Submission to Senate Select Committee on Inquiry into MDB Plan and Constraints Management Strategy

Date: 25th August 2015

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INTRODUCTION

I am a beef cattle farmer on the Yea River, the second largest upstream tributary to the Goulburn River. Our cattle fattening enterprise consists of 425 hectares, including 100 hectares of river flats and floodplains. These high value agricultural river flats are the most utilised and profitable component of our property, providing during Spring, the peak production period, 500 rolls of silage consistently every year and finishing 450-500 head of fat cattle annually.

I am a member of the Mid-Goulburn MDBA Technical Advisory Committee, a past member of the Yea River Streamflow Management Committee, have been involved with water issues for many years and have lived along the Yea River practically all my life-over 60 years.
My submission is mainly about the Constraints Management Strategy and the proposed "relaxed constraints" scenario in the Upper Goulburn River Catchment between Eildon Weir and Seymour.

SUMMARY

There is more than ample evidence to demonstrate that the Murray Darling Basin Plan's Constraints Management Strategy, is not appropriate with its proposal to create man-made manipulated environmental floods of up to 20,000ML/day from Eildon to Molesworth and 30,000ML/day at Killingworth in the Upper Goulburn Catchment, in an endeavour to deliver high peak and high volume flows to the Lower Goulburn Floodplain and into the Murray River and on to the Murray mouth.

Inappropriate in that neutral social and economic impacts with a triple bottom line benefit cannot be achieved due to severe and frequent flooding that will be created downstream of Eildon Weir, with the entire river flat component of numerous high value agricultural properties being inundated. There is also ample evidence to demonstrate that this significant flooding on a continuing basis will cause direct and indirect severe, detrimental economic damage to landowners, businesses and local shire councils.

The Constraints Management Strategy cannot be affective in technically achieving the desired Basin Plan outcome of maintaining an open Murray River mouth 95% of time without dredging, due to the natural physical constraints of our landscape -constraints which cannot be mitigated.
The amount of $200 million set aside for the mitigation of constraints throughout the entire Murray Darling Basin is so obviously totally inadequate and insufficient to cover the long list of severe impacts.

The very tight timetable set down by the Inter-governmental Agreement has hampered the ability of authorities to progress the Constraints Management Strategy in a more appropriate time frame which would enable proper detailed assessment of impacts and rigorous investigation of streamflows and flood levels to provide solid evidence to place before decision-makers. There has

simply been insufficient time and insufficient funds allowed for the investigation and collation of important data. This is totally inappropriate and improper when people's livelihoods are at stake.

It is extraordinary that a detailed risk analysis has not been undertaken, during the current feasibility phase (Phase 2) of the Constraints Management Strategy project, considering the huge expenditure of taxpayer's money for the Murray Darling Basin Plan, initially $10 billion, and daily expenditure claimed by Mr Baldwin, Parliamentary Secretary for Water, to be $2million each and every day.
For a government agency, that is the MDBA, to be involved in the process of the planning and implementation of a project involving such extremely high social and economic impacts and also putting taxpayers at risk of financial liability from ongoing litigation caused by intentional flooding of private property, it is unbelievable that there has not been a proper, detailed cost/benefit analysis, before state government and ministerial decisions are put in place, committing large amounts of tax payer funds to off-set the impacts of the Basin Plan.

The MDBA states in Phase 2 of the Constraints Management Strategy it must be shown that the project is viable and achievable technically and economically whilst identifying remaining risks and mitigation.

Feasibility of the project should include evaluation and analysis of the potential of the project based on extensive investigation and research to support the process of decision making.

1.Impacts of the Constraints Management Strategy on our Property "Cheviot Hills" Yea

High, prolonged and frequent environmental flows in the Goulburn River will restrict floodwaters in tributaries such as the Yea River, from draining quickly and freely as normally occurs. This means our river flats will be inundated for longer periods causing severe impacts on pasture, silage production, fertiliser application and cattle finishing during the Spring, when the proposed environmental flows are to occur.

PORTION OF YEA RIVER FLATS AT "CHEVIOT HILLS" AUGUST 2010

The MDBA proposed environmental flows of 15,000ML/day to 30,000ML/day in the reach where the Yea River joins the Goulburn would have significant and severe impacts on our farm production and income. These flows of greater frequency, up to 6 times every 10 years and of greater duration, unspecified by the MDBA , but stated as being days to weeks, would be extremely detrimental to our

improved pastures and particularly silage growth and production. If prolonged flooding prevented us from producing our annual silage needs, we would not only suffer economic loss of approximately 500 rolls of feed for the following winter at a current cost of $25,000(includes fertiliser costs), but also the outlay of $50,000(cost may be more depending on the season), to purchase and truck in the equivalent silage requirements.

