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Submission to the Inquiry into proposed
Murray Darling Basin Plan

Namoi Councils Water
Working Group

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Introduction

This submission is made to the House of Representatives Standing Committee on Regional Australia (RA) for the inquiry into the Murray Darling Basin Plan by the Namoi Councils Water Working Group (NCWWG).

The NCWWG welcome the opportunity to make this submission to the RA committee. As outlined in our previous submission the focus needs to be on a “Healthy Working River” and particularly the involvement of local communities as a key plank of this concept. The inquiry is part of this ongoing engagement and further to this we are available to appear at a public hearing if required.

Our submission focuses on the Northern Basin as a whole, with examples provided from the Namoi and the downstream contribution required from the north to meet the environmental water requirements of the Barwon Darling.

There can be no real achievement environmentally in the Northern Basin until such time as there is an integrated approach from each of the tributary river systems connected to the end of northern system including Menindee Lakes is undertaken. A northern basin project with the scope to deliver real and lasting reform is urgently required. It should include metering, telemetry (to collect real-time data), river modelling using CARM, on-farm efficiency measures and a Menindee Lakes solution.

It is expected the project will deliver significant water savings both within river operations and on-farms in our region, combined with reduced evaporation in Menindee to help reduce the potential loss of 143GL of productive water as proposed in the MDB Basin Plan. As part of the development of this integrated water management project, commencing a feasibility study of the water saving opportunities in the Northern Basin would be essential, and one that is not limited as previous studies have been by a confining terms of reference.

Attached to this submission is a nine page chronological summary from 1877-2012 of the investigations and issues that have impacted on Menindee Lakes. This 135 year period has seen considerable changes to the use and infrastructure at Menindee and with these changes real impacts on communities upstream. What is striking in the chronological listing is the amount of inactivity in the last 50 years – significant resources have been spent on investigation and understanding potential solutions yet very little change has been realized.

The RA committee report “Of drought and Flooding rains” made recommendations relating to placing a priority on the development and implementation of works and measures and water use efficiencies over water purchases. A Northern Basin Integrated Project is one such concept that has the potential to offset the SDL reductions under the basin plan and reduce the severe socio economic impacts of buyback on regional communities.

The Namoi Councils is an alliance of five councils and the Namoi Catchment Management Authority (CMA). The Namoi Councils Water Working Group (NCWWG) reports to and makes recommendations to the Namoi Councils on water policies and reforms that impact on the Namoi regional economy. In addition, it seeks to identify and leverage State and Federal Government funding (including structural adjustment monies) for the benefit of Local Government Areas in the Catchment. The NCWWG membership comprises of representatives of Tamworth & Narrabri shire council, Namoi Water, Namoi CMA, a major agricultural and industrial water user, mining industry and two Local Government representatives with technical skills. The group is chaired/convened by the Namoi CMA.

NCWWG engaged Calibre consultants Geoff Fishburn and Margie Parmenter to review the MDBA technical reports and information on Menindee to provide a submission on the MDBA Basin Plan. This report content is summarised in this submission and a copy of the full report is attached as Appendix A.

SDL Reduction Options

NCWWG engaged Access Economics to undertake a full socio-economic study of the Namoi Region to determine the value of water. The focus of the study was to develop a tool to interrogate the proposed water reforms and highlight the potential for socio-economic impacts. This then allows NCWWG to use these results to discuss mitigation options. Recovery of water for environmental purposes under the buyback program will have a marked socio-economic impact not only on the townships of Narrabri, Wee Waa and small villages in the Lower Valley but on the Lower Namoi Community as a whole with flow on affects to Gunnedah and Tamworth this has been quantified through scenario runs and model outputs from the study.

There are two tools available for a mitigation strategy in the Northern Basin: 1) Is to deliver water efficiently to environmental sites and 2) Is to reduce evaporation losses in Menindee. The Northern Basin has long held the view that reform of Menindee Lakes is the highest priority and in a paper delivered to previous Water Minister Penny Wong this was clearly articulated.

Computer aided river management and telemetry metering are essential tools to delivery water efficiently. It is feasible to maximise environmental benefits by knowing where the water is in the system from both mechanical releases and natural flows. There is no point in moving towards this high degree of efficiency without incorporating Menindee reform. It calls into question the intent of having smart river and not having smart storage - Menindee.

Further in our submission and in the appendix A the attached Claibre report provides a complete summary of investigative works undertaken and the options for savings. The 1999 public works study is one of the only reports without a restrictive terms of reference that uses baseline data that provides an accurate representation of predevelopment. There are greater savings involved in reform options for Menindee that would generate savings sufficient to allow forgo the removal of consumptive water, these must be pursued by Commonwealth and incorporated into an integrated Northern water management project.

Socio Economic Impacts

The impacts of the potential MDBA Basin Plan SDL and a drier climate have been modelled using three integrated models: (1) a water and landuse model of the Namoi Catchment; (2) a Computable General Equilibrium (CGE) model with the Namoi Catchment as a discrete region in the global economy and 3) a community level disaggregation resilience model.

