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Parliamentary Inquiry into the impact of the Murray-Darling Basin Plan in Regional Australia

Introduction

My name is Austin Evans. I am the Senior Operations Engineer at Coleambally Irrigation Co-operative Limited (CICL). However, I am writing this submission as a private resident and homeowner in Coleambally. This submission is not endorsed by CICL and does not represent CICL's views.

As you can see from the paragraph above, I work in the irrigation industry. However, I also consider myself to be an environmentalist (I was a member of the ACF years ago). Perhaps those two positions are seen as contradictory by those that view the world as black and white, by I see them as compatible.

Impact on homeowners

As has been stated by other submissions, it is local businesses and homeowners like myself that are likely to feel the greatest impacts of the reductions mooted in the Guide. Farmers are being compensated (this is no judgment on the adequacy of that compensation) for any water that is taken. However, there is no compensation being proposed for local businesses and homeowners. The great majority of my personal assets are tied up in my home. If water is removed from Coleambally, the population will drop and the value of my asset will drop.

Although I am not happy about my asset losing value, I don't want my asset maintained at the expense of the environment. I am prepared to lose some value based on rigorous scientific assessment of the needs of the environment. However:

The current assessment by the MDBA is not a RIGOROUS scientific assessment.

The current assessment by the MDBA has been driven by the time constraints set out in the Act and is a crude approximation of the environmental water needs. I would **NOT** be prepared to lose some value of my asset based on the current assessment.

Summary of "Best Science" methodology adopted by MDBA

- 2442 sites identified as environmental assets (assumed too many to assess in the time frame) therefore;
- 18 key indicator sites chosen as litmus tests for ecological health
- Assessment (crude) of water (flow? or volume?) needed for indicator sites' health
- Averaged needs across 14 (4 excluded because not meaningful expression of water needs¹)
- This gave range of 60% to 80% of without development water
- 60% & 80% (of without development) applied as end of system (each valley) river flows as the indicator of good health
- 3000GL, 4000GL (& 7600GL) cutback required to meet these 'indicators of good health'

In Murrumbidgee (my catchment) 2 of the 18 indicator sites exist:

¹ p108 of Guide Vol2 Part I last paragraph

Mid Murrumbidgee Wetlands

The water needs of the Mid Murrumbidgee wetlands have been expressed in the detailed section as a function of the flow in the river. This is a very disconnected/indirect way to measure the needs of the wetlands. If a block bank or levee was put across the inlets to these wetlands the river flow may meet the target but no water would flow into them. The more direct/connected water measurements should be the volume of water the wetlands need to retain (use), the duration of connectivity to the river and the frequency and timing of those. The report itself comments that some of the wetlands (eg Coonancoocabil Lagoon²) are “now almost permanently inundated”³ and that this is causing degradation. Yet, the only recommendation is to increase flows. Without direct measures one of following outcomes are likely (possibly all at the same time for different assets):

1. Extra water is taken from Irrigation communities resulting in social and economic impacts with no extra benefit to the environment because it is more than it actually needs.
2. The river meets the flow rate targets but no benefit flows to the environmental assets because their degradation is due to too much inundation or water at the wrong time of the year or cold water pollution or excessive nutrient loads or...
3. The river meets flow targets but an environmental asset degrades because river flow underestimated the water needs of a particular asset.

Lowbidgee Wetlands

Lower Murrumbidgee wetlands were also one of the 18 indicator sites – unfortunately (conveniently?) it was one of the 4 excluded due to not meaningful expression of water needs. We have been told⁴ that a river flow of 30,000ML/d is required for the proper flooding of the low Bidgee wetlands and that a river flow of 30,000ML/d is the figure used in calculating the metrics of good health. However, due to the existence of weirs in the river and works only 4000ML/day river flow is required (the flow into the wetlands relies on the height of the water – the weir gives that same height with a much smaller river flow). Maybe the MDBA is advocating the removal of all weirs – but, they haven’t stated that.

In short, the indicator being used (60% or 80% of without development end of valley flows) is very deficient.