In addition there would be the costs of pasture renovation, if floodwater lay on pastures for an extended period in excess of 6-7 days. After a flood it is still not possible to immediately return cattle to the river flats as the pasture is covered with sediment, which needs further rain to cleanse it and make it palatable to stock once more. This then puts grazing pressure on the remainder of the farm or requires agistment($7/head per week for dry cattle) off-farm for stock.

As the proposal by MDBA is to "piggy-back" high tributary flows on top of releases down the Goulburn River for a prolonged duration to achieve flows of up to 30,000ML/day to Seymour, it is very obvious that the resultant flows would keep tributaries from draining freely causing extended loss of grazing areas and pasture.

2. PROPOSED "RELAXED CONSTRAINTS" FLOWS

Committee members should be aware that :
"THE 2,750 GL OF ENVIRONMENTAL WATER TO BE RECOVERED CAN BE DELIVERED WITHIN THE CURRENT PHYSICAL CONSTRAINTS…"(Constraints Management Strategy Public Feedback Document Page 10)
That is, the target of delivering 2,750 Gigalitres to the environment can be achieved without relaxing or removing constraints, without imposing easements on landowners, without creating man-made manipulated floods, without creating a loss of food production.

In 2012, the proposal to acquire an extra 450GL of environmental water and run the 3200 GL without constraints model *"established the case for the Constraints Management Strategy."*
(Page 5 Priority Constraints Analysis)

The Murray Darling Basin Authority(MDBA) defines constraints as "river rules, practices and structures that restrict or limit the volume and/or timing of regulated water delivery through the river system." However, the real constraints are not roads, bridges, levees, but the river channel capacity and the physical landscape and topography which make it impossible to send large, man-made manipulated flows down the river system, without causing severe third party impacts. No mitigation can resolve these physical restraints.

Under the CMS the MDBA proposal in the Goulburn Catchment is to deliver the flows below:

Flow footprint (ML/d) Reach 1 Eildon to Killingworth 12,000 15,000 20,000 Gauged at Eildon

Flow footprint (ML/d) Reach 2 Killingworth to Mitcheltown 15,000 20,000 30,000 Gauged at Killingworth

Flow footprint (ML/d) Reach 4 Kialla to Loch Garry 25,000 30,000 40,000 Gauged at McCoys Bridge

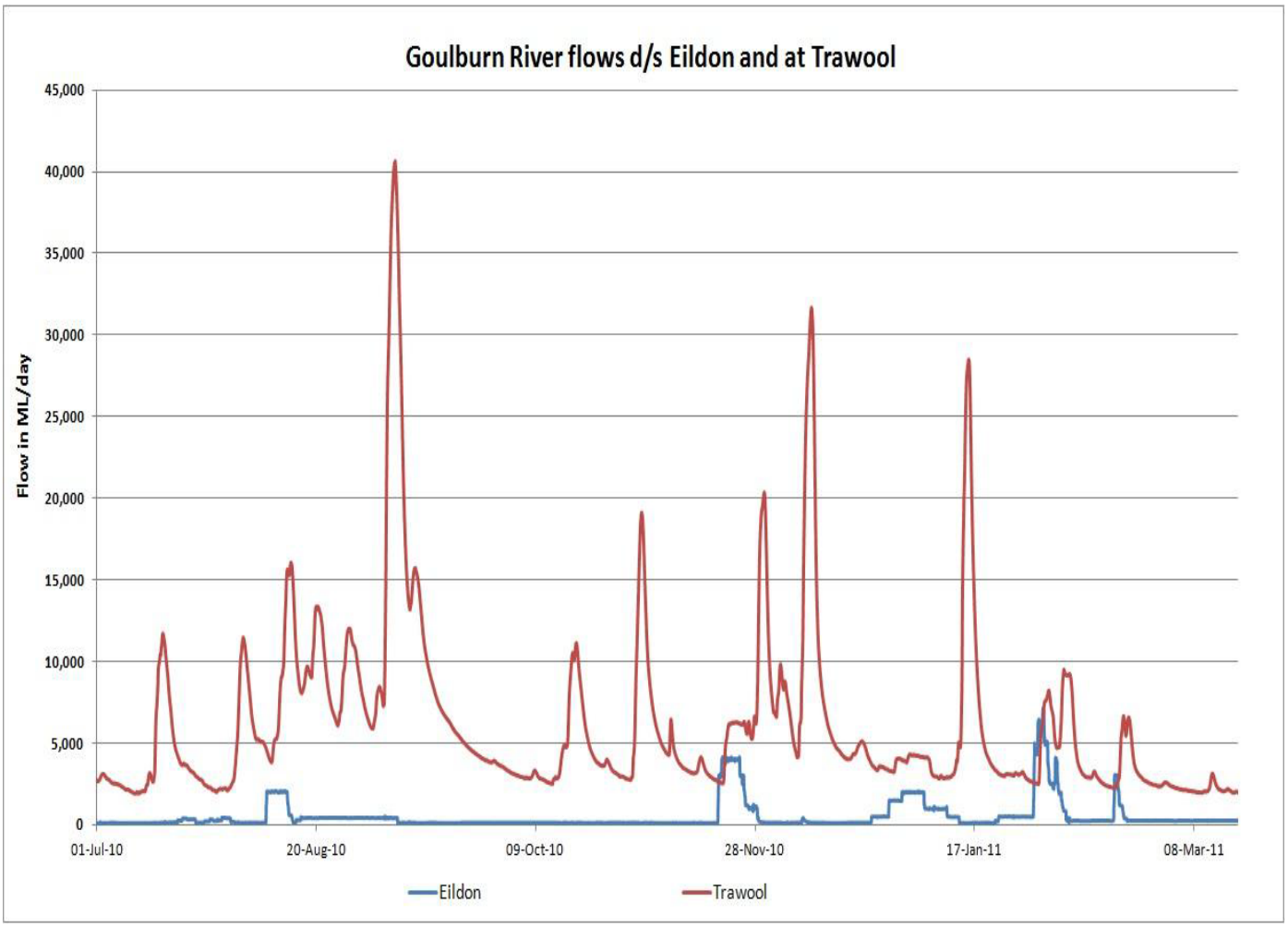
The Goulburn River channel capacity at the Molesworth Choke (Reach 1 in Goulburn River Reach Report), approximately 42 kms downstream of Eildon is 9,500ML/day, similar to the Barmah Choke.
The Goulburn River channel capacity at Trawool is 18,000ML/day
The proposed environmental flow of 20,000ML/day gauged at Eildon is over double the bank full volume, which completely inundates the agricultural floodplain of properties at Molesworth.
These are NOT ***"small overbank flows"*** as claimed by the MDBA in their myriad of documents.