Access Economics Study used a water and landuse model to determine the agricultural landuse and eventual agricultural output of the Namoi Catchment under different water availability scenarios. Taking this agricultural production data as an input, the CGE model estimates the effects of each water availability scenario on the whole economy of the catchment, including the main economic indicators of gross regional product (GRP), employment and wages. The community model then disaggregates the catchment level results to the individual communities based on their land and water use and industry profiles. A copy of the model results is attached as appendix B.

The value of water assessment reflects the combined outputs of the three models, when used to model the effects of declining water availability in the Namoi Catchment. Using an estimate of reduction in the Namoi as per the guide/draft basin plan a figure of 80 gig reduction was run as a scenario using the model. In economic terms this equates to a reduction in GRP of \$55.3m, a decline of 0.6% in GRP and a reduction in cotton production of 9% equating to 100 FTE (seasonal workforce losses were not modelled and may have greater impact in terms of employment numbers). The results show the potential impact of the MDB Plan is far greater in GRP terms than that flowing from the climate change predictions.

The value of water and thus the impacts of less water (caused by either climate change or policy change) are not uniformly spread across the Namoi Catchment. At a community level, the towns expected to be hardest hit are those that are most heavily dependent upon irrigated agriculture (Wee Waa and Walgett) and/or lack the characteristics that allow a community to be resilient to negative external change (Wee Waa, Walgett, Baradine and Quirindi). For example, in Wee Waa, agriculture comprises 90% of the town's economy and in Walgett, the figure is 40%.

This modelling allows Catchment planners and government at all levels to see what physical, economic and social impacts will occur given reduced water entitlements resulting from the proposed Murray Darling Basin Plan using buyback as the mechanism to achieve reform.

Northern Basin Vs Southern Basin

There are fundamental differences in hydrology, between the northern and southern parts of the Basin and this limits the ability to achieve environmental outcomes in the River Murray System by actively managing inflows from the north. Large flows from the north generally occur sporadically as a result of floods and there is little capacity to manage volumes and timing until the flows reach Menindee Lakes, where still only the small to medium floods can be influenced.

In consideration of this and as stated in the hydrologic modelling report (MDBA 2012a) the shared reduction volume proposed by the MDBA in the Northern Basin is to satisfy the environmental needs of those in the Barwon-Darling System, and, the MDBA states (MDBA 2012a) that the reductions in key tributaries in the northern connected Basin "...do not include any specific recovery to meet environmental water requirements for the River Murray and Lower Darling".

From a **modelling** perspective in the Basin Plan the northern connected system ends with inflows into the Menindee Lakes. Outflows from Menindee Lakes and through the Lower Darling and the Great Darling Anabranch are modelled implicitly as part of the southern Murray River system (MDBA 2012a).

However the Northern Basin is inherently impacted by the management of Menindee Lakes, any reform undertaken to achieve greater efficiency gains for environmental outcomes potentially contributes to the increase of reliability for southern irrigation licences and/or changes in storage usage patterns to reduce delivery out of Hume or Dartmouth dams by way of increased delivery from Menindee a shallow Lake system.

Volume delivered to Menindee from North

In Section 5.7.6 of the Basin Plan (MDBA 2012a) “in the BP-2800 scenario, the environmental water sourced from the tributary models increased inflows into Barwon-Darling by 237 GL/y, which is 8.6% more than baseline flows. The net effect at Menindee Lakes was an increase in long term average inflows of **198 GL/y**, which is an increase of 11.5% as compared to baseline conditions.”

The increased inflows of 198 GL/y into Menindee occur as an unintended consequence of both meeting the watering requirements within the northern basin river valleys and meeting the Barwon-Darling environmental watering requirements.

This unintended inflow to Menindee exceeds the total shared contribution from the northern river valleys by 38.5%.

It is understood that a considerable number of environmental watering targets are instream and therefore end of system flows will necessarily be enhanced. However, it is suggested that with improved river operations and river management together with the implementation of works and measures, that the shared contribution could be reduced.

Works and measures would also provide a more efficient approach to environmental watering of the Talyawalka and Teryaweyna Creek system.

Even though it is fully understood that the additional 198 GL/year into Menindee Lakes is an unintended consequence of meeting both the northern basin valleys' environmental watering requirements as well as the watering requirements of the Barwon-Darling, it is suggested that offsets against this additional volume may be considered for the northern basin valleys.

For instance, one such offset may be to completely remove the necessity to embargo access in dry times to supplementary flow events in the northern basin to secure Broken Hill's water supply, or if critically needed at times, then pay compensation to northern basin irrigators for the right to access this water. The implementation of an emergency water supply for Broken Hill may, of course, negate this.

Another potential offset may be to provide any water savings, up to the 198 GL/year, from the options (if implemented) that are being investigated currently to reduce evaporation losses from the Menindee Lakes system.

Any potential savings distributed to the Northern Basin will necessarily reduce the total 143GL/yr shared reduction and potentially lead to a shortfall in meeting the identified Barwon Darling EWRs. This shortfall may be negated by the implementation of works and measures which more efficiently meet the watering requirements of the Talyawalka and Teryaweyna system.

