References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc

https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0

(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

(5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections '*, Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets".

(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.

(7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand*

Management Strategy : preferred options, Rous County Council, Lismore.

(8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for Hunter Water*, Institute for Sustainable Futures, Sydney.

(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

(10) Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?,* Water Research Australia Limited, Adelaide.

(11) Windhoek Goreangab Operating Company (Pty) Ltd 2020,*Our history | Wingoc,* Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

(12) $220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).

(13) Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

(14) Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

From: Fiona Creighton
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:33:38 PM

From:
Fiona Creighton,
[redacted]

8th September 2020

Rous County Council,

Lismore NSW 2480

<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

********** AS A LOCAL RESIDENT AND BUSINESS OWNER, MOTHER, NATURE LOVER, & CONCERNED CITIZEN I WRITE TO YOU WITH THE FOLLOWING CONCERNS;

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- POTENTIAL WATER (& THEREFORE POPULATION) POISONING CREATED BY THE RUN OFF FROM THE SURROUNDING MACADAMIA FARMS. Most farms

here spray toxic chemicals & being the “macadamia capital of Australia” the proposed dam site is surrounded by many of these farms. This is a huge concern for the entire proposed population foreseen to have access to this proposed water supply.
There are also multiple disused cattle dip sites reportedly in the proposed area, would you drink “fresh” water from a dip site? Honestly.

- DEPLORABLE CONDITIONS OF EXISTING ROADS throughout the shire, particularly the roads surrounding the proposed site, that already do not cope with the amount of heavy trucks & traffic to this region.

As a motorcycle rider I have not been able to ride my bike on these roads for over a year, which I purchased to lessen my impact on our precious environment, as potholes in this area are potentially fatal.
The local roads are not at all compatible with heavy vehicles/machinery due to the narrow winding, pot-hole laden roads surrounded by large trees, overhanging branches, low-hanging power lines etc etc.
My parents were local school bus drivers in the area for 20 years & were constantly having to deal with detours & delays due to fallen trees/branches, damaged roads, flooded causeways etc etc.

- INDUSTRIAL/CONSTRUCTION ZONE IMPACT FOR THE CHANNON/DUNOON COMMUNITY;

noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

• OLD “TECHNOLOGY” HAS NO PLACE IN OUR MODERN/EVOLVING SOCIETY.

The council have been contemplating this dam idea for at least 28 YEARS. Much has changed since then.
The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
And our council rates are already fast becoming unaffordable to many.

• A DAM IS A LAZY OPTION.

Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

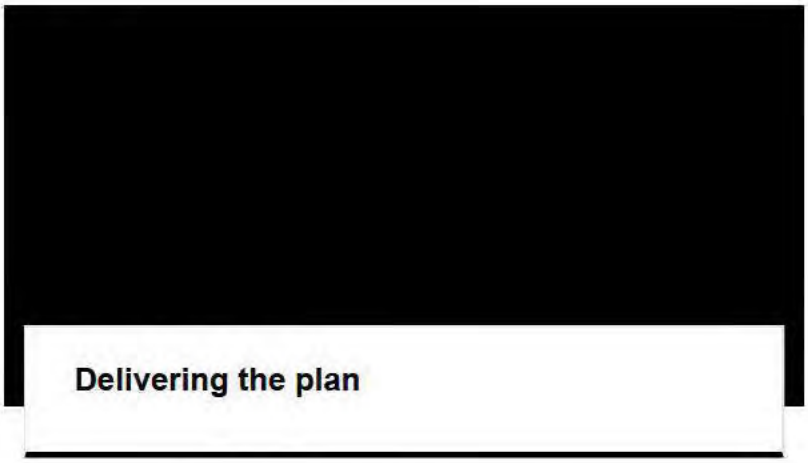
• CULTURE, HERITAGE & RESPECT *MATTER*. Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations’ heritage.

• “ Only when the last tree has been cut down, the last fish been caught, and the last stream poisoned, will we realize we cannot eat money.”

Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < Delivering the plan



>, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

Rous is required to avoid this destruction because there are economically viable and more effective solutions.

• PRICE RISES.
Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

• NSW POPULATION PROJECTIONS DO NOT JUSTIFY AN OVERSIZED/DESTRUCTIVE DAM SUCH AS THIS.
The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
scroll down to "Local Government Factsheets".(5)

• WE DEAL WITH ENOUGH FLOODING ALREADY. Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

• IT'S OUR DUTY AS RESPONSIBLE CITIZENS OF OUR EARTH TO PROTECT WHAT IS SACRED. THIS AREA IS UNIQUE. Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

**********I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

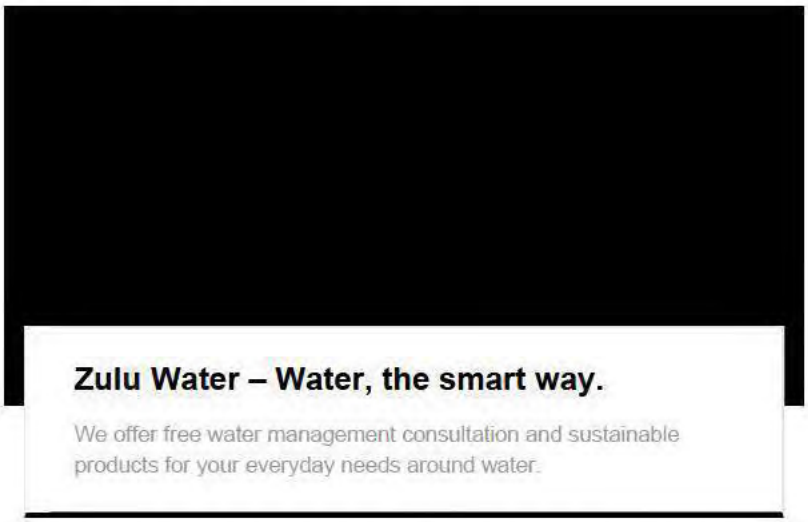
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

****

• ATMOSPHERIC WATER GENERATORS SUCH AS THIS.....
(*****Please click on these links & read*****)

https://www.facebook.com/101037734781178/posts/177294407155510/?extid=l0iOuy10YIcPYIsQ&d=n

Zulu Water – Water, the smart way.



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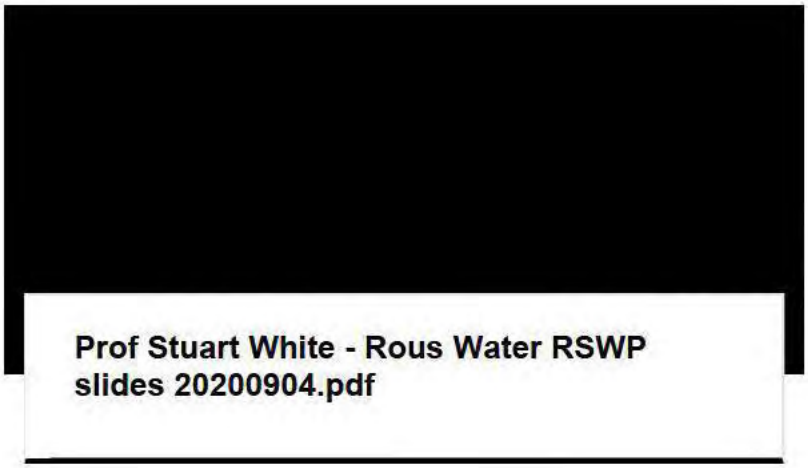
• An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8)
Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 Prof Stuart White - Rous Water RSWP slides 20200904.pdf



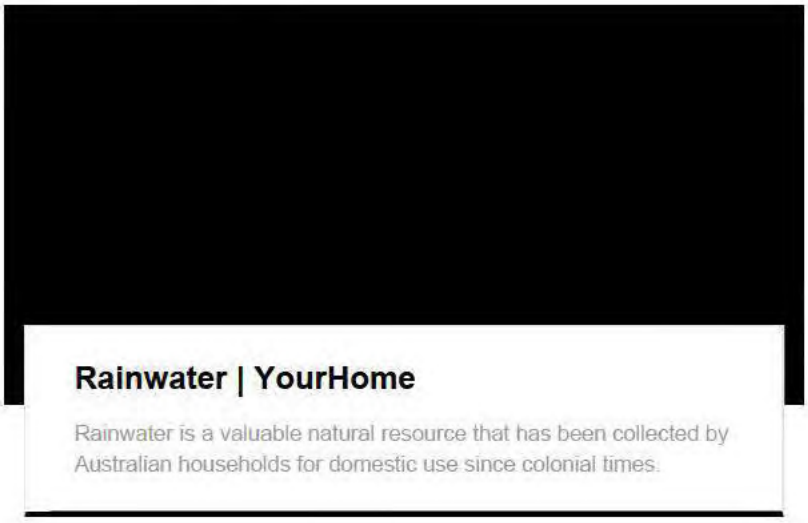
Prof Stuart White - Rous Water RSWP slides 20200904.pdf

• Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806(9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)

• Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12) Rainwater | YourHome



Rainwater | YourHome

Rainwater is a valuable natural resource that has been collected by Australian households for domestic use since colonial times.

• Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

• Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and groundwater usage.(13)
https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc NSW Govt 2006 MWP summary.pdf

2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan
> , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020,
<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
Scroll down to "Local Government Factsheets".

6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.

7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.

8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management

Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney.

9) Stuart White, 2020 http://www.bit.ly/Prof-Stuart-White-Rous-slides)

10) Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.

11) Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

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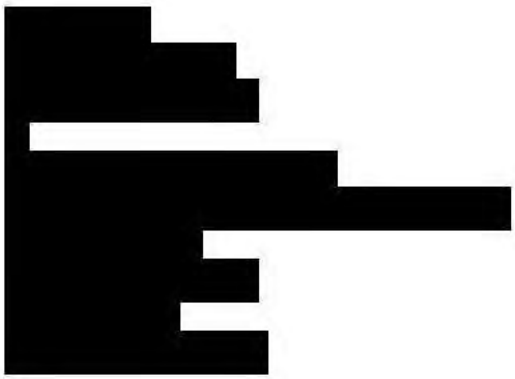
13) Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

14) Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

**********YOUR CONSIDERED TIME IS APPRECIATED & VALUED MORE THAN YOU CAN KNOW.
THANK YOU!!!**********

Sincerely,
Fiona Creighton



Submission to the Future Water Project 2060
Rous Water

By Elke Nicholson
Solicitor

8 September 2020

Dear Committee,

Submission Against Construction of the Dunoon Dam

This is a submission on the Future Water Project 2060. Specifically, I am writing to make my submission against the 50 GL Dunoon Dam, which has been proposed in the Future Water Strategy 2060 as part of Rous Water's supply augmentation. This dam is unnecessary and has substantial negative impacts which cannot be adequately mitigated. It should not be approved. The following is a more detailed discussion of the reasons that the Dunoon dam proposal should be rejected in favour of more sustainable, cost-effective and flexible solutions.

1. Arguments against the Dunoon Dam

1.1 *Environmental Damage*

Construction of the Dunoon dam would inundate a significant area of rainforest in the Channon Gorge on Rocky Creek. The ecosystem in this area contains some subtropical rainforest and a larger area of lowland warm-temperate rainforest, including 7 ha on sandstone. It is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act 1995* (NSW).[1] It is home to several threatened flora and fauna species.[2] The subtropical rainforest is classed as a Threatened Ecological Community with critically endangered status by the *Commonwealth EPBC Act 1999* (Cth).[3] It is incontrovertibly an area of high environmental value. See **Annexure 1** for photos of the rainforest in the Channon Gorge.

Under State planning regulations Rous Water is required to:

[1] NSW Department of Planning, Industry and Environment's Scientific Committee under the *Threatened Species Conservation Act 1995* (NSW), online, <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2004-2007/lowland-rainforest-nsw-north-coast-sydney-basin-bioregion-endangered-ecological-community-listing?fbclid=IwAR1WJEFg7opSLPnAY-DC_w6bV6kktKG5uCmTsIgIrXfvoyW9jZpW0uFumCY>.

[2] SMEC, Australia, Terrestrial Ecology Impact Assessment for the Dunoon Dam, 2011.

[3] Commonwealth Department of Agriculture, Water and Environment, EPBC Act Protected Matters Search Tool, Report created for Lismore City Council LGA.

> Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value.[4]

Rous is required to avoid this destruction because there are economically viable and more effective solutions. Instead Rous Water has proposed to 'offset' the environmental damage by regeneration of the degraded slopes of the proposed dam area, on completely different soil types. Rous' proposal to offset the environmental damage ranks below both mitigation and avoidance in the hierarchy of options and is entirely inadequate. This proposed offset offers no protection to the species specific to the rainforest of the gorge, especially the warm-temperate rainforest on sandstone. It also relies on the assumption that all ecosystems are of equal value to the threatened species in need of habitat. We know this to be untrue. To assert that regeneration of the degraded slopes could compensate for the destruction of an area of established lowland rainforest is illogical and ecologically unsound. Further, this proposed offset does not comply with the requirement to avoid environmental damage wherever possible, particularly when dealing with areas of high environmental sensitivity. The destruction of the rainforest of the Channon Gorge area cannot be 'offset' or adequately mitigated.

There are other specific biodiversity concerns impacting local fauna, including:

1) Rous Water has already indicated that the Dunoon dam would not have the required fishway. Instead it is proposed to 'mitigate' the impact on fish in the Rocky Creek by building a fishway in another location entirely. While that location no doubt needs a fishway, this 'offset' strategy does not justify or change the fact that construction of the dam will have a negative environmental impact on the aquatic life of Rocky Creek.
2) Precious koala corridors will be severed if the Dunoon dam goes ahead.[5] Given that New South Wales koalas are heading for extinction unless significant intervention is made to avert that trajectory, further damage to their habitat is entirely unjustified.

Aside from the specific environment impacts mentioned above, construction of the Dunoon dam would entail all the usual environmental degradation associated with damming waterways including: inundation of viable agricultural land; decreased environmental flows; disruption of downstream aquatic and riparian ecosystems; generation of methane emissions from submerged and anaerobically decaying plant material; reduction in sediment renewal downstream; changes in water temperature with associated ecological impacts; and increased likelihood of erosion. None of these impacts are of benefit to Rocky Creek or surrounding areas.

There is no way for the Dunoon dam to proceed without massive environmental loss and for this reason alone the dam proposal should be rejected.

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[4] NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan' - Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments, Sydney, <https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan>

[5] SMEC, Australia, Terrestrial Ecology Impact Assessment for the Dunoon Dam, 2011.

1.2 *Cultural Heritage Destruction*

The proposed dam would also necessitate the inundation of sites of enormous cultural heritage to the Widjabal-Wiyabal people of the Northern Rivers. The Cultural Heritage Impact Assessment (CHIA) 2011, commissioned by Rous Water, notes that 'sixteen Aboriginal sites were located, consisting of scarred trees, grinding grooves, artefacts and a collection of 15 burials'.[6]

Unsurprisingly, the CHIA found that the Aboriginal people of the area to be impacted by the Dunoon dam are entirely opposed to the proposed destruction of their cultural heritage sites. The CHIA states that:

> Aboriginal stakeholders are of the opinion that the sites should remain undisturbed and that no level of disturbance is considered acceptable to them, especially when concerned with impacts upon the burials, which they see serving as a direct link to the ancestors of the registered stakeholders. The other sites located are also considered significant as a collection, showing a clear pattern of use for the valley by Aboriginal people over time.[7]

The report goes on to conclude that:

> Based on the findings of this study and previously established precedents, it is the opinion of Ainsworth Heritage that OEH (or the Director General) would be likely to refuse the development on heritage grounds, based on the clear views of the local Aboriginal people with regards to the cultural heritage of the site. This is further reinforced through the usual divisions of some of the stakeholders who participated in the community consultation, who despite their past differences, held similar views with regards to the protection of sites, in particular, the burials.[8]

Given the unity and strength of Indigenous opposition to the destruction of the burial grounds and other culturally important sites, Rous Water's continued proposal of the Dunoon dam as a viable option is staggering.

It has never been acceptable to desecrate Indigenous sacred sites. However, in this era, for Rous Water to propose such destruction shows a marked disregard for the Indigenous people of the Northern Rivers and a failure to match present day expectations with regards to Indigenous cultural heritage conservation.

[6] Cultural Heritage Impact Assessment (2011) by Ainsworth Heritage, p8.
[7] Cultural Heritage Impact Assessment (2011) by Ainsworth Heritage, p9.
[8] Cultural Heritage Impact Assessment (2011) by Ainsworth Heritage, p143.

1.3 *Exacerbation of Severe Flooding*

Proceeding with the Dunoon dam would falsely seek to meet one of Rous Water's primary functions (bulk water supply) by compromising another function (flood mitigation). The construction of a mega dam would have a significant impact on flood behaviour in the valley below the dam. It is well understood that dams can mitigate floods by collecting excess runoff after rainfall. Dams can only achieve this function if they are not full at the time of heavy rain. When the dam is at capacity, heavy rain falling on the surface of the dam is delivered instantly to the overflow, adding height and speed to the expected natural flood peak below the dam wall.

Therefore, while the Dunoon dam might relieve minor flooding in Zone 3 (the area between the proposed dam wall and the confluence of Rocky Creek and Terania Creek) in extreme floods the dam will actually exacerbate the severity of the flood. In addition, intensified flooding in Rocky Creek will likely cause greater flooding in Terania Creek as waters bank up above the confluence with Rocky Creek, potentially worsening flooding in the village of the Channon where several properties are already subject to inundation during large floods.

Rous Water is aware that the Dunoon dam would create dangerous changes in flood behaviour in Zone 3. This impact is noted in Rous' Environmental Flows Assessment which states:

> When full the dam acts to increase catchment runoff efficiency, with all rain that falls directly onto the water surface delivered directly into the downstream flow when the dam is spilling. This results in increased peak magnitude of the modelled flood events when these conditions are met.[9]

This phenomenon has been confirmed by two independent hydrologists, Duncan Dey, Environmental Consultant, and Juliette Murphy, CEO and Co-founder of FloodMapp.

Rous Waters' modelling of the impact of the Dunoon dam on flood behaviour so far only includes climatic changes that result in decreased rainfall due to climate change. In contrast, NSW government modelling clearly shows an increase (of up to 5%) in rainfall annually, with a 10-20% increase in autumn seasonal rainfall for the proposed area.[10] It is apparent that Rous Water's modelling is inadequate and doesn't not accommodate the likelihood of the forecast extreme rain events or the concentration of rainfall into the typically 'wet' autumn months. As a consequence, the increase in peak magnitude projected by Rous Water is probably understating the likelihood and severity of worsened flooding for Zone 3.

There are at least five properties in Zone 3, the area immediately downstream of the proposed Dunoon dam, which stand to be threatened by exacerbation of severe flooding if the dam goes

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[9] Rous' Environmental Flows Assessment, p141.

[10] NSW Department of Planning, Industry and Environment, 'North Coast Climate Change downloads' (online), <https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/Climate-projections-for-your-region/North-Coast-Climate-Change-Downloads>.

ahead. One of these properties belongs to my parents. None of the owners of these properties have been notified or consulted by Rous Water of the likelihood of dangerous changes in flood behaviour if the dam goes ahead.

In March 2017 the Lismore region, including the catchment of the current Rocky Creek Dam, and the proposed Dunoon Dam, was devastated by the flooding associated with Cyclone Debbie. Rocky Creek Dam was put on 'orange alert'.

At its peak, the flood water came within less than a meter of the level at which it would enter my parents' home. Their livestock was threatened. They had to evacuate and take as many animals as they could to neighboring properties at very short notice. I was interstate at the time but was in contact with my parents throughout that day and evening and frantically watching the news media. Knowing that the waters were rising, that darkness was falling and that my parents were still on the property trying to save their livestock from rising waters is a terror I will never forget.

The construction of the Dunoon dam would mean my parents and others downstream would have to live with the increased threat of their homes being inundated and their stock being lost to floodwaters. At worst, construction of the dam could lead to fatalities. There is a very real threat of loss of life given the speed with which flooding could occur downstream of the proposed mega dam. Given the catastrophic nature of such an impact, Rous Water's failure to give weight to this possibility is callous, irresponsible and reveals glaring deficiencies in their risk assessment for the proposed Dunoon dam. To construct the Dunoon dam, knowing it will endanger people in the properties below the wall, would be both negligent and unconscionable.

1.4 Inadequate Demand

The projected population increase for the council areas supplied with water by Rous Water by 2060 is under 13,000.[11] Northern Rivers' residents use approximately 194 litres of water per person per day on average.[12] Assuming the average usage is stable, by 2060, Rous Water would need to supply an extra 0.002522 GL per day in addition to the current usage. Were the proposed 50GL Dunoon dam to fill to capacity just once, it could hold sufficient water to supply the extra residents with water for 19,800 days, or just over 54 years without any further rainfall.

Obviously the dam would lose an unknown percentage of the yield to downward seepage, lateral leakage, evaporation and required environmental flows. In addition, allowance would need to be made for variations such as greater than expected population growth, reduced future rainfall or increases in per resident usage. However, even if the estimate is quartered for the sake of being conservative, the dam would still sustain the new population for 13 years without

[11] NSW Department of Planning, Industry and Environment 2019, 'NSW population projections', Sydney, online. Scroll down to "Local Government Factsheets".

[12] Rous County Council '160 Litre Challenge to save water' online <https://rous.nsw.gov.au/cp_themes/default/page.asp?p=DOC-MHV-33-17-88#:~:text=Northern%20Rivers'%20residents%20use%20approximately,is%20more%20important%20than%20ever.>

additional rainfall. It is clear that the proposed mega dam is vastly out of proportion to the likely demand. There simply will not be the need for water that warrants construction of a 50GL dam and it's contingent expense and destruction.

Further, Rous Water's planning documents for use of Dunoon dam water supply are based on the assumption that the entire additional water yield is used from the start of operation. Professor Stuart White states, in his report titled 'Rous Water Supply Augmentation Proposal - Brief Review', that this artificially boosts the apparent cost-effectiveness of the Dunoon dam option:

> The marginal cost of Dunoon Dam, and other supply options, is calculated assuming that the entire yield is used from the commencement of operation, significantly overstating the denominator in the marginal cost calculation.[13]

Given Rous Water's overstatement of the initial demand for the additional yield of the Dunoon dam and the modest projected population growth construction of the dam is unwarranted.

1.5 Financial Risk and Impact

The Dunoon dam is estimated to cost $200-240 million. This investment represents a major financial risk given the uncertainties in projected population growth, water usage and yield from existing water supplies.[14] The report by Stuart White states:

> Selection of a single large option with high capital cost, in the face of significant uncertainty in demand and secure yield, means that constructing the Dunoon Dam would lead to a significant risk of a stranded asset, and a potential price-demand spiral.[15]

Furthermore, the financial burden would be passed on to current water users of the Ballina, Byron, Lismore and Richmond Valley council areas with the potential to increase current water costs by four times.

The Stuart White report notes the remarkable lack of community consultation on this impact. White states:

> In the face of a $200m investment, it would be prudent for a monopoly service provider to assess the community's willingness to pay, and to assess whether water consumers were willing to trade off the change in level of service and the 800 to 1,200 ML/a reduction in yield for the value of deferring such a large investment. Such an exercise

[13] Stuart White, 'Rous Water Supply Augmentation Proposal - Brief Review', Institute for Sustainable Futures, University of Technology Sydney, 10 August 2020, p3.
[14] Ibid.
[15] Ibid, p3. See also, Martin, P. (2017) 'Death Spiral: why electricity prices are set to climb ever higher', Sydney Morning Herald, 21 Sep 2017.

would most effectively use best practice techniques of deliberative democracy, for which the Northern Rivers region can boast several previous examples.[16]

Rous Water should engage in significant community consultation before imposing a massive financial burden for which there may not be sufficient demand.

2. **There are Alternate Supply Augmentation Solutions**

There are multiple alternate water supply augmentation options that Rous Water is yet to fully explore.[17] To date there has been no thorough analysis and costing of an investment in system-wide water efficiency, water harvesting, strengthened demand management and water re-use.

2.1 System-Wide Water Efficiency

An investment in system-wide water efficiency would involve an audit of every part of the reticulation system. A range of available water efficiency options have a lower unit cost than increasing supply.[18] There could be significant water saving from assessment and upgrade of council long pipes, as well as the appliances, fixtures, processes and behaviours associated with water use. Existing research over the past decade consistently finds that the most effective investment in water supply comes from demand management and identifying savings within the existing supply.[19] This option has the added benefit of sustainable job creation, in comparison to the temporary nature of employment created by dam construction.

2.2 Water Harvesting

Rous Water could be working in conjunction with the councils which it supplies with water to implement across-the-board changes to all new developments making best-practice water harvesting obligatory. Investment should also be made in installing water harvesting technology and processes for established buildings.

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[16] Stuart White, 'Rous Water Supply Augmentation Proposal - Brief Review', Institute for Sustainable Futures, University of Technology Sydney, 10 August 2020, p4.

[17] Ibid.

[18] Stuart White, 'Efficient Use and Management of Water for Urban Supply', *Institute for Sustainable Futures, University of Technology*, Paper presented in Madrid (21-23 May 2001), online, <http://cfsites1.uts.edu.au/find/isf/publications/white2001demandmanagementAustralia.pdf>.

[19] See, eg, The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore and Watson R., Turner A and Fane S (2018), Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable futures, Sydney.

Not only would increased water harvesting lead to greater water yield from current rainfall, it would build community resilience in the face of drought and bushfires. The use of tank water can also lead to a much greater community understanding of and engagement with the sustainability of our water systems. The Australian Federal Government advises that:

> Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help:
>
> - reduce the need for new dams or desalination plants
> - protect remaining environmental flows in rivers
> - reduce infrastructure operating costs.
>
> Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.[20]

2.3 Strong Demand Management

Construction of the Dunoon dam would diminish incentive to adopt water saving measures and practices.

By contrast, robust demand management has demonstrated success in promoting the adoption of water efficiency measures. Enforcement of tiered water use restrictions in response to seasonal rainfall and the capacity of the current Rocky Creek dam is a flexible and effective strategy in reducing demand. Water prices could also be tiered year round to strongly discourage excessive use. Auditing the biggest water users could result in significant demand reduction. Demand management techniques such as these are effective, responsive and already have broad community acceptance.

2.4 Water Re-Use

Rous Water should thoroughly investigate options for purified, recycled potable water. This could lead to recovery of a significant amount of water without the unavoidable negative impacts of the Dunoon dam. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, *Potable Water Reuse: What can Australia learn from global experience?.*[21] For example, the city of Windhoek in Namibia has been successfully using purified recycled water for 50 years.[22]

These options should be comprehensively investigated by Rous Water prior to any further decision making. Unless this analysis and costing is done, Rous Water is in no position to

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[20] Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home' Canberra, online, <https://www.yourhome.gov.au/water/rainwater>.

[21] Kahn, Stuart and Branch, Amos 'Potable water reuse: What can Australia learn from global experience?', (2019) Water Research Australia Ltd, Adelaide.

[22] Windhoek Goreangab Operating Company Pty Ltd 2020, *Our history* | *Wingoc*, Windhoek, online <https://www.wingoc.com.na/>.

propose that the dam is the ‘best option’. Meanwhile, sinking $240 million in the Dunoon dam would divert expenditure away from the many more sustainable, flexible and effective solutions.

3. **Conclusion**

The Dunoon dam is the least efficient option for water supply augmentation and comes at great environmental, cultural and financial expense. The construction of the mega dam is out of proportion to the expected demand and risks placing significant financial burden on the residents of Lismore, Bryon, Ballina and Richmond Valley shires. Rous Water’s modelling and analysis has been shown to be incomplete and narrow in scope and in no way sufficient to justify the risks and damage associated with the proposed Dunoon dam.

The loss of threatened and highly valuable ecosystems along with Aboriginal cultural sites of immense significance can never be reversed or ‘offset’. To pursue such devastation on the basis of inadequate modelling without comprehensive exploration of the many alternatives would be a shameful misuse of Rous Water’s mandate. The Dunoon dam should be permanently rejected in exchange for more sustainable, flexible and cost-effective water supply augmentation and water saving measures.

Regards,

Elke Nicholson
Solicitor

Annexure 1

Photos by David Lowe, taken 5 August 2020.

1. A section of rainforest along Rocky Creek which would be destroyed by the proposed Dunoon dam.

2. The sandstone cliffs and rainforest of the Channon Gorge which would be destroyed by construction damage and sediment from the proposed Dunoon dam.