The lower proposed environmental flows of 12,000ML/day and 15,000ML/day in Reach 1, Eildon to Molesworth, still completely inundate the river flat component of some properties and cut access to other properties along the Goulburn and its tributaries, such as along the Rubicon and Yea Rivers. A flow of 20,000ML/day in Reach 1, is totally untenable and at 15,000ML/day the impacts are significant and severe.

It is very obvious that the flow volumes proposed for the Lower Goulburn Floodplain of up to 40,000ML/day will require flows in the Upper Goulburn Catchment that will create very severe economic impacts. Ironically, these high flow, frequent, manipulated floods will also create environmental impacts and "disbenefits" in the upper catchment.

3. RISK TO COMMUNITIES

The proposal to release environmental flows from Eildon Weir "piggy-backed" on top of high rainfall events in the Goulburn tributary catchments is diametrically opposed to normal operational procedures. Normally when there are high flood flows downstream Eildon releases are cut back to a minimum(150ML/day) in order to protect downstream communities, and these river operating rules MUST remain .



The blue line indicates discharges out of Eildon.
The red line indicates tributary flows in the upstream Goulburn catchment, including flows from the Acheron, Rubicon, Yea, Murrindindi Rivers and the King Parrot Creek. It is very obvious that these fast flowing streams can generate large floods in their own right, which is

why the proposal to release flows out of Eildon at the same time "piggy-backed" on the tributary floods to give a flow of up 20,000MLday in Reach 1 and up to 30,000ML/day in Reach 2, is absolutely fraught with danger for landowners and communities.

The Preliminary Overview of Constraints to Environmental Water Delivery which provides a technical assessment of constraints states that: *"the 40,000ML/day flow target cannot be met without a resultant minor flood in Shepparton." This would necessitate construction of levees to protect assets in and around Shepparton."*

4. PHYSICAL CONSTRAINT OF NATURAL TRIBUTARY "TIME LAG" FACTOR

There is difficulty in coinciding flows and limited opportunity to trigger winter to spring overbank flow events. Due to river travel times, water released from Eildon Weir will not catch up to high flow events in tributaries below Trawool. This is a well documented fact-unless the flows are prolonged Even peaks in flow in the Goulburn itself, Seven Creeks and Broken River NEVER coincide by the time they reach Shepparton and this has shown to be a regular characteristic.
The document "Environmental Water Delivery-Lower Goulburn River October 2011" states:
"peak flows observed in the upper Broken River (downstream of Nillahcootie) will reach Shepparton in approximately two days. This is less than the time taken for releases from Lake Eildon to reach Shepparton (approximately four days). Thus if a peak flow is observed in the upper Broken River, water released from Lake Eildon will not reach Shepparton in time to contribute to the event (unless the event is prolonged)."

