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MURRAY–DARLING BASIN AUTHORITY

Basin Plan Evaluation addendum

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Basin Plan Evaluation

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Acknowledgement of the Traditional Owners of the Murray–Darling Basin

The Murray−Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray−Darling Basin. We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Aboriginal people should be aware that this publication may contain images, names or quotations of deceased persons.

In December 2017, the Murray– Darling Basin Authority (MDBA) released findings from the first Basin Plan evaluation (the 2017 Basin Plan Evaluation). Due to essential data only becoming available in late 2017, the released findings included only an initial analysis of social and economic conditions across the Basin and its industries. The MDBA has since undertaken further analysis with this new information to better understand the effect of the Basin Plan on irrigation-dependent communities.

This addendum provides an overview of:

- the additional analysis of irrigation-dependent communities
- the 2017 Basin Plan Evaluation findings for context, and
- a conclusion statement.

More detailed information about the effect of the Basin Plan on 40 southern Basin irrigation-dependent communities is available in the community profiles available on the MDBA web site.

Introduction

The Murray–Darling Basin (the Basin) is a complex, diverse and dynamic system. It is constantly changing in response to the influences of people, climate and the way water is used for production, communities and the environment.

Over time, the water resources of the Basin have been developed to support an irrigated agricultural sector that has provided significant economic benefits for Australia and the communities in the Basin. Toward the end of the last century, signs were emerging that the level of water resource development was leading to a decline in the ecological health of the Basin. Change was needed in order to provide for sustainable management of the Basin's water resources and a sustainable future for the industries and communities that rely on a healthy Basin.

The Basin Plan aims to find a balance between the water needs of all Basin users, to ensure communities, industries, and the environment share a sustainable future. A central feature of the Basin Plan is the re-balancing of how water is shared between consumptive uses and the environment. While this re-balancing was always expected to protect and restore the environmental health of the Basin, it was understood that there would be some social and economic impacts from the transition to the new water sharing arrangements.

The Basin Plan was finalised in 2012 and is being implemented over the 12 year period to 2024. In 2017, five years after the Basin Plan was finalised, the MDBA conducted the first evaluation. The evaluation focussed on how implementation was progressing, the outcomes that had been achieved, and opportunities to improve implementation of the remaining tasks.

The 2017 Basin Plan Evaluation looked at each element of the Basin Plan's implementation including: water recovery, the management and use of water for the environment, water resource planning, and compliance. It also reported on the environmental, social, economic and cultural outcomes from implementation.

Summary of the 2017 Basin Plan Evaluation findings

The 2017 Basin Plan Evaluation concluded that while many elements of the Basin Plan are on track and there have been significant achievements, progress is lagging in several important areas. It is apparent that Basin governments need to do more to increase the robustness, transparency and consistency of compliance. Basin governments and the MDBA must also fully commit to timely completion of Water Resource Plans and an improved water accounting framework.

Significant achievements include:

- the establishment of a robust planning and management framework that has been used to guide more than 750 watering events across the Basin,
- more than 8,000 GL of Commonwealth environmental water has been delivered since 2008, and there are early signs of environmental recovery,
- major obstacles to permanent water trade have been removed, and
- salinity targets have been met in four out of five locations, with the additional water flowing through the river system helping to flush salt through into the Southern Ocean.

Most of the analysis needed to inform the evaluation was completed and published along with the evaluation report, in December 2017. However, additional time was needed to complete the social and economic analysis because the necessary data was not available from the 2016 Census. Importantly, this new work supplements the previous Basin-scale assessment of socio-economic outcomes, and is particularly important for two key reasons:

- it separates the effect of Basin Plan water recovery on the social and economic conditions in Basin communities from the other drivers of change, and
- as it was expected that the effect of the Basin Plan would vary substantially from community to community, the most recent analysis has considered and identified these variations.

The new analysis should be considered in the context of the findings of the 2017 Basin Plan Evaluation. An overview of these findings is included in Attachment A.

Additional work since 2017 on social and economic outcomes at the community level

The MDBA has used the recently released socio-economic data from the 2016 Census to analyse Basin Plan impacts on 40 irrigation-dependent communities in the southern Basin (included in the community profiles). Data previously published by the MDBA also suggests that the Basin Plan impacts are occurring in the context of other major drivers of change affecting communities, such as drought, increasing mechanisation, and farm consolidation.

Guided by previous work done for the Northern Basin Review, the new community level analysis uses changes in employment as a key indicator of community impact. This approach acknowledges that changes to employment levels are also influenced by a range of drivers of change, hence it separates the effect of Basin Plan water recovery from the other drivers of change affecting Basin communities.