Works to reduce the volume required at Wilcannia

Of the all the site specific flow indicators specified proposed by the Basin Plan the indicators the ones requiring the greatest volume are those to be measured at the Darling River at Wilcannia.

The flow targets are for the sustainability of the Barwon Darling River floodplain: Talyawalka / Teryaweynya Creek system.

It is possible to increase the proportion of flows into the system by constructed infrastructure such as:

- A weir that is used solely for the purpose of inducing above bank flow levels at lower flows currently required to cause inflows. It should then be possible to provide similar volumes of flows into the Talyawalka with less flow in the Darling River. One of the dis-benefits of a weir is the disruption to fish passage during diversion periods. However, this may not be a major issue, depending on other opportunities for fish migration.

- A low level diversion channel that allows flows to leave the river without the need for a weir. One of the problems in the this area is the extremely low slopes (of the order of 1 in 100 000) which would require an low level offtake to be constructed a long distance upstream of the current effluent location so that the channels that currently supply the Talyawalka can be utilised.

While such a proposal would require further work to determine the feasibility of a proposal, there is a precedent of sorts where works to supply major wetlands in the Koondrook Perricoota floodplain water project on the Murray River.

Alternative Measures to meet the environmental objectives of the Northern Basin

It may be practical to meet the environmental outcomes that are targeted by this volume by ways other than the untargeted acquisition of entitlements – an integrated northern project to generate savings sufficient to allow forgoing the removal of consumptive water is the best outcome for our communities.

The Basin Plan technical reports specifies indicators that largely cannot be contributed entirely, or even be targeted by the use of regulated flow releases from Northern basin headwater storages. The targets relate to flows that are generated by unregulated flows.

The use of regulated flows available from high and general security entitlements to meet these targets is generally not feasible. MDBA have acknowledged this. By the time that unregulated flows occur, there is little opportunity to accurately supplement the flows by storage releases to target the environmental flow indicators. In the case when the unregulated flows occur upstream of Keepit Dam, there may be some opportunity to prolong releases, however it will be difficult to accurately target flows as far downstream as Wilcannia, given the likely contribution from large areas of the Darling basin.

Improved River Operations and environmental water management and delivery

Improved river operations and water management delivery attached to an integrated project including Computer Aided River Manager (CARM) currently being developed by State Water or the River Manager Program through e-Water. Better communication through remotely sensed meters, weir operation and remotely sensed gauges and remote operation of structures also have the ability to improve water management and more efficiently deliver water, be that for consumptive or environmental purposes.

The Menindee Lakes Storage Scheme

The Menindee Lakes is a series of natural lakes within the Travellers lakes system with a surface area of approximately 45,000 hectares when full. In the 1950s and 1960s the NSW government constructed the Menindee Lakes water storage scheme, by connecting the natural ephemeral lakes and the Darling River by a series of weirs, regulators, channels and levees.

As outlined in Bewsher (2012) the key purpose was to:

1. provide secure water supply to Broken Hill;
2. provide water for irrigation and farm supplies in the lower Darling River;
3. meet stock and domestic water requirements along the Great Darling Anabranch; and,
4. supplement the River Murray System, including the supply to South Australia.

A chronology of events, policy decisions and investigations relating to Menindee Lakes is provided in Appendix A.

Summary of Investigations to achieve water savings

As outlined in the Chronology included in Appendix A, there have been a number of investigations undertaken on the Menindee Lakes System to identify practical, cost-effective and environmentally responsible means of reducing evaporation in the Menindee Lakes System.

These have involved a mix of structural options (i.e. changes to existing infrastructure) and non-structural options (i.e. changes to water management operations).

The NCWWG also understands that NSW has put forward an option to the Commonwealth for the improved management and efficiency of the Menindee Lakes as a water storage scheme. The Northern Valleys should be considered in regard to sharing any savings made as a result of this option. It is also unclear where the point of measurement is for debiting the water account associated with the additional 250GL of Lower Darling Supplementary Entitlement purchased from Tandou for The Living Murray Program. That is, is the point of measurement comparative to the original access point or is it measured at another point further downstream in which case it would have impacts on the northern valley, above that of the original entitlement.

From the options outlined in previous studies, and as a guide it is estimated that realistic savings from the Menindee Investigations could be in the range of 34 GL/year to 174 GL/year. It is suggested that any savings obtained from Menindee options be shared on a pro rata basis between the northern basin and the southern basin. This can be done a number of ways. One way of estimating those shares would be on the basis of the ratio of shared reductions in each basin, i.e. South (2,289 GL/yr) to the North (390 GL/yr) which would result in about 17% to the Northern Basin.

The Menindee Lakes need to be managed more efficiently with a focus on reducing the local environmental and cultural impacts together with the delivery of better quality water downstream, particularly in regard to reducing salinity. We urge the RA committee to prioritise a cost effective option to realise optimum savings in the MLS. The Northern Valleys must be considered in regard to the sharing of savings made.