5. IMPACTS FROM HIGH, PROLONGED FLOWS PROPOSED BY MDBA

1)ENVIRONMENTAL IMPACTS

Frequent , over bank high flows along the Upper Goulburn and the floodplain reaches of the upstream tributaries will, and already have suffered from environmental degradation. For example many farmers throughout the length of the Goulburn are now complaining about the increased large number of mature red gums falling in to the river, causing bank erosion due to the constant rise and fall of the river.
Other impacts are:

1. Bank slumping
2. Eroding flood paths and alternative courses created, causing avulsions or breakaways
3. Elevated water table
4. Increased salinity or salinity spikes
5. Increased carp breeding and population in the lagoons and streams
6. Decrease or removal of riverbank vegetation
7. Black water events

2)IMPACTS TO FARM PROPERTIES

Potential impacts to landholders and farm properties will be constant and on-going due to the increased frequency of the proposed environmental flows up to 6 years in every decade.

1. Damage to farm roads, tracks, bridge crossings
2. Restricted access to river flats making urgent movement of cattle difficult and dangerous
3. Damage to pumps or necessity to lift pumping infrastructure
4. Restriction or inability to pump water whilst flooded
5. Fence damage and constant repairs
6. Need to remove fence and flood debris between floods to ensure further damage does not occur
7. Increased weed maintenance

8. Pasture renovation necessary when inundated for longer period
9. Potential loss of silage/hay production
10. Restriction to fertiliser application, particularly Pastureboosta and urea in the Spring
11. Damage to levee banks and increased maintenance
12. Crop losses due to flooding
13. Increased maintenance of on-farm drains
14. Need to shift farm machinery to high ground
15. Increased trough maintenance
16. Loss of prime fattening pastures in peak period (August to November)
17. Additional costs for agistment, transportation, purchased stock feed
18. Increased stress on stock when moving if calving in the Spring
19. Increased stocking rate and pressure on remainder of farm paddocks when cattle shifted to higher ground
20. Sediment deposit on pastures
21. Increased stress and danger on farm personnel when managing flood situation

3)IMPACTS TO MURRINDINDI SHIRE

The potential and resultant impact to public shire infrastructure indirectly impacts on all the ratepayers, in as much as the Shire must then budget for frequent maintenance and loss of income caused by interruption and decrease to the tourist trade.

1. Damage to access roads particularly out-lying dirt roads, bridges, levee banks
2. Damage to riverbank, Shire owned caravan parks and associated infrastructure and loss of business
3. Loss of tourism trade due to inundation of boat ramps, camping areas, outdoor activity areas.
4. Drainage systems impacted by backing –up issues.
5. Town water supply affected by change to water quality.
6. Reduction in income due to devaluation of lands affected by flooding.

6. INSUFFICIENT TIME FRAME & INSUFFICIENT DATA PRIOR TO DECISION MAKING

The proposed phased timetable is far too short, not allowing sufficient time in which to gather and collate detailed data which is essential to inform the Basin and Commonwealth Governments

Phase 2 Assessment Guidelines for Supply and Constraints Measures Business Case (the guidelines) which is to guide the development and assessment of business cases for proposed supply and constraint measures of the Constraints Management Strategy must evaluate and analyse the potential of the project, based on extensive investigation and research to support the process of decision making. As this phase develops and prepares the business case it must show that the project is viable and achievable technically and economically, whilst identifying risks and mitigation. The GBCMA on behalf of the Victorian Government, were charged with the responsibility of continuing investigations for the Goulburn River Constraints Business Case Development in June 2015. So in fact only a 4 month period has been available to extensively investigate, collect and collate information for a multi- billion dollar project that affects the livelihoods of millions of Australians and also impacts our national food production capability, as the draft Business Case must be in place by September 2015, for scrutiny by the Victorian Government by November 2015.

