

**House of Representatives Standing Committee on Agriculture and Water Resources**

**Inquiry into water use efficiency in Australian agriculture.**

**Further information in support of evidence from MDBA officials, taken on 1 June 2017**

Please see below responses to questions taken on notice and supplementary information relevant to the evidence provided by MDBA officials on 1 June.

1. **Mr RAMSEY:** The Holy Grail, as far as most are concerned, is water use efficiency—trying to get more out of each drop of water and return more to the environment—just as you have outlined. But we had some scientists at another hearing that actually disputed the model. They disputed the model that said that we are not allowing for the loss, the reduction in groundwater, that will come with more efficient irrigation. With a reduction in groundwater you have less flows in the river, and you have less systems for flushing salt out of your soils. I do not know that they have the answers, but they were certainly disputing it. I do not know that I am convinced by either argument that moment, but it certainly opens up some speculation.

**Response:** MDBA is aware of this argument, the extension of which appears to be that we should encourage less efficient irrigation in order to maximise leakage into groundwater systems.

By reducing diversions through irrigation networks and improving water use efficiency, the Basin Plan and associated investment programs will by definition leave a larger volume of water in the rivers and groundwater systems where it is needed to improve environmental health. Also, by reducing diversions to irrigation networks, there is likely to be an overall benefit of reducing irrigation-induced salinity.

So, while it is true that reduced diversions to irrigation networks, and improved water use efficiencies such as installing pipes and lining channels, will reduce leakage from those systems, this is in order that water can be most efficiently directed to its best utility – whether for environmental health or production outcomes.

While the reduction in losses from irrigation networks could impact at the margins on return flows to rivers, the more relevant question is to what extent is this likely to impact on Basin Plan outcomes, if at all. MDBA views this as a legitimate issue to consider in the ongoing monitoring and review mechanisms built in to the Plan.

2. **Mr RAMSEY:** The second part is that if we do stick to this Holy Grail, which is increased efficiency, when you look along the river at the most efficient and the least efficient irrigators, how much room do we have left to clean that act up? Can we get another 15 per cent out of the river? What is there to be had?

**Response:** As indicated in our evidence, while MDBA is confident that further water use efficiencies will be possible, we are not aware of comprehensive information across the Basin on current and anticipated future efficiency levels. Our evaluation of the Basin Plan due by end 2017 will provide more detail on the extent to which infrastructure programs are improving water use efficiency and allowing irrigators to adopt new and more productive farming systems. Data from the 2015-16 agricultural census (expected to be available later this calendar year) should also provide useful information on trends in irrigated production and water use efficiency, which will be incorporated in the evaluation report.

3. **Ms KEAY:** I just want some clarification: under what social, economic and environmental conditions would buybacks be the more preferable option, as opposed to infrastructure investment, for water efficiency? You talked about the impacts of them. What would be the preferable option?

**Response:** As indicated in our evidence, water recovery through investment in infrastructure will generally be preferable to purchasing entitlements from a perspective of maintaining productive capacity in a given region. However, the cost to taxpayers of this method of water recovery is high – in the order of 2 to 3 times as much per gigalitre – so governments need to strike a balance as to the overall mix of recovery methods. It is also worth noting that in some situations, such as reducing the footprint of a large irrigation network to ensure long-term system viability, there may be a case to cut off supply arrangements to more remote or 'leaky' parts of the network. In such cases, gaining the agreement of relevant landholders may depend on the extent to which governments are able to offer assistance in transitioning some properties to dryland operation or in relocating landholders to modernised parts of the network. We note that the 450GL efficiency measures program has the ability to fund these forms of assistance.

4. **Mr KEOGH:** You spoke about the plan being fixed on the 450, the up water, and then you talked about the communique talking about 'up to 450'.

**Mr Glyde:** My understanding is that it has always been up to 450.

**Mr James:** I did not bring a copy of the act—you would think a fellow would, wouldn't you?—but I think the act describes the purpose of the special account that is set up as being to achieve 450 of recovery through the efficiencies.

