Armidale Regional Ratepayers Association Inc.

Submission to the NSW Government Department of Planning and Environment
on the
Draft Regional Water Strategy North Coast: Shortlisted Actions – Consultation Paper, May 2022

We would like to thank the Department of Planning, Industries and Environment (DPIE) New South Wales Government for the opportunity to comment on the Draft Regional Water Strategy North Coast: Shortlisted Actions – Consultation Paper, May 2022

Firstly, as we raised in our previous submission, "ARRA members were disconcerted at the poor attendance at the briefing in Armidale and urge consideration of ways of ensuring greater attendance e.g out-of-working hours sessions." Unfortunately, this comment was ignored and again, a very poor attendance was evident with only 4 people there – one from Ben Lomond, and three from Armidale from a regional population of approx. 29,000. Again, we ask that ways are explored to increase attendance by altering the time of the presentation to allow business hours workers to attend. The promotion of this briefing could also be looked at, and by targeting key organisations within the area eg. Farmer's Federation, industry groups, landholders and intensive horticultural businesses, greater participation could ensue.

With the recent drought, still fresh in so many people's minds, **water security is of paramount importance and must be the number one priority of the Regional Water Strategy North Coast** . Climate change modelling has also indicated that water shortages will likely increase. Towns who were in critical water shortage positions (Guyra, Armidale, Uralla and the like) during the last drought must be given precedence in any Regional Water Strategy to implement effective water strategies immediately.
A multi-pronged approach could/should include the following:
1. Raising walls on dams in the immediate catchment area eg. Malpas Dam, Guyra Dams
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4. Cleaning dams of heavy metals and sludge so water can be accessed to greater depths
5. Stricter monitoring of underground water usage with increased fines for abusing this resource.
6. Greater monitoring of water use in intensive horticulture with increased fines for exceeding usage rates, and on-selling of water.
7. Raising soil carbon, to utilise infiltration , aeration, and storage better in the catchment, while benefiting from the digestion by more active, deeper, microbiomes.
8. Improved and ongoing focus on water conservation, re-use and recycling
9. Improved management of fertiliser to lessen high nutrient loads in region's waterways.

Members of the ARRA Executive recently had a meeting with [redacted] and we feel the information we gained from that meeting is worthy of consideration across our region. We attach it below, with full contact details, and urge you to consider his knowledge and expertise in future water management remediation.

[redacted]

[redacted]

To clean up dams:
It is relatively simple to treat heavy metals in dams.

Step 1: Get a baseline first. Test water from the top of the dam, right down through the silt to get a measure of how much heavy metal is there.
Samples taken and analysed, take 100 samples (some from the top of the silt & then go deeper) then mix them all together so they become one sample.
Test the water sample at EAL which is run by [redacted] since 1992 in Southern Cross University.)

Avogadro's number is 6.02 x 10 exp 23
This is the number of molecules in a mass of a mole of a chemical. Using a chemical that specifically binds heavy metals at 10 exp -22
Means that the reagent will bind all but one molecule of heavy metal, leaving nothing left, so 100% effective.
Could treat Malpas Dam from the air, or boat. Put it out on top of the water so that it sinks through the water.

Cost approx. $1000 (just for the materials) per dam – very rough estimate. Labour cost is extra
People will try to dissuade you with comments like "Oh, it might work here but it won't work everywhere".

It is unlikely that cold water per say, will cause the fish kills reported as it has a high level of oxygen. More likely it is a toxin from Blue Green bacteria.

Malpas Dam near Armidale, NSW
Malpas Dam was constructed on the cheap, leaving giant granite boulders as they were before the dam wall was constructed. It will be difficult to de-sludge. Malpas & other dams & water storages on the top of the range should be assessed for their levels of heavy metals & arsenate. Slowing the run over from these storages should prevent there being detected on the lower range from the East to the coast or to the West to the Murray/Darling basin.

Ben Lomond water was always the best in the State according to Rail testing for steam engines

Problems:
Superphosphate contains 0.15% arsenic
Nitrophosphate contains both nitrogen and phosphorous and a residual amount of cadmium and lead.

There are a significant amount of toxic chemicals in the bottom of Malpas Dam, and the water in the bottom of the dam can't be used because of this.
Boron is toxic but a necessary element. It was dropped out of planes across the top of the water.

To test for the level of nitrate and phosphorous in the water levels

- Look at pH in the morning and again at dusk
- If the pH has increased by 2-3% during that time, it indicates you have a nitrate problem
- If it decreases during that time, it indicates you have a phosphate problem

Cadmium and lead – the presence of them predisposes you to intolerances to flowers.
Eg. Dental assistants exposure to lead
Mt Isa – very bad – there is a vein of lead that runs through Mt Isa to the Gulf.

Selenium – David doesn't believe in its efficacy

- Can use 'vitamin e' as a better alternative and it is not toxic.
- In NSW, Selenium is a schedule 7 poison.

Mercury – Hobart Town has a very big problem with mercury. Responsible for Minamata disease – affects the brain, reduces lifespan, contorts physical features.

All fertilisers have significant heavy metals in them.

The future

- There is a need to clean up water storages from the top of the range down into the headwaters of the Eastern flowing streams
- Working towards something that you can add to the superphosphate in the first place so that this problem of heavy metals does not happen.

Biochar is a mechanism to slow water down and to mop up past toxins/ heavy metals as well. If you treated it with acid so that it had a positive charge on it, it would bind up the phosphorous anions – phosphate + nitrate.
2 men already operating in QLD can make 100 cubic metres of biochar each per month.

Involve Federal and State governments and different ethnic persuasions all working together and this will succeed.