3. Mixed rainforest and sclerophyll forest which would be destroyed along Rocky Creek.

4. A section of Rocky Creek which would be destroyed by the proposed Dunoon dam.

From: Max Watt
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:36:18 PM

Maxwell Watt
[redacted]

8th September 2020
Rous County Council, Lismore, NSW, 2480
<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thank you for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

Growing up around [redacted] has allowed me to have a strong connection with the land. I frequently explore/work in the local wilderness of this area as I am a keen hiker, explorer, and Bush Regenerator. I have a deep connection with the area of the proposed The Channon-Dunnon dam. I fear for the threatened ecological vegetation communities, threatened flora and fauna, sacred sites to the Widjabul-Wybal peoples, and local landowners who have to lose their land. I also acknowledge the significance of this area to the Widjabul-Wybal peoples and wider Bundjalung peoples. As a community member, bush regenerator, and nature-enthusiast, I am deeply concerned by the proposed dam.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

• **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest& fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) *(1)*

• **The 21st century is about a suite of smart water options.** This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

• **The dam would encourage continued inefficient and often wasteful water management by local governments.** They would have no incentive to do things differently.

• **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011)*(2)*. Ongoing disregard for First Nations' heritage.

• **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest** (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)*(3)*.

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020
< https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-

the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.

• **Industrial/construction zone** for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

• **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

• **The small population increase** predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 **does not justify** such a large and destructive dam. The dam risks being **an expensive white dinosaur**, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, *'NSW population projections '*, Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".(5)

• **Catastrophic flooding downstream in worst floods,** particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

• **Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.**

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

• **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has *not* costed this in creating their future water plan) Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.*(7) (8)* Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.*(9)* (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

• **Water re-use in various ways,** including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806*(9)* Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history*(10)*

• **Water harvesting** (urban runoff; rain tanks): Water tanks on all new (and existing) developments.*(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.*

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.*(12)* https://www.yourhome.gov.au/water/rainwater

• **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

• **Groundwater, where this is environmentally safe** The Australian government provides a lot of information on the ecological impacts and groundwater usage.*(13)* https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc

https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0

(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

(5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections '*, Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets".

(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.

(7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand*

Management Strategy : preferred options, Rous County Council, Lismore.

(8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for Hunter Water*, Institute for Sustainable Futures, Sydney.

(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

(10) Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?,* Water Research Australia Limited, Adelaide.

(11) Windhoek Goreangab Operating Company (Pty) Ltd 2020,*Our history | Wingoc,* Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

(12) $220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).

(13) Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

(14) Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

Maura Dawes
[redacted]

8 September 2020

To Rous Water Councillors,

[redacted]

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thank you for supporting the extension of the submission date.

I **DO NOT** support the proposed The Channon-Dunoon Dam for the following reasons:

- We must invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focusing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government). The future is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the future.
- Rous is required to avoid this destruction because there are economically viable and more effective solutions.
- The dam would encourage continued inefficient and often wasteful water management by local governments.
- It would destroy important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011). The ongoing disregard for First Nations' heritage is not an action or an ethic that I support.
- Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011).
- Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
- Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/…/North…/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

I trust that you will fully consider the reasons given for why **I do not support the proposed The Channon-Dunoon Dam** and that you will find viable alternatives for water sustainability in our region.

Kind regards,

Maura Dawes

From: Emmagraveslive
To: Records
Cc: [redacted]
Subject: Proposed Dunoon Dam
Date: Tuesday, 8 September 2020 8:38:52 PM

8 September 2020

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I moved to this region 3 years ago because of it's natural beauty and old growth rainforest and have enjoyed the rainforests, creeks and wildlife in the northern NSW region during that time as well as taking Aus and overseas visitors to many locations.

Words cannot describe our deep appreciation for this land. In addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

- **The 21st century is about a suite of smart water options**. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and often wasteful water management** by local governments. They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.
- **Destruction of The Channon Gorge** and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

Rous is required to **avoid** this destruction because there are economically viable and more effective solutions.

- Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
- Higher prices for consumers due to a 4x increase in the

cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

- The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti ons> scroll down to "Local Government Factsheets".(5)
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)
- Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

● **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan) Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8) Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed

dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

● **Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already** exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806(9) Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)

● **Water harvesting** (urban runoff; rain tanks): Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. (12) https://www.yourhome.gov.au/water/rainwater

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

● **Groundwater, where this is environmentally safe** The Australian government provides a lot of information on the ecological impacts and groundwater usage.(13) https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times

of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0 (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011 (3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011 (4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets". (6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia. (7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore. (8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney. (9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides) (10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide. (11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/> (12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous). (13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater> (14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

Yours

Emma Graves

[redacted]

Sent from my iPhone

From: louise fontanella
To: Records
Subject: louise tylers submission for rous dam proposal
Date: Tuesday, 8 September 2020 8:44:02 PM

7th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Projects

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.

Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

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Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 (4)
Rous is required to avoid this destruction because there are economically viable and more effective solutions.

Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

The small population increase predicted for the four Rous-supplied councils of 12,720(5)

between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".(5)

Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)

Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

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A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806(9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)

Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12) https://www.yourhome.gov.au/water/rainwater

Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and

groundwater usage.(13)
https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
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Sent from my iPhone

From: Sho Wakejima
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:44:56 PM

Sho Wakejima
[redacted]

08 Sep 2020

Rous County Council
Lismore NSW 2480

Dear Rous Councillors and General Manager,

I have resided in the Northern Rivers for more than 20 years and lived on the land as sustainable as possible during the time as I enjoyed being part of the remnant of the Big Scrub. I truly believe that this ecosystem is protecting us from the climate change and giving us more chance of survival in the region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
• Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)
• The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
• The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
• Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011) (2) . Ongoing disregard for First Nations' heritage.
• Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011) (3) .
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Council s are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)
Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● The small population increase predicted for the four Rous-supplied councils of 12,720 (5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur , diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, < https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections > scroll down to "Local Government Factsheets". (5)
● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011) (6)
● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)

Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. (7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible. (9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

● Water re-use in various ways, including Purified Recycled Potable water.

A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?
https://www.waterra.com.au/publications/document-search/?download=1806 (9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history (10)

● Water harvesting (urban runoff; rain tanks):

Water tanks on all new (and existing) developments. (11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. (12) https://www.yourhome.gov.au/water/rainwater

● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe

The Australian government provides a lot of information on the ecological impacts and groundwater usage. (13)
https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Best Regards,

Sho Wakejima

From:	acacia awesomepants
To:	Records
Subject:	Dunoon Dam Proposal
Date:	Tuesday, 8 September 2020 8:48:04 PM

Hello,

My name is Acacia Livock and I live in [redacted] I strongly disagree and oppose the Dunoon/ The Channon dam proposal. The construction of the dam causes destruction of living Widjabal culture, implicating a war on sacred sites that is rampant across the continent. Not only this but the dam would would cuse a flood all the way up to local beloved Whian Whian falls. Many threatened plant species in the flood area which will not survive, these species should be protected under the EPBC Act (1999). SAY NO TO THE DAM.

From: Jasmyn aquila
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:50:36 PM

Jasmyn Aquila
[redacted]

8th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>
Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 30 years.
Words cannot describe our deep appreciation for this land. In addition to the local community of farmers
and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a
unique ecosystem.
I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)
(1)
● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
● Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
(2)
. Ongoing disregard for First Nations' heritage.
● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)
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Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy

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(4)
Rous is required to avoid this destruction because there are economically viable and more effective solutions.
● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● The small population increase predicted for the four Rous-supplied councils of 12,720
(5)
between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".
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● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet
our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.
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Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially,environmentally and socially irresponsible.
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Water tanks on all new (and existing) developments.
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The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.”
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(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts

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groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6
August 2020,
<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr
awdown>

From: drea lola
To: [redacted]

Subject: Objection to proposed Dunoon Dam - Submission
Date: Tuesday, 8 September 2020 8:54:44 PM

Re: The proposed Dunoon Dam within the Future Water Project 2060

To whom it may concern,

Firstly, thank you for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

- The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

- The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

- Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.

- Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

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- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

I SUPPORT these alternatives:

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Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)

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Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

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With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

I hope you consider the above points.

Kind regards,

Drea Quinlan
[redacted]

References and Notes

1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0

2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

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13) Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

From:	Amanda Bayes
To:	Records
Cc:	Records
Subject:	Dunoon Dam
Date:	Tuesday, 8 September 2020 8:56:23 PM

I have lived in [redacted] area for the past 14 years . I do not agree with the dam , because of the damage in will do to the environment, wildlife , cultural heritage and farm land . I believe there are other , safer ways to provide water .

Yours Sincerely Amanda
Sent from my iPhone

From:	Claire McLisky
To:	Records
Subject:	Future Water Project 2060 Submission - objection
Date:	Tuesday, 8 September 2020 8:58:21 PM

Claire McLisky

[redacted]

I OBJECT to the proposed Dunoon Dam for the following reasons:
- Environmental impacts: threatened terrestrial and aquatic species (section 7.4 and 7.6 of the RCC Assessment of Augmentation Scenarios (2020))

- Cultural heritage impacts (section 7.8 of the RCC Assessment of Augmentation Scenarios (2020))

- Greenhouse Gas emissions from dams (not included as potential impacts) (Deemer, Harrison, Li et al., Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis, BioScience, Volume 66, Issue 11, 1 November 2016, Pages 949–964, https://doi.org/10.1093/biosci/biw117)

- It is too early, with too many uncertainties, to be making a recommendation of this scale, cost and associated impacts. While it is important to plan for a climate affected future, and population growth with associated changing water demands, and appreciating that a project of this scale would take roughly 10 years (RCC Future Water Project 2060 Brochure (2020)), it is unnecessary to plan for project completion in 2030, to secure water supply for 2060. The assumptions on population growth and respective water demand included in projections are too simplified, with too much uncertainty (RCC Bulk Water Supply: Demand Forecast: 2020 – 2060).

- The proposal is based on current government regulatory frameworks and policies, without due consideration of potentially changing regulations and policies that could create an enabling environment for Direct and Indirect Potable Reuse, increased or mandatory uptake of rainwater harvesting and use. Such frameworks have been in existence for decades internationally, and are being implemented in other parts of Australia.

ALTERNATIVES to this proposal:
A series of decentralised solutions, including:
- Rainwater tanks: subsidized or made mandatory for existing and new dwellings and developments. In the RCC Demand Forecast Strategy, Section 4.1.5, Table 5, I was surprised to see that most of the demand management measures had “Nil predicted reduction in demand”, as these are “based on current implementation” status. For example, if the RCC rebates on rainwater tanks have been ineffective, this may partly be due to lack of financial and practical incentive for consumers to adopt it. Using just a fraction of proposed dam money to go towards providing free rainwater tanks for all existing and new developments, would surely have an impact. Furthermore, local and state government could be lobbied to provide an enabling environment for this (i.e. regulations and other incentives).

- Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR): there are multiple examples around the world of this working successfully (Potable Water Reuse: What can Australia learn from global experience?, Stuart Khan and Amos Branch, 2019, UNSW Water Research Centre, University of New South Wales, NSW, Australia). While the regulatory environment in NSW is not conducive to this option at the moment, again, government can be lobbied to make amendments.

- Stormwater reuse (urban runoff).

- Appropriate pricing of mains water: e.g. block tariff pricing schemes (i.e. base fee for essential use, then higher fees for higher per capita useage); flexible (scarcity) pricing schemes.

- Political engagement and action: dialogue to create an enabling environment for the above alternatives.

- Consumer education: The North Coast of NSW has a high density of consumers who are concerned about and active on issues around environmental protection and climate change. With the right education campaigns, citizens would be well-placed to make decisions about their water usage that could significantly lower the region's water footprint. The uptake of solar panels in this region shows that consumers are ready to act to reduce their demand on communal resources, especially if there is also a financial reward for doing so (e.g. reduced power bills and possibly rebates). There is no reason to believe that this would be any different for the case of water conservation / installation of rain water tanks and grey water systems, given the right education campaign.

I do hope that you will take these serious concerns into consideration in reviewing the Dunoon dam proposal.

Yours sincerely,
Claire McLisky

From: laura quinlan
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:58:40 PM

EMAIL CONTENT:
Laura Quinlan
[redacted]
8th September 2020
Rous County Council, Lismore NSW 2480 <council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

I live in the [redacted] and I am very concerned about the proposed dam to be built in this area. I DO NOT support this proposal. After some research it seems a disastrous waste of money, posing future risks of downstream flooding (especially in a changing climate), loss of important and rare rainforest, loss of indigenous burial sites, plus a very large distraction from looking at how we can more cleverly look at our water use, where it comes from and how we can manage it better. Possibly a far more daunting task than throwing millions of dollars at a very large wall...

It seems a lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW (1)

The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <

https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan >,
Direction 2: Enhance biodiversity coastal and aquatic habitats and water
(4) catchments.
Rous is required to avoid this destruction because there are economically viable and more effective solutions.

Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built. (5)

The small population increase predicted for the four Rous-supplied councils of 12,720
between 2020-2060 does not justify such a large and destructive dam. The dam risks being
an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective
solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW
population projections ', Sydney, viewed 03 August 2020,
<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti
(5) ons> scroll down to "Local Government Factsheets

I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water

needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management.
Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within (7) (8)
the existing supply.
Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, (9) environmentally and socially irresponsible. (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? (9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled Water (10)
● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments. This builds community resilience - much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local (12) flooding and scouring of creeks. https://www.yourhome.gov.au/water/rainwater
● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and (13)
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.
https://www.waterra.com.au/publications/document-search/?download=1806
water for 30 years using advanced technology. https://www.wingoc.com na/our-history (11)
groundwater usage. https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets".
(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
(11)WindhoekGoreangabOperatingCompany(Pty)Ltd2020,Ourhistory|Wingoc,V eoliaEnvironment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater

tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).

(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

From: Hugh Nicholson
To: Records
Subject: The Future Water Project 2060 - The Dunoon Dam + photo submission attachment
Date: Tuesday, 8 September 2020 8:58:45 PM
Attachments: Hugh Submission A5_email.pdf

8th September 2020

Rous County Council

Lismore 2480

Dear Rous CC and General Manager,

Re: **The proposal to dam The Channon Gorge as part of the Future Water Project 2060**

Thank you for the extension date for submissions. Even with the 4 week extension it has been difficult to become well-informed about the Project and implications. It would have been so much clearer if we had been able to attend public meetings for a presentation and Q & A.

I have lived in the area for 46 years. My life's work has revolved round rainforests.

In the late 1970s my wife and I pioneered growing rainforest plants in our nursery - Terania Rainforest Nursery. We ran the nursery for 19 years supplying retail nurseries but our interest and focus was promoting the reforestation of degraded land. Our trees were used in many regeneration projects in the Northern Rivers including the highly successful plantings at Rocky Creek Dam.

With my wife, we have written, illustrated and published six books in a series, *Australian Rainforest Plants I - VI.* Collectively they have sold over 100,000 copies. In 2014 we published an interactive key to the identification of rainforest plants in eastern Australia - *Rainforest Plants of Australia - Rockhampton to Victoria.* This was the culmination of 13 years work with colleagues from NSW Herbarium and Queensland Herbarium. I have specialised in rainforest (and rainforest plant) photography.

Six years ago I become a customer of the reticulated supply when we moved to [redacted] Here we live on 20 acres at the [redacted].

I am strongly opposed to the Dunoon Dam proposal.

The proposal to build a large dam seems to be a knee-jerk reaction and a simplistic solution to the problem of water supply into the future.

1. One of the issues which surprises and disappoints me is that there is no evidence of an audit of the whole water system which Rous CC supplies. Surely before instigating a project likely to cost many hundreds of millions of dollars it would be incumbent on the proposer to do a thorough audit and survey of what water is used where, by whom, with what efficiency?

2. The heritage report released in 2013 indicated that the evidence contained in the report

was a 'game changer'. The evidence of Aboriginal cultural heritage, artifacts and especially the presence of burial sites meant the dam was very unlikely to be allowed to proceed. What has changed? The grinding grooves are still there. The burials are still there. Why is the Rous CC now promoting the construction of this dam which will destroy access for the indigenous community to their heritage?

3. The Channon Gorge contains significant areas of the Endangered Ecological Community - Lowland Rainforest. This will largely be destroyed by construction of the dam wall or through inundation by the impounded water. Included in the Endangered rainforest is a small area of warm temperate rainforest growing on the sandstone of the gorge. As far as I can ascertain, there is no similar rainforest in this area. It will be almost entirely wiped out by the footprint of the wall. These rainforests contain at least 19 species of plants which are listed both State and Federally as being threatened with imminent extinction unless they are adequately protected. Giving the go-ahead for this dam hammers yet another nail in their coffin.

Rous CC documents suggest this loss could be mitigated by off-sets. The off-set outlined in the reports consists of planting the buffer zone around the dam edge as if these trees will, in any way, provide habitat for the endangered species displaced. Not only will these plantings take much longer than the 2060 horizon of this Water Project to get close to the mixed age forest they will replace but it will take a century or more before they will provide the hollow branches required for roosting or nesting. Off-sets don't work. Replanting trees on degraded basalt paddocks will not replace complex rainforest on sandstone.

Councils are required under State planning regulations to: “Focus development to areas of least biodiversity sensitivity in the region and implement the ‘avoid, minimise, offset’ hierarchy
to biodiversity, including areas of high environmental value.”

Rous CC is required to avoid this destruction because there are alternatives.

4. Rous County Council has three main functions: supply bulk water, weed biosecurity and flood mitigation.

To do the first function by constructing a new dam will mean you cannot do the third function. It is spelled out in the Environmental Flows Assessment 2011 that in times of major flooding, the downstream effect of the new dam will be increased flooding. And, we are not talking a little. Cyclone Debbie brought the largest flooding in memory to The Channon and water rose to within a metre of my house - more than 4 metres higher than previously recorded. At 1.5m over the Rocky Creek Dam spillway and 2.5m over Robertson Bridge on The Channon Road, this was considered a small flood by the project officer Michael McKenzie who reports Rous is planning for up to 8m over the new dam wall. In the Cyclone Debbie flood we were isolated and spent harrowing hours moving stock to higher ground. Anything bigger and we would have waved goodbye to our stock, our house, our machinery sheds while desperately striving to make our way to safety. Such floods, by their very nature, happen quickly and without much warning.

Despite having this knowledge, at no time has anyone from Rous CC deigned to speak to any of the downstream landholders whose lives and livelihoods will be affected by such a Rous induced event. This seems to me the height of rudeness if not negligent in the extreme.

There are **alternatives** to construction of a new dam.

1. Rather than sinking more money into a single massive piece of infrastructure, Rous CC could implement multiple water efficiencies across the four LGAs. **System-wide water efficiency and strong demand management** should be part of the Rous mandate rather than being viewed as a latte-sipping fringe idea.

2. **Realistic pricing of water**. Price water so everyone is entitled to 160 litres per day for a nominal fee but any use in excess of this should be charged on a sliding scale to make consumers aware of, and pay for, profligate use.

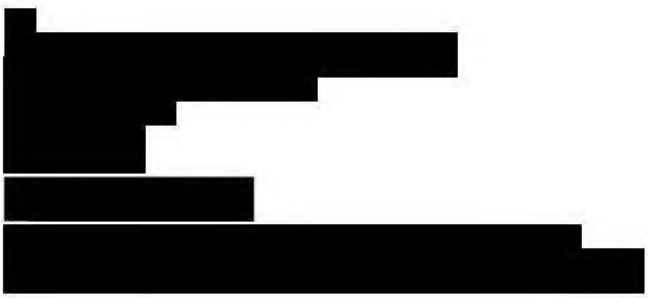
3. **Water harvesting** is a viable option not just for householders but for industry. As an example, look at Lismore Square where water tanks have been installed to supply flushing water to all toilets. How much water would be saved if every business involved itself in managing its water?

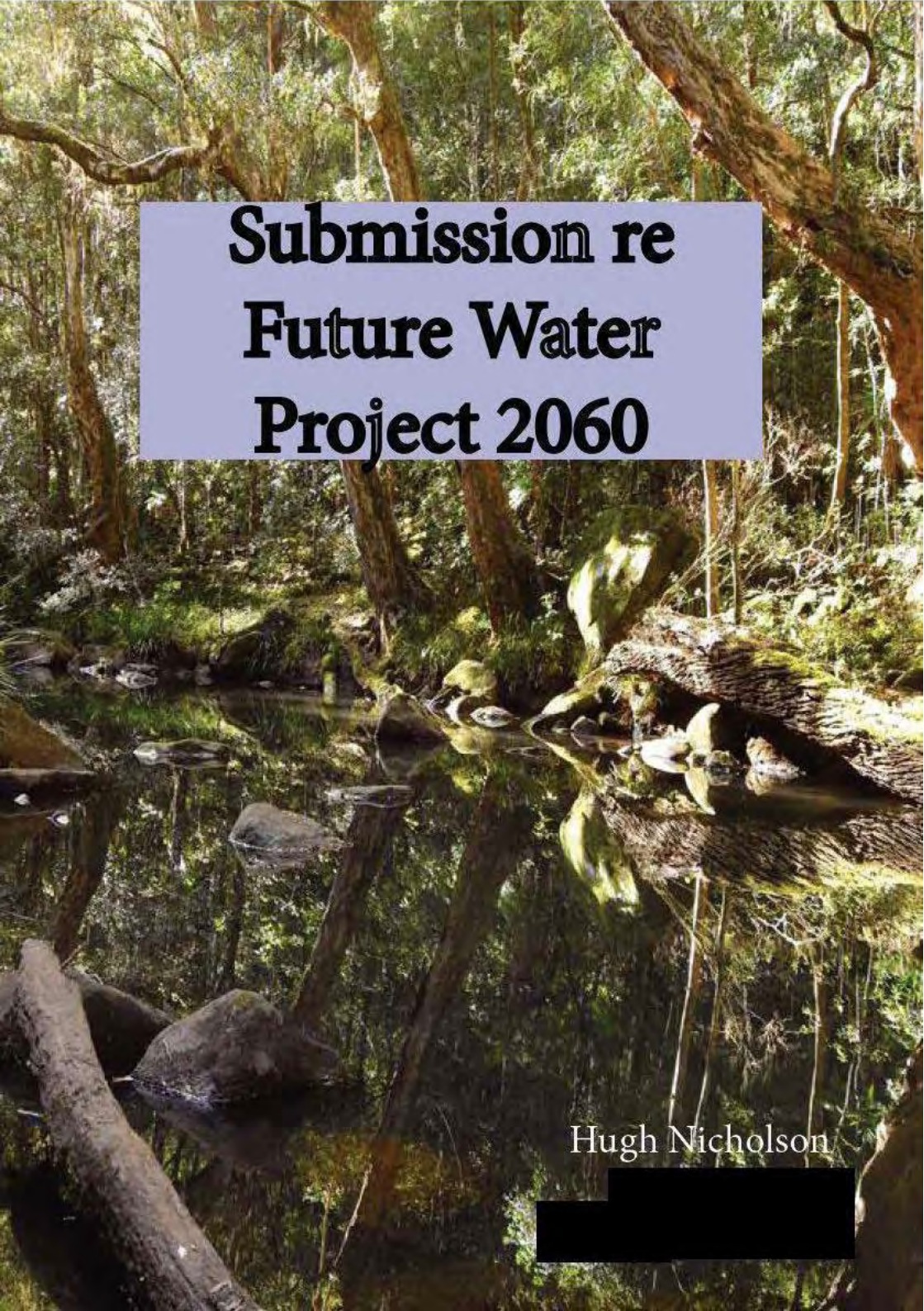
New houses should all have to put in purple pipes to use recycled water or tank water for laundry and toilet.

We, the community, should not have to do the job for Rous CC but we feel strongly about the need for progressive ideas and proactively attacking the issue of sustainable water supply and use in this region. Let's work together toward a water supply system which will be an example for the rest of Australia of what is possible

Yours sincerely,

Hugh Nicholson





Submission re Future Water Project 2060

Hugh Nicholson
[redacted]

My name is Hugh Nicholson. [redacted] from the proposed dam.
I have specialised for the past 40 years in rainforest plant photography.
My wife and I have published several books on rainforest plants and been involved in the production of several others.

We pioneered the growing of rainforest plants and supplied trees to nurseries but primarily to reforestation projects including the redevelopment of the areas surrounding Rocky Creek Dam.

Photo: Andy McInnes

My submission relates to the proposal to construct a dam in The Channon Gorge with the impounded water to back-up almost to the Whian Whian Falls.

This proposal, called The Dunoon Dam, would cover approximately 240 hectares and contain 50 gigalitres of water.

This is what we, the community including all Australians, will lose if the Dunoon dam is built and drowns this unique ecosystem.

In this photo submission I address the impact the proposed dam will have on plants and animals which are threatened with extinction and are protected by State and Federal legislation.

All plants and animals have been recorded by Rous CC consultants, or were found by us on site, or occur close-by and are probably present.

Mottled trunks of Water Gum stand behind the deeply toothed leaves of the vulnerable Red Boppel Nut.

Big Scrub Acalypha is a small shrub which was only discovered a few years ago. It is still to be formally named and currently goes by the name *Acalypha* species 'Big Scrub'. It is eligible for nomination as an Endangered species. Several plants were found on site.

Until recently this mistletoe (*Amyema plicatula*) was known to grow on only a handful of Rosewood trees in the area between Rocky Creek Dam and The Channon - hence the common name of Rosewood Mistletoe. It has recently been found at Alstonville also. It is listed as Endangered in NSW and the Commonwealth.

Veiny Lace Flower (*Archidendron muellerianum*) is mostly a small tree with very limited distribution either side of the NSW - Qld border. Found on site.


Hairy-joint Grass (*Arthraxon hispidus*) is listed as Threatened in Commonwealth legislation and as Vulnerable in both NSW and Queensland. It will be drowned under several metres of water should the dam go ahead.


One of the larger lianas in the rainforest, Austral Wisteria (*Austrocallerya australis*) is a native wisteria and has similar flowers. These are often out of sight as the vine threads its way through the canopy. Found on site.


This shrub can occasionally be found as a small tree. Corokia (*Corokia whiteana*) has a very limited distribution and is listed as Vulnerable in both NSW and Commonwealth legislation. Found on site.

Glossy Laurel (*Cryptocarya laevigata*) is a member of the avocado family so its fruits provide food for native rainforest pigeons. Leaf material of this species has proven active against tumor cell cultures. Found on site.

Listed as Threatened in NSW and Vulnerable in Commonwealth legislation, Thorny Pea (*Desmodium acanthocladum*) is abundant in the forested areas of the proposed inundation zone. Thorny Pea has recently had a scientific name change to *Pedleya acanthoclada*.

Ball Nut (*Floydia praealta*) is in the same family as macadamias but the nut is not edible. It is listed as Vulnerable in NSW, Qld and the Commonwealth largely due to clearing of its riverine rainforest habitat.. Known to occur in similar forest within a kilometre of the dam site.

Listed as Endangered in NSW, Qld and the Commonwealth, Sweet Myrtle (*Gossia fragrantissima*) has been named for its intensely-perfumed white flowers. Found naturally in subtropical rainforest between Lismore and Currumbin - habitat which has been largely cleared for agriculture. It grows in similar riparian rainforest within a kilometre of the dam site.

Purple-flowered Hedraianthera (*Hedraianthera porphyropetala*) is a small under-storey shrub of well-developed subtropical rainforest. Though wide-spread in east coast rainforest it is nowhere common. Occurs on site.

The significance of the presence of Stream Lily (*Helmholtzia glaberrima*) is that the dam wall will destroy the southern-most location for this species in the world and the only place it grows on sandstone.

Red Bopple Nut (*Hicksbeachia pinnatifolia*) is present through the rainforest in the inundation zone. It is listed as Vulnerable in NSW, Queensland and Commonwealth legislation. Red Boppel Nut is a relation of the famous Macadamia Nut and one of its unusual features is the flowering and fruiting straight out of the trunk.

Macadamia tetraphylla is the 'parent' of the macadamia nut industry which is so important to the Northern Rivers. 'Wild' plants are esential for their genetic potential for future development of the commercial crop. Wild macadamias are now rare and are lited as Vulnerable in NSW, Qld. and Federally. Found on site.

Some Water Gums (*Tristaniopsis laurina*) along Rocky Creek have grown to an impressive size. The yellow petals carpet the forest floor in season. It would be awful to see these trees disappear forever under 40 m of dammed water.

The rare vine, Slender Marsdenia (*Marsdenia longiloba*) is listed as Endangered in NSW and as Vulnerable in Qld and the Commonwealth. It is growing on site.

Southern Ochrosia (*Ochrosia moorei*) is restricted to a few subtropical rainforest remnants between Lismore snd Springbrook in Qld. it is listed as Endangered in NSW and the Commonwealth. Found on site.

Once quite wide-spread in coastal rainforests, Scrub Turpentine, (*Rhodamnia rubescens*)(above) is now Critically Endangered in NSW and Commonwealth legislation because it is highly susceptible to Myrtle Rust. It is rare now to find this tree flowering or fruiting. Growing on site.