The research also considers the change to employment within the context of a number of other factors. These include:

- the scale, pace and method of water recovery
- the influences of temporary and permanent water trade
- the change in employment as a consequence of factors outside the Basin Plan
- the size and economic and demographic diversity of each community, and
- whether employment is increasing or decreasing over the time period examined.

The research confirms that the effect of Basin Plan water recovery on employment varies from community to community, depending on the interaction of non-Basin Plan factors[1], and the factors listed in the paragraph above. The interaction of these factors, and the fact that they change over time, means that it is difficult to summarise the effect across all of the communities studied. However, in general, the research shows that the combined productivity benefits associated with on-farm and off-farm infrastructure investment and water trade have offset some of the impacts of Basin Plan water recovery.

Across the forty 40 communities examined, 12 are likely to have experienced quite small employment effects arising from Basin Plan water recovery. Across the other 28 communities, the effects of water recovery range from modest and identifiable (18 communities), through to quite large changes (10 communities), see Figure 1.

[1] Non-Basin Plan factors include mechanisation, farm consolidation, the introduction of new crop types, changes to the locations of where particular crops are grown, changes to the farm business operations, non-water policy decisions by governments (such as the completion of free trade agreements and the delivery of government services).

For Benerembah, Berrigan-Finley, Blanchetown, Coleambally, Hillston, Mirrool, Morgan, Renmark, Robinvale, Tabbita, Wah Wah and Yanco, water recovery was estimated to have an effect of less than 2.7% on total employment. This level of variation would be difficult to distinguish from the other processes of change affecting those communities.

Using the range of social and economic indicators presented in the community profiles, the 18 communities where modest changes have been observed generally have changes in total employment arising from Basin Plan water recovery, of around 3% – 5%. These communities are Cobram, Coomealla, Cullulleraine, Deniboota, Denimein, Hay, Kerang-Cohuna, Kyabram-Tatura, Mannum, Mildura, Murray Bridge, Pyramid Hill-Boort, Shepparton Irrigation Area, Swan Hill, Tailem Bend, Waikerie, Wentworth and West Berriquin.

The 10 communities experiencing larger changes are those where Basin Plan water recovery has generally led to effects on employment of greater than 6%. These communities — Berri, Cobdogla-Barmera, Colignan, Lower Lakes, Loxton, Merbein, Red Cliffs, Rochester, Swan Reach and Wakool — have also been strongly influenced by non-Basin Plan factors.

Across the 40 communities examined, the total change in employment between 2001 and 2016 was a decrease of around 11,400 jobs. Two-thirds of this change is estimated to be the result of non-Basin Plan factors. The remaining change is estimated to be the effect of Basin Plan water recovery. The change in farm employment[2] was a decrease of about 9,200 jobs. About 80% of this change is estimated to be due to non-Basin Plan factors, with the remainder attributed to the effects of Basin Plan water recovery

[2] Farm employment includes farmers themselves, farm workers and seasonal workers

