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This submission raises issues of concern and provides suggestions as to practical workeable solutions.

Perhaps some persons may percieve that the purportedly independent Murray Darling Basin Authority and the Draft Basin Plan has been unduely influenced and/or compromised by political and various self-interest groups considerations. The MDBA should be given powers of autonomy similar to that afforded the Reaserve Bank of Australia.

Although the Draft Plan may be based on the best available science, the projected modelled outcomes are often merely assumptions. Depending on the agenda of the political and/or self-interest group, so the suggested outcomes would be variable. I note that prior to the "breaking of the drought", in 2010, the "experts" claimed the Murray Darling storages would require several years of above average rainfall to fill, to the extent which then occurred in about 4 monthsperiod in 2010/2011.

The Basin Plan must embrace a holistic all of the basin approach and not tend to operate the "northern" (Darling) section as separate to the "southern"(Murray) section. If the predicted climate change effects occur, there will be less rainfall in the Murray catchments, while the Darling catchments may recieve more in extreme weather events, (similar to that which occurred in 2010/11). 2010/11 Darling catchments resulted in 1075 gigalitres of water flowing past Burtundy, on the lower Darling, during the 2010/11 water year. Such water provided the environmental water stimulus, to South Australia, including that water which was restored to the Lower Lakes. In the recorded past, as well as in the future, Darling catchment water has been/will be a significant contributing factor to providing sustainable SA societal, economic and environmental outcomes.

The Draft MDB Plan proposed consumptive water allocation,is to be at a higher level of extraction, than at the time when South Australia capped its consumptive water take, in about 1970. Therefore, overallocation of the MDB water resource, has obviously occurred since 1970, during which period of time, SA has not contributed to the overallocation. As such, SA consumptive water allocation should not be further reduced.

Environmental water use, together with socio/economic needs are intertwined and there is a need for a readily publically available transparent register of who owns how much water license and land, in the MDB. Ownership by investment companies, banks, etc, and/or non-Australian residents, etc, may determine viability of various food growing enterprises and whether such food is actually available for Australian consumptive use. Commonwealth law should be enacted, perhaps similar to other countries, eg, such as New Zealand.

continued on page 2

The proposal to increase groundwater extraction, for mining interests, by 2000 gigalitres, must not be allowed to proceed. Even if the groundwater is obtained from the underlying Great Artesian Basin, this additional amount of water extraction would probably exceed all of the GAB measures, implemented to date, to save water , from this resource, eg, bore capping, thus resulting in the integrity of the GAB being compromised. This aside, there is no guarantee that there is no physical water connectivity between the MDB and the GAB. Therefore the precautionary principle must apply and the additional 2000 gl groundwater extraction must not be permitted. In effect,the 2000 gl is an increase in MDB consumptive water allocation.

To adequately manage the basin, so as to potentially achieve the optimum sustainable societal, economic and environmental outcomes, it is necessary that all water useage is accurately measured and transparently recorded. Many irrigators, eg, in NSW, have efficient on-farm water use operations, but possibly there are significant water losses, between the initial diversion/extraction point and the farm gate, due to leakage and evaporation, from degraded open channel water supply delivery systems. Meters must be installed, basin wide, at the initial point of diversion/collection/extraction, such that all water useage, including losses from ground infiltration and/or evaporation, is accountable.

Particularly, in the "northern" section of the MD Basin,
Previously, above ground flows, during periods of higher river flows and/or flooding was declared as unregulated flows, with take not being restricted to the quantity, as pertained to the individual annual water take license, but was only limited by the capacity of on-farm storages. Where water is used on-farm, either for irrigation and/or industry, if water is stored in on-farm storages the quantity of above ground water flow, whether it is diverted, collected or stored, in a water year period, must not exceed the quantity of water which the individual water license holder is authorised to use in a one year water period.

Carryover water rules must be such that they define the percentage of maximum water storage capacity which may be utilised by various consumptive water use types, in a MDBA storage, such that no water license user type is disadvantaged.

Groundwater SDL for SA Murray Salt Interception Schemes is 28.6 Gl. When Stockyard Plain Disposal Basin, in SA, was established, funding provided by States, other than SA, was contingent on the other States being able to access salt credits, to in effect be able to pollute upstream of SA. Given this, then all States, which provided funding, should equally be regarded as extracting the intercepted saline groundwater. Therefore if SA, NSW and Vic were involved, then each State would be regarded as having a consumptive useage of 9.53 Gl.

continued on page 3

Supposedly, one of the purported environmental water aims is to achieve adequate flushing of salt into the ocean. However, in SA, during 2010/11 higher river flows, intercepted saline groundwater continued to be pumped out to and was deposited in Stockyard Plain Disposal Basin, rather than being diverted into the river, to be dispersed by the higher river flows and transmitted to the ocean. There is a need to adopt an adaptive management policy, such that when river flows are sufficient then the salt is flushed through to the ocean.

