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**Submission re
Draft Far North Coast Regional Water Strategy Plan:**

Byrrell Creek Landcare Group voluntarily works on riparian sites in the Byrrell Creek Catchment area in the southern area of Tweed Shire. This area is one of the highest value riparian conservation in the shire.

We would consider our group as a Stakeholder within this Regional Strategy Plan.

I, as well as being Co ordinator of the Byrrell Creek Landcare Group, am also a member of the Tweed Council Water Strategies Review Project Reference Group (PRG) who have worked together since March 2019 up until now. The group has examined & researched options for the Council's Water Augmentation, Demand Management Strategies & Drought Management

I take this opportunity to comment on the Draft Review of the North Coast Regional Water Strategy both from the Landcare & PRG point of view.

On the whole we believe the Draft Plan has appropriate Objectives & Visions, however we comment on the below points

Deliver and manage water for local communities:- Improve water security, water quality and flood management for regional towns & communities.

This would need to be implemented with ongoing close consultation with Councils, Water Utilities and community members, not just a one size fits all template (as with State directives on Council LEPs) If this Strategy is for 20 years it needs to be re examined at least every 5 years & include up to date data on the effects of Climate Change within the the landscapes and new technologies in water savings, recycling and Desalination applications (eg Israel)

The consultation with community members should also be ongoing over this time frame.

• Protect and enhance the environment:- Improve the health and integrity of environmental systems and assets, including by improving water quality..

The ecological footprints & damage to the Byrrell Creek area and the Channon Gorge for the proposed Dams as Options 13. Byrrell Creek Dam & 14. Dunoan Dam, does not support this statement. Both areas are highly significant biodiverse environments

Another key issue, is ensuring healthy environmental flows within riverine systems.

Past mistakes need to be examined and accountability needs to be built in to this process:

When we take in to consideration the terrible impacts on the Murray Darling basin, inadequate environmental releases, competition & mismanagement over water rights and escalating prices selling water to the highest bidder, we do not want this for our ecologically significant Tweed Valley.

Recycling water is an ecologically sustainable option that improves run off & nutrient sediment loads that flow into many rivers that are already stressed eg Rous River & Terranora Inlet in the Tweed.

- **Affordability - Identify least cost policy and infrastructure options**

As a PRG member, we examined this issue: Both Clarrie Hall Dam and the proposed Byrrill Creek Dam are the most affordable options for Tweed water augmentation. Dams generally are the cheapest infrastructure & for on going running costs, however the true environmental costs are not built into this economic equation, so this needs to be part of the criteria of affordability.

Best practise Demand management principles and actions should be implemented first, before infrastructure options.

State Funding/grants should be available for climate resilient options such as infrastructure for both potable & non potable recycled water, or storm water harvesting for large scale green field developments (eg Kings Forest, Cobaki & future West Pottsville) in the Tweed.

Desalination plants are expensive both on infrastructure & running costs so its makes sense to have a NSW regional plant for both Tweed and Rous Water. The significant benefit of desalination is the lack of reliance on rainfall, which provides an alternative source and improves the secure yield when there are periods of low rainfall and drought. De sal plants have the least footprint environmentally, if powered by renewable energy-solar panels or wind turbines.

The PRG members chose Desalination as the most preferred option for Tweed , even though expensive.

5. Information and modelling used to develop the Far North Coast Regional Water Strategy

If all of this information & modelling is taken into account then its very comprehensive & cohesive

Community engagement:

The members of Byrrill Creek landcare have experienced the effects of climatic extremes on all of our riparian sites. Since 2012 our volunteers have worked along a 2 km riparian stretch of Byrrill Creek: weeding and establishing erosion control plantings on the banks and planted thousands of trees. In March 2017, Cyclone Debbie and the major flooding that ensued, meant endless hours of rescuing flattened trees & staking and then replanting. Last year from September to December, throughout the drought, all of our once permanent creeks for 35 years stopped flowing & we had to borrow a pump to water all the tree plantings.

Tweed Council, through their River Health Grants, have been instrumental in helping during these times. We would recommend that other councils, or State funding bodies help landowners & groups restore riverbanks & up stream catchment areas to help improve health of our waterways.

