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Submission to the Standing Committee on Regional Development RE: Impact of Murray-Darling Basin Plan in Regional Australia.

Chair of the committee and committee menbers, I offer this rather loose submission for your consideration,

About me:
My Name is David S May, Firstly I am one of over 20 David Mays in Australia, please do not confuse with the many professional David Mays some of which may have connection to related industry sectors mentioned within this document.

I am a 50 year old Sydneysider living in the electorate of Benalong, I have a physical disability and I am currently receiving assistance of the government disability pension, Like every one else I enjoy a pleasant natural environment whilst benefiting from the economic success that this country currently has had, I understand the psychological effects of loss and deprivation first hand as a result of my disability and while the times are not luxurious for me I appreciate the help and assistance I recieve from the government as I am sure that the situation as a result is much better than it could otherwise be.

Preamble:
I am absolutely stunned to discover the actual enormity of the situation in the Murray-Darling Basin and the situation Australia is in, I would like to see both the river basin in good health and the area's people happy an productive and so feel the need to highlight practical means to produce more water rather than borrow it from somewhere else..

The Murray-Darling peoples cannot solve this situation alone, it was Australia's attitude and expectations over the last 60 years or more that has led to this situation. exampled by : Former governments requiring returned servicemen to strip their granted lands of every tree and stump or loose their grant.
This is Australia's "30,000 G/L" problem.

In my investigation I viewed the ABS's "Water Account Australia" media release that helped me to placed the situation into context.

For the whole of Australia:
in 2000-2001 Australians consumed a total of : 24,909 G/L of water, Agricultural use : 16,660 G/L of that total.
in 2008-2009 Australians consumed a total of : 14,101 G/L of water, Agricultural use : 7,589 G/L of that total.

A huge amount of water, and a massive reduction in agricultural usage across Australia. Water was just not available.

The Murray-Darling Basin requires more water than this total and the amount of the additional water required to place the MD-Basin in continuing health is considered as at about 4000 G/L, this alone represents on a national scale, half of the agricultural total for Australia under depressed conditions and about one quarter of the total under normal bountiful conditions.

I do not believe that while savings are being made this amount can be recovered by adjustment in allocations and economising measures alone, and that a large amount of water return must come from nature, i.e the climate must improve for the river to regain its full glory.

I observe many comments about the situation, a great deal of which are accurate and correct although they are often conflicting and opposite to one another I.E :

The River 'does need' to be restored and would need about 4000 G/L P/Y to be sustained over the longer term;
Much of the loss of this amount of water from the MB-basin 'has been through climatic effects';
Managed Investment Schemes have had an influence upon the MD-Basin and regional Australia;
Making a great change or taking this much from allocations 'would' do major economic damage to specific areas and knock-on to towns, the MD-Basin and the whole of Australia;

They are all correct in their own way, the initial problem is therefor based upon conflicting expectations and their requirements. The initial problem is therefor based upon conflicting expectations and their requirements.

There is a need for clarification as to what extent the Basin needs restoring, the level of restoration and for what period it will be required to be nursed back to health, and to how much drought proofing it will require to achieve this. Australia needs to be given all the information so as to reset their expectations, no easy task in either respect.

Australian are over-consuming, the mining sector is triple gearing simply to grow larger, we are told we can have more of everything every day. We have lost sight of the important issues and would be devastated to hear for real that the Murray-Darling River Basin has changed under our nose into a permanent desert flood plain, with inconsistent rainfall, and that the alternatives are:

A restoration of the Basin at great sacrifice by a few,
To move much of the agriculture to Queensland, and alter the agricultural usage of the regions.
The implementing of a Bradfield scheme redirecting water to the region,
or a reduction in future population and exports, (Simon Crean calls this protectionism).
Possibly, even most likely, requiring all of the above as the end solution.

We would need a referendum, the debate would be worse than for the NBN.

Whilst the Committee has a limited area to consider we are really putting the cart before the horse, as all our actions are leading to the need for a deep public debate on our future expectations for all Australia, not just the MDB.

All of the information I present here is not new, singularly and in combination it is being examined by various departments of State and Federal government, industry and the community at large. I suggest that industry does not directly seem to be included in the MDB review consideration, and these generally ideas will effect directly and indirectly the MDB as some ways to increase water efficiency reduce consumption and relative cost effectiveness.

Submission:
With the increasing population of Australia, and the high rates evaporation from reservoirs, there is a growing case for utilising power stations on the coastal fringe as a source of potable water.