Native Guava (*Rhodomyrtus psidioides*) (right) is also Critically Endangered and is even more susceptible to the Myrtle Rust. Resprouts within the inundation zone should be monitored to see whether they are developing immunity. Growing on site.

This is one of the more uncommon lilly pillies and listed as Vulnerable in NSW, Qld and Commonwealth legislation. The flowers are honey-scented and the bright fruit of Red Lilly Pilly (*Syzygium hodgkinsoniae*) are amongst the largest of the group. Habitat destruction is pushing it toward extinction. Found growing nearby.

Arrow-head Vine (*Tinospora tinosporoides*) is most often observed sprawling over the forest floor. Once it climbs toward the canopy, the only tell-tale signs are the rough, corky bark sprouting occasional spikes of cream flowers. Arrow-head Vine is listed as Vulnerable in both NSW and Qld.. Common on site.

These flowers are so exceptionally sweetly scented that the parent is called Spice Bush or Native Honeysuckle. *Triunia youngiana* is also highly ornamental with colourful new leaves and red fruits. Found on site.

Water Gum showing the battering from flood waters over the years. Walking-stick Palms (*Linospadix monostachyos*) are common in the rainforest.

Fauna

Birds, mammals, frogs and insects are all dependent on habitat. Incremental clearing for development causes an ever increasing pressure on existing populations through direct loss of habitat or loss of connective links and corridors.

These are some of the animals which will be adversely affected if construction of this dam proceeds.

The breeding pair of Wedge-tailed Eagles which live in the valley, due to be flooded if the dam proceeds, will lose a significant area (in excess of 200 ha) of their hunting grounds. Wedgies are such an iconic species which the locals have been watching for years and they fear that this could force them to leave their home.

The Crested Hawk (or Pacific Baza as it is now called) is a migratory species which arrives back in our forests in September every year. It is likely they are the same individuals returning to the same area year after year. These forests are to be cleared for construction of the dam wall. Loss of habitat for migratory species is a world-wide problen. We must not add to this burden.

The Masked Owl requires large vertical hollows in old trees for nesting. These will not be available for a century or more in the 'compensatory habitat' proposed by Rous CC. Masked Owls are listed as Vulnerable in both State and Federal legislation.
Photo: David Milledge

Another owl requiring large hollows for roosting and breeding, the Sooty Owl lives in both rainforest and wet sclerophyll forest - both of which will be destroyed should the dam construction proceed. Sooty Owls are scheduled as Vulnerable in NSW largely due to habitat destruction.
Photo: David Milledge

An insect eater, the Owlet-nightjar is the smallest nocturnal bird in Australia. They roost by day in hollow, spout-like branches to avoid being mobbed by diurnal birds. It is another hollow-dependent species which will be adversely impacted if the dam is constructed.

All flying-foxes have an essential role in the pollination of eucalypt flowers and the dispersal of rainforest tree seeds. Our forests would die without their assistance. Grey-headed Flying-fox numbers have crashed in the last few years and they are now listed as Vulnerable on the IUCN Red List of Threatened Species.

Classified as Vulnerable in NSW because it is at the southern limit of its range, the Eastern Tube-nosed Bat is a solitary animal. It feeds on rainforest fruits, particularly figs, and the pollen of flowers. The yellow spots on their wings provide camouflage as they roost in dappled foliage during the day.

Loss of habitat through fragmentation and degradation have left the Pygmy Planigale vulnerable to any further changes. This tiny carnivore lives in rocky forested areas close to streams. It is mostly nocturnal. Photo: David Milledge

The white-eared Monarch is Vulnerable in NSW where it lives in the overlap between rainforest and wet sclerophyll forest. It is insectivorous and probably an altitudinal migrant - moving down out of mountain areas during winter.

There are 13 species of insectivorous bats living in the forests and open areas recorded in the Terrestrial Ecolgy Report. Most of these bats will be compromised should the dam construction proceed. Several are Vulnerable, largely due to habitat destruction. Above is an Eastern Long-eared Bat and below is a Southern Myotis.

Photos on this page. David Milledge

Construction of a new dam and its infrastructure will remove important corridors for the local Koala population. Recent bushfires have reduced the koala population in NSW by an estimated 71%. At a time when there is very real potential for the koala to become extinct within the life of this Future Water Strategy it is incumbent on all of us to do everything in our power to protect this iconic Australian species.

The Giant Barred Frog is amongst the largest of Australia's native frogs. Its eggs are laid in stream-side pools then flipped onto the bank to start development. The eggs are then washed into the water by next rain. In this way they avoid aquatic predators during the first stages of growth.

Lesueur's Tree Frog is actually a ground-dwelling tree frog. The yellow colouration indicates a male in breeding colouring.

Loveridge's Frog is restricted to the area between Nighcap Range and the Border Ranges. Its presence in the proposed dam site puts this location at the southern limit of its range. Photo: David Milledge

Several Platypus territories are known in the length of creek to be inundated by the dam. These Platypus will lose their feeding grounds as will those downstream of the dam where silt will smother the pebbly, rocky creek bed. Protect this iconic species. Photo: David Parer

There are alternatives.

Damming this gorge, destroying endangered rainforest communities and killing or displacing threatened species is irresponsible, old thinking.

Look at system-wide water efficiency and demand management.
Look at water harvesting and water re-use.

Please look to the future and 21st century solutions.

Photo: David Lowe

Native Gardenia (*Atractocarpus benthamianus*) scenting the air in the rainforest in the Gorge in September.

From:	Vivien Ruth
To:	Records
Subject:	Dunoon Dam
Date:	Tuesday, 8 September 2020 9:03:03 PM

I oppose the Dunoon Dam for the following reasons:
Lowland Rainforest areas are endangered
Rainforest growing on sandstone is a rare existence
There are Aboriginal burial sites within the proposed dam area
Rous Council has failed to analyze and cost water usage in the Rous area making it impossible to make an informed decision.
The building of the dam would be an incredibly risky venture, financially
There is no mention of the effect of Climate Change in the data or forward planning.
Building dams is a backward step when it comes to increasing water supply.
The above are a few reasons why I am opposed to the Dunoon Dam.
Please confirm the receipt of this submission.
Sincerely,
Vivi Royston

Sent from my iPad

Submission to Rous County Council on the Future Water Project 2060

Nan Nicholson, [redacted]

I am a rainforest botanist and farmer and have lived in the Northern Rivers since 1974. I am the author of *Australian Rainforest Plants I-VI,* for which my husband Hugh is the photographer. I am a co-author of the interactive identification key *Rainforest Plants of Australia – Rockhampton to Victoria*. I participated in the Rous County Council Public Reference Group from 2008 to 2013.

Since 2014 Hugh and I have lived on a small farm at the confluence of [redacted], in the [redacted]

I object to the proposal for the Dunoon Dam. My reasons are listed below.

1. Aboriginal Heritage.

I have read the 2011 Cultural Heritage Impact Assessment (CHIA) which was provided to the Public Reference Group. The evidence in the document is overwhelming that this particular valley is of major significance for the Widjabal-Wiyabal people. The cultural meaning of this place is apparent not just in the artefacts and burial sites but in the ongoing living connection that local people have with this landscape.

The CHIA makes absolutely clear that "*Aboriginal stakeholders are of the opinion that the sites should remain undisturbed and that no level of disturbance is considered acceptable, especially when concerned with impacts upon the burials, which they see serving as a direct link to the ancestors of the registered stakeholders*".

The evidence of burial sites in particular was a major factor in halting the dam last time it was proposed. This hasn't changed. "Continuing to consult with Indigenous stakeholders" is just plain insulting when it is clearly code for "We will make a show of talking to you but will go ahead with our plans regardless of your wishes".

In fact the word "stakeholder" is demeaning. It puts the Aboriginal custodians, who have been caring for this land for 1000's of years, on a par with the driver of a concrete truck on a short-term contract.

The consultation process as laid out clearly in the CHIA has not been followed by Rous and the Aboriginal custodians rightly have little faith that their participation will have any meaningful outcome. No amount of consultation will convince the custodians that this place is not significant.

It is not too much of a stretch to say that this dam is the North Coast's Rio Tinto moment. Aboriginal heritage is beyond valuing in monetary terms and must not be discarded just because it cannot be given a monetary value. The Juukan Caves were destroyed by Rio Tinto because they had no dollar value.

It is time to let the wishes of the Indigenous people prevail.

2. Ecological Value

The 2011 Dunoon Dam Terrestrial Ecology Impact Assessment (TEIA) was prepared for Rous County Council to help establish the ecological value of the site. Unfortunately the report is very substandard, with a heavy reliance on desktop analysis and insufficient onground investigation, as well as numerous inconsistencies, errors and absurdities.

For instance, I made a 2-hour flora random meander around the dam wall location in 2011 and found 53 species that were not mentioned in the assessment, including some very common species. It is likely that additional fauna species, including threatened species, would be present also.

Nevertheless, the assessment does manage to establish that there would be impacts that cannot be mitigated:

- Loss of Lowland Rainforest Endangered Ecological Community
- Loss of threatened flora species
- Loss of threatened fauna habitats
- Severance of local wildlife corridors

I will expand on these so that you know what is at stake.

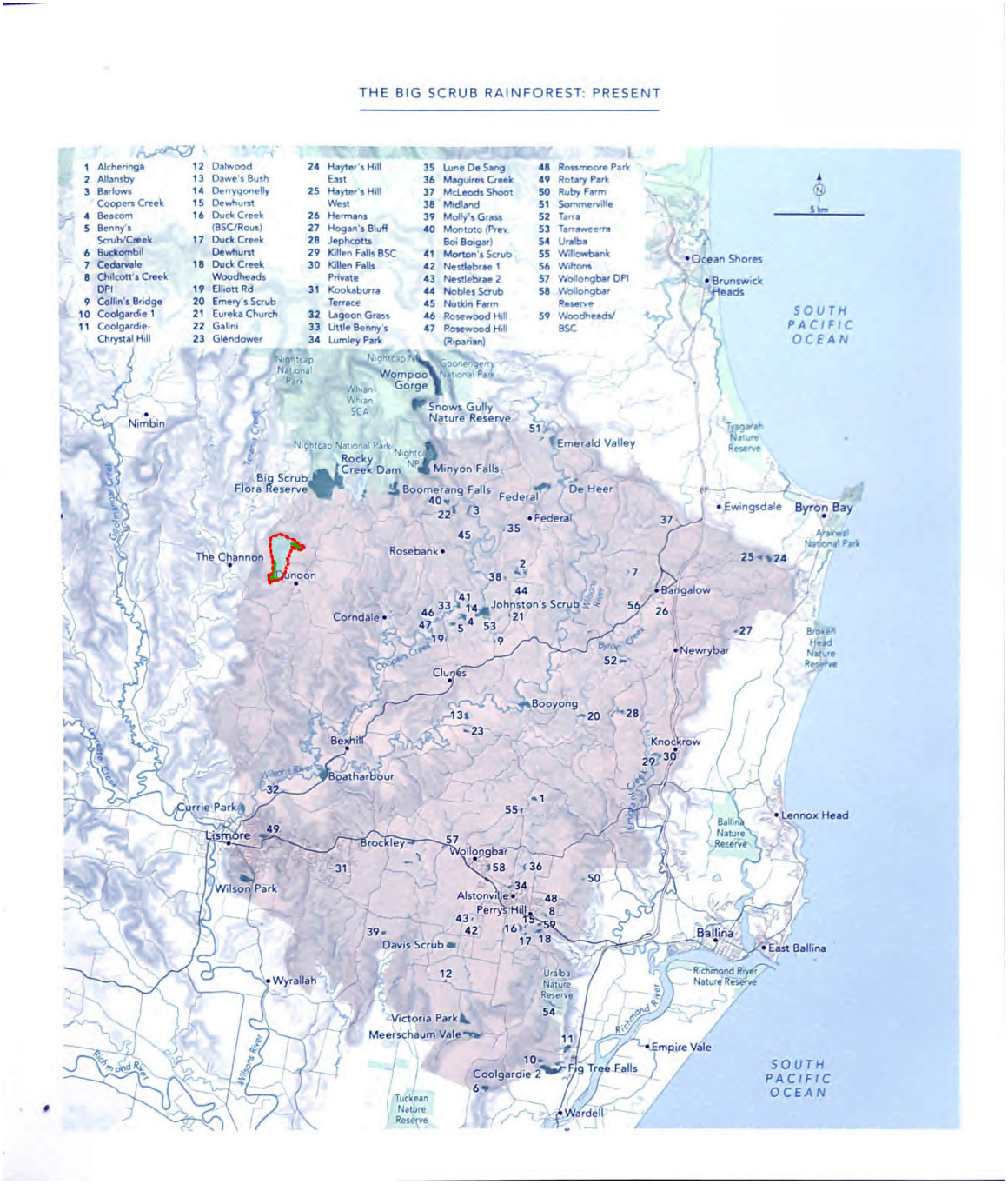
- **Loss of Lowland Rainforest Endangered Ecological Community**

According to the TEIA, there are 62 ha of Lowland Rainforest Endangered Ecological Community (EEC) on the site.

This might not sound a lot but it represents 6.6% of the remaining 940 ha of the original Big Scrub (shown below). Only 1% of the Big Scrub still remains, much of it in small, dispersed patches. The proposed dam would destroy 34 ha of the lowland rainforest on site, or 3.6% of the remaining Big Scrub. This is a very significant amount to delete from such an important regional forest.

Subtropical rainforest makes up 55 ha of that and the remaining 7 ha is warm-temperate rainforest on sandstone.

Subtropical rainforest is the most developed and most diverse of the NSW rainforest types. It is found on the most nutrient-rich soils with plenty of moisture and good drainage. This is the best soil for agriculture which is why this type has been so extensively cleared in the past.

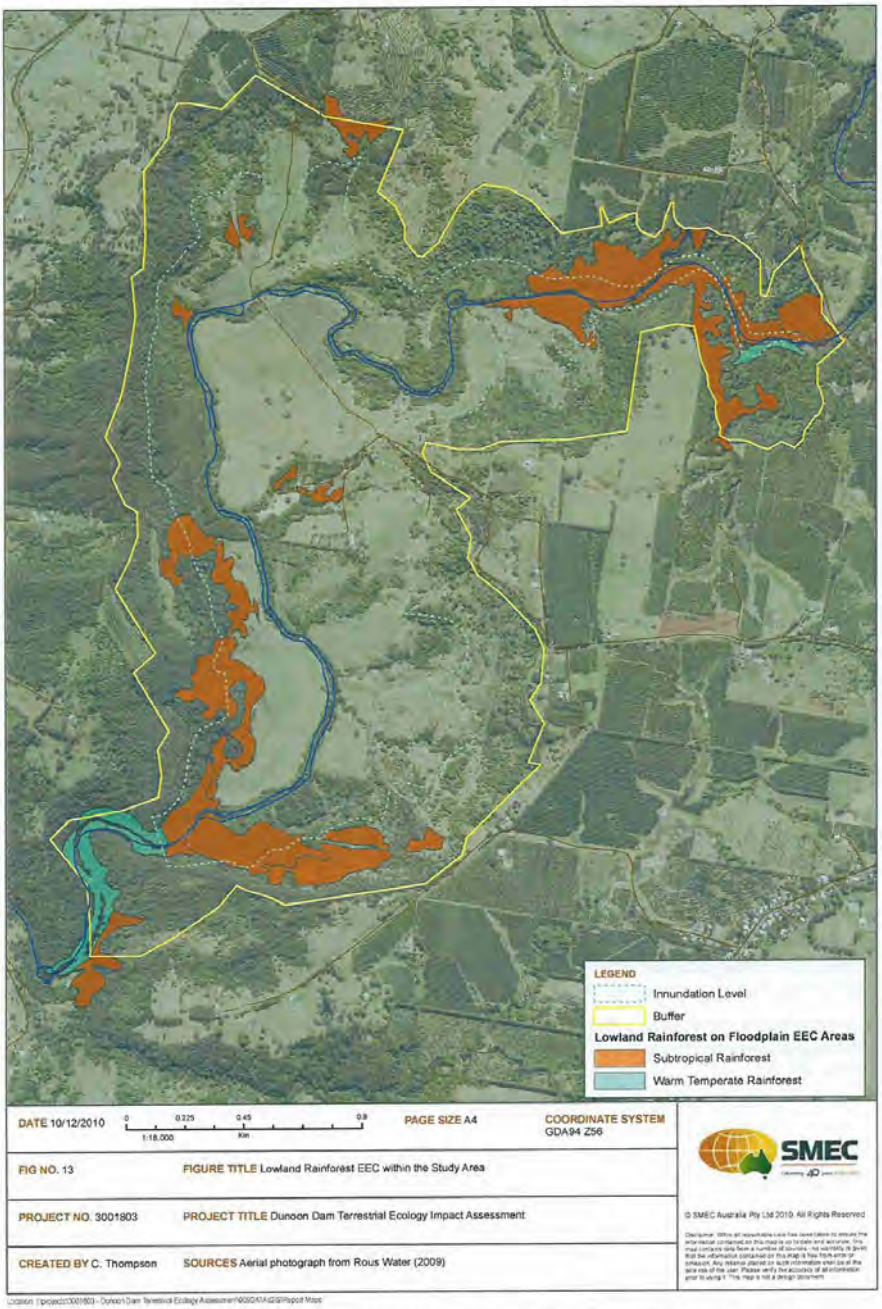


Extent of the Big Scrub Rainforest, with the proposed Dunoon Dam and its EEC imposed. The lowland rainforest at the dam site represents 6.6% of the remaining Big Scrub. From The Big Scrub Rainforest*, presented by Rous CC and Big Scrub Landcare, 2017.*

The subtropical rainforest at the site occurs in two main belts, totalling 55 ha. This can be seen in the map below. The estimate of 28 ha of this rainforest to be lost is likely to be an underestimate since none of the roading or construction footprint associated with the dam wall has been taken into account. The remaining rainforest would be fragmented and would have greatly increased edge-to-core ratios, rendering it less effective as habitat and more vulnerable to weed invasion. In addition,

the adjoining sclerophyll (eucalypt) vegetation would be reduced, fragmented and damaged, further degrading the available habitat and connectivity.

Figure 13: Lowland Rainforest on Floodplain EEC within the Study Area



Extract from the TEIA, p.82, showing the extent of the Lowland Rainforest Endangered Ecological Community. Note that the heading is incorrect – this EEC is not "on Floodplain".

The 7 ha of warm-temperate rainforest is even more precarious because 6 ha of it would be destroyed. This type is a simpler rainforest, usually with fewer species than subtropical rainforest. It occurs on poorer soils, generally on acid volcanic rocks such as rhyolite in the upper valleys of the Mt Warning caldera, eg in Terania Creek. In The Channon Gorge this type is on sandstone, an occurrence which is almost unknown in the region.

Warm-temperate rainforest usually contains signature species such as Coachwood (*Ceratopetalum apetalum*). However, in this case other species co-occur in unusual combinations that can't be fitted into any of the floristic associations that are used by ecologists to help understand rainforest. For instance, Grey Myrtle (*Backhousia myrtifolia*), one of the common plants on the site (although not mentioned in the TEIA) is commonly found on poorer soils, but in The Channon Gorge it is growing with typical subtropical rainforest species such as White Beech (*Gmelina leichhardtii*), which is usually found on richer soils.

This forest can never be recreated. Endangered Ecological Communities are regionally and state significant, not just local, and have a special legal status precisely because they are critically important. The elimination of this EEC would not just be a local loss - it would be an irreparable loss to Australia.

Destroying this EEC should be regarded as wanton vandalism of scientific resources and of our collective heritage.

- **Loss of threatened flora species**

The Northern Rivers area is a known hotspot for plant diversity. The Mt Warning caldera, on the flanks of which the dam site is located, is recognised nationally and internationally as having highly significant biodiversity. Many of the species in this area occur nowhere else in the world.

According to the TEIA, nine threatened flora species would be affected:

- *Arthraxon hispidus* Hairy Joint Grass
- *Corokia whiteana* Corokia
- *Desmodium acanthocladum (*now *Pedleya acanthoclada)* Thorny Pea
- *Endiandra muelleri* subsp*. bracteata* Green-leaved Rose Walnut
- *Hicksbeachia pinnatifolia* Red Bopplenut,
- *Macadamia tetraphylla* Rough-shelled Bush Nut
- *Marsdenia longiloba,* Slender Marsdenia
- *Ochrosia moorei* Southern Ochrosia.
- *Tinospora tinosporoides* Arrowhead Vine,

This list does not include the Big Scrub Acalypha (*Acalypha* sp. 'Big Scrub'), found within the inundation area but not noted by the TEIA. *Acalypha eremorum* is listed as Endangered in NSW but is in fact *Acalypha* sp. 'Big Scrub'. (*Rainforest Plants of Australia – Rockhampton to Victoria*, an interactive key, Harden, GJ, Nicholson, HRW, McDonald, WJF, Nicholson, NJ & Tame, T, 2014)

The occurrence of *Helmholtzia glaberrima* (Stream Lily) in The Channon Gorge is a new southern limit for the species. It appears to be the only *Helmholtzia* population ever recorded on sandstone.

Rhodomyrtus psidioides (Native Guava), which is now Critically Endangered due to Myrtle Rust infestations, has been recorded within the inundation zone but was not mentioned in the TEIA.

Loss of flora species is cumulative, relentless and ultimately terminal. When plant communities containing representatives of threatened species are destroyed the potential for those plants to re-establish elsewhere is very low. The successful recruitment of young plants depends on factors which are likely to be disrupted by disturbance, and increased distancing from other fertile adults. Pollination and fruit dispersal mostly depend on birds, bats or invertebrates, and these are likely to have been eliminated by the loss of other plants on which they depend.

Agreeing to deliberate destruction of these plants and to an increase in the threats against them is a very serious matter with international scientific consequences. It should be rejected outright.

Loss of fauna habitat

I am not a fauna specialist so I cannot comment in detail on the species affected. However, it is obvious that these forests and aquatic habitats are home to mammals, birds, reptiles, fish and invertebrates which have nowhere else to go. They cannot move elsewhere because all adjacent niches are already full. They just die.

A new report commissioned by the World Wide Fund for Nature-Australia found the 2019-20 bushfires resulted in the loss of about 71% of koala populations in fire affected areas at six locations on the north coast of New South Wales.

Local koala habitat will be destroyed by the proposed dam. At a time when koalas are predicted to become extinct within a few decades if the current threats continue, no additional threats are acceptable. This means that the way we have treated koalas in the past has to stop. All habitat loss of koalas must cease if we are to make sure that they do not disappear on our watch.

The 2012 Aquatic Ecology Assessment for the proposed Dunoon Dam states “Mobilisation of sediments via major earthworks would increase the sediment load transported downstream and result in habitat loss through smothering “ (p.61). Platypus and other aquatic animals adapted to stream habitats do not benefit from a large lake.

The TEIA states, under the heading of Key Threatening Processes: “The dam will alter the natural flow of Rocky Creek both upstream and downstream of the proposed dam wall. The resultant impact is considered (to) be long-term and irreversible” (p.117). For aquatic species irreversible change rarely means a benefit.

For the individuals of fauna species in the destruction zone the loss of their habitat of rainforest and sclerophyll forest is catastrophic. For species as a whole, extinction occurs more slowly, by a 1000 small cuts. The outcome is the same though.

Loss of connectivity

Severance of local wildlife corridors is a serious problem for animal species that require large territories. The proposed dam site contains a great diversity of habitat types on different soils, slopes and drainages, with markedly different vegetation types. Many animals do not stay in one type of forest but move between types. Destroying much of this varied forest, fragmenting the rest and installing a deep lake which blocks all terrestrial animals and most of the aquatic ones from essential movement will have an adverse effect on local animal populations.

The territories of larger animals such as koalas will be broken up and their movement corridors disrupted or cut completely. This will affect their survival even if they are not killed outright.

Smaller animals which are lucky enough not to be cleared or drowned will also be threatened by the loss of connectivity. Small isolated populations forced into inbreeding experience genetic decline and ultimately extinction.

The loss of connectivity, like the loss of species, is cumulative and ultimately disastrous. It should be considered as a major impediment to any destructive proposal such as the dam.

Mitigation

The mitigations proposed in the TEIA are band aid measures which do little to match the magnitude of the proposed destruction. They are full of vague, meaningless, qualifying phrases like “where possible”, “where appropriate”, “should be adopted” “investigate” and “avoid significant areas” (while clearing the most significant areas).

Offsets are proposed, to substitute the unique rainforest on sandstone in the Gorge with regrowing new rainforest on the slopes above the dam – a different and largely degraded forest on different soil types. Offsets do not work because there is no like-for-like available. And even if they did work, we are at such an advanced state in the downward spiral to extinction of so many species that if an area is identified as similar it should be preserved at all costs in addition to the one proposed for destruction.

One of the more laughable mitigations is that a “qualified fauna ecologist should be within the study area during all clearing work for fauna salvage”! The language betrays the attitude to living animals that will be injured or dead by the time they are “salvaged”.

There is no mitigation for something that is priceless. It is something like saying “We are sorry that this project will cause the death of your parents but we plan to mitigate your loss, where possible, and help with offsets or substitutes”.

3. Downstream Effects

One of Rous County Council's three primary functions is Flood Mitigation. This charter presumably includes all parts of the region under their stewardship.

The Dunoon dam would indeed mitigate many floods. However, the 2012 Environmental Flows Assessment (EFA), commissioned by Rous CC, makes clear that **the most extreme floods may be exacerbated in the 3 km immediately below the dam wall.**

The EFA states "Impact Zone 3 comprises Rocky Creek from the proposed dam wall to the confluence with Terania Creek (approximately 3 km). It is likely that the impacts of Dunoon Dam on downstream flows will be greatest in this zone" (p. 139).

The Executive Summary states: "The creation of the dam upstream may increase the magnitude of some floods by as much as over 2000 ML per day" (p.3). Further in the document this magnitude is more specifically defined as 3176 ML per day: "Modelling shows that the magnitude of the largest floods may also be increased, with the largest flows in the natural regime of 17,280 ML per day shifting to 20,456 ML per day with Dunoon Dam operating". (p.141). This is 22% of the entire volume of the existing Rocky Creek Dam (14,000 ML) spilling over the new wall daily.

The additional impact is explained by the surface area of water in Dunoon Dam. "When full, the dam acts to increase catchment runoff efficiency, with all rain that falls directly onto the water surface delivered directly into downstream flow when the dam is spilling. This phenomenon results in increased peak magnitude of the modelled flood events when these conditions are met."(p.141)

The EFA states that further modelling is required to test the accuracy of these predictions. In discussion with Rous I have been assured that improved modelling might effectively discount the risk, and anyway the risk is low, given the frequency of extreme flood events.

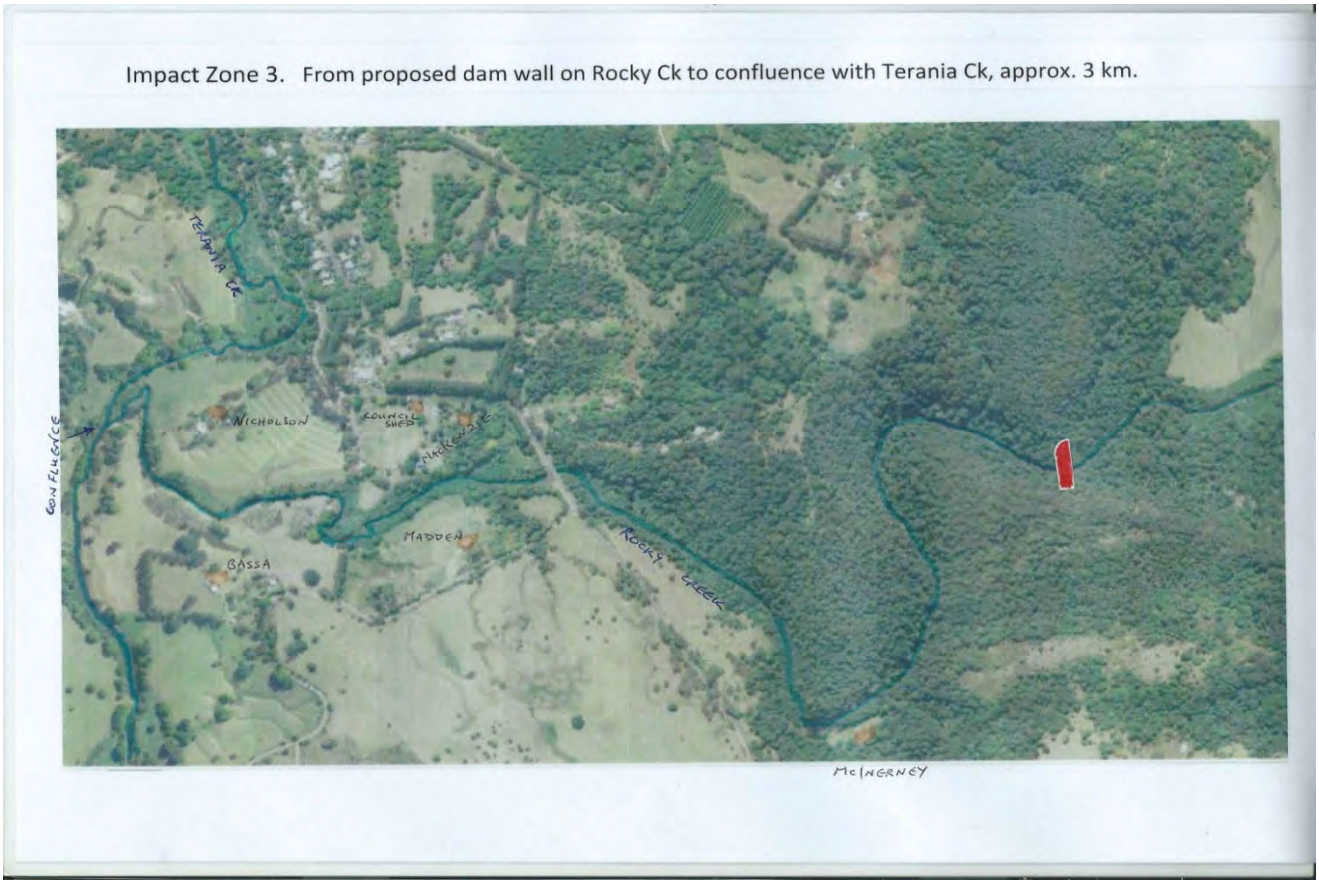
This does nothing to reassure me, especially because the principle of the increased risk from extreme floods has been corroborated by two independent flood hydrologists.