The Tweed Council Water Strategies Review Project Reference Group (PRG) have compiled a Report that will be presented to Council in February & we would appreciate this being examined by your Department as part of the Community engagement process within this Draft Far North Coast Regional Water Strategy Plan.

7. Opportunities and challenges for water management in the Far North Coast region

Better management of groundwater: Greater knowledge and information on groundwater is needed to ensure its sustainability across the region -

There is a much needed investigation into Ground water, both Alluvial & Coastal Sands & this was one of the PRG Recommendations.

Questions could include: How much actual ground water is available in the coastal sands and Alluvium, what is the impact across the Northern Rivers from water extraction facilities, are there dry aquifer options that can have water inserted, where are they located, is water quality an issue for aquifer storage?

The impacts on surface water also needs to be studied.

Opportunities to improve how we manage and use water in the region.

Diversify town water and industry supplies using new sources such as recycled water and desalination

In over 18 months of consultation with the PRG examining Water Augmentation within the Tweed Shire- the words that sum up the feeling are : sustainable, climate resilient, innovative, integrated, utilising a variety & combination of diverse supplies that suit its application (eg not using potable water to flush toilets with)

The recommendation concluded that Council adopts an integrated water management approach that is climate resilient. If Clarrie Hall Dam is the short term current choice for augmentation, then other sustainable, adaptive choices that are not reliant on rainfall capture need to be implemented for future water supply strategies, not just another dam. The below Chart reflects the PRG choices

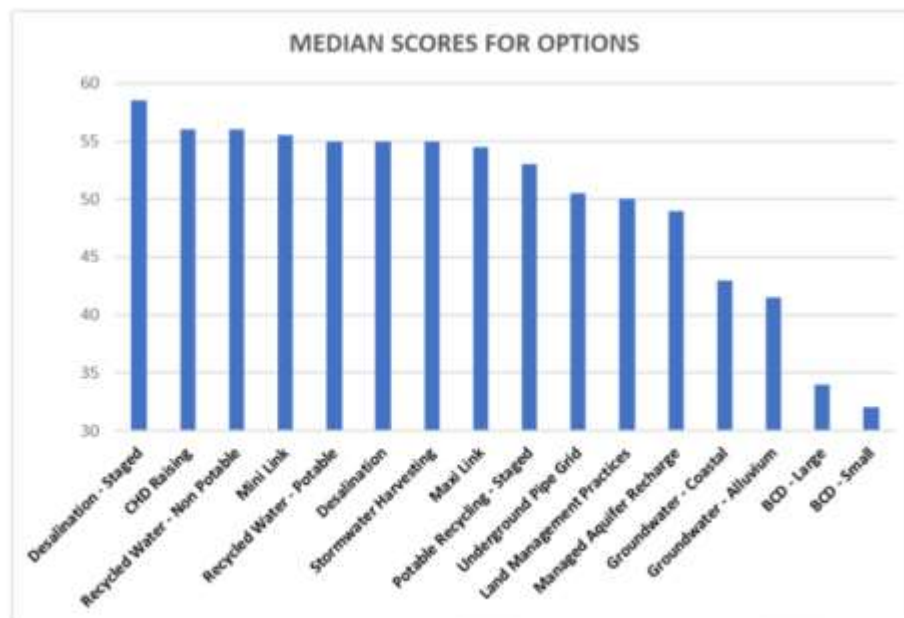


Figure 5 Ranked options according to median scores

It is to be noted that the proposed Byrill Creek Dam (large and small options) that the majority of PRG members did not support this option

It is also to be noted the variety of other more climate resilient methods that were preferred; Desalination, recycled water- both potable & unpotable, stormwater harvesting, underground water storage .

8. Draft Far North Coast Regional Water Strategy options

Maintaining and diversifying water supplies

The Byrrell Creek Landcare Group supports Options 6,7,8 and 16 utilising recycled water

6. Remove impediments of water use reuse projects and 7 & 8 Indirect and direct potable reuse of purified recycled water

NSW Legislation needs to change on the use of recycled water systems, to enable fast tracking permission, less red tape & a rethink of health regulations, compared to overseas. Internationally, there are high quality activated carbon, ultra micro filtration, reverse osmosis, ozone and treatments utilised with proven health records on potable re use.