The MDBA have stated that only “limited farm scale interactions” will take place, as there is now insufficient time and money to undertake ***“property- by- property assessment with regard to landholder impacts and mitigation options.”*** The Constraints Management Strategy clearly stated on Page 32, that detailed property assessments would take place. Instead only 2-3 specialist businesses, that is caravan parks, trout farms and a small group of farms will be used as case studies,

which then will be used in the Business Case to inform decision makers of the benefits or impacts to private landholders throughout the upper Goulburn.
To the many landholders affected that is totally unacceptable and we have informed the MDBA of this, as every individual property and business is impacted differently by flooding.
"Under the Basin Plan it is a requirement for a Constraints Management Strategy to undertake a comprehensive and rigorous assessment of river operating constraints in consultation with landholders amongst others."(Page xiii Hydrologic Modelling of the Relaxation of Operational Constraints in the Southern Connected System- Methods and Results)
Phase 1 of the Constraints Management Strategy states Page *12 "proponents must identify the level of impacts, whether they are manageable and acceptable with a detailed risk assessment, as this is a requirement of Phase 2.*
We have seen NO detailed risk assessment of individual properties that will be affected, no on –farm assessment as to whether impacts are manageable and acceptable from the landowner's point of view, no work at all undertaken on the tributaries and impacts until June this year.
As MDBA documents state these are technically complex projects which require extensive landholder involvement.
Landowners in the Upper Catchment do not want to be flooded by man-made manipulated floods that increase the frequency of overbank flows of 12, 15, 20,000ML/day at Molesworth and up to 30,000ML/day at Ghin Ghin for up to 6 events in every 10 years

7.LACK OF RIVER and TRIBUTARY DATA

Landholders in the Upper Goulburn Catchment have informed the MDBA that their flood footprint maps are inaccurate and they have under-estimated all their flood footprint maps, but particularly for the 20,000 ML/day flow
The MDBA have not acknowledged in their maps, the flooding behaviour of the Goulburn and its tributaries, whereby they nearly always back up through old river courses, channels and lagoons, cutting access first and then spreading in many directions. Nor have they factored in localised sudden flooding or run-off that occurs from our steep hills.

I am extremely concerned that due to the lack of an extensive gauging network, it is simply not possible in the very short time of June to September 2015 to have collated or modelled sufficient detailed information, with which to make an informed decision on the ability to use high tributary flows in conjunction with Eildon releases and safely manage flows of 20,000ML/day to 30,000ML/day in the Goulburn. As there is such little data on which to base information, the impacts on landholders is an unknown quantity, and I therefore cannot see how the Basin and Commonwealth Government can possibly make an informed decision on whether the project should be allowed to proceed to Phase 3-planning and implementation.
The MDBA state in their Goulburn River Reach Report 9 Page 86) that: *". Sufficient calibration data is important, to make sure that the model's representation of how water moves across the landscape matches what people experience in real life We know that we do not have enough calibration data for the mid-Goulburn. Further calibration data and work is needed to improve map accuracy. Our current understanding of the increasing scale of impacts of a range of flow footprints is therefore based on several detailed landholder interviews around Molesworth which are described below"*
The MDBA have stated that they have plenty of data for the big floods of I in 100 frequency but practically no data for lower level floods in the order of those they are proposing 12, 15, 20,000-30,000ML/day in the upper catchment

The Goulburn River Reach Report states: *High in-channel Goulburn River flows can prevent tributary flows from draining freely, and cause backing-up effects that affect the lower reaches of tributaries. Further work is needed to determine the scope and likely significance of this issue for landholders along tributaries, particularly in relation to better understanding the likely duration of regulated water releases from Eildon Dam.*(Page 36)

There is an extreme paucity of streamflow gauges in the Upper Goulburn Catchment despite the fact that the upstream tributaries, the Rubicon, Acheron, Yea/ Murrindindi Rivers provide 50% of flow to the Goulburn River.
Currently 57% of the catchment between Eildon and Trawool is not gauged, 65% of the catchment between Seymour and Murchison is NOT gauged, 50% of the Yea/ Murrindindi catchment is NOT gauged and a large percentage of the King Parrot Creek is NOT gauged.
Considering the lack of streamflow data available and that Geoff Earl GBCMA, said in November 2012, 3 years would be needed to undertake modelling and studies to discover whether it was possible to send large environmental flows down the river on the back of high natural flow events, it is alarming that only 4 months has been allowed to assess the implications of "piggy- backing" releases from Eildon on top of high tributary flows.

The MDBA modelling also has little data available to understand what the impacts will be for landowners along the floodplains of the tributaries. The Goulburn River Reach Report states*"…due to modelling assumptions, the maps did not capture the possible effect of the tributaries backing up (not being able to drain freely due to high Goulburn River levels). If work in the Goulburn proceeds, then additional modelling of potential inundation for landholders in tributaries should be included. The accuracy of the maps is currently limited by the amount of data available to calibrate the hydraulic model. Mapping accuracy is a particular issue for the mid-Goulburn, as calibration data to reflect the complexity of the river channel were limited. The maps should therefore be viewed as a first estimate, with more accurate mapping required ."(Page 69)*

8.INACCURATE INFORMATION

1)"Small overbank flows"

The MDBA proposed environmental flows between Eildon and Killingworth are 12,000, 15,000 and 20,000ML/day gauged at Eildon and flows of 15,000 and 30,000ML/day between Killingworth and Mitchelton.
The MDBA have constantly referred to the above flows as **"small overbank flows".** Particularly for the higher flows, that statement is completely inaccurate, as 20,000ML/day causes extensive inundation of the river flats of several properties at Molesworth and Killingworth and is double the channel capacity of the Goulburn at Molesworth.