Juliette Murphy (Water Resources Engineer, CEO FloodMapp, Brisbane): *The increased water surface area (when compared to the pre-dam creek water surface) means that the runoff coefficient for the catchment area will increase (coefficient over water is 1, as 100% of rain will translate to runoff, rather than being absorbed through seepage or evapotranspiration). This will likely increase the maximum flood peak when compared to the pre-dam scenario (*pers. comm. in email*).*

Duncan Dey (Civil Engineer specialising in flood hydrology, Mullumbimby): *It makes sense (*the principle that overspilling dams worsen the largest floods*) because the water surface is impervious (and smooth) like a metal roof. But a more important factor is that rain falling on the surface in its furthest reaches is transmitted to the wall 'immediately' compared with in a natural waterway where even a flash flood takes time to traverse that same distance (*pers. comm. in email*).*

Impact Zone 3 contains five properties, shown in the map below, which could be seriously affected by an extreme flood event. One of these, at the confluence of the two creeks is our farm and campground. Four of these houses (Nicholson, McKenzie, McInerney and Madden) were only 1-2 m

above the flood level during Cyclone Debbie in 2017 and one of them (Bassa) was 3 m above flood level.



Map of the 3 km of Impact Zone 3, from the dam wall (on the right) downstream to the confluence with Terania Creek (at extreme left). Five properties and three council buildings in Zone 3 could be endangered by increased severity of extreme floods due to the dam.

During Cyclone Debbie Hugh and I left the property at dusk when the creek had risen 12 m in 10 hours and was rapidly approaching the level of the house. Another 300 mm of rain was predicted overnight. Isolated from both The Channon village and from the road out to Lismore, we stayed with neighbours uphill and hoped that our livestock would survive. We had not made extensive preparations because (a) the nearest previous flood was 4 m below the house level, (b) no-one had conceived that our property would ever be at risk, and (c) the rise in creek levels was extremely fast. We now know that unheard-of extremes can happen, as in Toowoomba in 2011 and Townsville in 2019, and we have a flood plan.

In discussion with Michael McKenzie, project manager for the dam, I was informed that Cyclone Debbie was not considered a big flood event as far as levels at Rocky Creek Dam were concerned. Nevertheless an orange alert and warnings to prepare to evacuate were issued by Rous via ABC radio with no explanation of what an Orange Alert entailed. There was no contact from Rous to us as landholders at risk. If Cyclone Debbie was not considered large I would not like to see a bigger flood, especially if it were exacerbated by an overspilling large dam.

Clearly extreme rainfall could occur, particularly because the headwaters of the Terania Creek and Rocky Creek are in one of the highest rainfall areas of the state. Rous has conducted modelling of possible high rainfall events but has not factored in the increased risk of extreme rainfall due to climate change. This is despite apparently preparing modelling on the effect of climate change on the reduction in overall rainfall. The modelling of the Probable Maximum Flood (PMF) does not appear to have taken into account the fact that the PMFs are predicted to increase in height and frequency with climate change.

The householders in the Impact Zone of most risk have never been warned or even informed of the increased risk to them if the Dunoon Dam were built.

And there is another risk: dam failure. This is a rare event but it is known that roller compacted concrete dams are more liable to fail than earth embankments. This could occur in a flood event or in a so-called "sunny day failure". If this occurred without warning when our campground was full of people, or when The Channon Market was on, with 100's of people present, the loss of life would be catastrophic.

To quote Juliette Murphy again: *Any dam has a risk of potential dam failure, which has an associated risk of injury and loss of life to people living downstream. They (*Rous*) must undertake a Dam break assessment to determine the annual risk of failure (Fn) Population at Risk (PAR) or Number of people (N) and potential risk to Loss of Life.*

Consequence creep should also be taken into account - this is the concept that as the population grows downstream of the dam, the number of people at risk will increase.

Presumably in extreme events the people living in Impact Zone 4, in the Keerrong valley, would also be at additional risk, though not as severe as in Impact Zone 3.

Both of the hydrologists consulted affirmed that they would not live where we do, if the dam were built.

Dams can mitigate flooding when they are not full. In extreme events they are already full and cannot mitigate – they worsen the flooding.

4. Alternatives

I do not propose to canvass in detail the alternative courses of action to the Dunoon Dam. It is not the job of the public to tell Rous how to do use water efficiently – it is up to the public to tell Rous whether the dam is acceptable or not.

However, alternatives to a dam fortunately do exist and I would direct you to Professor Stuart White's paper "*The Rous Sustainable Water Program: Towards a secure, reliable and affordable water future*", which has been provided to councillors. He is an eminent water supply expert and he provides a realistic, cost-effective and timely method of avoiding (b) the destructive impact of building a dam and (b) the financial risk of committing a large amount of money to a project which might become a stranded asset.

The Dunoon Dam has been proposed by Rous as the cheapest option to securing water supply. This is clearly no longer true. The obvious course of action is to put the dam on hold while system-wide water-saving measures are fully investigated and costed.

From:	nettie silver
To:	Records
Subject:	Future water project 2060 Letter of concern and opposition to building of this dam
Date:	Tuesday, 8 September 2020 9:27:55 PM

My name is Jeanette Silver and I live [redacted], I have lived in this area
for 40 years, most recently for 6 years at [redacted]
I live on tank water, and have increased my tanks to manage my own use.

I am writing to convey to you my concern with the building of the proposed Channon/Dunoon Dam within the Future Water Project 2060.

I am registering my objection to this proposal.

The reasons I am objecting are:

Destruction of the Channon Gorge and its Endangered Ecological Community of Lowland Rainforest.

I have had long conversations with local botanist Nan Nicholson whom I have known for 40 years
our children grew up together, playing in these local rainforests, and I trust her knowledge and her deep concern for the destruction of this area, it is irreplaceable.
I also do not have trust in the process that Rous is offering for regeneration

Industrial Construction Zone

I am concerned on a very personal level as my home is very close to the construction site. I am also concerned for my neighbours who homes are in even closer proximity, as their
lives will be severely impacted by noise, pollution and risk of flooding.

Destruction of important indigenous Cultural Heritage

This of course is for the local indigenous community to comment on. I have worked for 10 years
in remote indigenous communities and I will stand by what they need to protect their Heritage in this area.

I would like to support alternatives that include:

Purified Recycled Water

Investment in system-wide efficiency: as used by Sydney Water.

Water Tanks, compulsory for all new and existing residences

Management of Growth and building approvals, especially coastal.

Let us not underestimate how much of this proposed dam water is to supply new development
in Byron Bay, Lennox Head and Ballina. Nothing to do with the area that will be impacted the
most by the building of this dam.

Concerning Groundwater:

I have read Keith Williams article in the echo, and I totally agree that we should not increase
the use of existing groundwater. I also see the potential for major environmental impact if this is
to be used as an alternative.

I have long been concerned with the number of bores that are being approved in this area, and
Water New South Wale's management of these bores is very poor.

Please consider my concerns

Jeanette Silver [redacted]

From: Mersh Blipblap
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 9:33:52 PM

Toby Gray, Annabella Kelly and Clancy Gray
[redacted]

Tuesday September 8, 2020

Dear Rous Councillors and General,

I've lived on the Northern Rivers for sequential periods dating back to 96, when I first started University at SCU.
What struck me was the astounding amount of biodiversity in the region, from the stunning rainforests of the Nightcap, to the lowland heaths and wetlands on the coast. This area is a biodiversity hotspot, so much range in such a small area.
As I reside with my family downstream from the proposed dam, [redacted], I feel it a necessity to voice my objection on behalf of me, my family and community in general. I feel in a worse case scenario this dam presents itself as a risk if we were subject to higher than average rainfall, which may produce catastrophic flooding.

I also believe the proposed dam is a threat to endangered local native flora and fauna, more specifically regionally rare warm temperate rainforest on sandstone.

Please consider more sustainable options such as recycled potable water, rainwater tanks and environmentally safe groundwater.

Thankyou for extending the submission date, and we also thankyou for your tireless work serving the Northern Rivers.

Regards,

Toby Gray, Bella Kelly and Clancy Gray.

From: robi carr
To: Records
Subject: The proposed Channon/Dunoon dam
Date: Tuesday, 8 September 2020 9:34:41 PM

Sender,
Mr Robert Carr
[redacted]
8th September, 2020

Re: The Proposed Channon/Dunoon Dam within The Future Water Project 2060

Dear Rous Councillors and Managers

Firstly,thank you for supporting the extension of the submission date.
We,the community appreciate it.
I/We also acknowledge the complexity of what Rous Water does
to provide water for our region.

However

I do not support the Channon/Dunoon Dam,

for many reasons including:-

• The destruction of important indigenous cultural heritage, including burial sites.
• The destruction of The Channon Gorge with its endangered ecological community of lowland rainforest and its threatened flora and fauna species.
•The Industrial/construction zone for The Channon and Dunnon community;
the noise of trucks and machinery and ongoing noise impact from the pump house etc.
and last but not least the visual impact!
• Catastrophic flooding downstream in worst floods
(Environmental Flows Assessment 2011)!

Please seek an alternative to this dam proposal which would impact so destructively upon this much loved and unique environment.

For example

• Rainwater harvesting with urban runoff water tanks on all new and existing developments. This builds community resilience, much needed as the recent extreme bushffire season has shown.

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

• Desalination Plant used to convert sea water to drinking water with possible solar option Particularly if water harvesting is required for our costal developments!!!

Please consider the above and other options you may have,
in order to,
allow the preservation of The Channon and Dunoon natural environment to continue into the future

Thank you for your attention

Mr Robert Carr
[redacted]

Sent from Yahoo Mail for iPad

From: [redacted]
To: [redacted]

Subject: Future Water Projects 2060 Submission- Leandra Martiniello [redacted]
Date: Tuesday, 8 September 2020 9:36:42 PM

To the Councillors at Rous County Council,

[redacted]

I am writing to you today to submit my formal submission in response to the Future water Projects 2060, specifically the Dunoon Dam. I am a Dunoon local, Indigenous woman and environmental scientist. I strongly oppose the dam for the following reasons:

The proposed site contains Widjabal/Wyabal Sacred sites and a burial ground which is an integral part of their living, evolving culture (Cultural Heritage Assessment, 2011). There is no offset which can make up for this. If Rous County Council holds true to their reconciliation action plan then there is no way this dam could go ahead as it would be the erasure and continuing cultural genocide of Indigenous people. And Rous County Council would be explicitly carrying this out.

I oppose the destruction of the rare sandstone warm temperate rainforest in The Channon gorge and the destruction of the nine flora and 17 fauna species that are listed as threatened (Dunoon Terrestrial Impact Assessment, 2011). The concept that an acceptable offset for destroying critical Koala habitat patch pathways is to have an ecologist relocate the animal is completely deluded, especially given the recently published Inquiry into Koala Populations after the severe bushfires and high mortality rate of relocated koalas. I recommend that Rous is very mindful of this and it's position in the community, and what we in the Northern Rivers stand for and that in the eye of the public the destruction of iconic wildlife such koalas and platypus will be unforgivable. In the biodiversity crisis/ face of ecological collapse we must protect remnant (<1%) virgin Big Scrub rainforests such as this, as systems with higher diversity are more resilient- we are a part of his ecosystem too.

As a Dunoon local I do not want my small village to turn into an industrial construction site with heavy machinery and trucks placing furthers pressure (and costs to maintenance) of the already degraded roads in the area. The residents of my community who I know do not want to be forced into compulsory acquisition, they want to live in their homes with their family where they are deeply connected to the place. nor do the community members who at the base of the dam wall will likely experience worse flooding in major flood events. No amount of goodwill on behalf of Rous could make up for this lack of community care. Nor do I want to see the likely water price increase that will accompany the dam. And the DDT and Arsenic residues that have been identified in the flood site which will put our community's health at risk.

Instead of the dam there are more sophisticated, cheaper solutions that have far less social, cultural and environmental impacts. I fully support the proposal generously put forward by Professor Stuart White in system wide water efficiency audits, along with better incentives with rain tanks compulsory for new and existing developments, and at treated recycled

water. As we increasingly experience the multitude of effects from Climate Change this kind of innovative infrastructure will be completely necessary inevitably. So why would we make poor choices for short term power gain (assuming Rous will be able to charge LGA's up to 4x the water cost which would trickle down to local rate payers) that will be completely outdated in a different climate we will be living in 60-80 years from now.

This Country here is a special place, you all know this because you live here too. It's a healing place and we are a part of the story of this place now. This means we have certain responsibilities to protect and respect this place, because we the people are a part of it.

I am looking forward to your investigation into Professor Stuart White's superior cost-analysis water efficiency proposal, and to hearing from you. Please don't hesitate to contact me if you have any questions, I would really like to sit down and talk with you human to human.

Respect for country, respect for each other

Léandra Martiniello

From:	simon winfield
To:	Records
Subject:	Future Water Project 2060 - submission
Date:	Wednesday, 9 September 2020 3:14:35 PM
Attachments:	kyogle post office rainfall source bom.png richmond river at wiangaree source bom.png

Rous Water

Dear Rous,

I am commenting on your Future Water Project 2020.
I have reviewed all of the key documents.
I object to the proposal.
I object to the proposal because you have provided no evidence or any research on the health of the water cycle at the top of the catchment, or where the rain falls.

I have read your proposals and evaluations of different models of supply to meet the growth in demand.

What was missing, or I was unable to find, were any details on the rainfall modelling relating to the long term effects of climate change, or streamflow modelling.

If I look at rainfall over almost 100 years, it doesn't appear to have changed in volume terms (see attached screenshot kyogle post office)

If I look at streamflow, there appears to be a declining trend (see attached Richmond River at Wiangaree)

To me this indicates that between the rain landing on the ground, and water appearing in the stream, we are losing a certain percentage, probably to evaporation taking place due to inefficient infiltration of rainfall into the soil. I believe that the likely cause of this is due to poor management by landholders.

Farms like Jillamatong near Braidwood have shown that they can effectively hold large volumes of water in the soil profile over a prolonged period, making that water available to the town of Braidwood during drought, or to fight recent fires.

The Mulloon Institute and neighbouring landholders are working with Sydney Water using Natural Sequence Farming to improve the management of the Shoalhaven catchment, and provide a more consistent flow of clean filtered water throughout the year, reducing the need the need for construction and expansion of water storage.

I would like to see Rous Council conducting a longitudinal evaluation of the benefits of

using Natural Sequence Farming, and Holistic Management, in two side by side neighbouring catchments with similar soil type, land use, and gradient.

Benefits of improving land management within the catchment include:

- greater productivity for farmers (Jillamatong have 5x the stocking level compared with set stocked neighbours)
- improved drought resilience for towns and farms (drinking water and forage availability)
- improved biodiversity
- long term carbon sink into the soils
- reduced cost of capital/debt for farms
- improved social wellbeing, and local employment
- reduced flood risk for towns and villages in the Richmond/Wilson catchment
- increase in availability of clean filtered water
- decreased cost of cleaning water holding sediment and contaminants from over ground run off

I recommend that you meet with Brian Wehlburg, Grazier and Holistic Management Educator, and with Peter or Stuart Andrews, Natural Sequence Farming practitioners. I highly recommend that you visit with The Mulloon Institute, and with Martin Royds at Jillamatong, both near Braidwood.

Please call me with any questions.
Warm Regards, Simon Winfield
[redacted]

"After 15 years, they're up to 15% organic matter from about 1% to begin with, and the water infiltration rates continues to go up, from less than a half inch an hour to over ten inches an hour" - Rodale Institute "Cattle are Part of the Solution" August 28 2020

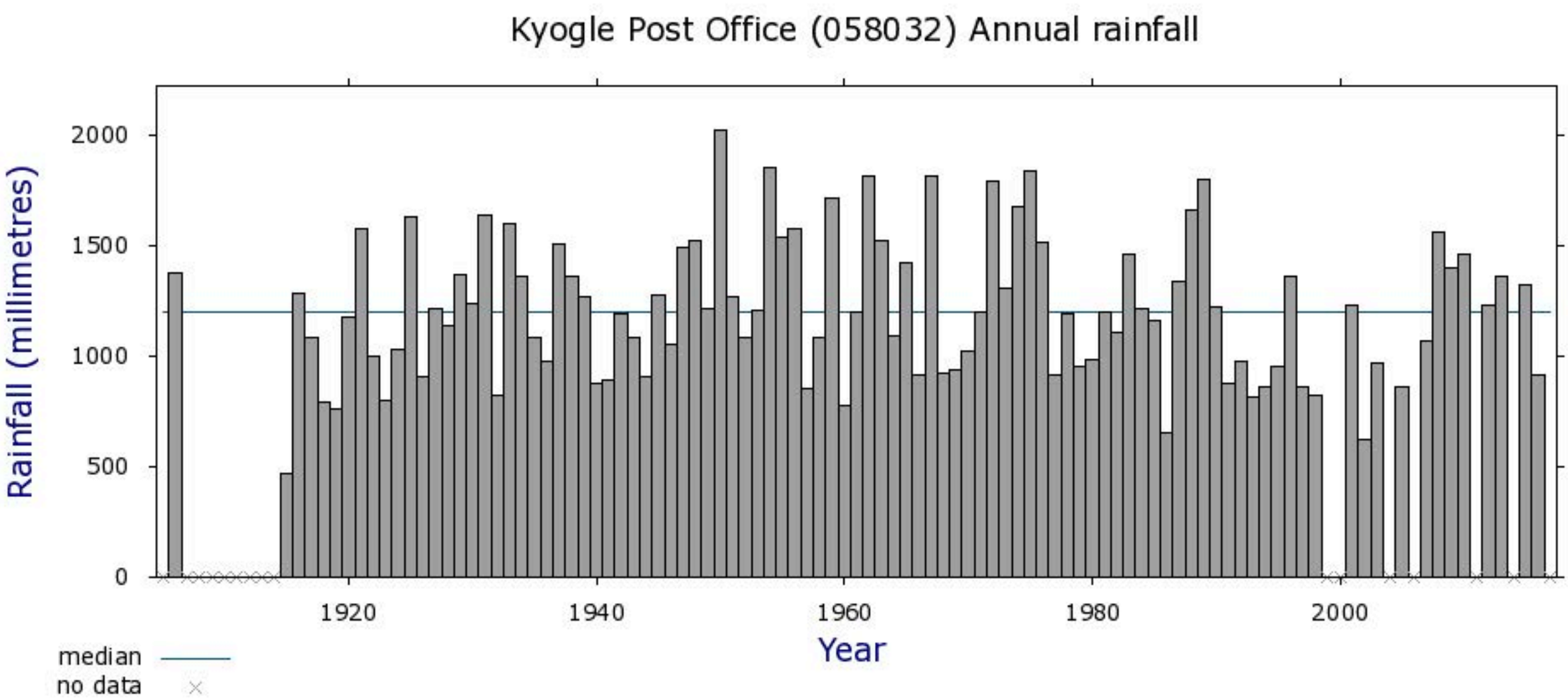
Station: Kyogle Post Office

Number: 58032 **Opened:** 1905 **Now:** Open

Lat: 28.62° S **Lon:** 153.00° E **Elevation:** 80 m

Details

January | February | March | April | May | June | July | August | September | October | November | December | Annual



RICHMOND RIVER AT WIANGAREE

Station number	203005
Latitude	-28.51
Longitude	152.97
Data owner	NSW - NSW Department of Industry – Lands and Water

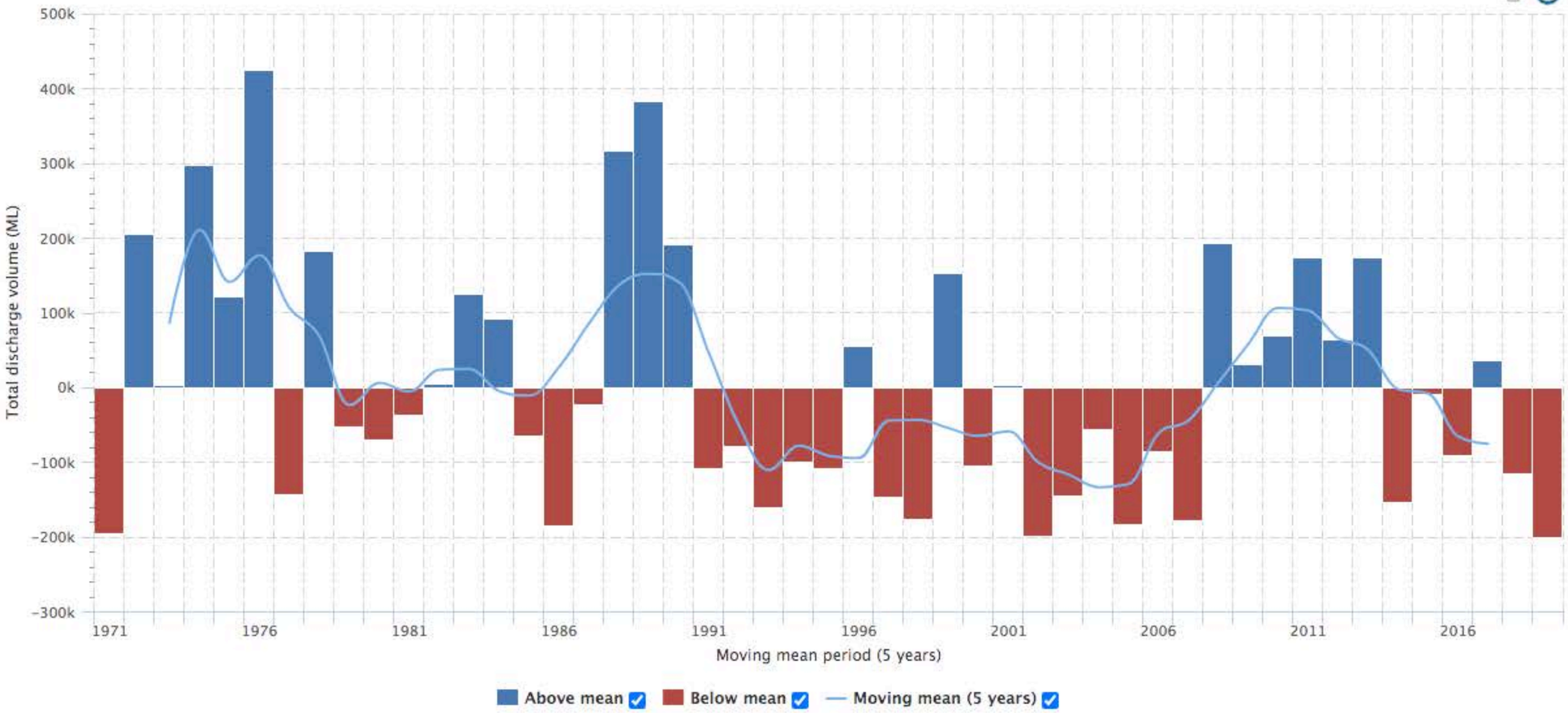
Watercourse discharge

- Time series explorer
- Period of record summary
- Quality and gap summary
- Daily data summary
- Monthly data summary
- Yearly data summary
- Monthly mean statistical analysis
- Yearly statistical analysis
- Ratings and gaugings
- Duration curve
- Flood frequency analysis
- Difference from mean analysis

Watercourse level

Data download

Difference from mean analysis



From: lyn pressman
To: Records
Cc: [redacted]
Subject: Proposed Dunoon Dam
Date: Tuesday, 8 September 2020 9:43:12 PM

To The General Manager & Councillors Rous County Council

I am writing to let you know of my disapproval to the proposed new dam.

The complete destruction of The Channon Gorge which contains the unique last remnants of a temperate rainforest on sandstone and it's threatened species of fauna will be flooded and lost to us forever.

Estimated population growth of 12,720 between 2020-2060 is not reason enough to build this expensive mega dam. Surely there are other ways to identify water saving within the existing supply for this amount of people. Water tanks, fixing leakages, potable water produced from treatment works could supply the coastal areas (already a successful method in some other countries), desalination and recycling ground water.

The cost of water will increase in order to pay for this expensive dam building. We, the rate payers will bear the brunt of this costly operation.

Our villages, [redacted] will turn into industrial landscapes with roads and trucks wrecking our rural lifestyles and polluting our environment with dust, oil and petrol fumes.

Please consider implementing an area wide audit of water usage and wastage before considering the building of this dam. There are more sustainable answers before embarking on this destructive pathway.

I sincerely hope that you will take into consideration some of the issues I have raised.

Kind regards
Lyn Pressman
[redacted].

From: Kurt Petersen
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 9:46:47 PM

Kurt Petersen
[redacted]

8th September 2020
Rous County Council
Lismore NSW 2480
council@rous.nsw.gov.au

Dear Rous Councillors and General Manager

Thank you for the opportunity to make a submission re: the proposed Dunnon Dam.

I have lived [redacted] for the past 7 years, and my extended family have resided in this region for over 20 years. In this time we have enjoyed the varied wildlife, waterways and rainforest of the are. We have done our own part to add to the ecology of the area by rehabilitating our property which was a cow paddock with native species in order to provide habitat and add to the reforestation of land that was once "Big Scrub". I wish to join my voice with others in opposing the proposed Dunoon Dam.

In the time that I have lived here, my family have lived with water efficient means to use only collected rainwater at our property. In the last seven years, the only time we have had to buy potable water was during the severe drought of 2019. I believe that if residents are not wasteful with their water, there is no need to inundate farmland and unique rainforest habitat to secure water supply for the region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an
additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW
Government)
(1)

● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one
big expensive 'white dinosaur' project.
● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
● Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
(2)
. Ongoing disregard for First Nations' heritage.

● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its
threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)
(3)
.
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy
to biodiversity, including areas of high environmental value." NSW Department of Planning,
Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <

https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t
he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(4)

Rous is required to avoid this destruction because there are economically viable and more effective solutions.
● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks,
visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● The small population increase predicted for the four Rous-supplied councils of 12,720
(5)
between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and
effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020,
<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti
ons> scroll down to "Local Government Factsheets".
(5)

● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)
(6)

● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet
our water needs too. This is 21st century thinking.

● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within
the existing supply.
(7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of
water use is possible and economical. In comparison, the proposed dam is simply financially,

environmentally and socially irresponsible.
(9)
(Stuart White, 2020

www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as
set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn
from global experience?
https://www.waterra.com.au/publications/document-search/?download=1806
(9)

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled
water for 30 years using advanced technology. https://www.wingoc.com.na/our-history
(10)

● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.

