentworth - Broken Hill pipeline project. In addition to deep cynicism about the lack of transparency about the controversial pipline, Broken Hill residents worry about dramatically increased urban water supply charges.

(A) how well current arrangements for monitoring, evaluation and reporting support the delivery of the objectives of the Basin Plan; and how they could be improved to increase the likelihood of the objectives being met.

In my view the MER framework is fit for purpose. But MERI (I for improvement) would also be useful!

I think it's desirable for members of local communities to be involved in some forms of monitoring to build ownership of and involvement in the implementation of the Basin Plan.

(c) the usefulness of the MDBA's Framework for Evaluating Progress and its recent application in evaluating the Basin Plan

The Basin Evaluation Framework is not easy to find online. Many people (apparently) include "monitoring" in their search field but this term is not in the document title.

(e) the general information required to provide confidence to communities and others that the Plan is being implemented well and is achieving its objectives

Water reform is so complex that there needs to be an easily accessible and easy to use guide to 'who is who and who does what (and how) in the water zoo'.

The intervention of politics into the basin Plan has been extremely damaging and divisive. The splitting of the federal water portfolio between 2 departments and 2 ministers has been most unhelpful. The CEWH has had no say in the location of water purchases nor the type of water recovered. The result has been unstrategic in terms of having a portfolio of water products and entitlements that allow flexibility of use; and in terms of hitting targets and objectives. Some extremely expensive , unreliable "paper water" has been purchased with almost zero environmental use value.
(https://www.theguardian.com/australia-news/2017/oct/26/78m-spent-on-darling-water-buyback-nearly-

double-its-valuation & https://www.theguardian.com/environment/2018/mar/21/australian-governments-water-buyback-displayed-pythonesque-haggling-skills)

In the wake of a 1500GL cap on direct buyback being imposed, an unsolicited offer to sell (very expensive) water from the Warrego catchment was accepted by DAWR but there are claims that it was to be accounted for in the Border Rivers.
(http://www.tai.org.au/sites/defualt/files/P495%20Moving%20Targets.pdf again.)

The wider community's confidence in governments' water management is, in my opinion, currently at rock bottom. Improvements in transparency and accountability are essential. Ideally an independent body such as the National Water Commission would be re-established. Crucially, rigorous assessments of all water plans and subordinate policies must be undertaken before state Plans are accredited.

A recent article
https://www.weeklytimesnow.com.au/news/national/environmental-flows-cash-for-bypass/news-story/f800fb1f954343677b3dc4aa2149a096
suggested that irrigators be paid to not turn on their pumps in order to protect e-water. This would mean that taxpayers would pay for this water more than once – recurring payments everytime an event passed down the system. This is a grossly inefficient use of taxpayers funds and should not be given the time of day.

I understand that payments to forgoe take in an unregulated system, particularly the Barwon-Darling, would have been a feasible framework – for unregulated rivers managed on an event by event basis. But this model wasn't adopted and it is too late now to change it. Protecting held environmental water and getting the best possible ecological bang for taxpayers' bucks should be a matter of highest priority.

Cultural water

To the list of environmental outcomes I would add the beneficial impacts of environmental water use on indigenous communities.

Environmental water is a subset of cultural water (but not vice versa) and there is an urgent need to restore sufficient water to river systems to ensure indigenous people can actually practice their culture and pass it on to younger generations. Currently, indigenous culture seems to be dying for want of water, just like the Darling river.

I've heard numerous police officers, school teachers, health professionals and others observe that when there is water in the rivers there is less discord, better school attendance, fewer hospital admissions and a more positive feeling generally in nearby communities. Aboriginal people put it this way: “when there is water in the rivers there is something to do.”

It shouldn't be too hard to put hydrological records and eg police, school and/or hospital records together to see if there is indeed a useful correlation at particular places. I live in hope that someone, somewhere will have the political will to test this!

I totally reject voluntary agreements to protect environmental water. We need to legislate to ensure compliance; rigorous, well-resourced enforcement and substantial penalties for those who fail to play by the rules.

Thank you for the opportunity to comment.

Yours sincerely