**Mr KEOGH:** Not up to 450?

**Mr James:** That is right.

**Response:** Reference is made to section 86AA (3)(b) of the Water Act 2007 which states that the object of this Part is achieved by:

“ (b) increasing the volume of the Basin water resources that is available for environmental use by 450 gigalitres”

5. **Mr Glyde:** The only other point I would make, which you may well have discussed with the department, is that ministers have asked officials to have a review of the efficiency program to look at the different ways in which you can achieve the outcomes of it, and I think the terms of reference for that were released last—

**Mr James:** Recently, yes—since a week or two.

**Mr Glyde:** And I think they have to report back to ministerial council by December of this year. We have certainly undertaken to provide the information that we are gathering through our 2017 evaluation to inform that.

**Response:** Below is a link to a media release from the Minister for Agriculture and Water Resources about a recent report to COAG on the Basin Plan. The terms of reference for the independent report on the efficiency program is on p44-45 (Attachment B) of the report.

<http://minister.agriculture.gov.au/joyce/Pages/Media-Releases/coag-endorses-mdb-minco-plan.aspx>

6. **Mr KEOGH:** Were there any aspects of that letter that the authority did not agree with?

**Mr Glyde:** I would like, if we can take questions on notice—

**Mr KEOGH:** I would be very happy for you to take it on notice.

**Response:** The letter referred to was from Minister Joyce to Minister Hunter date 17 November 2016, in response to Minister Hunter’s letter of 9 November to Minister Joyce.

As per our evidence, the MDBA was not consulted in the preparation of this letter. Based on the success of water efficiency projects to date, and the ongoing ability of Australian agriculture to innovate, we are confident that the irrigated agricultural sector is capable of finding these efficiency savings.

The MDBA views the Minister’s response to Minister Hunter as an accurate portrayal of the concerns of some stakeholders, notably in Victoria, over the difficulty of achieving the further 450GL in efficiency measures on the basis of positive or neutral social and economic outcomes.

The MDBA further notes that since these letters were exchanged, the Basin Ministerial Council has discussed the terms of reference for the study mentioned at response (5) above, to be conducted by Ernst and Young this year, the purpose of which is to address the concerns raised in Minister Joyce’s letter.

7. **CHAIR:** This is just a question that is related I guess overall to what we are doing but not particularly relevant to the nuts and bolts. This plan came in in 2007, and we are coming off the millennium drought. The natural flows available for the 10 years prior to 2007 versus the 10 years since 2007: do you have just a rough, ballpark figure and a percentage term? Obviously we came through a very dry period leading up to the 2007 decisions. What have we seen since then in terms of the natural water flows or availability?

**Mr Glyde:** I could give you the precise figures on notice, but essentially I think the point you are making is that it was a very, very dry period leading into the millennium drought, and the plan came in I think in 2012, and around 2011 and 2012 it was very, very wet; it really rained. And you would say that the period before 2007 was drier than the period after. The point, though—if I assume where you might be going—is that the 2,750 number is set on a long-run average. It actually reflects the variability of flows over that period of time. I think it is a hundred and—

**Mr Mues:** It is 114.

**Mr Glyde:** A 114-year history, so it is a hard concept to get across. But that is not a per-year figure; it is an average figure that you would see over the course of that 114 years. But the amount of water that is available to both irrigators and environmental water holders will vary from year to year. So, on average, you will see 2,750 returned to the environment, but in some years it will be less and in some years it will be more, depending on the—

**Response:** To inform the Basin Plan, a number of scenarios were modelled over a period of 114 years, using climate input data from July 1895 to June 2009. Figure 1, which shows modelled inflows for the River Murray System, is indicative of the variability of flows over this period.

The modelled period includes the millennium drought, but not the wet years that followed. The observed data for the River Murray System shown in Figure 2 indicates this recent variability.

In Figure 3, which combines Figure 1 and Figure 2, it can be seen that the millennium drought was by far the worst drought on record. It can also be seen that other wet periods that occurred in the modelled timeframe (such as in 1916-18, 1955-57 and 1973-76) were much wetter than the 2010-12 period. As a result, the addition of the recent wet years would have very minor impact on the long term annual average data.

The numbers referred to in the context of the Basin Plan, such as the baseline diversion limit, the 2750 GL of water recovery, and the surface water sustainable diversion limit, are long term annual average figures drawn from the modelled scenarios, and therefore represent the variable conditions that occurred over that historic period.

Figures 1-3 relate to question 7 above.