Good Science needed not Best Science

The work that has been done by the MDBA (and the methodology they chose) is probably the ‘Best Science’ they could do, due to the time constraints that were applied to them. But it is not ‘Good Science’ (or good enough) given the potentially huge dislocation to communities and their economies that it could cause. The MDBA acknowledges that there is huge uncertainty around the cutback numbers. An overestimation would have enormous impacts on communities for no benefit to the environment.

The MDBA needs to be given the time to assess each of the 2442 environmental assets and determine their individual water needs (flows through, water use, timing etc) and then hydrologically model those demands through the whole system (taking into account any works that

² Works are planned for Coonancoocabil Lagoon to prevent water going into it from the high weir pool and allow a more natural wetting drying regime.

³ P711 of Guide Vol2 Part II 3rd paragraph.

⁴ Verbal communication from MDBA staff.

improve the watering of those assets) to determine the environmental water needs of the entire MDB.

There is also a need to use direct objective indicators (with methodologies) of the environmental health of those assets⁵. These can then be used over time to assess the effectiveness of the estimated water needs and any other approaches to improve the environmental health of the assets (eg works to minimize cold water pollution).

Timetable

The primary reason given for the tight timetable has been the risk of irreversible damage to environmental assets due to a lack of water over the last 10 years. The very wet spring we have had gives us the breathing space to do the science properly (it still needs doing before the next long dry spell).

All the environmental assets have had a good watering this spring and none should be at risk of irreversible damage in the next 5 years. It is still a risk in the 10 year timeframe and the work should be continued, building on the good work that has been done already.

The 2019 date that the Victorian water resource plans have to comply by⁶ seems a sensible date to work towards. This would mean the plan should be aiming for completion around 2017. This gives 5 years to do the science right (as described above) and not the “surrogate estimate” (2nd last paragraph, p103, Vol2 Part I) method the MDBA has used to meet the tight timetable of the original plan.

Analogy 1

An analogy would be a doctor finding cancer in the leg of a patient. Surgery is needed to remove the cancer. The current MDBA methodology would look at studies of other amputations due to cancer and determine how much is cut off based on those other amputations. This might be an acceptable approach if the cancer was aggressive and there was no time to look at other methods. However, most people in this situation would prefer the doctor to do biopsies and other tests to determine the extent of the cancer before deciding on the amount to be removed. Most people would also expect all other strategies (eg chemotherapy) to be used as well. You wouldn't want your leg cut off at the knee, if a foot amputation would remove all the cancer or if chemotherapy could do the job.

The only other reason for continuing to pursue the original tight timetable would be for the political benefit of being seen to be doing something. I will not accept this as a reason to produce a crude, blunt instrument Plan that reduces the value of my asset more than it needs to. I was one of the 4950+ people at the Griffith MDBA briefing that listened quietly, respectfully and patiently (not the small minority (<50) that burnt plans and constantly interrupted). I have engaged with the process and have remained polite at all times based on the understanding that the Government, MDBA etc are genuinely interested in producing the best outcome. If the original timetable is dogmatically adhered to, I can reach no other conclusion than that we are on the receiving end of a con job – the government is out to screw us and does not care what lies it has to tell to do it.

⁵ See section below on **More Direct Indicators** particularly the paragraphs on the Sustainable Rivers Audits.

⁶ Likely to be 2019 in NSW, given the state government (and opposition) have commented that different start dates are ridiculous and the 2014 date for NSW should be extended to 2019 in line with Victoria. SA is going through a similar debate.

Peer Review

Claims by the MDBA (and others) that the science in the guide has been peer reviewed deserve some questioning. Peer review requires that the methodologies and data be published so that it can be reviewed by anyone that has some knowledge in the area. The amount of data that has been pulled together for the guide is huge and the MDBA is to be congratulated for that work. However, only limited portions of this data has been released publicly. Without the all the data made available, any peer review is either very superficial or has been done by selected peers (possibly biased) who have been supplied with all the data. Either way, it is not a rigorous enough review process given the severe impact that could be caused if the numbers are wrong.