(11) This builds community resilience -

much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water
use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

(12) https://www.yourhome.gov.au/water/rainwater

● Contingency planning would enable Rous to be ready to rapidly implement supply measures
if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe

The Australian government provides a lot of information on the ecological impacts and groundwater usage.
(13)

https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground
water-drawdown
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made
resilient to anticipated times of drought and projected population growth, without the environmental
destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Yours Sincerely,

Kurt Petersen

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03
August 2020 <
https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >
, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney,
viewed 03 August 2020,
<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
Scroll down to "Local Government Factsheets".
(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand
Management Strategy : preferred options, Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for
Hunter Water, Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global
experience?, Water Research Australia Limited, Adelaide.
(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment,
Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater
tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and
much increased community resilience for future climate risks. This more than covers the 0.9GL extra
water needed by the 12,720 new people predicted to come to our area based on 194L/person/day
average water use (Rous).
(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your
home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of
groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6
August 2020,
<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr

From:	Wendy Royston
To:	Records
Subject:	Re: Proposed Dunoon Dam Submission
Date:	Wednesday, 9 September 2020 3:14:10 PM

Dear Rous Councillors and General Manager
I hearwith object to the proposed Dunoon dam on the following grounds:

1. I understand that there are local indigenous burial sites in the area that will be flooded. It is unacceptable to once again ignore the cultural significance of these type of sites for our First Nation people.

2. Part of the area to be flooded goes along Rocky Creek. The creek itself has platypus and other aquatic species living in it that would be flooded out of their homes and doubtless perish.

3. I understand that the area to be flooded, in part, is a koala corridor. Koalas are extremely threatened at the moment in Northern New South Wales and are likely to face extinction. We must do all in our power to preserve them and their habitat.

4. One end of the creek area to be flooded has sandstone rocks and cliffs with rainforest growing on it. This is very rare and must be preserved. The other end of the creek has beautiful basalt rock with natural pools and waterfalls, providing homes to many endemic species. We must preserve these habitats into the future in their own right and also for future generations.

I believe that it is possible to provide an increased water supply through being efficient in all water systems. An Audit can be done to establish any leaks, which can be repaired thus saving a large amount of water, lowering the demand and providing jobs for local people. I understand that this was done in Sydney where an increase of 950,000 people did not require a new dam to be built.

There can be increased requirements for householders - especially in newly built homes to have rainwater tanks.

Recycled water can be used for non-potable purposes.

Rather than going ahead with the next stage of planning for this unnecessary dam And prohibitively expensive dam, please explore other avenues, including consulting with Professor Stuart White who has provided expert advice to both Sydney Water Board and many other water organisations in the world.

Finally, I believe that dams are old technology. Just as we are seeing more and more the need to move away from fossil fuel use and look at alternative energy systems, at the same time we need to look at alternative ways to provide water for our needs.

Thank you for reading my submission.

Yours sincerely
Wendy Royston

From: Jarrah
To: Records
Subject: Dam submission
Date: Tuesday, 8 September 2020 9:49:02 PM

CYBER SECURITY WARNING ? This message is from an external sender ? be cautious, particularly with hyperlinks and/or attachments.

Hello,

My name is Jarrah Coates.
[redacted].

I am writing regarding The Channon/Dunoon dam proposal.

I object to the proposal for a second dam site on Rocky Creek.

My reasons include :

- Risk of down stream flooding in severe rain deluge for down stream areas including Lismore.

- Loss/destruction of indigenous cultural artefacts & significant sites.

- Loss of habitat for native fauna.

- Providing infrastructure to support significant future population increases in the local area (yes, a negative)

On a very personal note. I grew up on this property. My family home is situated in [redacted].
I have fond memories of bush walking down through the forrest and up the creek.
Being mesmerised by the tranquil, serene beauty.
Walking along the boulders.
I would see huge eels, bass & crayfish in the creek.
Culturally significant to me, my family. A very special place I may never get the chance to share with my two young daughters.

Kind Regards,

Jarrah Coates

Sent from my iPhone

From: Kristin den Exter
To: [redacted]
Subject: Submission - Objection to the proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:13:25 PM
Attachments: WRLG - Dam Submission 0902020.pdf

Dear General Manager, Chair and Councillors,

Re: The proposed Dunoon Dam within the Future Water Project 2060

Thank you for the opportunity to provide a submission to the **proposed Dunoon Dam within the Future Water Project 2060.** As Rous knows well, the North Coast of NSW is an area of extremely high biodiversity. Where we now see a diversity of weed species, lowland subtropical rainforest once grew all along the banks of the Wilsons River and its tributaries. The rivers being the first point of access, in the mid to late 1800's these riparian forests were the first to fall to the needs of new settlers for red gold (red cedar) and other timbers, and for subsistence agriculture.

Prior to European settlement the Big Scrub was the largest tract of lowland subtropical rainforest in Australia. This rainforest has since been reduced to less than 1% of its former range. As a result the NSW Scientific Committee recently determined that lowland rainforest on floodplain in the NSW North Coast Bio-region is an endangered ecological community. Large-scale reforestation is needed to offset ecological degradation in such extensively-cleared subtropical landscapes.

The Wilsons River Landcare Group Inc. (WRLG) formed in 1990 making it one of the oldest Landcare groups in NSW. The Wilsons River Landcare Group has undertaken work both on private lands downstream and upstream of Lismore and on the riverbank in Lismore itself. WRLG, with a current membership of 100 volunteers, now concentrates its efforts on urban riverbank regeneration, re-vegetation and stabilisation with the support of many other community groups and organisations.

The Wilsons River Landcare Group would like to acknowledge Rous Water's long standing support for catchment health, ecological restoration and water quality in the Wilsons River Catchment – Rous are considered regional leaders in this area. It is with this in mind that the Wilsons River Landcare Group write to inform you of our objections to the proposed Dunoon Dam as a future water supply option.

We do not support the proposed The Channon-Dunoon Dam for the following reasons:

Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)*(2)*. We stand with the local Aboriginal community – Widjabal Wiyabal land was never ceded – this land is their land and this dam simply on these grounds should not be considered a viable future option for water supply.

Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. There are likely to be three species of frog that are present on the site that are listed by the Commonwealth as Endangered. Only one of these was detected by the consultant who had no experience with the target species. Some may think that dams are going to be good for frogs but this is far from the case, as these species require rainforest / wet forest stream habitat. Cane toads on the other hand, love dams. There are many other threatened species that they acknowledge require further targeted surveys.

The dam would encourage continued inefficient and often wasteful water management for the Northern Rivers region. There is uncertainty about viability of the hydrology of the proposed dams and current groundwater extractions more broadly. There is a need for a systems analysis of all options which incorporated inclusive stakeholder engagement at key steps in the process.

There is no economic rationale for the construction of this dam. The small population increase predicted for the four Rous-supplied councils does not justify the construction of this dam, risking the diversion of expenditure away from more sustainable, flexible and effective solutions.

We support alternatives to dams including investment in system-wide water efficiency and strong demand management including water re-use in various ways, including Purified Recycled Potable water; water harvesting (urban runoff; rain tanks) and water tanks on all new (and existing) developments.

We are committed to working in partnership with Rous as a stakeholder to find better solutions for future water supply than the proposed Dunoon Dam.

Yours sincerely,

Kristin den Exter
Secretary, Wilsons River Landcare Group Inc.
[redacted]

WILSONS RIVER LANDCARE

We respectfully acknowledge the Traditional Owners of the land on which we work and learn and pay respect to the First Nations Peoples and their elders, past, present and future.

Please consider the environment before printing this email

The Wilsons River Landcare Inc.

C/-2 Balmer Ave Lismore NSW 2480

Wednesday, 9 September 2020

To the General Manager, Chair and Councillors Rous County Council

Re: The proposed Dunoon Dam within the Future Water Project 2060

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Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. There are likely to be three species of frog that are present on the site that are listed by the Commonwealth as Endangered. Only one of these was detected by the consultant who had no experience with the target species. Some may think that dams are going to be good for frogs but this is far from the case, as these species require rainforest / wet forest stream habitat. Cane toads on the

other hand, love dams. There are many other threatened species that they acknowledge require further targeted surveys.

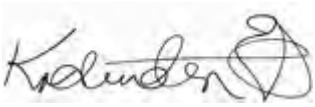
The dam would encourage continued inefficient and often wasteful water management for the Northern Rivers region. There is uncertainty about viability of the hydrology of the proposed dams and current groundwater extractions more broadly. There is a need for a systems analysis of all options which incorporated inclusive stakeholder engagement at key steps in the process.

There is no economic rationale for the construction of this dam. The small population increase predicted for the four Rous-supplied councils does not justify the construction of this dam, risking the diversion of expenditure away from more sustainable, flexible and effective solutions.

We support alternatives to dams including investment in system-wide water efficiency and strong demand management including water re-use in various ways, including Purified Recycled Potable water; water harvesting (urban runoff; rain tanks) and water tanks on all new (and existing) developments.

We are committed to working in partnership with Rous as a stakeholder to find better solutions for future water supply than the proposed Dunoon Dam.

Yours sincerely



Kristin den Exter PhD

Secretary

From: K-A Gifford
To: Records
Subject: Opposition to the building of the dam near The Channon
Date: Wednesday, 9 September 2020 3:13:11 PM

CYBER SECURITY WARNING ? This message is from an external sender ? be cautious, particularly with hyperlinks and/or attachments.

To whom it may concern,

I would like to add my name to list of the
growing opposition of people who wish to save the rare temperate climate rainforest and koala habitat that would be drowned by the building of a dam in the Rocky Creek area and The Channon gorge.
I have a plan to retire at [redacted] in the not too distant future and am alarmed by the news that your council is considering this project when there are appropriate alternatives of water saving and collection models which would not damage the environment as much as the dam would.
Thank you,
Kerri-Anne Gifford
Sent from my iPhone

From: Adar Shapira
To: [redacted]
Subject: objection - The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:10:51 PM

Adar Shapira
[redacted]

Dear Rous Councillors and General Manager
firstly Thank you for supporting the extension of the submission date. We also acknowledge the complexity of what Rous does to provide water to our region.

As a local resident of the nearby area I would like to state my objection to the Dunoon Dam project. The area is one of most special spots in the state and it would be a shame to go ahead with the proposed plan.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

• **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) *(1)*

• **The dam would encourage continued inefficient and often wasteful water management by local governments.** They would have no incentive to do things differently.

• **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011)*(2)*. Ongoing disregard for First Nations' heritage.

• **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest** (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)*(3)*.

I support the following options:

I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the

tide to turn on how we meet our water needs too. This is 21st century thinking.

● **Water harvesting** (urban runoff; rain tanks): Water tanks on all new (and existing) developments.[11] *This builds community resilience - much needed, as the recent extreme bushfire season has shown.*

The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.” Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.[12] https://www.yourhome.gov.au/water/rainwater

● **Water re-use in various ways,** including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia’s report, Potable Water Reuse: What can Australia learn from global experience?

https://www.waterra.com.au/publications/document-search/?download=1806[9] Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history[10]

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

Thank you for your attention and hard work

Best regards

Adar Shpira

From:	Alan Roberts
To:	Records
Subject:	Submission from Alan Roberts on Future water project 2060
Date:	Wednesday, 9 September 2020 3:00:11 PM
Attachments:	NarrabriSub2AlanRoberts.pdf

Dear Rous County Councillors,

I am objecting to the proposal to build a the Dunoon Channon dam to store water for the region because:

- The Earth is at a critical point where control of the Anthropogenic climate needs all the forest we currently have and considerably more. I will attach my Narrabri no gasfield submission so that you can evaluate the dire situation we are now in, with particular reference to page 8 onwards. We cannot flood any more carbon sequestering areas and still manage the Earth's climate.
- We have reached a stage in the Earth-human trajectory where people must become responsible stewards of the planet - this includes living within ones means in relation to water. See for example:

  www.bit.ly/Prof-Stuart-White-Rous-slides
- Nor can we afford further biodiversity and Aboriginal heritage loss as this proposed dam would incur.

Yours Sincerely

Alan Roberts

[redacted]

[redacted]

Submission Opposing the Narrabri Coal Seam Gas project

by Alan Roberts (MSc Solid State Physics)
[redacted]
9/8/2020

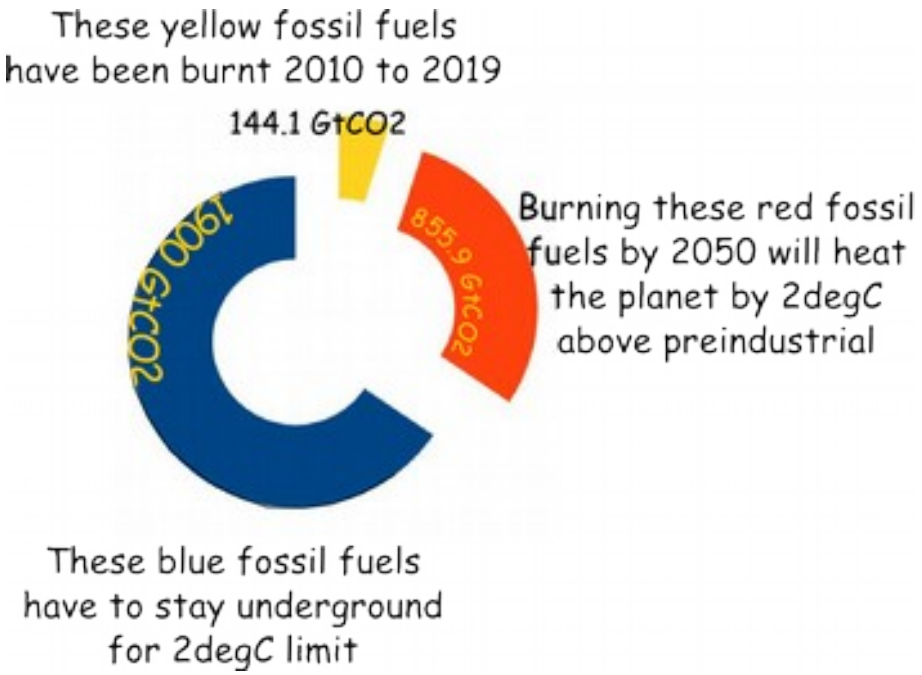
To limit global warming to 2degC above pre-industrial, I will show that the Narrabri coal seam gas has to stay Underground.

In 2010 there was 3 times more economically mineable fossil carbon underground than could be burnt for a 50/50 chance of keeping global warming to 2degC. These were proven and probable (2P) reserves.
Since humans cannot extract it all as well as keeping Earth below 2degC of warming, then what quantities and where in the world is the oil, gas and coal we can extract for "well under" 2degC of warming?
As an analogy we could simplify the problem by taking one resource, say mangoes which could not all be harvested before a cyclone hit, so you would work out how to get the best and easiest in the time available. Then extend the same problem to 3 crops say mangoes, litchis and bananas.
In the case of too much underground fossil carbon for the atmosphere the problem becomes how do we get the most usable energy for the least fossil carbon exhausted to the atmosphere?

The answer is in a letter to Nature in Jan 2015 by Christophe McGlade[1] & Paul Ekins called:

"The geographical distribution of fossil fuels unused when limiting global warming to 2 degC"

(doi:10.1038/nature14016) which shows you where, and how much, fossil carbon has to stay underground (is unburnable) and hence out of the atmosphere for the 2degC limit. The critical importance of the 2degC limit I will come to later.
Fig 1. below shows the world's fossil carbon reserves in 2010, updated to 2019 with fossil CO2 emissions since, from the 2020: http://www.bp.com/statisticalreview



Next McGlade & Ekins partitioned the unburnable fossil carbon reserves amongst coal, gas and oil as shown in Fig 2.

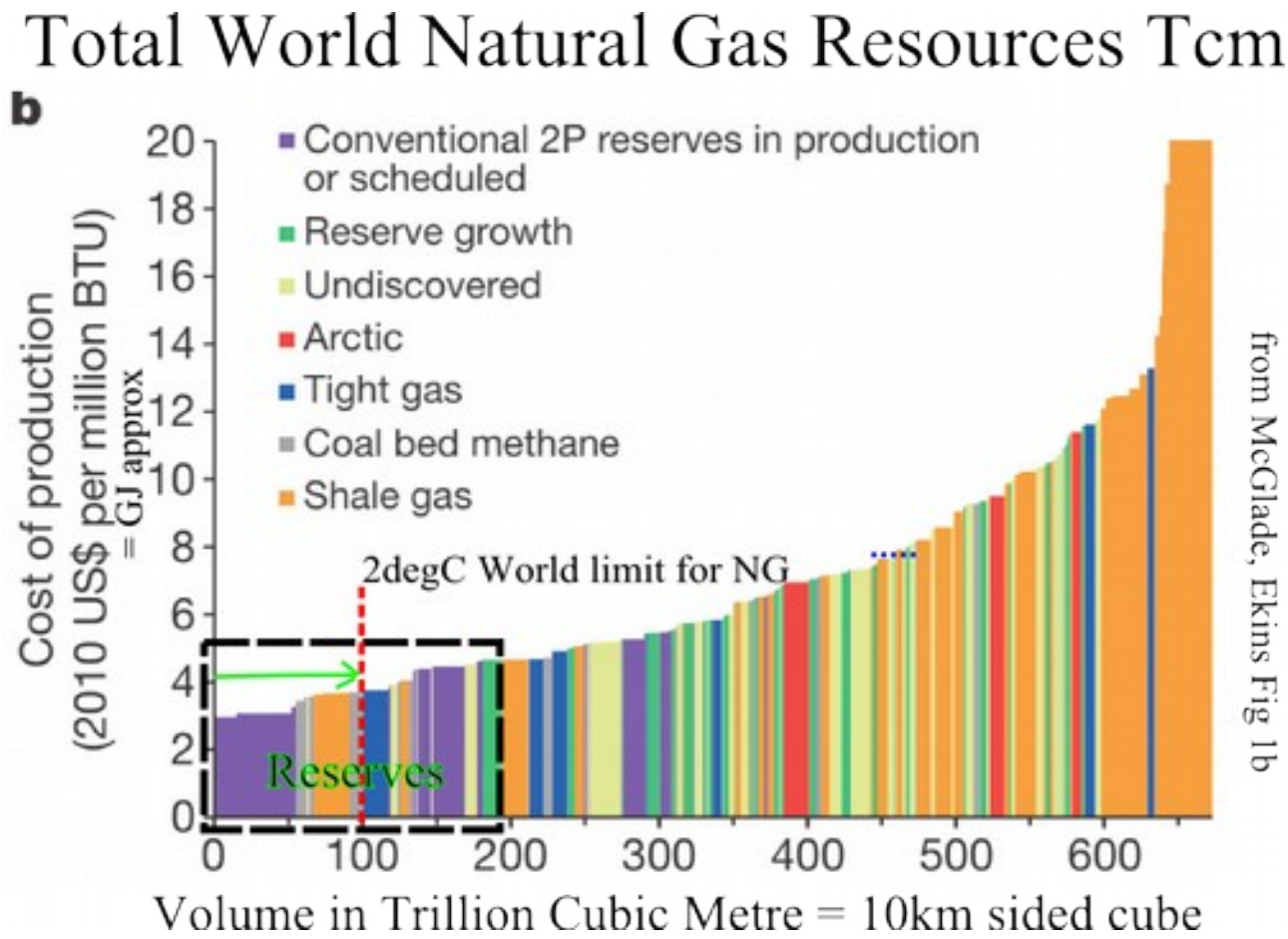
Next their geographical analysis shows how much of Australia's fossil carbons, counting from the end of 2010, have to remain underground for 2degC global warming without CCS, is:
The 5% of Australia's coal that can be burnt for a 50/50 chance at 2degC is 4474Mt or 125263 PJ
The 49% of Australia's gas that can be burnt for a 50/50 chance at 2degC is 1.92Tcm or 72635PJ

The 54% of Australia's oil that can be burnt for a 50/50 chance at 2degC is 3.2Gb or 19334PJ
(Mt is million tonne, Tcm is trillion cubic metre, Gb is Giga barrel (billion), PJ is Peta Joule)

But counting from the end of 2010 only half of these 2degC fossil carbons can be mined before breaching our 1.5degC aspiration limit. For Australia here in Fig 3 is how much of our fossil carbon has to stay underground for a 50/50 chance at 1.5degC global warming:

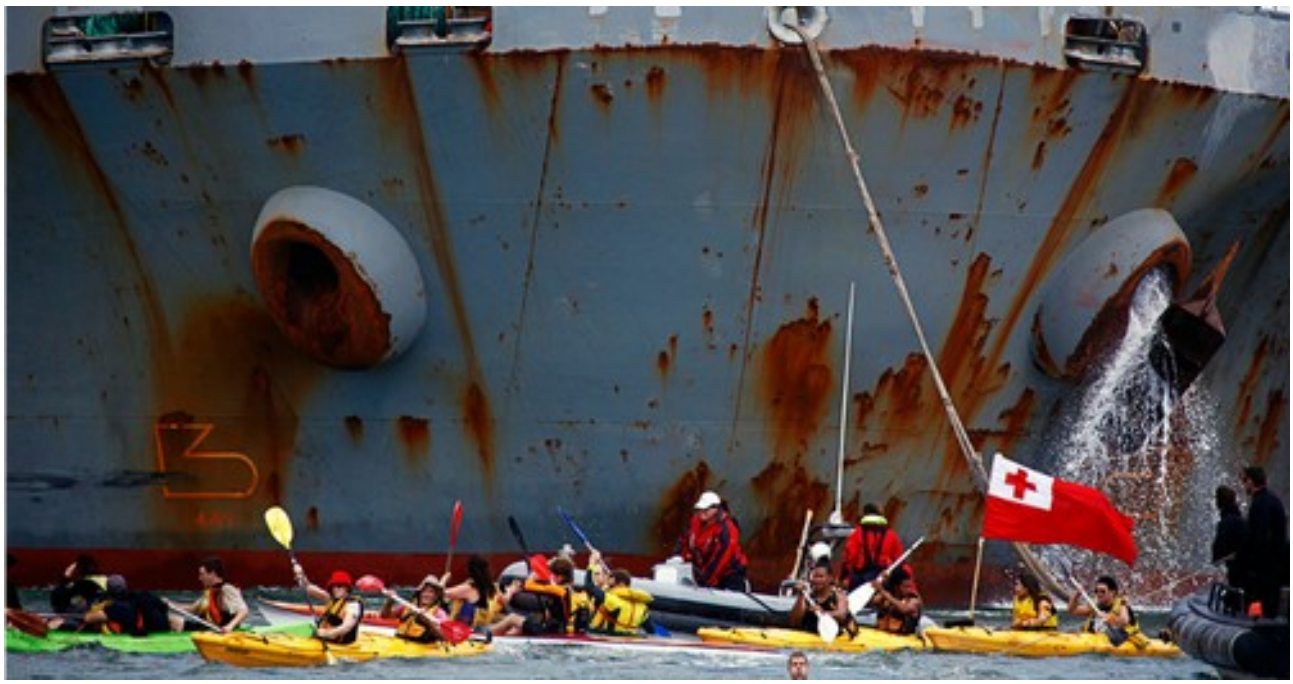
The 2.5% of Australia's coal reserves that can be burnt for a 50/50 chance at 1.5degC is 2237Mt or 62632PJ
The 24.5% of Australia's gas reserves that can be burnt for a 50/50 chance at 1.5degC is 0.96Tcm or 36318PJ
The 27% of Australia's oil reserves that can be burnt for a 50/50 chance at 1.5degC is 1.6Gb or 9667PJ

As an example of how McGlade & Ekins have done this analysis we'll use gas. First they order all of the planet's gas resources by ease of extraction (using $cost/GJ of gas as a proxy) and the volume of gas at that price. Note that gas resources includes all the world's gas whether or not it is currently economically extractable. Reserves are the portion that are economically extractable shown in the black rectangle in Fig 4. below. And the amount of gas the world can burn under the 2degC limit is up to the red line shown by the green arrow. 1Million BTU = 1.055GJ so the vertical scale is approximately in $/GJ.



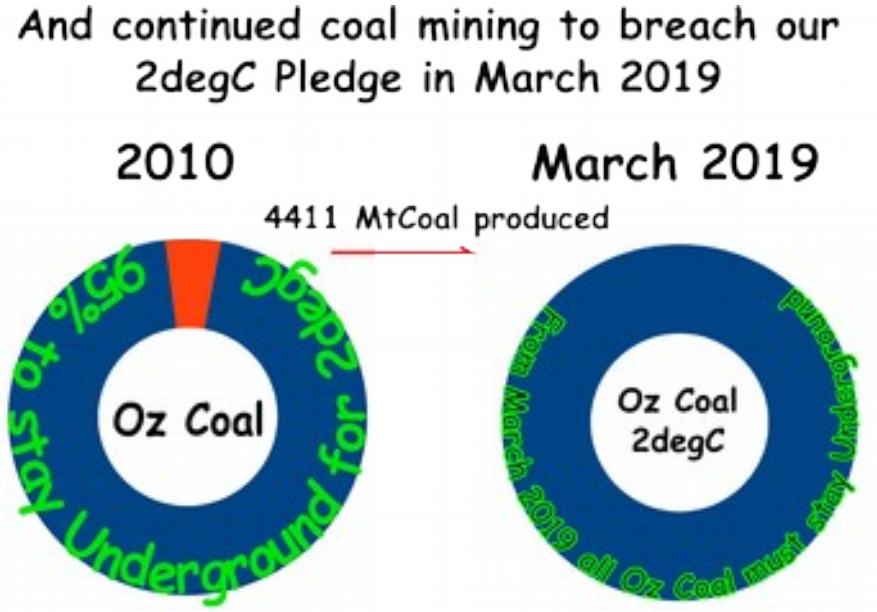
Failed Aspirations and Breached Pledges

Since 2010 the Australian digging and sucking juggernaut has continued, undeterred by catastrophic bushfires, droughts and floods and record high global temperatures, to exhaust so much more fossil carbon into the atmosphere that we expired our Paris aspirations for 1.5degC and our Paris 2degC pledge. By October 2014, coinciding with the Pacific Islander blockade of the Newcastle coal port, Australia passed its 1.5degC limit on coal and thus failed to leave enough coal underground to avoid drowning our friends – our Pacific friends who gave us such a great lesson on how to fight.

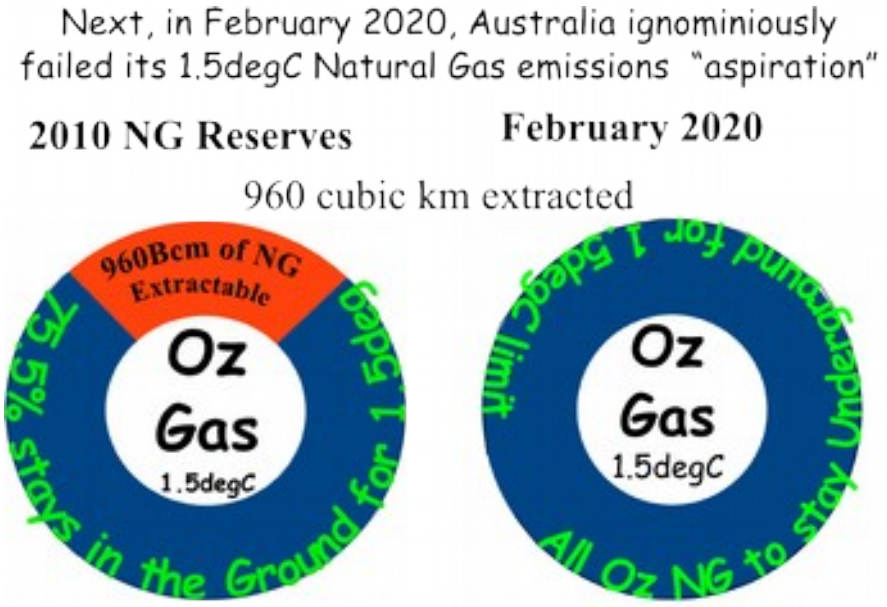


Pacific Islanders Blockade Newcastle coal port to protest rising sea levels
Fri 17 Oct 2014
The main action was a pitched battle between water police and Pacific Islanders 1km ahead of this photo.
https://www.theguardian.com/environment/2014/oct/17/pacific-islanders-blockade-newcastle-coal-port-to-protest-rising-sea-levels

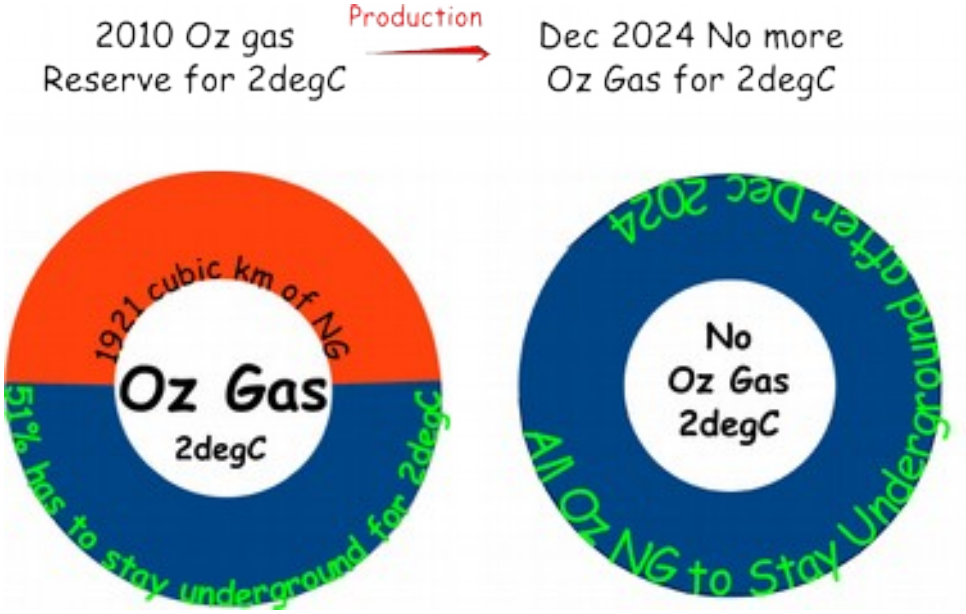
As the McGlade, Ekins analysis only came out 3 months after the blockade, it is only in retrospect that we realise that the blockade and breach coincided!
Nonetheless Australia kept on digging coal so that by March 2019 we had broken our 2degC pledge on coal.