Figure 1: Modelled annual inflows to the River Murray system from July 1895 to June 2009 (Basin Plan Baseline scenario)

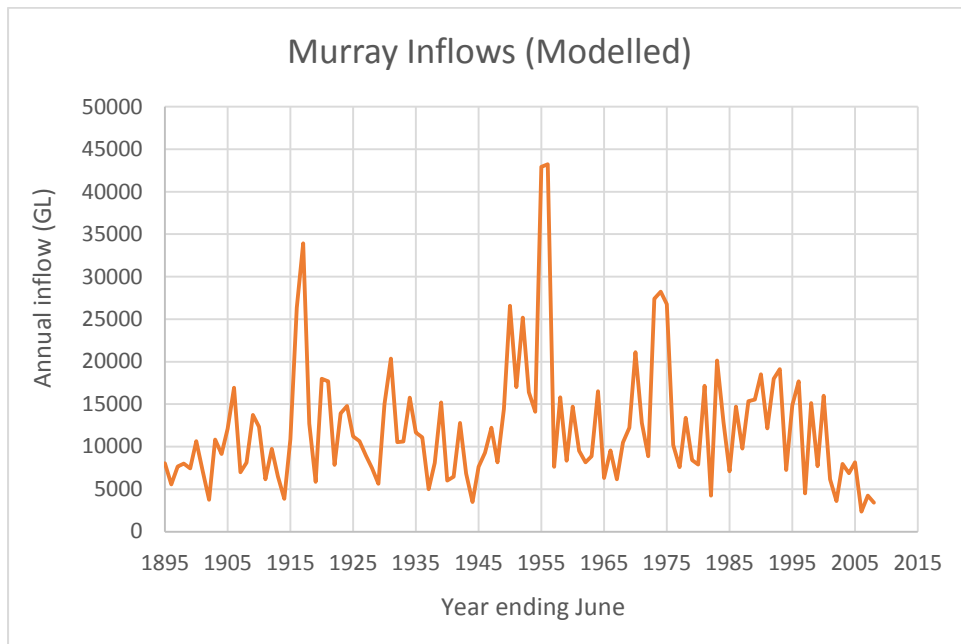


Figure 2: Observed annual inflows to the River Murray system from July 1996 to June 2015.

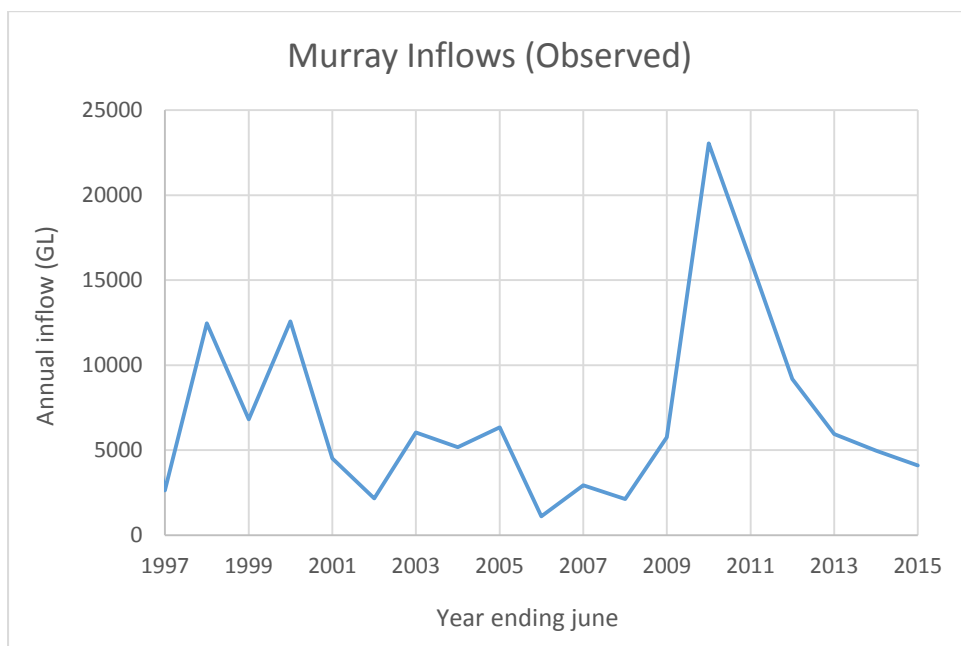


Figure 3: Annual inflows to the River Murray system: observed data from 1970 to 2015 and modelled data from 1895 to 2009 (Basin Plan Baseline scenario).