If, groundwater is to be used in a process which may generate long term environmental damage, eg, Coal Seam Gas Extraction(CSGE), then an amount equivalent to 10% of its' ongoing annual operating costs must be placed into a MDBA Trust Account, in perpetuity, to assist in rectifying any potential detrimental environmental effects, either while the CSGE is being operated, or after its completion. Given the amount of salt deposited and the acknowledged future on-site environmental degredation, a similar requirement must also be applied for the Stockyard Plain Disposal Basin, in SA. The photograph, below, is of some dead and/or dying previously healthy old age mallee, in an expanding area of environmental degredation, at Stockyard Plain.

Individuals are not permitted to pollute underground aquifers, as the Government does, at Stockyard Plain.

continued on page 4

Ponded saline water, at Stockyard Plain Disposal Basin, which is infiltrating into the underground aquifers, is at a much higher salinity content than that which previously occurred in such aquifers. Will the higher salt content water alter the soil structure characteristics of previously confining clay and/or limestone, such that it then acts as conduit to mobilise and transfer the highly saline water, in aquifers, in quantities and directions that were not "modelled" for?

Above bank flows are a necessity to maintain sustainable riverine environmental assets, in SA. However, the SA Government, for approximately the last 20 years, has had a policy of flood minimisation in an apparent attempt to reduce above bank flows, possibly due to political vote considerations of riverside dwellings, from Morgan to the Murray Mouth. An analysis of recorded data would establish the frequency of naturally occurring increased water level heights and length of its durations, such that if this was mimiced, it should negate possible litigation from "flooding".

The Draft Plan lacks detail re environmental water use as to where it should be applied, how often, to what extent and frequency.The MDBA, together with the Commonwealth Environmental Water Holder, must have the ability to determine environmental water use, depending on the status/extent of water flows, etc.

During the period, since the "breaking of the drought", environmental water, in SA, could have been better utilised to maximise environmental water use. eg, on knowing the likelihood of above entitlement water flows , for an extended period,regulatory structures, such as locks, could have been manipulated to raise water levels, in Lake Bonney, near Barmera, in the SA Riverland, then to lower the river level so as to drain saline water, from the lake, then to raise the river level to refill the lake with "fresh" water. The action of lowering the river level would have also have created a scouring effect, which would have assisted in removing introduced weed infestations, such as below Lock 3.

Past practice of wetting/drying of regulated "wetlands" is often building up the salt content in the landscape and polluting underground fresh water lens. The operating regime must be wetting/draining/drying. The draining process would assist in removing salt from the landscape and refreshing of underground water .

continued on page 5

Public concern has been expressed as to environmental water use efficiency, particularly as pertains to the SA River Murray section, including The Lower Lakes.

There must be an immediate feasability study of installing and operating Lock O, between The Lower Lakes and Murray Bridge,together with;
(1) Repairing the leaking barrages to prevent sea-water ingress, into the Lower Lakes. Also, installing spindle operating gates, for quicker and easier opening/closing, so as to be able to maximise prevailing environmental circumstances.
(2)Restoring the entrance to Lake Albert, so that "fresh" water circulates.
(3) Operating the Lower Lakes at a lower water height level, such that it still maintains, eg, the integrity of associated fresh water mounds/does not expose acid sulphate soils, but that the lakes surface area is reduced, thus significantly reducing evaporation losses.
(4) Installing regulatory structures, between Lock O and 1, so as to restore now permanently inundated "wetlands" to a wetting/draining/drying regime, as previously occurred naturally. The filling of permanent "wetlands", since the drought and lower river levels, has resulted in the drowning deaths of extensive redgum forests, which regenerated as seedlings, when the "wetlands" were dry, during the drought.
(5) Utilising the lock/weir pool, between Lock O and 1, as a water reservour, to better manage societal/economic and environmental water requirements.

At the MDBA 9th December 2011 meeting, at Murray Bridge, SA, a Commonwealth representive stated that funding money being utilised for irrigation infrastructure upgrades, could similarly used for environmental infrastructure upgrades, subject to meeting the eligibility criteria.

The Lock 1 to Lock O and to the Murray mouth environmental infrastructure upgrades would reduce environmental water losses by probably in excess of 250 Gigalitres per year, between Lock 1 and the Murray mouth, at a favourably comparable dollar per megalitre of water return rate, as is applied for irrigation infrastructure upgrades. Environmental water infrastructure would also include relocating irrigation pumps, from wetlands, to the river, where a wetting/draining/drying regime can be implemented for the "wetland".