And kept on sucking gas such that by February 2020 (this year) our 1.5degC gas aspiration expired.



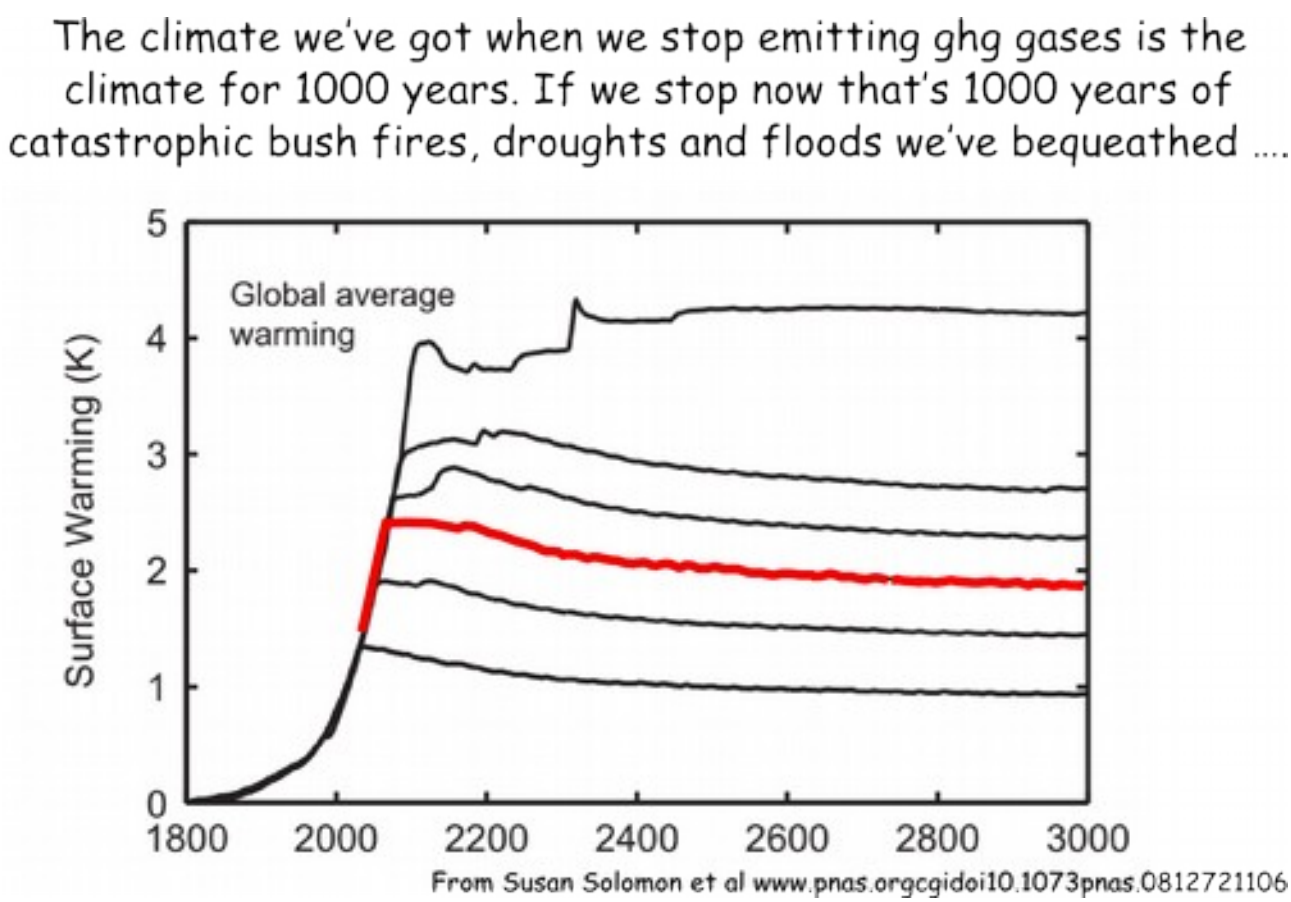
And if we continue sucking at the 2019 growing rate then by December 2024 we'll have breached our 2degC Paris pledge for gas. Or if the gas sucking rate plateaus at the 2019 rate then it will take until 2027 to breach the 2degC pledge for gas – neither of which dates permit the Narrabri gas project to go ahead.



The climate we get to is for 1000 years

One aspect that the DPIE is heedless of to the point of negligence is that the climate we've reached when we finally stop fossil carbon emissions is the climate we've got for 1000 years.

As you can see in the graph below and the Susan Solomon et al paper from which it came that the global warming temperature only decreases very slowly as the heat trapped by the greenhouse gases continues to pour into the oceans. So even if we stop emitting ghg's now that's 1000 years of catastrophic bushfires, prolonged droughts, floods etc that we're leaving for all future life.



Worsening Droughts for Australia

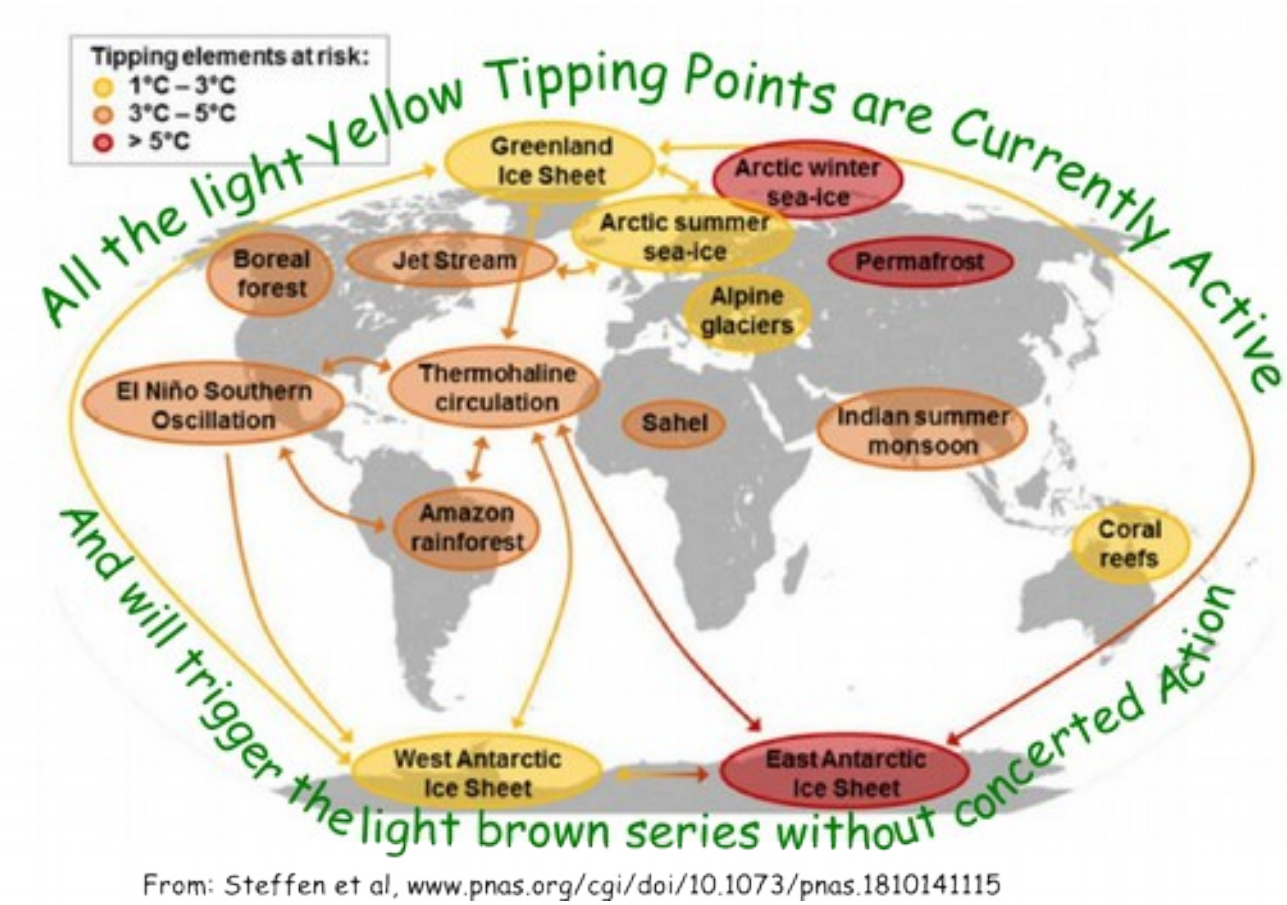
Anna Ukkola et al using the latest climate models found that even on a lesser emissions intensive trajectory than the higher one we are currently on that for Australia droughts by 2050 will be longer by up to 2.4 months even though the average rainfall increases see: https://www.smh.com.au/environment/climate-change/australia-among-global-hot-spots-as-droughts-worsen-in-warming-world-20200601-p54ydh.html?btis and underlying paper at https://science.sciencemag.org/content/365/6448/76 is behind a paywall but the supplementary information is free and useful

Be Very Wary of Triggering the Tipping Point Cascade

As they tip, tipping points such as Arctic summer sea ice, heat the Earth making it more probable that other climate tipping points will tip leading to a domino cascade.

Now at 1.1degC of warming the light yellow series of tipping points in the chart below are clearly active and the fear is that once we reach 2degC of warming the yellow series will be strong enough to trigger the light brown series and continue to the darker reddish brown series thereby making the Earth into an unliveable hothouse.

Hence all new fossil carbon mines have to be cancelled, especially those like the Narrabri gas project with damaging environmental impacts on the Pilliga ecology.



Out of the Holocene into the Anthropocene, Trying to Avoid Hothouse Earth

By heating the planet we humans have destabilised Earth out of the Glacial-Interglacial cycle to a hotter Earth unable to return to the Glacial-Interglacial cycle for 100,000years and in danger of degenerating into the Hothouse Earth state.

Humanity has now become a critical, integral, interacting component of the system and now is the only time to act as the door closes on the opportunity to avoid Hothouse Earth.

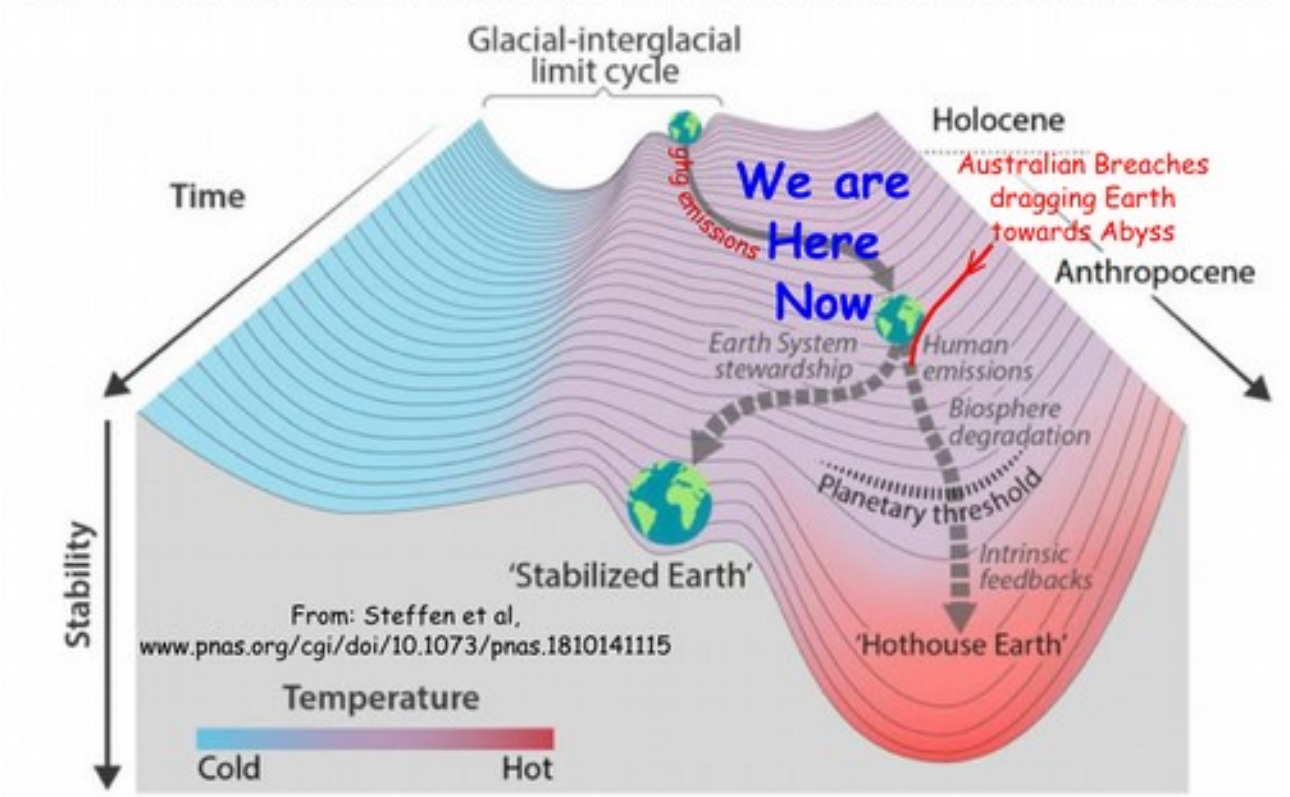
Will Steffen says “Evidence shows we will also lose control of the tipping points for the Amazon rainforest, the West Antarctic ice sheet, and the Greenland ice sheet in much less time than it’s going to take us to get to net zero emissions”. And adds:

> “Given the momentum in both the Earth and human systems, and the growing difference between the ‘reaction time’ needed to steer humanity towards a more sustainable future, and the ‘intervention time’ left to avert a range of catastrophes in both the physical climate system (e.g., melting of Arctic sea ice) and the biosphere (e.g., loss of the Great Barrier Reef), we are already deep into the trajectory towards collapse,”

The following Figure from Will Steffen et al with added notes depicts this dilemma:

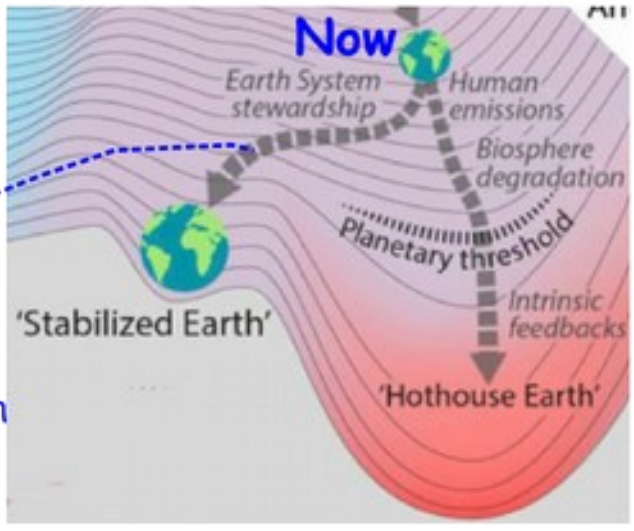
Our New Climate stability landscape

Human emissions have taken Earth out of the previous Glacial-interglacial cycle to a new Earth stewardship scenario relying on global human co-operation to avoid Hothouse Earth



We're now well into the Anthropocene where Humans and Earth are one interacting Entity.

Only strict Global Human management of Earth's climate and biosphere can traverse the slippery slope to Stabilised Earth without sliding into the Abyss.



The Main Elements of the Action to stabilise the Earth/Human system are:

1. Eliminate fossil carbon emissions 2. Enhance Earth's carbon sinks

3. Inculcate Global Human co-operation to manage Human-Earth systems

Here's some of what we must do to stablise our hotter Earth between the prior Glacial-Interglacial cycle and avoid the Hothouse earth state:

1. Eliminate fossil Carbon Emissions

- Stop fossil carbon greenhouse gas emissions as quickly as possible
  - No new fossil fuel mines anywhere
  - Close down Australian coal and gas mines now that they've breached the 2degC pledge
- Allocate resources and people power to Renewable Energy infrastructure

2. Manage and Enhance Earth's Carbon Sinks:

- Protect all native forests - Biodiverse native forests are the richest carbon stores.
- Establish new areas of native forest
- Organic farming techniques to increase soil carbon
- Possible fertilisation of ocean waters to enhance CO2 uptake by phytoplankton but being careful to avoid eutrophication

3. Global Human Co-operation to manage the Integral Human-Earth systems, requiring widespread, rapid, and fundamental transformations in:

- behaviour - demographics, consumption, attitudes, education
- technology and innovation,
- governance,
- and values.

We are describing here a completely new way of thinking globally. It should not be new – we've had at least 50 years to think and act on it whilst simultaneously being aware that time was shrinking and the concomitant effort required ballooning.
After 50 years of procrastination now the planetary rescue effort requires a complete change of global culture virtually overnight when instead the present calamity was predicted and foreseeable and change could have been gradual.
In this submission I am describing only one aspect of why this Santos Pilliga coal seam gas mine must not go ahead – namely that we've reached that critical time when no new fossil fuel mines are permissible and that Australia has already breached its coal Paris pledge and is only 3 to 5 years away from fully breaching its gas Paris pledge.
On top of this it is bizarre that this already environmental disaster and uneconomic proposal could even reach this stage, 10 years on, without being euthanised.
So I insist that the IPC does not permit this Narrabri coal seam gas project for the overwhelming reasons I've outlined.
Alan Roberts

From: john lazarus
To: Records
Cc: [redacted]
Subject: Byron Environment Centre Submission in Opposition - Dunoon Dam extension
Date: Wednesday, 9 September 2020 2:59:19 PM

Submission in Opposition - Dunoon Dam extension

Byron Environment Centre Inc

John Lazarus
[redacted]

Dear Rous Water
The Byron Environment Centre (BEC) strongly Opposes an extension of the Dunoon Dam to increase the Dams catchment area, for the following reasons:

1) Projections based on Population growth are unfounded
a) Australia's' natural population growth is negative.
b) The current immigration levels are reduced to almost zero.
c)Future immigration levels will be restrained for many years due to the ongoing world wide continuing presence of the corona virus epidemic.
d) Globally, including Australia, population projections are for a severe decrease in population numbers, due to the absence of any impediments in the accredited scientists projection of that this is the last 11 years before Climate Change becomes a runaway Global Heating event.
While we are in an unprecedented climate situation, science backed informed projections are that it is likely that by the middle to later part of this century, there is projected to be escalating global population deaths that will reach hundreds of millions (and eventually potentially billions).
As such infrastructure projections must be relevant to the science based projection of population decrease, rather than the false political projections of increases (please note, as one example, that the current Federal Government statements alleging Australia has reduced greenhouse emissions is completely false, due to their accounting system which does not account "natural occurrences", such as the actual tripling of Australia's' Greenhouse gas emissions this year from bush fire smoke).
e) As the likely runaway Global Heating is projected to likely lead to the global collapse of all industrialised societies, with subsequent severe impediments to the Rous Water management of regional water infrastructure, the region's further decades of water use is best supplied by Rous Waters support for residential and private commercial stand alone water tanks, incorporating grey water reuse, and private demand management appliances, and social demand management campaigns

It is time to respond to the facts of the coming impacts from Global Heating, rather than political spin.

2) Destruction of wildlife habitat is oposed
a)The development of an expanded dam catchment inundating present wildlife habitat, which incorporates the Endangered Ecological Community of Lowland Rainforest, (including regionally rare warm temperate rainforest on sandstone), should be avoided at all costs in this present Global and Australian Wildlife Extinction crisis, and in regard to the recent bush fire loss of over one billion animals (which included local rainforest burning for the first time, and with unavoidable increased rainforest bush fires in the future).
b) We are in a Crisis for the protection of our diminishing wildlife, and for protection of the essential services provided by wildlife for the existence of forests, which moderate water run off, and provide carbon pollution capture, and 50% of the earths annual oxygen supply.
c) Proposed Compensatory habitat by "offsetting" is a demonstrated failed system, with a World Wildlife Fund investigation identifying that only 20% of offset sites provide benefit, with 60% providing no additional benefit and 20% providing a negative benefit.

3) Destruction of Aboriginal Heritage and grave sites is Opposed
a) It is unacceptable that the proposed extended catchment would inundate Aboriginal peoples (and thus all Australians) cultural heritage.
b) The BEC can only consider any further destruction of Aboriginal Heritage, and proposed inundation of Aboriginal grave sites, as a continuation of this regions aprox.130 year history of Australians of immigrant backgrounds' acts of Human Rights Abuses, of Genocide, Massacres, and Physical and Cultural dispossession.
BLACK LIVES MATTER and AUSTRALIAN'S BLACK CULTURAL HERITAGE, and DESECRATION OF ABORIGINAL GRAVE SITES, MATTER

4) Sydney has seen a population increase of 1,000,000 people without expanding dam catchments.

5) Projected Rainfall variations do not support reliance on rain catchment
a) We are in a climate process that will influence rainfall.
The present greenhouse gas emissions will take decades to reach the perimeter of the earths atmosphere where the present band of increasing carbon pollution envelopes the earth. The unavoidable thickening of the band (which is transparent enough to let light through, but dense enough to insulate the reflected different wavelength of heat) will cause unavoidable further and increased intensity of greenhouse effects on droughts and rainfall.
b) There is nothing presently in place by any global government to stop society's increase in carbon pollution (the Paris Agreement's Targets will not be met, and that Target was only an initial attempt to address only 20% of global industrial emissions), and together with the increasing unmanaged, and unmanageable, Greenhouse Gas emission of methane, now being released from previously frozen tundra and undersea areas, we will unavoidably see further periods of increased intensity of droughts and significant variations of rainfall patterns
c) If there are periods of no rainfall, or seriously depleted water inflow from low rain periods or reduced persistent inflow from the projected loss of vegetated cover due to the projected 4 Degree temperature increase, then an increased catchment size wont ensure supply.

d) In addition, last years bush fires reveal that there will likely be periods where the capacity of supplies from dam water is restricted by increased dam pollution and sedimentation from post fire run off.

To give Rous Water a robust capacity of continuous water supply to the region, the projected funds for an increase in dam height and associated infrastructure (and perhaps other funding), are better spent on

- subsidising residential water tanks,
- retro fitting existing household and commercial properties with water efficiency infrastructure,
- public water efficiency campaigns,
- retro fitting existing residential and commercial properties with recycling and reuse of grey water infrastructure
- requiring new developments to have water tanks, and water efficiency demand management, recycling, and reuse infrastructure
- Councils constructing and expanding sewerage reclaimed water infrastructure for the low quality water use in public toilets and on council reserves
- Consideration of introducing high quality sewerage reclaimed water into the Rous Water potable water supply (allegedly in Britain, tap water has already gone through 6 sets of kidneys).

Yours
John Lazarus
Convenor Byron Environment Centre

From: Jay
To: Records
Cc: [redacted]
Subject: Fwd: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 2:52:19 PM

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9 September 2020

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

Words cannot describe our deep appreciation for this land. In addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

This is submitted on the basis of having been a former resident of [redacted] area for 37 years and having personal experience of the flora, fauna and indigenous heritage surrounding this area. Any further destruction of this special place by the proposed works would allow a permanent departure from the basic principles of valuing irreplaceable local natural and historical assets.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest

way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

- **The 21st century is about a suite of smart water options**. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and often wasteful water management** by local governments. They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.
- **Destruction of The Channon Gorge** and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <https://www.planning.nsw.gov.au/Plans-for-your-

area/Regional-Plans/North-Coast/Delivering-t he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

Rous is required to **avoid** this destruction because there are economically viable and more effective solutions.

- Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
- Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
- The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti ons> scroll down to "Local Government Factsheets".(5)
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011) (6)
- Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

● **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan) Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8) Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

● **Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already** exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806(9) Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)

● **Water harvesting** (urban runoff; rain tanks): Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.

The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.”

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12)
https://www.yourhome.gov.au/water/rainwater

• **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

• **Groundwater, where this is environmentally safe** The Australian government provides a lot of information on the ecological impacts and groundwater usage.(13)
https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Regards,

Judith Pryce

[redacted]

References and Notes
(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc
https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%2020

06%20MWP%20summary.pdf?dl=0 (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011 (3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011 (4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets". (6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia. (7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore. (8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney. (9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides) (10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide. (11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/> (12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous). (13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater> (14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

From: Annette McKinley
To: Records
Cc: [redacted]
Subject: Re the proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 2:49:49 PM

Conservation Ecologists Association,
[redacted]

9 September 2020

Rous County Council
Lismore NSW 2480

Dear Rous Councillors and General Manager

Thank you for supporting an extension of the submission time. We understand and appreciate the role Rous Water has in providing water to our region.

The Conservation Ecologists Association (CEA) is a northern NSW based group of professional ecologists, biologists and environmental consultants dedicated to securing the most appropriate conservation management of the North Coast's natural biodiversity and supporting ecosystems. CEA was formed in 1998.

CEA oppose the Dunoon-Channon Dam proposal by Rous Water for the reasons outlined below.

Destruction of Aboriginal Cultural Heritage

The dam would destroy highly significant Aboriginal Cultural Heritage sites and unique and significant native vegetation communities including threatened ecological communities. The dam would also destroy a suite of important threatened flora and fauna (BC Act 2016) habitats including Koala habitat resulting in a severe and irreversible impact..

The 2011 Cultural Heritage Impact Assessment (CHIA), commissioned by Rous County Council, stated that "*Aboriginal stakeholders are of the opinion that the sites should remain undisturbed and that no level of disturbance is considered acceptable, especially when concerned with impacts upon the burials, which they see serving as a direct link to the ancestors of the registered stakeholders*".

The need to protect cultural heritage was one of the main reasons the dam proposal did not progress through the previous evaluation process. The sites have not subsequently diminished in value and their protection remains a priority.

Destruction of Flora and Fauna Values

In relation to the physical environment, the Environmental Impact Assessment (EIA)

identifies 62 ha of the Lowland Rainforest Endangered Ecological Community in the study area, with at least 34 ha proposed to be destroyed by dam construction and inundation. The remaining native vegetation will subsequently have been reduced in area, fragmented, and made increasingly linear, resulting in a higher edge to core ratio. The consequences of those factors (in combination) include the loss of microhabitats and topographic features, changes in the light environment making the area more prone to weed invasion and other edge effects, and a diminution of site values in relation to providing habitat resources and refuge for fauna species. Its function as a climate change refuge will be severely compromised.

The EIA states that 40% of the Tallowwood Open Forest and 30% of the Flooded Gum-Tallowwood-Brush Box Open Forest community within the study area are proposed to be cleared by the dam construction and associated works. As stated in EIA Tallowwood Open Forest is an over-cleared vegetation type (CRA, DUAP 1999) and the Flooded Gum-TW-BB Open Forest community is floristically diverse, includes rainforest as well as sclerophyllous attributes, and provides habitat for a range of threatened and rare flora species. The EIA identifies other indirect impacts that are described as highly likely to impact on the riparian communities downstream from the dam, including run-off from construction areas, and potential impacts from hazardous and toxic materials.

The inadequacy of offsets

The proposal seeks to offset the impacts on native vegetation communities by restoring other areas. In any such scenario, offsetting established ecological communities that include larger trees and other habitat values with plantings of seedlings does not provide an adequate offset. To even begin to offset these impacts with plantings will take decades, and to replace those values will take hundreds of years. For planted vegetation to develop into mature forest and provide fauna and flora habitat of current equivalence is a very long process and can never fully replace what will be lost.