Effect of Basin Plan water recovery on southern Basin communities

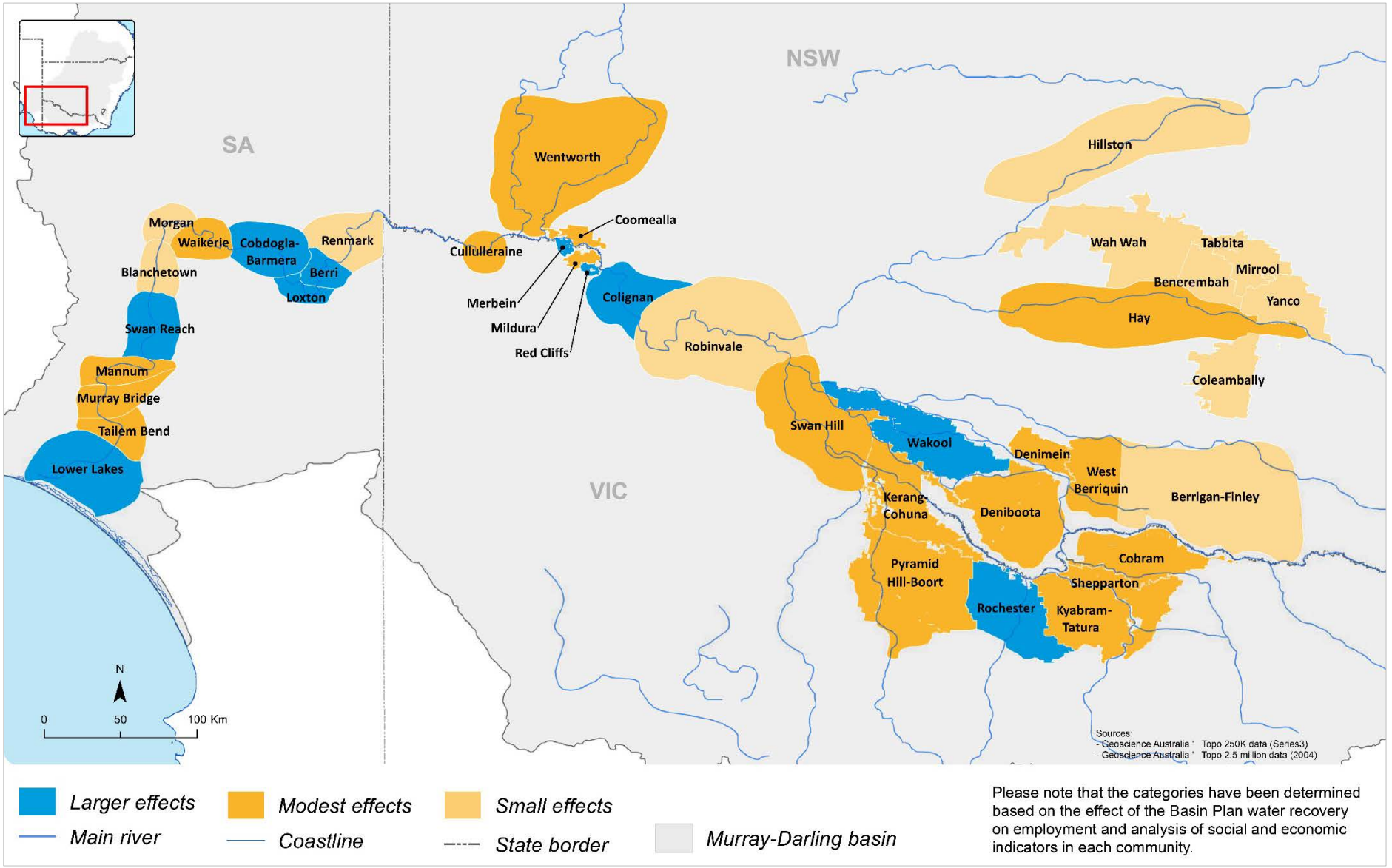

Figure 1 Effect of Basin Plan water recovery on southern Basin communities

Conclusion

There are early signs that the Basin Plan is on-track to deliver the expected environmental outcomes. However, there are some parts of the Basin Plan that are yet to be fully implemented or that need more attention. The 2017 Basin Plan Evaluation has already highlighted priority actions for Basin governments in coming years.

The transition to new water sharing arrangements in the Basin was always expected to have some social and economic impacts on the industries and communities that have grown to support irrigated agriculture. The general nature of these expected impacts were broadly known at the time the Basin Plan was finalised, however the most recent community level analysis provides insights into where these impacts have actually occurred, and how significant they have been. Further, the additional analysis highlights how other drivers of change have affected these communities over the past two decades.

The data and analysis in the community profiles provides Basin governments and communities with unique insights that can be used to develop strategies which help communities to deal with the structural, social and economic changes occurring across the Basin. These changes are not solely due to the Basin Plan, although it has been a factor. Adapting to these changes and combining strategies at the local, state and federal government level with community-sourced initiatives, would assist governments within the Basin to consider how they may best respond to community needs.

Looking forward, the community level analysis has implications for how the MDBA should approach the task of monitoring, evaluating and reporting the social and economic conditions in the Basin as a result of the Basin Plan. This will be factored into the design of the MDBA's monitoring program that will support future evaluations and reviews of the Basin Plan.

Summary of Basin Plan evaluation findings

Progress with water recovery

Recovering water for the environment is at the heart of securing a healthier and more sustainable Basin. Current water recovery towards the 2,750 GL target is approximately 2110 GL. An amendment to the Basin Plan in January 2018 allows for a 605 GL reduction to the water recovery target in the southern basin by implementing SDL adjustment works and measures[3]. The amendment also provides for further investment in irrigation efficiency improvements for communities to deliver 450 GL in water to the environment with positive or neutral socio-economic impacts for communities.

Environmental outcomes

The Basin Plan is a long-term reform. It will take much more than five years to halt and reverse the effects of more than a century of water resource development, but there are already encouraging signs that the Basin Plan is on-track to deliver long-term environmental outcomes.

Implementation of the Basin Plan has led to more effective coordination, and more, environmental watering across the Basin. Greater collaboration has led to water holders combining their available water, reaching larger areas, and meeting more watering priorities. Monitoring the outcomes of watering events and engaging with local communities is helping water managers to adapt watering strategies and improve outcomes.