Release all data

A couple of examples will illustrate the limited data release.

On pp108-113 of the Guide (Vol2 Part I) there is much discussion around flow duration curves. Four of these curves are also shown on these pages. I believe that flow duration curves are one of the key outputs and decision making tools in water resource/river management. They should be the first item examined when developing Water Resource Plans. In paragraph 2 on p110, it reads that “This analysis has been undertaken at end-of-system locations in each region.” Yet only 2 of the locations are shown in the graphs and none of the data that makes up these graphs can be accessed publicly from the MDBA. These curves are notoriously hard to graph because the range is so great. The data (including the breakdown of the current arrangements – town, industry, high security, general security etc) needs to be made available for every location so that the detail can be analysed.

One of the other key documents is a spreadsheet which is printed at the back (pp211-222) of the Overview (Vol1). The MDBA also published this spreadsheet on the website in the Knowledge and Information Database (KID). Disappointingly, this spreadsheet only included the numbers, not the formulae that was used to calculate the numbers⁷. Without the formulae it is impossible to audit the calculation process or conduct a sensitivity analysis (two primary steps of any decent review). It also prevents the running of alternative scenarios.

At the MDBA technical workshop in Canberra on the 23rd November, the absence of the formulae was raised with Tony McLeod and Frank Walker (two of the chief MDBA staff). After an initial attempt to fob this concern off with “they are simple calculations which could be easily reconstructed”, Tony and Frank agreed that releasing the spreadsheet with the formulae intact could/would be done.

At a local MDBA technical workshop in Griffith on the 17th December, Tony and Frank were again asked for the formulae. Their response this time was that they were seeking approval to release the formulae. As I write this on the 10th January, the formulae have still not been published.

It was clear that Tony and Frank did not have any authority to release information, even though they are some of the most senior staff in the MDBA. This is unacceptable and suggests a deliberate strategy by the very senior MDBA staff to limit access to data. All the information underpinning the Basin Plan (any of its iterations) needs to be made publicly available. To do otherwise gives the

⁷ To be clear – it is more difficult to publish a spreadsheet without the formulae than to leave them in. Therefore, they had to be deliberately removed.

impression that the MDBA has something to hide and/or the residents of the MDB are about to be delivered a snow job. There is nothing in the Act that requires the MDBA to keep information secret. If there is to be any trust in the process:

The Government needs to direct the MDBA to make publicly available on their website all the information and data underpinning the science of the plan.

It is difficult enough to analyse the plan without being hamstrung by a lack of information. This is a large piece of work (a world first). The 16 weeks earmarked for consultation of the Draft Plan doesn't look like enough. Especially if the MDBA drip feed out the information like they have for the Guide – all the information and data needs to be released before any consultation period can start.

This is another benefit of the pushing the timetable out to 2017-19. It allows the consultation periods to be extended and therefore allows thorough review that all stakeholders should be satisfied with.

More Direct indicators

The river flow indicator used by the Guide and its predecessors⁸ is far too indirect/disconnected. Flow rate in the river is a factor that may influence the health of the environment, but it is not a measure of the health.

Using river flow as the indicator will produce perverse and unintended consequences. Wetlands adjacent to weir pools (such as Coonancoocabil Lagoon mentioned earlier) will not be helped by larger river flows – in fact it will probably harm them further. The predominance of introduced fish species (such as European Carp) will not be reduced by larger river flows. It is likely to achieve the opposite result as larger flows could increase cold water pollution which favours carp over native fish. Low flow periods (from naturally occurring droughts) actually favour the native fish as they are able to cope with it and the introduced species aren't. These low flows therefore give the native fish a competitive advantage over the introduced species.

Using flow rate in the river as the indicator also means that any environmental works are completely ignored and rendered irrelevant. Works that supply a wetland from a weir pool can produce the same amounts of water, connectivity, duration, nutrient exchange etc at a much smaller river flow rate. However, with river flow as the indicator the environmental health would be incorrectly assumed to be less. With direct measures (native fish numbers, native bird numbers, vegetation health etc), the environment would be correctly assessed as healthy.