The concept of offset vegetation plantings is based on 'like for like'. In this case the offset plantings are to be located on basalt soils despite at least 6ha of the community to be destroyed being a mature warm temperate rainforest occurring on sandstone substrates - an entirely different ecosystem type. We note that there is very little warm temperate rainforest on sandstone in the north coast region and this significantly increases the value of this vegetation community and makes 'like for like' replacement unachievable in this case.

This forest type cannot simply be recreated by planting trees. Endangered Ecological Communities have local, regional, state and federal significance, and have special legal status precisely because they are critically important for the protection of fundamental ecological and evolutionary processes.

Threatened Flora

According to the EIA, nine threatened flora species would be affected:

Arthraxon hispidus Hairy Joint Grass

Corokia whiteana Corokia

*Desmodium acanthocladum (*now *Pedleya acanthoclada)* Thorny Pea

Endiandra muellerii subsp. *bracteata* Green-leaved Rose Walnut

Hicksbeachia pinnatifolia Red Bopple Nut,

Macadamia tetraphylla Rough-shelled Bush Nut

Marsdenia longiloba, Slender Marsdenia

Ochrosia moorei Southern Ochrosia.

Tinospora tinosporoides Arrowhead Vine,

Absent from the list is Big Scrub Acalypha (*Acalypha* sp. "Big Scrub"), found within the inundation area (as described) but not noted in the EIA. *Acalypha eremorum* is listed as Endangered in NSW and is the accepted name for *Acalypha* sp. "Big Scrub", as described in Harden *et al.* (2016).

Fauna

The dam site is known or considered likely to support a rich diversity of threatened fauna species, mostly rainforest-associated and including but not limited to:

Assa darlingtoni Pouched Frog

Philoria loveridgei Loveridge's Frog

Mixophyes iteratus Giant Barred Frog

Hoplocephalus stephensi Stephen's Banded Snake

Ptilinopus magnificus Wompoo Fruit-dove

Ptilinopus regina Rose-crowned Fruit-dove

Ptilinopus superbus Superb Fruit-dove

Podargus ocellatus Marbled Frogmouth

Ixobrychus flavicollis Black Bittern

Amaurornis olivaceus Pale-vented Bush-hen

Calyptorhynchus lathami Glossy Black-cockatoo

Tyto tenebricosa Sooty Owl

Tyto novaehollandiae Masked Owl

Menura alberti Albert's Lyrebird

Coracina lineata Barred Cuckoo-shrike

Carterornis leucotis White-eared Monarch

Planigale maculata Common Planigale

Phascolarctos cinereus Koala

Potorous tridactylus Long-nosed Potoroo

Pteropus poliocephalus Grey-headed Flying-fox

Nyctimene robinsoni Eastern Tube-nosed Bat

Kerivoula papuensis Golden-tipped Bat

Nyctophilus bifax Eastern Long-eared Bat

Chalinolobus dwyeri Large-eared Pied Bat

Myotis macropus Southern Myotis

Vespadelus troughtoni Eastern Cave Bat

The site is of particularly significance in providing a movement corridor for many of these species with core populations in Nightcap National Park, facilitating recolonization of nationally significant Big Scrub outliers that are currently in the process of restoration and likely to become crucially important as future climate change refugia.

It is inconceivable that dam construction is now proposing the loss of these species and their habitats, particularly species such as the Koala whose regional populations have been decimated by the recent wildfires.

The 2012 Aquatic Ecology Assessment states "Mobilisation of sediments via major earthworks would increase the sediment load transported downstream and result in habitat loss through smothering "(p.61). Platypus would be particularly affected since they require shallow fluvial waters, not deep lotic water bodies.

The EIA notes that the loss of habitat attributes for local fauna is a considerable impact and may limit the carrying capacity of the study area for certain fauna groups, a serious consequence considering the likelihood of a loss of viability of the relevant fauna populations present. Hollow-bearing trees were identified within the study area and the EIA notes that "the loss of any hollow-bearing trees will have an impact on arboreal mammal and bird species that require this habitat for breeding and roosting, as the area is already constrained by a general lack of hollow resources". Consequently, the loss of any existing hollows is clearly unsustainable.

Mature tree species in the site, such as Flooded Gum, are likely to develop suitable hollows, over the next 20 to 50 years as most are likely to be 70 to 80 years of age. Newly planted eucalypts cannot be expected to develop suitable hollows for at least another 120 to 150 years.

In addition to the Koala, loss of dry sclerophyll components such as Black She-oak will impact greatly on species such as the Glossy Black-cockatoo which have already lost substantial areas of food trees during the fires.

The recent fires in the Nightcap National Park which burnt the sclerophyll forest most intensively and extensively have meant that any unburnt vegetation of this type is of critical importance for dependent, specialised fauna species.

The proposed loss of rainforest and sclerophyll forest in the dam construction zone is likely to be fatal for many local populations of threatened fauna species. However, although the effect may only be local, losses of local populations have been clearly demonstrated as the primary cause of extinctions.

This option has been put forward by Rous Water as the cheapest option financially for future water supply. This may be the case from an economic point of view but is the most expensive option from an ecological perspective. for the provision of essential ecosystem services, any development that is likely to result in the overall loss of these services cannot be allowed to proceed as it is simply unsustainable.

Of even more concern is that the main purpose of the proposed dam appears to be to accelerate economic growth in the Northern Rivers region, a catalyst for even greater ecologically unsustainable development.

Yours sincerely,

Annette McKinley

Mark Fitzgerald

Rob Kooyman

Andrew Murray

for the

Conservation Ecologists Association

[redacted]

From: Zoe Dodd
To: Records
Cc: [redacted]
Subject: Dunoon Dam submssion.pdf
Date: Wednesday, 9 September 2020 2:49:11 PM
Attachments: Dunoon Dam submssion.pdf
ATT00001.htm

To whom it may concern,
Please find attached my submission against the Dunoon Dam.

Kind regards
Zoe

Feedback Submission Re: Proposed Dunoon Dam within the Future Water Project 2060

To: General Manager, Rous County Council
PO Box 230, Lismore NSW 2480

From: ZOE DODD

Address: [redacted]

Firstly, the community appreciates the submission extension. We also acknowledge the complexity of the work Rous does to provide water for our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- **Lost opportunity to invest in system-wide water efficiency**. This is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption.[1]
- **The 21st century is about a suite of smart water options.** This dam would be a lost opportunity to make our system fit for the 21st century by swallowing all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and wasteful water management by local governments.** They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage,** including burial sites.[2]
- **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest**, threatened flora and fauna species.[3] Rous's plan to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone is problematic as the type of vegetation offered as recompense is not equivalent.(Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value."[4] Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.
- **Industrial/construction zone** for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
- **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
- **The small population increase** predicted for the four Rous-supplied councils of 12,720[5] between 2020-2060 **does not justify** such a large and destructive dam. The dam risks diverting expenditure away from more sustainable, flexible and effective solutions.[5]

I SUPPORT these alternatives:

We need a suite of smart water options and proven alternatives, not a huge new dam. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too.

- **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. *(We understand Rous has not costed this in creating their future water plan)* Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.[6] [7]

- **Water re-use in various ways, including Purified Recycled Potable water.** A wealth of global research and experience exists regarding potable reuse of water.[8] Eg: The city of Windhoek in Namibia has been using purified recycled water for 30 years using advanced technology.[9]
- **Water harvesting** (urban runoff; rain tanks):
  Water tanks on all new (and existing) developments.The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."[10] Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.[11]
- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[12]

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0

(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

(5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections* ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
Scroll down to "Local Government Factsheets".

(6) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand Management Strategy : preferred options*, Rous County Council, Lismore.

(7) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for Hunter Water*, Institute for Sustainable Futures, Sydney.

(8) Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?*, Water Research Australia Limited, Adelaide.

(9) Windhoek Goreangab Operating Company (Pty) Ltd 2020,*Our history | Wingoc,* Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

(10) $220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).

(11) Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

(12) Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

Kind regards, Signature: [redacted] Date: 9/9/20

From: [redacted]
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:56:03 PM

Isabelle Whyte
[redacted]

Dear Rous Councillors and General Manager,

Re: The proposed Dunoon Dam within the Future Water Project 2060

I grew up and have lived in this area most of my life.
Rainforests are one of the most valuable assets of this region. It is our responsibility to look after these precious and increasingly rare pockets of forest. We must use our resources wisely.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

● Higher prices for consumers due to a 4x increase in the cost of water. In response to a question from councillor Vanessa Ekins, Mr Rudd said he expected a fourfold increase in the cost of supplying water if the dam is built. [Phil Rudd, Rous general manager]

● The small population increase predicted for the four Rous-supplied councils of 12,720 (5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".(5)

● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption for 25 years. (Metropolitan Water Plan 2006, NSW Government) (1)

● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

● Destruction of beautiful Whian Whian Gorge, the second largest remnant of the 99% cleared Gondwanna Sub-Tropical Rainforest. At more than 60ha this represents over 10% of this precious habitat and is 40% the size of the World Heritage recognised Big Scrub Flora Reserve to which it connects geographically, 7 kms downstream from the Rocky Creek Dam.

● Destruction of beautiful The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species.

[Terrestrial Ecology Impact Assessment, 2011]

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone."'Offsetting' with similar plantings is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most." [Nan Nicholson, botanist]

Councils are required under State planning regulations to:

1. “Focus development to areas of least biodiversity sensitivity in the region and implement the ‘avoid, minimise, offset’ hierarchy to biodiversity, including areas of high environmental value.”

[NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03August2020 https://www.planning nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan],

2. Enhance biodiversity coastal and aquatic habitats and water catchments. (4)Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

● Flooding of half of the popular Whian Whian Falls recreational area. This involves Aboriginal women's ceremonial pools, and in high rainfall periods would make the main Falls unusable.

● Accelerate extinction of a multitude of vulnerable species. Extinction level pressures on 3 vulnerable fish species due to destruction of 6kms and genetic islanding of over 18 kms of migratory native fish habitat. Extinction pressure on 19 threatened plant species, and 24 threatened fauna species. [As recorded within the 2011 Rous Ecological Surveys].

● Koala habitat and important "corridors" connecting Whian Whian, Dunoon and The Channon populations.

● Geotechnical considerations: basalt soil landslides and sandstone leakage with potential dam failure & massive cost blowouts.

[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

● Desecrating Indigenous culture: The Channon/Dunoon has an extensive and rich cultural landscape belonging to the Widjabal-Wiyabal People of the Bundjalung nation. The unique geology of "Basalt Meets Sandstone" at this site lends itself to a meeting place for tool building, rich fertile land and sanctuary. The waterholes, trees and rocks of the Rocky Creek landscape tell one of an intact and well documented Australian dream-time story in the epic battle of goanna (Ngumarhl) and snake (Ngoonjbear) which formed the Northern Rivers waterways and headlands. Local Preschools and Councilors alike pay their respects to the Bundjalung People and Ancestors' safe custodianship of our lands and waterways over tens-of-thousands of years.

The Rous Reconciliation Action Plan (RAP) 2017 is to be commended in their recent efforts:: "Bundjalung people have lived in the region for many thousands of years in a sustainable relationship with the natural environment. The water catchment areas managed by Rous County Council are a part of the natural landscape that forms the identity, culture, spirituality and resource base for the Widjabal/Wiyabal people of the Bundjalung nation. Despite the significant changes of the past 200 years, the Widjabal/Wiyabal people still maintain a responsibility and deep relationship with the land and water. Rous County Council acknowledges this relationship and deeply values their traditional laws, knowledge and lessons about places and sustainability. Rous County Council conducts all business activities in accordance with its values of Integrity, Commitment, Trust, Social Responsibility, and Accountability."

[https://rous.nsw.gov.au/cp_themes/default/page.asp?p=DOC-NWB-13-07-78]

Despite these well stated intentions, should the dam proceed, important Indigenous archeological sites, burial grounds, creation waterholes and artefacts would be destroyed. [Cultural Heritage Impact Assessment, 2011]

Widjabal/Wiyabal representatives such as Elder John Roberts and Noel King’s position on this project remains a clear "NO DAM!" and serious concerns as to the failures in engagement since 1989 are to be tabled.

I therefore fully support their position on strongly rejecting this dam issue.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable resource use. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan). Existing research over the past decade consistently finds that the best value for money investment in water supply comes from demand management and identifying savings within the existing supply. (7) (8)

● Water reuse in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?

https://www.waterra.com.au/publications/document-search/?download=1806 (9) Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com na/our-history (10)

● Water harvesting via urban runoff & rainwater tanks: Water tanks on all new (and existing) developments. Remove the rubbish law that prevents urban use of rainwater in the Ballina Shire. (11) This builds much needed community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is only $2,500. If this were spread over each new 2 person household (est 13,000 pop by 2060) the cost would be a mere $16 million, and combined with automatic-mains top-up, can provide 100% reduction in mains water use!

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

(12) https://www.yourhome.gov.au/water/rainwater

● Deep underground water storage with surface runoff integration.

[https://www.abc.net.au/news/2020-03-04/water-banking-aquifers-australia-facing-future-drought/12009702]

[Dillon, P, Stuyfzand, P, Grischek, T et al 2019, 'Sixty years of global progress in managed aquifer recharge', Hydrogeology Journal, vol. 27, no. 1, pp. 1-30.]

[Ross, A 2017, 'Speeding the transition towards integrated groundwater and surface water management in Australia', Journal of Hydrology, vol. Article in press.]

● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought. Multiple sources of water rather than putting all our "eggs in one basket" (ie: million$), allows us to route around any points of failure in the water system.

● Groundwater, where this is environmentally safe The Australian government provides a lot of information on the ecological impacts and groundwater usage. (13) The Regional Investment Corporation (RIC) which administers the National Water Infrastructure Loan Facility allow up to 49% lending towards: groundwater and managed aquifer recharge supply schemes and water treatment, including desalination, storage and reuse. [https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown]

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Kind regards,

Isabelle Whyte

References and Notes:

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc.
https://www.dropbox.com/s/pu9898oq6kocrph/

NSW%20Govt%202006%20MWP%20summary.pdf?dl=0

(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the

plan', Sydney, viewed 03 August 2020 https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, https://www.planning nsw.gov.au/

Research-and-Demography/Population-projections/Projections

Scroll down to "Local Government Factsheets".

(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, EcoLogical Australia.

(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous

Regional Demand Management Strategy : preferred options, Rous County Council,Lismore.

(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures,Sydney.

(9) Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.

(10)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc,Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

(11)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our areabased on 194L/person/day average water use (Rous).

(12)Australian Government Department of Industry 2013, Science, Energy and

Resources, Rainwater | Your home, Canberra, viewed 3 August 2020,

<https://www.yourhome.gov.au/water/rainwater>

(13)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra,

Sent from my Huawei Mobile

From: Gordon Waight
To: Records
Cc: [redacted]
Subject: Submission re the Proposed Dunoon Dam
Date: Wednesday, 9 September 2020 3:52:05 PM

Gordon Waight
[redacted]

Dear Councillors and General Manager

I want to make it clear that I oppose the proposed Channon-Dunoon Dam for the following reasons.

1. Potential increased cost of water.
2. Water efficiency measures must be explored first. A dam would just encourage continued waste
3. Destruction of Whian Whian Gorge
4. Damage to Channon Gorge and its lowland rainforest. Offsetting would be a very poor substitute. Just window dressing.
5. Flooding of Whian Whian Falls recreational area
6. Additional pressure on vulnerable species including koalas
7. Potential Geotechnical issues could compromise the dam
8. Destruction of Indigenous cultural heritage.

There are a range of water management options to try before trashing our environment eg. demand management, water reuse, water harvesting, mandating water tanks on all new developments, use of groundwater.

The dam would also damage the region's reputation as a clean, green tourism destination.

It's a bad idea all round.

Regards

Gordon Waight

From: matt
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:50:32 PM

Matthew Staley
[redacted]

9th September 2020
Rous County Council,
Lismore NSW 2480
council@rous.nsw.gov.au

Dear Rous Councillors and General Manager Re: The proposed Dunoon Dam within the Future Water Project 2060

I do not support the Dunoon Dam. As well as being in agreement with the following copied and pasted reasons prepared by opponents of the dam project, my main reason for opposition comes from a big picture perspective of the project.

If population growth and economic expansion of the Northern Rivers is a desired outcome of the Dunoon Dam project, what happens post 2060 when the increased population requires more water? More ecological and cultural heritage destruction? More wasteful water management? Without question, the most reasonable approach is to tackle current water inefficiency and wastage and to fund water recycling projects as well as other waterwise projects, incentives and advertising. When it comes to my water, I want you to manage it in the most conservative manner.

Please see below for further reasons

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an
additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW
Government)

● The 21st century is about a suite of smart water options. This dam would be a lost

opportunity to make our system fit for the 21st century. It would swallow all resources in one
big expensive 'white dinosaur' project.

● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

● Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011).

● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its
threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)

● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks,visual impact. Ongoing sound impact from pump house etc.

● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

● The small population increase predicted for the four Rous-supplied councils of 12,720. between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and
effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020,

● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)
(6)

● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet
our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in

creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within
the existing supply.
(7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of
water use is possible and economical. In comparison, the proposed dam is simply financially,
environmentally and socially irresponsible.
(9)
(Stuart White, 2020

www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as
set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn
from global experience?

https://www.waterra.com.au/publications/document-search/?download=1806
(9)

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled
water for 30 years using advanced technology. https://www.wingoc.com.na/our-history
(10)

● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.

(11) This builds community resilience -

much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

(12) https://www.yourhome.gov.au/water/rainwater

● Contingency planning would enable Rous to be ready to rapidly implement supply measures
if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and groundwater usage.
(13)

https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground
water-drawdown
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made
resilient to anticipated times of drought and projected population growth, without the environmental
destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Kind regards
Matthew Staley

From: Jake whitfield
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:50:05 PM

Dear Rous Councillors and General Manager,

Please reconsider the Dam at the channon. A shame to loose such diverse rainforest habitat.

Thankyou for supporting the extension of the submission date. We also acknowledge the complexity
of what Rous does to provide water to our region.
I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an
additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW
Government)
(1)

● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one
big expensive 'white dinosaur' project.
● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
● Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
(2)
. Ongoing disregard for First Nations' heritage.
● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its
threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)
(3)
.
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy
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Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <

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(4)

Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks,
visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● The small population increase predicted for the four Rous-supplied councils of 12,720
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between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and
effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020,
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● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)
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● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet
our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within
the existing supply.
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Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of
water use is possible and economical. In comparison, the proposed dam is simply financially,
environmentally and socially irresponsible.
(9)

(Stuart White, 2020

www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as
set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn
from global experience?

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Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled
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● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.

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much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water
use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

(12) https://www.yourhome.gov.au/water/rainwater

● Contingency planning would enable Rous to be ready to rapidly implement supply measures
if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and groundwater usage.
(13)

https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground
water-drawdown
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made
resilient to anticipated times of drought and projected population growth, without the environmental
destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

JakeDear Rous Councillors and General Manager

From: Amanda King
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:47:09 PM

CYBER SECURITY WARNING ? This message is from an external sender ? be cautious, particularly with hyperlinks and/or attachments.

Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Project 2060

I have lived in the Northern Rivers now for going on 17 years and have family connections to the region going back generations. I am a mother of two delightful children who share my strong attachment to the region. I have been educated as an Environmental Scientist and have qualifications in Sustainability and Community Development. I oppose the Dunoon Dam and believe there are smarter and cheaper options available to ensure future water security of the region.

The cheapest and quickest way to ensure supply demand balance is to invest in system-wide water efficiency. This has been illustrated by Sydney effort outlined in the Metropolitan Water Plan 2006 and demonstrated by Sydney adding 950,000 people without a rise in consumption. Impressive!

The dam would inundate a number of indigenous sacred sites and it is well time that our indigenous peoples were shown the respect that they deserve by finally protecting and preserving sites of cultural significance.

The Channon Gorge is a place of significant beauty and an endangered ecological community of lowland rainforest. I am quite sick of ecological communities being desecrated due to the wants (not needs) of humans. This rainforest is habitat, home to a vast number of species of plants and animals that deserve and ought to have a right to continue to live right where they are.

I support alternatives like the above mentioned system-wide efficiency measures, water re-use options, water harvesting (runoff including harvesting stormwater drains, contingency planning.

I grew up on Norfolk Island and the only water we had was tank water. I understand the importance of water efficiency and know full well that it is manageable within communities. I have always been incredibly surprised with the general waste of water I have witnessed on the North Rivers. There is much that can be done without the environmental destruction that building a dam would create.

Thanks for your time,

Amanda King
[redacted]

From: Mathew Vickers
To: Records
Subject: New dam
Date: Wednesday, 9 September 2020 3:46:08 PM

Dear Rous Council,

I am writing in opposition to the proposed Dunoon dam.

I am concerned that this dam is not cost effective, and will negatively impact on one of the last contiguous sections of the nightcap national Park/the big scrub.

We have a duty to conserve this bushland, and I agree you have done an excellent job at Rocky creek dam, but the new dam will damage a massive section of creek and habitat.

Many people have written to you, and no don't have more eloquent arguments, but even still, I implore you not to build this dam.

Be innovative instead. Be clever.

Mathew Vickers
[redacted]

From: Rhod and Sal Best
To: Records
Cc: [redacted]
Date: Wednesday, 9 September 2020 4:09:44 PM

CYBER SECURITY WARNING – This message is from an external sender – be cautious, particularly with hyperlinks and/or attachments.

Sally Best
[redacted]
9th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

My family have lived in [redacted] since 2001. One of the reasons we chose to live here is because of the community's commitment to maintain and improve the wonderful ecosystem of the area.

Thank you for supporting the extension of the submission date. We also acknowledge the complexity of what Rous does to provide water to our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

• Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)
(1)

• The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
• The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
• Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
(2)
. Ongoing disregard for First Nations' heritage.
• Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)
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Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
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Rous is required to avoid this destruction because there are economically viable and more effective solutions.

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● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
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(9)
(Stuart White, 2020

www.bit.ly/Prof-Stuart-White-Rous-slides)

Prof Stuart White - Rous Water RSWP slides 20200904.pdf

www.bit.ly

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A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?

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References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc
https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03
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, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, ‘NSW population projections ’, Sydney,
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(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for
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(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

(10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
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(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your
home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6
August 2020,
<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr
awdown>

From: Tina Lloyd
To: Records
Subject: No Dunoon Dam
Date: Wednesday, 9 September 2020 4:09:04 PM

CYBER SECURITY WARNING – This message is from an external sender – be cautious, particularly with hyperlinks and/or attachments.

Rous Water
[redacted]
To whom it may concern,
I write direct to register my dissatisfaction at the inappropriate placement of a new dam at Dunoon.
I oppose your exclusive proposition for water expansion for this region. I do not condone wasting a whole rainfores, a habitat and environmental resource, natural amenity of flora, fauna and cultural heritage for a dam. Your community contact has been in appropriate and inadequate, you are only exclusively going down one avenue- constructing a dam, which I do not condone! I don't agree with water harvesting water mining and get rid of those companies that rely on making money in this way. I do not agree with residential expansion that exclusively relies on town water. You have done 0 to educate people on conservative use of water, you have done 0 to hold accountable those who waste water unacceptably, namely councils until you do so I will not condone wasting a rainforest, cutters like heritage, lose our bird watching forest and expanded beautiful natural resource for the use of your future water plan! I do not condone expanding tourist interests in the region at the expense of nature either It is my desire to be rid of those tourist accommodation & tourist facilities that cannot provide their own water then they shouldn't be allowed just like those housing Estates proposed for the coast should not go ahead, namely Lennox Head, Brunswick & Ballina if they cannot provide their own water! I am one of thousands of people ready to fight to prevent this. I will not stop, it will be over my dead body that you succeed. There are many who will not stop in our opposition to this because we do not want this dam & we do not agree to your exclusive proposal for water for the future of this region. I strongly oppose your proposal of building Dunoon dam I promise you I will vehemently with strong action protest this, you have my guarantee on that.
Your sincerely,
Tina LLOYD
[redacted]

Sent from my iPhone

From: Katharina
To: Records
Cc: [redacted]
Subject: the proposed Dam
Date: Wednesday, 9 September 2020 4:04:52 PM

Katharina Baumgaertner
[redacted]

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it.

We also acknowledge the complexity of what Rous does to provide water to our region.

I OPPOSE the dam proposal for the following reasons:

I live in [redacted] for 20 years.I have a cert IV in Natural Area Restauration of Big Scrub Rainforest.
The Channon Gorge is a **key habitat** for Flora and Fauna of the already almost completely decimated Big Scrub. It is an essential living seed bank for our future generations. In a time of mass extinction a proposal like the dam seems almost reckless.
The dam proposal destroys as well cultural heritage of great significance and shows again how cruelling far we are still away from truly respecting the ancient custodians of this beautiful country.

I fully endorse the words of Annie Kia:

"This dam is destructive all round. It would obliterate Aboriginal Heritage. It would drown exceptionally rare rainforests. And with its eye-watering price-tag of $240 million dollars, it would increase the cost of water to consumers and industry.
'21st century water is about a suite of options: water efficiency; water harvesting (rain tanks, urban run-off); and water re-use. We need local councils to adopt policies that optimise water, instead of wasting it."

As well as the words of David Fligelman below attached.

I truly wish that council is smart enough to utilise and listen to the many local experts this area has to offer….

When it comes to WATER it comes to LIVE itself.

I hope that the number cruncher and bureaucrats are aware of their own limitations when it comes to Nature. That is why we have experts for our natural environment.
I wish that our council will listen to them.

Kind regards
and thank you for your work for our community

Katharina Baumgaertner

● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

● Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011) (2) . Ongoing disregard for First Nations' heritage.

● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011) (3) .

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● Groundwater, where this is environmentally safe

The Australian government provides a lot of information on the ecological impacts and groundwater usage. (13)

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References and Notes

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(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home , Canberra, viewed 3 August 2020, < https://www.yourhome.gov.au/water/rainwater >

(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020,

< https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown >

From:	Peter Bellew
To:	Records
Subject:	Future Water Plan for our Region: Submission
Date:	Wednesday, 9 September 2020 4:03:38 PM

I am making a submission AGAINST the plan to build a new DAM.

My name is Pete Bellew and my address is [redacted]

I have been a resident of [redacted] for over 30years.

The proposed dam is very enticing isn't it .... and soo simple !!! just 3 big letters... DAM. How much easier could it be ?

Fortunately our Northern Rivers community has shown time and time again that we have brains, we have commitment, and we have resources, and we LOVE our natural environment. It seems to me that this is another Bently looming !!

The reasons I am against the DAM is because it is not 1950 anymore. We have moved on. Hello ??

A new DAM would include the following

Loss of 34ha of Lowland Rainforest
Loss of 9 threatened flora species
Loss of habitat for 17 threatened species of fauna including koalas
Loss of Aboriginal history, archeological sites and cultural values

I have copied the following from anniakia.net and wish to include it in my submission

The Rous *Future Water 2060* plan proposes spending ~$240 million to flood 253 hectares of rainforest and farmland – but there is something missing in the document. **There is no analysis and costing of an investment in system-wide water efficiency.*** Without this analysis and costing, Rous County Council cannot possibly make a decision that the dam is the 'best option'. I am grateful to Professor Stuart White from the Institute of Sustainable Futures (UTS) for showing us that water efficiency is cheaper than a dam, would generate jobs, and support small-medium enterprises, trades and upskilling.

Most importantly, this kind of investment has been shown to be effective in achieving supply-demand balance. Sydney Water did it. Remarkably, they were able to supply an extra 950,000 people, while maintaining water use at levels 25 years before the investment project.** Think about that! By optimising water use, close to a million people were accommodated – with no increase in consumption.

System-wide water efficiency involves an audit of every part of the reticulation system. Every school, hospital, every large user and facility. This audit assesses water loss in council long pipes, and then at every part of water's journey including appliances and fixtures, processes and behaviours. Then comes the tech retrofit and human intervention. Needless to say, retrofit and tech intervention at this scale generate many jobs (we could do with that in our region).

I appreciate that Rous staff and councillors are acting in good faith. And I can see there are *'wicked problem'* aspects to our system. For example, Rous is the bulk supplier, but Byron, Ballina, Lismore and Richmond Valley councils own most of the infrastructure, control pricing and determine how water is either optimised (good), or lost and wasted in our system (bad). Unfortunately there is quite a bit of the latter (bearing in mind that some councils have done better than others).

Instead of dealing with these issues, I can see the appeal of a Big Dam.

But the Big Dam is *expensive*. And not just in eye-watering dollar terms…the $240 million price tag that would increase the cost of water to consumers and industry.

21st century water is about achieving supply-demand balance by valuing water at every part of its journey. It's about a suite of smart water options including water efficiency; water harvesting (rain tanks, urban run-off etc); water re-use (eg purple pipe re-use and purified recycled water); and council policies and investments that optimise water use. Contingency plans for drought are an integral part of this.