For example, water is being used to support water bird breeding habitat and maintain refuge habitats. The rate of decline in waterbird numbers appears to have reduced. However, waterbird numbers in the Coorong have not yet recovered to pre- Millennium drought levels.

Native fish have also responded positively to the delivery of environmental water. Environmental watering has supported endangered Murray hardyhead populations, ensured golden perch can move to suitable habitats, and supported an increase in Murray cod breeding.

There are early signs of native vegetation positively responding to water delivered under the Basin Plan, such as the growth of river red gum seedlings and saplings, and improvement in the condition of some forests.

[3] These include projects that make environmental watering more efficient, improve river management practices, or overcome physical barriers.

Environmental water has helped improve river flows, variability of flow, and connectivity in many parts of the system.

There are many other factors beyond water management that influence river health. These include climate change and unsustainable land management practices that affect water quality and invasive species such as carp. Sustainable improvement in the condition of the Basin's environment will require water management to be more effectively integrated with other management activities and the continued consideration of non-flows measures, such as pest control.

Aboriginal Outcomes

Traditional Owners are increasingly involved in a range of water planning and management activities to get better social and cultural outcomes as a result of the Basin Plan's implementation.

The MDBA and traditional owners have trialled an approach to measure and understand the importance of healthy waterways to Aboriginal people at the community level. These insights along with information generated from projects like the Aboriginal Waterways Assessments and from governments within the Murray-Darling Basin, will be used by representative Indigenous organisations (Murray Lower Darling Rivers Indigenous Nations and Northern Basin Aboriginal Nations) to advise the MDBA. The information and advice will be used to improve engagement with Aboriginal peoples in the management of water in the Basin.

Social and economic conditions at the Basin scale

It is accepted that re-balancing water use in the Murray–Darling Basin by the amount required by the Basin Plan, would involve challenges. It was expected that there would be negligible effects on entitlement holders. This is because the Australian Government committed to recover water for the environment by either purchasing entitlements at the market price, or by acquiring water through investments in water saving infrastructure. However, it was also anticipated that there would be some socio-economic effects on the industries and communities that had grown to support the irrigated agricultural sector.

The Australian Government's approach to environmental water recovery has helped to lessen the effect on the social and economic conditions in the Basin. Greater emphasis has been placed on recovering water through savings gained from investments in on-farm and off-farm irrigation infrastructure. The investment to reduce delivery losses (water lost as part of irrigation water delivery) and the water acquired as savings from on-farm infrastructure investment, represents water that would otherwise have been lost to production.

Irrigators have retained a portion of the water savings made with the assistance of the Australian Government's on-farm programs, which has helped to improve farm productivity. Irrigators have also benefitted from the upgrading of irrigation delivery systems through the off-farm investment programs. So far, more than 700 GL has been recovered through infrastructure investment. The

operation of the SDL Adjustment Mechanism and the associated 605 GL reduction in the water recovery target will also help achieve the social and economic outcomes of the Basin Plan.

At a whole-of-Basin level, the changes in social and economic conditions are broadly consistent with expectations at this stage of the Basin Plan's implementation. The Basin's population and economy, including the agriculture sector, has continued to grow in line with expectations. However, there are signs that this growth has been unevenly distributed. For example, the growth in population and total employment appears to have mainly been in large regional centres. However, smaller rural communities have generally not experienced such growth. In general, rural communities have been adversely affected by a narrowing of economic diversity, increased mechanisation in farming, and the shifting age structure.

Irrigation trends

Despite water recovery, the maximum real value of irrigated agriculture in the Basin has remained fairly constant at more than $7B since 2001. Irrigated agriculture therefore remains a significant contributor to the Basin economy. The total value of all agriculture in the Basin rose by around 4%. By contrast, the real value of Australia's irrigated production and total agricultural production in Australia has increased by around 11% since 2001.

However, these aggregate statistics do not provide a clear picture of the effects of the Basin Plan. Other factors have also influenced the changes experienced in rural communities. For example, since water recovery commenced in 2008 there have been considerable changes in the mix and area of crops grown in the Basin. For example, there have been decreases in rice and milk production, and cotton production has moved into the southern Basin and increased significantly. Fruit and nut production has also increased in response to improvements in commodity prices. Reductions in viticultural and horticultural production in some areas have been offset by increases in other areas.

The water market is playing a more prominent role in irrigators' farm business planning and risk management strategies. Depending on the overall direction of trade, the temporary and permanent water trading market is influencing effect of water recovery in communities.

The emergence of new water trade products, such as trading of unused carryover space, are helping farmers find new ways to adapt to rapidly changing circumstances. Some irrigators are taking advantage of these opportunities, while others are finding it difficult to adapt, particularly given the pace at which many of the changes are occurring.