For large Greenfield Developments that are passing through the NSW Govt approval process of state significant developments there needs to be a NSW regulated legislation to ensure the developer commitby to utilise water recycling systems within the whole precinct.

This could be a dual pipe non potable system for toilets, washing machines & toilets or other options **BASIX is totally inadequate.** A 5,000LT rain water tank unmaintained is not going to do it in a low rain fall period or drought. Small house blocks & larger houses with no room for larger tanks points to a need for large scale precinct capture from roof tops as well as stormwater & stored in large underground tanks such as the Warnambool project in VIC .

16. Provide purified recycled wastewater for industry and rural users

This needs to be implemented immediately. At present Tweed council are only utilising a very small % of STP discharge for recycled water: Condong Sugar mill & golf courses. If this could be extended to rural use & industries it saves water while reducing polluting discharges into the Rous and Tweed Rivers.

11. Regional desalination

Desalination plants are expensive both on infrastructure & running costs so its makes sense to have a NSW regional plant for both Tweed and Rous Water. The significant benefit of desalination is the lack of reliance on rainfall, which provides an alternative source and improves the secure yield when there are periods of low rainfall and drought.

Alternatively Tweed could buy into SE QLD grid which utilises the Tugun Desal plant as part of its mix, however their water prices are high.

12. Raise Clarrie Hall Dam level

The Byrrell Creek Landcare Group supports this option, for short term water augmentation by 2026 and continuing the existing work on planning, EIS and land acquisition in accordance with the existing project schedule for this work, which Tweed Council supports.

However Clarrie Hall Dam is rainfall dependent and during the Drought last year was losing 2% weekly due to evaporation. So the dam needs to be considered as one option as part of an adaptive

strategy by Council to be considered in the future & other less rainfall dependent diverse sources need to be adopted as well..

Option 13. Proposed Byrrill Creek Dam.

The proposed Byrrill Creek dam is 6km direct from Clarrie Hall Dam & in the same rainfall area and both dams would affect the flows in the south arm of the Tweed river, which had no flow from October to January in the 2019 drought, except for Clarrie Hall dam releases downstream.

The Byrrill Creek Landcare Group sees this as the very last worst option, in line with the Council PRG recommendations: We believe the land purchased by Council back in 1981 for the option of a dam, should be sold, and the money put into more sustainable innovative water solutions.

The proposed Byrrill Creek large dam site (36,000ML) encroaches on Mebbin National Park to the west, and the area north & north east are bounded by Wollumbin National Park & Mt Warning National Park, which is world Heritage status. The catchment area of 400ha would be clear felled of existing trees & vegetation. 21ha of irreplaceable lowland rainforest in Mebbin National Park would be flooded. Climate change fauna corridors between National parks would also be severed

There have been numerous assessments (9 since 1999) done in the Byrrill Creek area and adjoining biodiverse national parks with a high percentage of recorded Endangered, Threatened or Vulnerable priority fauna and flora species: 42 priority Flora species & 37 priority fauna species.(PIA 2009) & 3 Endangered Ecological Communities.

Byrrill Creek is part of the inner dyke ring system of the ancient shield volcanic complex of Mt Warning or Wollumbin, which is a sacred site to the local aboriginal people. 26 Aboriginal Cultural Heritage sites would be inundated.

14. New Dunoon Dam on Rocky Creek

Like Byrrill Creek, the Channon Gorge which would be inundated is an area with a highly significant biodiverse environment including warm temperate rainforest on sandstone & subtropical rainforest. 267ha would be flooded & Aboriginal sites have been identified within this footprint. We believe, all other options should be looked at before ever considering the Dunoon Dam.

Protecting and enhancing natural ecosystems

- 20. Establish sustainable extraction limits for Far North Coast surface water and groundwater sources**
- 21. Establish and/or increase environmental water releases from major storages in the Far North Coast**

The Byrrill Creek Landcare Group supports these 2 options, with the emphasis on sustainable. We believe a lot more data may be needed to be collected prior to establishing what the limits are. We believe environmental flows should take precedence over rural landowners in times of low flows.