Analogy 2

It is like measuring the health of a person by the distance that they run every day. Running is a good thing and may contribute to someone's health and fitness, but it is not a valid measure of their health and fitness (especially on its own). A doctor would test their cholesterol levels, measure their blood pressure, look at their recovery heart rate, do blood tests, assess their height to weight ratio, etc. There may be other greater influences on their health – a poor diet, disease, lack of sleep, too much alcohol etc. There could even be factors that mean that running is no good for them eg knee problems. They may exercise in other ways and do no running at all, but are still very fit and healthy.

⁸ Two previous reports are cited as substantially informing the MDBA. The Sustainable Yields report (2008) and the Sustainable River Audit (2008).

We have more direct measures and a program of obtaining them. The Sustainable Rivers Audit (2008) is the first triennial report of a program looking at the health of the river by the Independent Sustainable Rivers Audit Group (ISRAG). It looked at three themes in 2008 – fish, macro invertebrates and hydrology. The first two are good direct measures of environmental health. Hydrology is less a direct measure of health and more a factor that influences health. Even though the SRA hydrology is measured as more than just a simple river flow it is still disconnected to a degree from environmental health.

The next SRA is due in 2011. This audit will include extra themes of Vegetation (good direct measure) and Physical Form (somewhat indirect) including floodplain environments. It is also recommended by the ISRAG that floodplain and terminal wetlands be included in the future. This second (and future reports) will start to give us trends in the health of the environment. The initial report compared the results to reference estimates. This comparison is somewhat subjective (because the reference estimates were based on judgements) whereas the trends should be more objective.

This is another advantage of expanding the time available for research/science prior to the determination of the Basin Plan. We should have the second SRA by the end of 2011, the third by the end of 2014 and the fourth by the end of 2017. With four assessments (even three by 2015) trends should start to become evident and the causes (and remedies) of any degradation should be much clearer. This should produce a more refined basin plan that ensures better outcomes for the environment and limits impacts on communities to that which is actually necessary (win-win). That contrasts to the crude blunt instrument that the Basin Plan would be if the 2012-14 timetable was adhered to.

It may also be worthwhile to assess the cost of increasing the frequency of the audits. A yearly or biennial audit would produce even better trends and more clearly demonstrate the response to any remedies.

Key Points

The best science of the Guide is a crude “surrogate estimate” because the MDBA were given insufficient time to do GOOD science:

- The indicator used (river flow rate) is too indirect. It could overestimate the needs; underestimate the needs or both at the same time.
- The extrapolation from 14 sites to 2442 is crude with an uncertainty that is way too high.
- The peer review is inadequate. Most of the data has not been released and the time for review is woefully inadequate.

The tight timetable was due to the risk of irreversible damage to environmental assets in the next few years (from the long dry period).

The wet spring has meant that the risk of irreversible damage is virtually zero in the next few years.

The Act should be amended to extend the timetable out from 2012-14 to 2017-19 with the consultation period extended to 52 weeks. This will allow:

- The Basin Plan to change from a crude, blunt instrument to a detailed, refined plan.
- The results of the next two (or 3) SRAs to inform the science.
- The Plan to be based on ‘Good’ science not ‘Best’ (but inadequate) science.
- Direct indicators of environmental health to be used rather than the indirect river flow
- All 2442 environmental assets to be assessed and incorporated in to the modeling
- Time for all the measurement, assessments and modeling to be thoroughly reviewed

To assist these objectives the Government needs to:

- Instruct the MDBA to release all data (current & future) ASAP – no data should be kept secret. Transparency is needed to ensure confidence in the process.
- Ask the MDBA how much time/resources are needed to assess the water needs of all 2442 assets based on direct measures of health (from multiple SRAs).
- Instruct the MDBA to assess the water needs of all 2442 assets based on direct measures of health (from multiple SRAs) and provide the MDBA with the necessary time and resources to do it.
- Provide the resources to ensure that the SRAs can continue to be done (particularly the direct indicators) and explore the costs/possibility of doing them more frequently.