The MDBA also constantly states in the Constraints Management Strategy and associated documents that the environmental flows **"will not exceed minor flood levels"** This gives decision makers the impression that flows of 20,000ML/day gauged at Eildon and 30,000ML/day gauged at Killingworth are small flows with little impact. The Bureau of Meteorology flood classification levels have little or no relevance for those of us who live and farm along the Goulburn and its upstream tributaries, due to distance from existing gauges.
As the Goulburn River Reach Report states on Page 11:
"As you move away from the gauge, the river situation can be quite different from what is being recorded at the gauge. This can mean that flood warning categories may not be timely or relevant, especially for rural areas with large amounts of ungauged catchment, flow from unregulated tributaries and long distances between river gauge…."

The photo below, taken 18th August 2012, is flooding on our property along the Yea river. The Bureau of Meteorology, according to flows recorded at the Devlin's Bridge streamflow gauge on the Yea River, showed a flow level of 1.51metres which does not even reach the minor flood level of 1.8m.

1)Prolonged and High Environmental Flows

The MDBA now appear to want to down-play the fact that flows will need to be extended or prolonged and that tributary flows will need to be high to achieve a flow of the volume that they propose.

The final Goulburn River Reach Report Page 3 states:

"Extended releases from Lake Eildon have never been proposed (e.g. months as can occur during pre-releases during flood operations). The lower Goulburn overbank flow events that are being investigated are relatively short, in the order of lasting days to weeks."

The report also states:

"Extended duration releases from Lake Eildon and releases on top of high tributary flows are not being investigated."(Page 92) yet the same document on Page 1 states:

"the overbank flows being proposed will be created by releasing water from storage in response to natural cues to 'top up' unregulated tributary inflows, to increase either the flow peak and/or duration of the event."

There are many documents that the MDBA commissioned in the development of the proposed environmental flows, which state exactly that.

It is very obvious to locals that the only way to create flows up to 30,000ML/day at Ghin Ghin is to "piggy-back" Eildon releases on top of HIGH tributary flows and extending these flows so as to coincide them with flows further downstream.

3)Flow Footprint Mapping

The MDBA using desktop modelling have NOT correctly identified the flood footprint as they have neglected to recognise:

1) the flooding behaviour of the Goulburn River and its tributaries. A flood, in the majority of cases does not just rise above the bank level and spill over. It first backs up through old river courses, channels and lagoons and then spills in all directions, usually cutting off access first and flooding a far greater area than that displayed by MDBA maps
2) localised flooding that occurs at the same time as main stem river flooding-that is the run-off that occurs from our hills and ranges in a heavy rainfall event. And of course if the catchment is already wet, this localised flooding adds substantially to the area flooded.

4)High Value Agricultural Land Referred to as 'Flood Country'

The Constraints Management Annual Progress Report 2013-1014 erroneously states:
*"Importantly, we are only talking about changing managed flows on the lowest parts of the floodplain, in areas often designated as floodways or 'flood country'. Generally this is not where there are buildings or crops, but it is where a range of native species will benefit."(*Page 5)
And on Page 11*: 'The land is typically 'flood country'…."*

The land referred to as "typical flood country" by the MDBA has the intention of telling readers that this is low value, poor quality country . The river flats in the Upper Catchment between Eildon and Seymour are highly developed, high value agricultural land mainly sown to improved pastures, producing annually silage, hay and turning off fat cattle which are extremely highly regarded and sought after by the domestic and export trade.
This country can in no way be described as "typical flood country" meaning it is of little value Property values are rated at $20,000- $25,000 per hectare(bare land) on the Goulburn River depending on acreage and improved status, and on the Yea River $12,500- $16,000 per hectare.

This information has been fed to government and basin decision makers, who have now already made decisions to further proceed, based on these documents and would have no on-ground knowledge that these are actually highly productive river flats and therefore the economic impact of regular flooding will be severe, leading to reduced food production and reduced farm income, with mitigation costs being far greater than estimated in MDBA documents.