23. Improve stormwater management

The Byrrell Creek Landcare Group is **in total support of storm water harvesting on a precinct level-** (See Option 6 comments) Water Sensitive Urban Design should be implemented as well in these developments.

28.Characterising coastal groundwater resources

29. Protecting eco systems that depend on coastal groundwater

Both of these points we consider are very important:

Data to know the effects on habitats & the ecological significance of these dependent ecosystems and also data on usage.

The groundwater resources for these areas needs a lot of research through extensive field investigations, expansion of existing monitoring networks, metering of all forms of groundwater take, development groundwater flow data and, and publishing of annual resource updates.

This monitoring needs to include real data on the effects of the expanding water extraction & bottling industry in the Tweed Shire.

We would suggest an on ground study of the Alluvium groundwater upstream of Bray Park weir in Tweed Shire as well.

31. River Recovery Program for the Far North Coast: a region-wide program on instream works, riparian vegetation and sediment Control

As a riparian Landcare Group we have seen first hand the benefits & improvement in bank erosion control with our plantings along a 2km stretch of Byrrell Creek. The water quality has improved as well. Tweed Council, through their River Health Grants, have been instrumental in helping Byrrell Creek Landcare during climate extremes such as floods & droughts times, but also with ongoing small grants towards maintenance of sites.

We would recommend that other councils, Regions or State funding bodies help landowners & groups restore riverbanks & up stream catchment areas to help improve health of our waterways.

9. Option combinations

We believe that to look towards the future a combination of options is the wisest way forward for water security, especially with the effects of climate change.

All water utilities in the Northern Rivers Area need to look carefully at their Demand Management Systems first and implement changes needed:

In Tweed Shire the priority is Leakages with 20% losses in water. Also improving data collection as part of a shift towards digitisation of data collection with the introduction of smart metering, and community education on water use is a high priority.

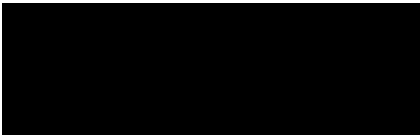
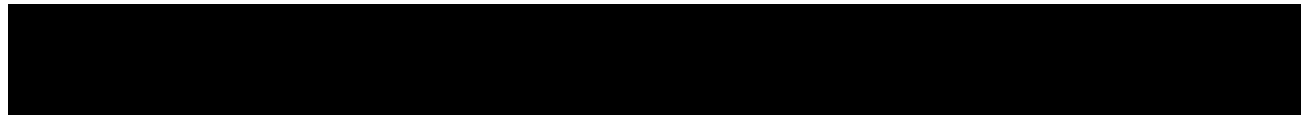
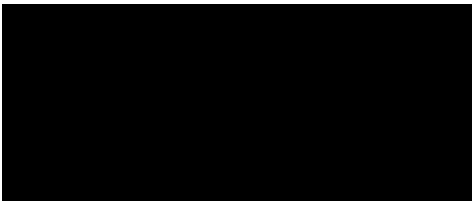
With Water Augmentation options if you have one main dam that is rainfall dependent, then this needs to be combined with Desalination or Recycling water (be it dual pipe reticulation, storm water harvesting or potable recycled water) which is not rainfall dependent.

Combining smaller yield options such as coastal groundwater extraction mixed with an on site recycled water system could be the way the forward for greenfield developments like Kings Forest or Cobaki in the Tweed Shire, or even for supplementary water supplies in a shire context. Tweed Council is undertaking the design of a 10ML/d link (Mini-Link) with City of Gold Coast which will provide greater security to the main Tweed District water supply at Clarrie Hall Dam.

We recommend the adoption of an integrated approach to water management with adaptive pathways, which would include an integrated approach across the total water cycle including planning to adapt to changes as they occur.

We hope our comments have been helpful, and that this Draft Plan can assist us all in moving forward towards a climate resilient water future on the Far North coast.

Yours Sincerely,

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