In my letter to Tony Windsor I had advocated the utilisation of the power stations for this purpose as their internal construction and their similar requirements to a desalination plant would allow us to resource their outflows of boiler and cooling water. To avoid clogging and corrosion power stations filter and desalinate much of their inflowing water. Boiler water is generally filtered to less than 100p/m< particulate, whilst the cooling water is filtered to around 500p/m< of particulate, using (MSF) Multi stage Flash condensation systems. It would not take much adaption to clean the outflow of suitable power stations up further. Many Australian power stations do utilise their waste heat in some way.

Using Eraring power station (owned by NSW Government) as an example, its fact sheet shows :
Eraring, in the Lower Hunter, run by Eraring Energy, of Steam/Coal type, producing 2640 MW from 4 turbines of 660 MW each.
It is one of the largest of its type in NSW. each 660 MW turbine uses 21,000 litres of water per second,
the station produces about 4 million litres per day in total outflow, this is equal to 1.46 G/L per year.

Generalising a case scenario:
The media is recently bandying about statements re: 15 Power stations and quoting the Federal Government as supporting their building.
If the 15 power stations had similar statistics to the Eraring power station, then we would have a potential capacity to produce about 21 G/L (15 x 1.460)in total of potable water, to be piped from a broad number of costal positions inland where it was needed.

Example of piping and requirement using the Wimmera Mallee Pipeline Project.
The Wimmera Mallee Pipeline Project, has replaced 17,500 km of open, earthen channels with a 8,800 km piped water distribution system, built at an estimated cost of $520 million. It will provide reticulated water to 7,000 rural properties and 36 towns over an area of about two million hectares. The domestic and agricultural usage had only required 17,000 G/L, while wastage from the channel had consumed a further 103 G/L of water.

Against the above comparison, some idealised 21 G/L of power station water recovery looks minor, 7000 rural properties and 36 towns, used 17,000 G/L of water and the River Basin requires a sustained 4,000 G/L per year of water to be healthy. Yet Power stations can provide a very constant and consistent flow of water, this water would not do much for the river basin itself, but in desperate times, it could enable towns to continue, farmers to maintain some breeding stock, wash & flush even keep a veggie patch and maintain their dignity.

Coal/steam power stations sourcing their water from the ocean or lakes open to the ocean, are the most advantageous whilst inland power stations employing gas/steam or even solar/steam could also contribute by sourcing and recycling sewerage water and/or used irrigation waters then returning them back to system.

Water from Coal Seam Gas extraction.
from QLD coal-seam-gas-water-discussion-paper
Most CSG water is currently disposed of in evaporation ponds ranging from 1 to 100 hectares in area. Limited quantities of untreated CSG water are used for feeding stock, coal washing and related petroleum activities.
A number of CSG producers have trialled other beneficial uses including the use of treated CSG water to augment town water supplies, as cooling/blowdown water in power stations and for irrigation and aquaculture.

In submission Santos made to the Federal Senate Environment, Communications and the Arts References Committee,
Reference:- Impact of Mining on the Murray Darling Basin,
Santos makes reference to the contribution that they could make to the MDB towns and farms via their CSG water and heat.

Reverse Osmosis Versus Multi stage Flash Condenser:

Multi Stage Flash Condenser Distillation (MSF) requires around 17 kwhr/M3 of water (heating and pumping power) and produces water with less than 100 mg/L total dissolved solids using a vaporisation system that does not depend so much on feed quality, through-put is greater in volume of water than RO. Is dependant on but benefits from the Co-generative coupling of the power station.

Reverse Osmosis(RO) plants usually require external sources of power of around 5 kwhr /M3, hot water from the power station may be exploited to preheat water if required, although independently powered RO plants can continue to run if a power station went off line for maintenance etc. RO systems output depends on the sea water feed quality, using a single set of filters producing around

400 mg/L a second set of membrane filters and additional amounts of energy may be required for higher water qualities.

Utilising the waste resources of utilities while not directly to topic of the committee, fulfills multiple purposes, offers opportunities for lowering carbon, by extending the productivity of existing and future plants, whilst co-locating bio-sequestering as it comes online.

Mitigating costs with Co-Generation/Production/Location
Taken from a media release:
Eco Investor: June 2009 Investments that solve environmental problems.