> The MDBA wrote the Basin Plan Regulation Impact Statement Nov. *2012 "to enable the Minister, Members of Parliament, and the Australian community to be informed of the environmental, social and economic implications of the implementation of the Basin Plan."*

The document makes the broad based statement applied basin wide that floodplain agriculture will benefit from increased inundation of floodplains and quotes:
" A case study by Arche Consulting (2010) of three farms in the Basin (White Cliffs, Cuttaburra and Wilcannia) found that flooding has a positive effect on gross profit of floodplain agricultural enterprises." (Page 35)
This has no significance or application whatsoever to the Upper Goulburn catchment.
There is absolutely no similarity between these areas and the Upper Goulburn Catchment in topography, soil type, climate, rainfall, stocking rates. These northern floodplains are mainly natural vegetation, while the floodplains of the Upper Goulburn and its tributaries is all improved pasture and intensively farmed and with high stocking rates, often with cell grazing units.

It is very obvious that macro-economic and basin wide broad-scale data has been applied to inform decision-makers to this point which has given governments and committees a very skewed and incorrect basis on which to make important decisions as to whether to proceed.

9.RISKS ASSOCIATED WITH THE CONSTRAINTS MANAGEMENT STRATEGY

1)EASEMENTS

Landowners in the Upper Goulburn Catchment do not want their properties flooded on a regular basis, nor do they want an easement taken out on their land. They also view compensation, as laid out in the MDBA document Goulburn Estimate of the Cost to establish Easements, as being totally inadequate and a dramatic under-estimate of land values in the Upper Goulburn catchment, therefore there is significant risk that easements will not be able to be registered, which would mean under Victorian law environmental flows would not be able to intentionally flood private property and the project could not proceed.

Phase 3, the Planning and Implementation stage of the Constraints Management Strategy, states : "*Victorian policies about environmental water management explicitly address property right primacy, to the effect that deliberate inundation of private property will not be undertaken without the landholder's consent."*
The Commonwealth Government have stated that easements will not be forcibly acquired.

The Goulburn River Reach Report states*: "The ability to deliver overbank flows relies on governments being able to understand and mitigate impacts on private land and public infrastructure along the entire flow path."*(Page 13)
Therefore there is very considerable risk involved in governments being able to obtain easements throughout the entire length of the project

Easements are to be used to secure rights from landholders in order to change flooding regimes that will increase the duration and frequency of inundation. Easements would be registered on title to record the lasting right to change overbank flow characteristics on private property(- CMS PREFEASIBLITY- Goulburn estimate of Cost to Establish Easements)
However landowners are extremely angry at the intention to register easements on their private property and have stated their refusal to take part in any negotiations.

3)COMPENSATION

Compensation is to be paid to landowners on damages incurred by environmental floods on private property.
The method of calculating compensation is "penny-pinching" and totally inappropriate when landowners will have the most productive component of their high value agricultural land taken out of production by intentional manipulated flooding on a regular and permanent basis forever.
Also the adjacent residual land asset will have a changed or lower value due to reduced productivity and income potential, along with increased costs subsequently reducing the market value of the property.
For flows up to 20,000ML/day in the upper Goulburn and flows up to 40,000ML/day in the lower Goulburn, the total area of private agricultural land inundated is 6838 hectares.
A single one-off compensation will be paid to landowners on the basis of the differences between current baseline flood flow regime and the changed flood flows that result from Constraints Management Strategy implementation of environmental flows. Thus it is intended to pay landowners minimal amounts. Compensation will also take into account percentage of land affected by interrupted access, differential of damages caused between a natural event and a manipulated release of environmental flows. Even the pasture has been allocated as either tolerant or vulnerable to flood inundation and a ratio applied for compensation purposes.
There has been no multiplication of estimated compensation to landowners to cover continued flooding into the future.

2)Mitigation

The Victorian Government under the Murray Darling Basin Plan (MDB PLAN) are required to secure easements over property that will be intentionally flooded by man-made manipulated floods. This then gives Government agencies the on-going right to flood private property forever into the future Flooding of private property cannot be effectively mitigated by easements. Mitigation means to alleviate, reduce, diminish the severity. A line on a map indicating an easement in no way alleviates the severity of flooding. This is NOT mitigation for the affected property owner.
Instead it is mitigation for the Government agencies, Goulburn-Murray Water and the Goulburn Broken Catchment Management Authority who normally are legally liable and responsible for damages caused by flooding.
Landowners are extremely angry at the prospect of having their land inundated by man-made floods of increased frequency and duration, and are not inclined to negotiate easements that will only mean a de-valuation of their land.

3)Litigation

The Goulburn River Reach Report Page 2 clearly states:
"In Victoria, water corporations and catchment management authorities are liable to pay compensation if they intentionally release water from their works and this water causes injury, loss or damage, or if, through a negligent act, they cause flows that result in loss, injury or damage. These laws are intended to protect landowners who, through no fault of their own, are flooded by flows from works of water corporations or catchment management authorities. The bill ensures that the 'water infrastructure' functions of a water corporation include the operation of storages and delivery of water from those storages, including for environmental purposes."