There may be a need to instal locks/weirs, incorporating fish ladders and carp removal traps, along the River Darling,(at Wilcannia,Bourke and Brewarrina), so as to achieve optimum socio/economic and environmental outcomes.

continued on page 6

During periods of less than 100% of consumptive water allocation it is at the discretion of each State Government as to how the resource is then allocated, within the State. In SA, such a policy does not guarantee water access security to either irrigators, or the environment. eg, if SA has 50% of its normal allocation, the Government, as has occurred previously, during the recent drought period, may decide that irrigators recieve far less than 50% of water allocation. With water trade rules tagging irrigation water entitlement, when sold, then such irrigation water entitlement, when onsold for environmental water use, would be, in SA, at the same percentage of water allocation useage as for irrigators. To achieve certainty, for irrigators and environmental water use, in SA, also to achieve maximum environmental outcomes, the MDB Plan will have to specifically define what percentage of consumptive water allocation SA recieves and within that, the percentage to be allocated to SA irrigation licenses, in comparison to what quantity of water is in MDB storages, probably in 5% increments, up to 100% of allocation. Such defining would not only ensureenvironmental water allocation, but also for irrigation allocations, thus providing irrigators with certainty of water supply access percentage and with this the ability to plan for the most prudent and sustainable water use.

Critical human water needs refers to the maximum amount of water, that can only reasonably be provided from Basin water resources, required to meet core human needs in urban and rural areas, and to meet non-human consumption needs, which if unmet would cause prohibitively high social, economic or national security costs.
The amount of water required to meet those water needs, for each water accounting period, is listed as 204 GL for SA.
Given that, in SA, Adelaide and the surrounding urban area can reasonably access water from the recently completed desalination plant,(which the SA Government claimed would waterproof Adelaide, in time of drought and further that it would reduce SA's reliance on the River Murray water resource), together with water from Adelaide Hills storages, from captured stormwater and from recycled water, then no critical human water needs should be obtained, or provided from the River Murray, for Adelaide or its urban surrounds.
The SA Water Allocation Plan for the River Murray Prescribed Watercourse liststhe different categories of SA water licenses.As Adelaide does not meet the criteria to be eligible for critical human water needs, how much will the individual catagories of ; Domestic, Country Towns, Irrigation, Recreation, Industrial, each recieve as their share of SA's 204 GL of critical human water needs?
In SA, during the drought, water use restrictions applied for domestic consumers.
Note that if, in particular, SA irrigators do not recieve water, based as a percentage of the individual permanent water allocation, to maintain live permanent plantings and/or to be able to generate some income, via an annual crop, this would cause prohibitively high economic and social costs.

continued on page 7

In SA, irrigators are required to have an irrigation and drainage management plan and for a minimum of 85% water use efficiency. Many irrigators have a permanent water allocation in excess, (albeit only small in quantity), of their irrigation property requirements. This is able to be traded, but if the transfer costs are such that little and/or no income is generated, then the unused portion of the irrigator's allocated water remains within the river, to the benefit of the environment. During periods of less than 100% of water allocation, the previously "unused" water provides the irrigator with a larger percentage to utilise.
When SDL's are determined, it must not be based on that if an irrigator does not use the full water allocation then it would reduce the SDL. Such policy would tend to ensure that irrigators always used 100% of allocation and thus that the most efficient and prudent water use may not necessarily occur, (if SDL's were reduced).

Within SA legislation, the powers of Ministerial Exemption may preclude adherance to aspects of the Basin Plan. The Basin Plan must ensure that all Acts/Regulations/Plans/etc, are worded such that it pertains to Government, Goverment authorities/agencies, as well as companies, individuals, etc.

Currently the SA Department for Water is investigating allegations of non-compliance, by The Central Irrigation Trust, with provisions of The Water Allocation Plan For The River Murray Prescribed Watercourse. The SA Government has previously taken another State to the High Court, re MDB water management and is also threatening the possibility of further High Court challenges.
Any Basin Plan is only as good as the ability to ensure compliance. There must be a Commonwealth Ombudsman, to whom complaints and/or non-compliance can be referred to. The Ombudsman must have sufficient powers/authority to ensure MDB Plan compliance by all Governments, Government authorities/agencies, individuals, etc. The preceeding may assist in avoiding lengthy and costly legal court challenges.

continued on page 8

Some of the Draft Plan is lacking in detail and some wording is ambiguous such that it may be interpretted as having different conclusion results.

It is imperative that all Governments, Government authorities/agencies, and all water license holders are held accountable and that the implementation, administration/governance, and compliance of the Basin Plan is transparent and readily available/accessible for public scrutiny.

Ultimately success, or failure, of the Basin Plan will depend on political integrity and political will.

Thankyou, in anticipation of your consideration of my submission.

Yours sincerely,

(Tom Loffler)

Postscript; Perhaps some additional Commonwealth funding may be available, for environmental works, such as at Lock 0 / Lower Lakes, if it utilises innovative aspects of solar, wind and/or water electricity generation / operation?