"A Melbourne based company with a new technology that can capture carbon emissions from coal fired power stations has secured
its first major client - Loy Yang Power in Victoria, one of Australia's biggest flue-gas carbon dioxide (CO_2) emitters.
Under an agreement, Loy Yang Power and MBD Energy Ltd will build a pilot plant at the Latrobe Valley power station using MBD's carbon
capture technology. The bio-sequestration facility will confirm if MBD's new technology can substantially reduce CO_2 flue emissions at
Loy Yang Power. Loy Yang Power chief executive, Ian Nethercote, said "The MBD process provides a sustainable approach to reducing CO_2
emissions from brown coal electricity. The process has real potential to reduce our greenhouse gas emissions while also providing the added
benefit of utilising the CO_2 to produce valuable products such as oil and stock feed."

MBD's IP protected technology is an algal synthesiser system. Captured CO_2 from the waste exhaust flue gases is directly injected into
circulating waste water to grow oil-rich algae. The water thickens as CO_2 and sunlight combine with nutrients to produce heavy oil-laden algae slurry."

Many of the mining and power stations receive subsidies in varying forms, for infrastructure, research, etc, they total in the billions of dollars per state, and in some instances constitute the primary source of profit for the company or entity. Considering that many water users may have their allocation reduced or stopped, and this would therefor mean the allocating authority would have its income reduced as a consequence, it occurred to me that it could be an incentive for the mining and power companies to earn more income and possibly reduce the subsidies received from the government, by supplying what clean potable water they can for around the same market price as is now charged to those people who would otherwise lose a portion of their allocation, it would not really be any different from the stand point of the user, as they would pay the same price and receive potable water. while some of the subsidy could be used to adapt the gas mining and power stations to produce the quality of water required.

Points I might therefor offer:

Consider Industry as part of the problem and solution for MDB, in both developing cleaner processes and in providing an alternatives to river water.

Advocate the utilisation of Co-Generation, Co-production and Co-location where possible.
As with Loy Yang Power station, the first Australian Bio-Sequestration plant, using algae to produce a range of products including light oils, diesel, fertiliser,
soil conditioners, and nutritious fodder.
Encourage the recover of more water, by coupling power stations with sewerage and other waste water plants can harness the power stations excess heat
and mine the sewerage for water before returning it to the system cleaner than it acquired it. Tthe sewerage solids could be sent to bio-plants or used by soil
re-conditioners for humus manufacture.

The many smaller gas power stations could be utilised to recycle the ponded irrigation water held to prevent fertiliser and sprays re-entering the river system,
the MSF system uses the power station heat to distil the inflowing water, leaving behind a comparatively small quantity of liquid concentrate that could be further
evaporated or reused itself.

Recommend Managed Investment schemes to invest in water recycling and reuse providing more water to the region,
and to migrating some of their high water needs to North Queensland Agriculture areas.

Teralitres of water for drought mitigation.
A Significant way currently available to unnaturally provide such large quantities of water to drought proof the country is to consider Bob Katter's & Bradfield's
alternative, possibly in 3-4 stages. 30,000 gigalitres was Bob's maximum estimation. Although it would be reasonable to example the MIA and the problems that have
occurred there are likely of occurring with the New Irrigation scheme, or the Ord rivers insect problem if considering a massive Agricultural development in
North Queensland.

Lastly I quote an Excerpt (without permission)from the World Bank publication, "Beyond Economic Growth, Chapter 1: What is development" .
Which I feel has a great relevance to Australia and the World at the current time, as we have been seeking growth for its own sake.

> " It is true that economic growth, by increasing a nation's total wealth, also enhances its potential for reducing poverty and solving other social problems. **But history offers a number of examples where economic growth was not followed by similar progress in human development. Instead growth was achieved at the cost of greater inequity, higher unemployment, weakened democracy, loss of cultural identity, or over consumption of resources needed by future generations**. As the links between economic growth and social and environmental issues are better understood, experts including economists tend to agree that this kind of growth is inevitably unsustainable — that is, it cannot continue along the same line for long.
>
> To be sustainable, economic growth must be constantly nourished by the fruits of human development such as improvements in workers' knowledge and skills along with opportunities for their efficient use: more and better jobs, better conditions for new businesses to grow, and greater democracy at all levels of decision making (Figure 1.1 -[not included]).
> Conversely, slow human development can put an end to fast economic growth. According to Human Development Report 1996, during 1960–1992 not a single country succeeded in moving from lopsided development with slow human development and rapid growth to a virtuous circle in which human development and growth can become mutually reinforcing." Since slower human development has invariably been followed by slower economic growth, this growth pattern was labeled a dead end."

Thank you

David S May

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