4)Climate Change

As the main climate authorities agree we are now in a drier climate cycle, the fact that a 40,000ML/day flow at Shepparton cannot be achieved in a dry year adds a very real risk that the proposed frequency of flows –up to 6 years out of every 10 will not occur.
*"The modelling showed that the 40,000 ML/day event at Shepparton (gauging station 405204) is not a dry-weather event (i.e. managers could not artificially create this event in a dry year). This is a wet-weather event, only likely to occur in years when the catchment is wet and tributaries are flowing strongly."(*Goulburn River Reach Report Page 31).
Landowners in the Upper Catchment state that we have been experiencing more dry years in any given decade, followed by the occasional very large flood approximately every 20 years, which will make it very difficult to manipulate man-made floods of an increased frequency.

10. IS THE PROJECT VIABLE, AND TECHNICALLY AND ECONOMICALLY ACHIEVABLE?

The MDBA does not appear to have taken into account the natural physical constraints of our country which is the flattest, driest continent on earth, meaning there are massive attenuation and evaporation losses as flows so slowly wend their way towards the Murray Mouth and Southern Ocean.
It takes a release of 3 megalitres at Eildon to get 1 megalitre at Mildura. There is no manner of mitigating these losses in our hot, arid, flat land.
Here are the reasons why vast volumes of water will never reach the Lower Lakes or Southern Ocean, making it impossible to keep the Murray Mouth open 95% of time.
All tributaries worthy of naming, are in the upper reaches of our main rivers
The Darling once it leaves Queensland has virtually no tributaries.
The Murray from the point of confluence of the Darling has no tributaries
The Goulburn below Shepparton has virtually no tributaries.
The Murray at Albury takes 4 weeks to reach South Australia

The Murray at the confluence with the Goulburn River is 1992 kms. from the Murray Mouth and a mere 124.9 metres above sea level.
Mildura is still 878kms from the Murray Mouth but only 34.5 metres above sea level.
The Darling River at the Queensland border is about 3,218 river kilometres from the sea and only 500 metres above sea level.
Once the Murray and Darling Rivers leave the Great Dividing Range their stream bed gradients are so low that their waters flow at a phenomenally low rate.
After wandering 1350 river miles to Wentworth, the Darling River flows into the Murray at 100 feet above sea level. Throughout that distance it falls only 3 and ½ inches (90mm) to the mile
At Albury the stream gradient of the Murray is 125mm/km(5 ins.) down to Wentworth, which is a mere 33 metres above sea level
For the last 100 kms. in South Australia, the stream gradient is only 12mm./km(1/2in.)

History and local knowledge have shown that the Great Southern Ocean transports sand back through the Murray mouth when the prevailing winds blow from the west –south west and the river has little or no flow at that point to keep the mouth open.
The project objective of keeping the Murray Mouth open 95% of time is simply not technically achievable because of the constraints of the physical landscape of our country.

As Ken Jury, Senior Investigative Journalist, Marine & Aquatic Ecology-Goolwa, SA. states:
The fact is that 80GL/day over the South Australian border, will be of no benefit when trying to clear the river mouth. However, flows of 160GL/day through selected barrage openings will provide enough flow pressure over time to clear the mouth during out-going tidal periods. To provide for this it will be necessary to return the Lower Lakes back to their pre-barrage estuarine state. Only then will this enable the lowering of the lakes by 20cm only, which will provide, cheap estuarine water sufficient enough to clear the mouth at random.

CONCLUSION

It is inconceivable that a project of this magnitude with a budget of $10 billion plus, which involves the security of the nation's food bowl and that of its people has been allowed to progress to this stage without producing an extensive and detailed cost/benefit analysis which quantifies the environmental, private and public benefits against the environmental, social and economic costs. This should require an analysis of the financial investment and actual ability to deliver the additional water.
The objective of achieving environmental benefit and quantifying these benefits must be weighed against the social and economic costs which requires an analysis of the financial investment, impacts and ability to deliver the additional water, taking into consideration the difficulty and risks involved in synchronising the timing and volumes of flows.
This will not have occurred prior to the Business Case being presented to the Basin and Commonwealth Governments for a decision on whether to proceed to the critical Phase 3 of planning and implementation of the Constraints Management Strategy.
Even though we experienced 3 wet years 2010-2012, dredging the Murray mouth still continues with $40 million being spent during the Millenium drought, $4million since January 2015 and $6 million has been earmarked for dredging during this financial year.

___THE END