The Big Dam is expensive in opportunity lost. By sinking all our resource into one Big Dam, we can kiss goodbye to a portfolio of smart water options that would make our system fit for the 21st century. What a lost opportunity! This would be a huge price to pay for reaching back to last-century thinking.

The Big Dam has another cost: it would be an *incentive* for councils to continue on with business-as-usual. It would flush future innovation down the drain, because innovation happens when constraints push organisations to find new ways of doing things. Lismore City Council's waste system shows us how this works: the state government said '*you're about to experience financial pain for every tonne of landfill"* and suddenly LCC came up with really good innovation in waste recovery.

In facilities large and small across our region we use high-quality drinking water to flush poo down toilets, while failing to harvest water that falls on the roofs of these buildings. This is just one example of how we fail to manage water sensibly. We can do better than this. Let's not lay waste to farmland, or flush an endangered rainforest down the toilet because we chose not to embrace new ways of doing things.

Thank You

Pete Bellew

From: Rhod Best
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 4:03:14 PM

Rhodri Best
[redacted]
9th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>
Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Project 2060
My family have lived in [redacted] since 2001. One of the reasons we chose to live here is because of the community's commitment to maintain and improve the wonderful ecosystem of the area.
Thankyou for supporting the extension of the submission date. We also acknowledge the complexity
of what Rous does to provide water to our region.
I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
● Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)
(1)

● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
● Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
(2)
. Ongoing disregard for First Nations' heritage.
● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)
(3)
.
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(4)

Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● The small population increase predicted for the four Rous-supplied councils of 12,720
(5)
between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".
(5)

● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)
(6)

● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet
our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.
(7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.
(9)
(Stuart White, 2020

www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?

https://www.waterra.com.au/publications/document-search/?download=1806
(9)

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history
(10)

● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.

(11) This builds community resilience -

much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.”
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

(12) https://www.yourhome.gov.au/water/rainwater

● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and groundwater usage.
(13)

https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >
, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, ‘NSW population projections ’, Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to “Local Government Factsheets”.
(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra

water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your
home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of
groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6
August 2020,
<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr
awdown>

From: Des Sheridan
To: Records
Subject: Future Water Project 2060
Date: Wednesday, 9 September 2020 3:39:30 PM

Rous Water has investigated several alternative ways of increasing the amount of water available to supply an increased population. These alternatives have been compared only on a $ cost basis. I would point out that the cost of building the Dunoon dam is more, much more than the cost of aquiring land and constructing the dam and infrastructure. There is also the cost- often immeasurable, perhaps priceless- of the loss of rare and endangered flora and fauna, the loss of cultural or sacred aboriginal sites and the loss of places and vistas of sheer natural beauty.

It also strikes me as only postponing the inevitable. This proposed solution will only see us until 2060. 40 years. Historically a mere blip. By 2060 we, or our descendants will again be looking to future proof the water supply and will again be looking at other solutions.

Why not look at them now?

Des Sheridan
[redacted]

From: sonya murphy
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 3:36:28 PM
Attachments: Sonya Murphy Dam Submission.docx

Hi,

Please find my submission in an attached letter.

I firmly OPPOSE the Dunoon Dam. I appreciate your time and consideration in thoroughly reading my concerns addressed within my letter.

Warm regards,
Sonya Murphy
[redacted]

Sonya Murphy
[redacted]

9 September 2020

ROUS COUNTY COUNCIL
LISMORE NSW 2480

Dear Rous Councilors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

I am a home owner [redacted] I am writing to you as I am entitled to have an active voice in this matter, as the proposal directly affects myself, my family and my community.

I DO NOT support the proposed Channon-Dunoon Dam for these reasons:

- Lost opportunity to invest in smarter and more sustainable technology such as a recycled water facility that can turn waste water into purified drinking water. The 21st century is about using smarter water management and usage.

- Lost opportunity to invest in system-wide water efficiency. This is a cost effective measure. I believe it to be a smart choice, as we move into a future with growing population and effects from climate change. Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government).

- The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

- Destruction of The Channon Gorge lowland rainforest and its threatened ecology. This rare warm temperate rainforest on sandstone must be protected and left untouched. I

do not believe bush regeneration offsets could replace this. Native species such as the water gums (Tristaniopsis Laurina) and rare native wisteria vine (Callerya Australis) in their mature form should be preserved and protected (Terrestrial Ecology Impact Assessment, 2011). Rous is required to avoid this destruction because there are economically viable and more effective solutions.

- Threatened and/or endangered species such as native frogs and fauna species could be at risk. Thorough assessments must be completed by independent experts in this field. They must then be acted upon accordingly. I refer to the case study of the Traveston Dam in the Mary River catchment that ceased construction to protect a native turtle species (Buchanan, 2016).

- Destruction of 55 hectares of land, which includes 5% of the remaining 1% of the Big Scrub Rainforest (Nan Nicholson, Echo Net Daily, 2020).

- Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011).

- Overall distribution to myself and the local Channon/Dunoon community with noise pollution, visual impact, heavy machinery and greater congestion on our local roads as this dam would likely create an industrial. construction zone.

- Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councilor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

I am HIGHLY CONCERNED by the following risks:

- **Risk of Dam Break**
  Any dam holds the risk of potential dam failure, which has an associated risk of injury and loss of life to people living downstream (this directly affects me). Have you undertaken a Dam break assessment to determine the annual risk of failure (Fn), Population at Risk (PAR) or Number of people (N) and potential risk to Loss of Life?

I wish to cite an assessment that has done modelling that has considered sunny day failure, probable maximum flood (PMF) failure, and also a joint probability analysis if both thee Rocky Creek and Dunoon Dam failed.

- **Consequence creep** Have you considered this? As the population grows downstream of the dam, the number of people at risk will increase.

- **Catastrophic flooding** downstream in worst floods, particularly for the first 3 km below. (Environmental Flows Assessment 2011).
  I would like you to provide a detailed flood study and simulations, design the spillway capacity for the Probable Maximum Flood (PMF)

- **The increased water surface area** (when compared to the pre-dam creek water surface) means that the runoff coefficient for the catchment area will increase (coefficient over water is 1, as 100% of rain will translate to runoff, rather than being absorbed through seepage or evapotranspiration). This will likely increase the maximum flood peak when compared to the pre-dam scenario.

- **The suitability of the proposed dam site**. Have you done sufficient geotechnical assessments and reporting?

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives. Living in the 21st century we are privileged to both forward thinking and smart technologies in water management. Building a dam is an outdated method and will not be suitable for these region.

- An investment in system-wide water efficiency and strong demand management. Professor Stuart White from UTS has provided a detailed and costed proposal “The Rous Sustainable Water Program” which shows exactly how and why system-wide

optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible. (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

- Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806 Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history

- Water harvesting (urban runoff; rain tanks): Water tanks on all new (and existing) developments.

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. https://www.yourhome.gov.au/water/rainwater

Demand

- Nearly 100,000 people served by Rous water.
- Current total demand 11,600 ML/a (31.7 ML/day) (Please see table below)
- This This is equivalent to **318 litres per person per day**?! That's **a LOT of water use**. I assume a lot of this is for industry, as shown in the table below. (For reference, in Brisbane the overall is about 190 l/p/d)

- In 2060, population served is projected to increase to 120,000 - 140,000
- **Opportunity:** We could get 13ML/d (4,700 ML/year) by just reducing demand back in line with other cities

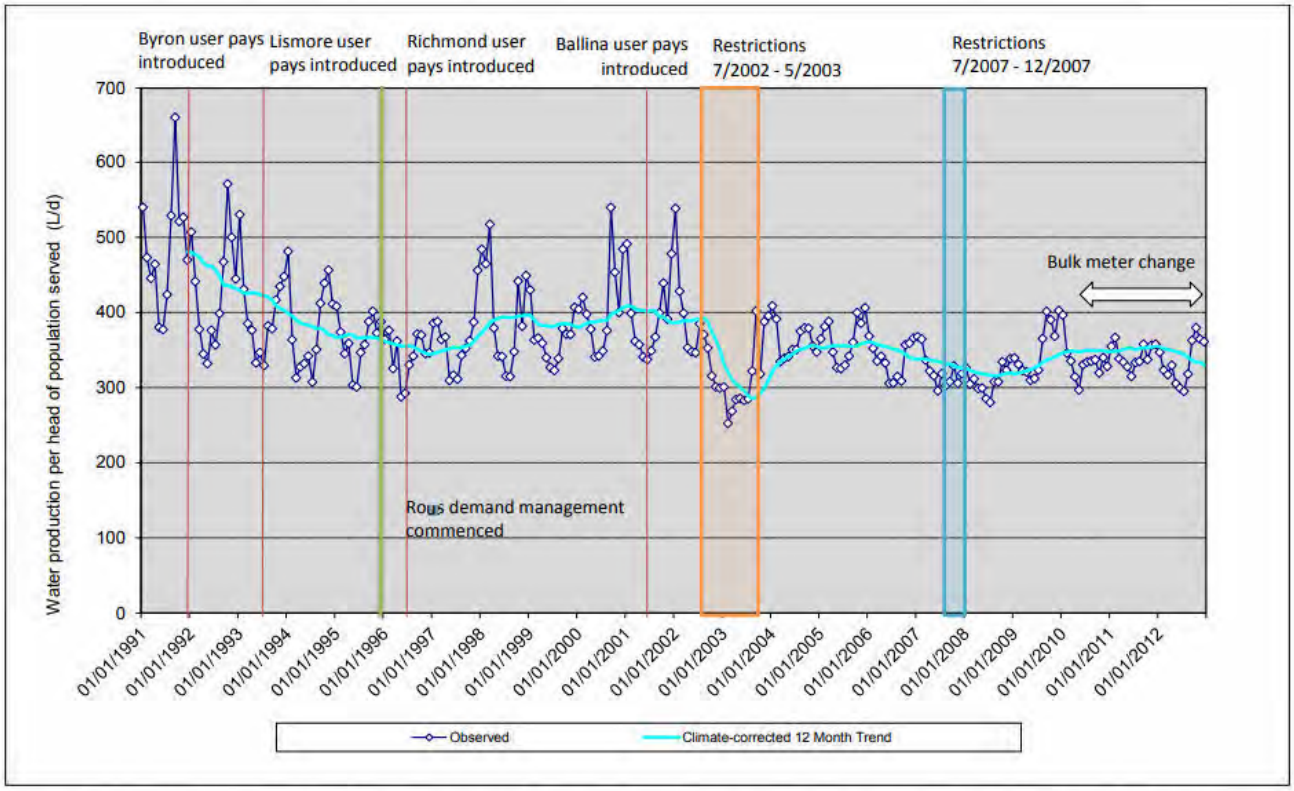

Figure 3-1: Observed and climate corrected bulk water production per head of population served (L/p/day)

8.1 Demand targets

Demand targets have been determined for the enhanced demand management case. These are derived based on the assumed demand forecast shown in Figure 6-1. Targets for overall water use per person and residential water use are shown in Table 8-2.

Table 8-2: Water Demand Targets

Target (L/p/day)	Current	2020	2030	2040	2050	2060
Total production	335	297	293	296	294	291
Residential consumption	195	168	154	148	143	138

- **Loss management.** This report shows that there is also a significant opportunity for loss management - with appropriate loss management, there is already an opportunity identified to reduce the dam volume from 50 GL to 20 GL

Scenario	Scenario Components (Options)
1.Business as usual	A1. Demand Management, Existing Demand Management H1. The proposed Dunoon Dam, Currently planned Dunoon Dam (50,000 ML)
2. Staged Dunoon Dam	A2. Demand Management, Enhanced Demand Management (including water loss management) H2. The proposed Dunoon Dam, Staged Dunoon Dam (20,000 ML)

Thank you for your time in reading my submission opposing the Channon/Dunoon Dam,

Sonya Murphy

REFERENCES AND NOTES

Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0

SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

Buchanan, K. (2016). Bum-breathing turtles bring conservationists and farmers together. Retrieved 9 September 2020, from https://www.abc.net.au/news/rural/2016-04-22/mary-river-turtle-survey-bringing-science-and-farming-together/7350202

Nan Nicholson and Annie Kia share dam concerns – Echonetdaily. (2020). Retrieved 9 September 2020, from https://www.echo.net.au/2020/09/nan-nicholson-and-annie-kia-share-dam-concerns/?fbclid=IwAR19hfy_MNXfDU6DMxbxQd8Yd9FTEA4O1GHkbR6tEQH5Msjknlyz7DgsVQ

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(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of
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August 2020,
<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr
awdown>

From: lina.geoff
To: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 9:56:39 PM

Lina Svensson

[redacted]

[redacted]

[redacted]

To Whom It May Concern,

I am writing to express my objection to the proposed Channon/Dunoon dam.

In preference to flooding a beautiful rainforest valley with all its associated cultural and biological value I would prefer you consider a suite of measures such as water efficiency education that values water as a precious resource.

I believe it is possible to build independent water storage and water management strategies into future development. Innovation and sustainability, as seen in the energy sector, should be at the forefront of Rous Water's consideration.

As a long-term member of [redacted] I have worked for many years to restore the very habitat your dam would destroy. I cannot reconcile the logic in flooding a site of such biological diversity and understand that any man-made attempt to offset the damage will never be the same.

I believe our community is one that values its environment with the highest regard. The very idea of this dam flies in the face of all that I, and we, stand for.

I hope you will reconsider your proposal and consider alternative options.

Kind regards

Lina Svensson

Submission re: The proposed Dunoon Dam within the Future Water Project 2060

Date: 08/09/2020

I formally lodge this OBJECTION to the proposed "Dunoon Dam" for the following reasons:

- Originally built to supply only Lismore, the current Rocky Creek Dam sustains the regional council areas (LGAs) of Ballina (including Wardell and Meerschaum Vale), Byron (excluding Mullumbimby), Lismore (excluding Nimbin), and Richmond Valley (excluding land to the west of Coraki), and its **ability to provide continuous water supply has never been an issue** since it opened in 1953.
- The proposed dam is a furphy not based on logic. Ensuring system-wide water efficiency is the **cheapest & fastest** way to ensure supply-demand balance.
- There is a **primary need to undertake a full water audit** to determine and fix the copious existing leaks and other areas of water waste.
- The proposed dam would lead to the destruction of **Aboriginal heritage sites**, sacred objects, and sites of cultural and spiritual significance, including scar trees, grinding grooves, sacred artefacts, and burial sites (Cultural Heritage Impact Assessment, 2011).
- As the NSW Dept Planning Industry and Environment says "**Rivers and wetlands have great cultural and spiritual significance to Aboriginal people**. These landscapes provide a link to traditional storytelling, beliefs and practices. These rivers and wetlands provide food, medicine and materials for shelter, clothing and tools" (NSW DPIE)
- The proposed site is **habitat to vulnerable, endangered, and protected endemic species**, such as the vulnerable-listed Thorny Pea (*Desmodium acanthocladum*), and the threatened species of Arrowhead Vine (*Tinospora tinosporoides*).
- The proposed dam would likely result in destruction of **flora habitats of threatened & endangered endemic species** of: Nightcap Oak (*Eidothea hardeniana*), Sweet Myrtle (*Gossia fragrantissima*), Short-footed Screw Fern (*Lindsaea brachypoda*), Red Lilly Pilly (*Syzygium hodgkinsoniae*), Richmond Birdwing Butterfly Vine (*Pararistolochia praevenosa*).
- The proposed dam would likely result in destruction of **fauna habitats of threatened & endangered endemic species** of: Richmond Birdwing Butterfly (*Ornithoptera richmondia*), Fleay's Barred Frog (*Mixophyes fleayi*), Koala (*Phascolarctos cinereus*), Barking Owl (*Ninox connivens*), Atlas Rainforest Ground-beetle (*Nurus atlas*), Grey-headed Flying-fox (*Pteropus poliocephalus*).
- **Other local endemic species** exist within the proposed dam site, such as Platypus (*Ornithorhynchus anatinus*); the watergum forests (*Tristaniopsis laurina*) lining the creek, and old Native Wisteria vines (*Callerya megasperma*) and Lawyer Vines (*Smilax australis*) climbing the remnant trees.
- **Destruction of The Channon Gorge** and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species (Terrestrial Ecology Impact Assessment, 2011)

- The proposed dam site is home to **rare and endangered flora and fauna species** endemic to this specific remnant region of the Big Scrub Rainforest. The proposed site includes both subtropical rainforest and wet sclerophyll riparian vegetation, with unique wildlife and habitat. We must protect the remaining small remnants of the Big Scrub Rainforest and its endemic wildlife species.
- **Increased road usage** with heavy trucks and increased worker traffic related to construction of the proposed dam will bring noise pollution and increased damage to our potholed narrow winding local roads.
- **Noise and increased traffic** related to construction of the proposed dam will likely drive a drop in local land prices.
- **Rous has not secured all land required** for the dam, and some landholders have indicated they will not sell.
- Other water providers have said during times of drought the "laws of demand and supply would therefore indicate that the price of water would increase" (WaterNSW ACCC Submission 2019, p9), resulting in profit-based trading of water, and uncapped **exponential increases in water charges**.
- Rous general manager has said he expected **a fourfold increase in the cost of supplying water** if the dam is built, which will result in higher water prices for consumers.
- Rous County Council has already once sought to augment the Rocky Creek Dam supply by developing another **water source on the Wilsons River** near Lismore.
- The small population increase predicted for the four LGAs (DPIE 2019) does not justify this large and destructive dam. **There are more sustainable, flexible and effective solutions**.
- There is increased likelihood of **catastrophic flooding downstream in worst floods**, particularly for the first three kilometres below the dam wall (Environmental Flows Assessment 2011)

I propose:

- **Ensuring system-wide water efficiency** as the cheapest & fastest way to maintain supply-demand balance.
- Undertake a **full water audit** to determine and fix the copious existing leaks and other areas of water waste.
- Before looking outside/elsewhere for water options, **Rous Water, focus on your own supply-wide water audit first and foremost!**
- Adopt a water management strategy that **uses existing water resources more wisely**.
- **Apply logic and evidence** rather than an old-school colonial mindset.
- Look at **historical factual/actual supply-demand usage** and evidence to determine need.
- Do **not kowtow to emotional or financial lobbying** for this furphy dam from developers or other vested interests, including LGAs.
- **Protect and respect First Nations' Heritage and Ancient Aboriginal sites** of cultural and spiritual significance.

- **Continue supply** to council areas of Ballina (including Wardell and Meerschaum Vale), Byron (excluding Mullumbimby), Lismore (excluding Nimbin), and Richmond Valley (excluding land to the west of Coraki).
- Encourage **residents off-supply to also benefit** from subsidised water-saving incentives (NB these people likely already practice good water-management and should be rewarded)
- Continue to **offer fully subsidised rainwater tanks** for households and businesses in the supply area.
- Continue to **offer extra incentives for water-saving systems** in the various LGAs.
- **Rainwater harvesting through rainwater tanks** can reduce mains-water dependency, and decrease stormwater runoff, thereby helping to reduce local flooding and scouring of creeks (Australian Government, Your Home, 2020).
- With **supply alternatives** in place, the existing supply from Rocky Creek Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and over-capitalisation risk of an outsized and unnecessary dam
- **Focus on changing cultural attitudes** to minimise water-waste, particularly in high-usage areas, eg positive supportive promotional material/advice regarding water conservation for both residents, local businesses, and tourists.

I appeal to the Council members to take note of the seriousness of these issues, and to consider alternatives to the unnecessary, destructive, colonialist, and narrow-minded Dunoon Dam proposal.

Yours in Sincerity,

Theresa Mason

[redacted]

References

Ainsworth Heritage, *Cultural Heritage Impact Assessment*, 2011

Australian Government, Your Home, Australia's guide to environmentally sustainable homes, *Rainwater*, h<ttps://www.yourhome.gov.au/water/rainwater> (accessed 8/9/20)

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NSW Department of Planning, Industry and Environment, Office of Environment and Heritage, *Threatened Species*,

<https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10218> (accessed 8/9/20)

NSW Department of Planning, Industry and Environment, Office of Environment and Heritage, Threatened Species, *Saving Our Species Reports*, Lismore, <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program/saving-our-species-reports> accessed (5/9/20)

NSW Dept Planning Industry and Environment - *Water for Environment Hub* - <https://www.industry.nsw.gov.au/water/environmental-water-hub/water-for-the-environment> (accessed 6/9/20)

SMEC Australia, *Terrestrial Ecology Impact Assessment*, 2011

WaterNSW - Submission to the ACCC's inquiry into water markets in the Murray-Darling Basin, 16 December 2019, <https://www.accc.gov.au/system/files/Water%20inquiry%20-%20Submission%20-%20WaterNSW%20-%2016%20December%202019.pdf> accessed (6/9/20)

From: Solé Falcon
To: Records
Subject: The Channon gorge
Date: Wednesday, 9 September 2020 3:30:58 PM

Dear ROUS council

We up in [redacted] tax payers, oppose the destruction of wildlife rainforest and flora.

There needs to be another smarter more environmental proposal.
This is exceptionally devestating.
Ayer all year destruction from the fires and the over development and constant land clearing INCLUDING the death of a male healthy adult koala this year even though you claimed to have had a spitter and catcher this poor male died after days of treatment and trying to save his life.

This is what you will be doing to all the wildlife there.
Perhaps if you were witnessing what we witnessed with the torture that you poor koala your company fatally injured you would reconsider and use the technology that is already here.

We advise you to take another course of action.
Remember what you propose goes against the environmental act and the people who actually care.

Solé
--

Solé Herrera
[redacted]

From: barbara stewart
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 10:31:30 PM
Attachments: page1image88362176.png
page1image88362944.png
page1image88363136.png

(Dr) Barbara Stewart

[redacted]

8 September 2020
Rous County Council, Lismore NSW 2480 <council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

I am a plant ecologist, qualified at Ph D level and with very extensive experience in research, tertiary teaching and natural resource management. I have lived on the North Coast for most of the last 40 years and own a rainforest property which is protected under a Biodiversity Conservation Trust conservation agreement. Biodiversity conservation has always been central to my professional activities, living environment and recreation.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

Destruction of burial sites and other **important Indigenous cultural heritage.** The proposal is grossly offensive and distressing to the traditional owners and not acceptable to the general public.

Destruction of The Channon Gorge, its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), other native forests and habitat for threatened flora and fauna species. The terrestrial and aquatic studies provided in support of

the project are outdated and broad in scope - updating and upgrading e.g. to include comprehensive documentation of species diversity and more intensive targeted searches for threatened biota will inevitably demonstrate biodiversity values in excess of those documented to date. The destruction of these natural environments, and indirect impacts on their surrounds, is not acceptable.

Conflict with the principles of sustainable development. Regional branding relies on the concept of sustainability, which must be recognised as including intergenerational equity i.e. not destroying irreplaceable environments, functions and landforms, so removing options for future generations. Activities leading to increased risk of species extinctions (local or even total) cannot be supported.

Dams are outdated, recognised as deleterious to aquatic environments and the surrounds. In the face of trends towards removing existing dams and restoring environmental flows, the construction of a new dam is totally inappropriate.

There are many opportunities to improve water use, storage and distribution efficiency. These measures are necessary to reduce current impacts and support existing population levels, not to justify more impacts.

We need to examine State and local government policies currently promoting growth on the North Coast. Such growth cannot be encouraged if it cannot be accommodated within the constraints of our natural environment.

Thank you for considering this submission. I look forward to an outcome that reflects consideration of the values of our environment, the well being of our community and a sustainable future.

From: Zarinka Sinden
To: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 10:32:04 PM

Zarinka Sinden

[redacted]

Dear Rous Councillors and General Manager,

Re: The proposed Dunoon Dam within the Future Water Project 2060

Hi, my name is Zarinka Sinden,
I have lived at [redacted], since i was 1 years old, i know how lucky i am to have lived in such a beautiful area and i can only hope others can enjoy the amazing forests, waterholes, creeks and animals!

My family lives right next to a beautiful waterhole and it would be devastating if the dam was to go ahead as it would ruin our amazing sanctuary..

I really hope we can consider the other options to go ahead which are listed below

Thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for OVER 20 years. Words cannot describe our deep appreciation for this land. In addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

• **Higher prices for consumers due to a 4x increase** in the cost of water. In response to a question from councillor Vanessa Ekins, Mr Rudd said he expected a fourfold increase in the cost of supplying water if the dam is built. [Phil Rudd, Rous general manager]

• The **small population increase** predicted for the four Rous-supplied councils of 12,720 (5) between 2020-2060 **does not justify such a large and destructive dam**. The dam risks being an **expensive white dinosaur**, diverting expenditure

away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".(5)

● **Lost opportunity to invest in system-wide water efficiency** - this is the **cheapest** & **fastest** way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption for 25 years. (Metropolitan Water Plan 2006, NSW Government) (1)

● The **21st century is about a suite of smart water options**. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

● The **dam would encourage continued inefficient and often wasteful water management** by local governments. They would have no incentive to do things differently.

● **Destruction of beautiful Whian Whian Gorge**, the second largest remnant of the 99% cleared Gondwanna Sub-Tropical Rainforest. At more than 60ha this represents over 10% of this precious habitat and is 40% the size of the World Heritage recognised Big Scrub Flora Reserve to which it connects geographically, 7 kms downstream from the Rocky Creek Dam.

● **Destruction of beautiful The Channon Gorge** and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species.

[Terrestrial Ecology Impact Assessment, 2011]

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone."'Offsetting' with similar plantings is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most." [Nan Nicholson, botanist]

Councils are required under State planning regulations to:

1. "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value."

[NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03August2020 https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan],

2. Enhance biodiversity coastal and aquatic habitats and water catchments. (4)Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● **Catastrophic flooding downstream** in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

● **Flooding of half of the popular Whian Whian Falls recreational area**. This involves Aboriginal women's ceremonial pools, and in high rainfall periods would make the main Falls unusable.

● **Accelerate extinction of a multitude of vulnerable species**. Extinction level pressures on 3 vulnerable fish species due to destruction of 6kms and genetic islanding of over 18 kms of migratory native fish habitat. Extinction pressure on 19 threatened plant species, and 24 threatened fauna species. [As recorded within the 2011 Rous Ecological Surveys].

● **Koala habitat and important "corridors"** connecting Whian Whian, Dunoon and The Channon populations.

● **Geotechnical considerations**: basalt soil landslides and sandstone leakage with potential dam failure & massive cost blowouts.

[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

● **Desecrating Indigenous culture**: The Channon/Dunoon has an extensive and rich cultural landscape belonging to the Widjabal-Wiyabal People of the Bundjalung nation. The unique geology of "Basalt Meets Sandstone" at this site lends itself to a meeting place for tool building, rich fertile land and sanctuary. The waterholes, trees and rocks of the Rocky Creek landscape tell one of an intact and well documented Australian dream-time story in the epic battle of goanna (Ngumarhl) and snake (Ngoonjbear) which formed the Northern Rivers waterways and headlands. Local Preschools and Councilors alike pay their respects to the Bundjalung People and Ancestors' safe custodianship of our lands and waterways over tens-of-thousands of years.

The Rous Reconciliation Action Plan (RAP) 2017 is to be commended in their recent efforts:: "Bundjalung people have lived in the region for many thousands of years in a sustainable relationship with the natural environment. The water catchment areas managed by Rous County Council are a part of the natural landscape that forms the identity, culture, spirituality and resource base for the Widjabal/Wiyabal people of the Bundjalung nation. Despite the significant changes of the past 200 years, the Widjabal/Wiyabal people still maintain a responsibility and deep relationship with the land and water. Rous County Council acknowledges this relationship and deeply values their traditional laws, knowledge and lessons about places and sustainability. Rous County Council conducts all business activities in accordance with its values of Integrity, Commitment, Trust, Social Responsibility, and Accountability."

[https://rous.nsw.gov.au/cp_themes/default/page.asp?p=DOC-NWB-13-07-78]

Despite these well stated intentions, should the dam proceed, important Indigenous archeological sites, burial grounds, creation waterholes and artefacts would be destroyed. [Cultural Heritage Impact Assessment, 2011]

Widjabal/Wiyabal representatives such as Elder John Roberts and Noel King's position on this project remains a clear "NO DAM!" and serious concerns as to the failures in engagement since 1989 are to be tabled.

I therefore fully support their position on strongly rejecting this dam issue.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable resource use. It is time for the tide to turn on how we meet our water needs too. This is 21st century

thinking.

● An **investment in system-wide water efficiency and strong demand management**. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan). Existing research over the past decade consistently finds that the best value for money investment in water supply comes from demand management and identifying savings within the existing supply. (7) (8)

● **Water reuse** in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?

https://www.waterra.com.au/publications/document-search/?download=1806 (9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history (10)

● **Water harvesting via urban runoff & rainwater tanks**: Water tanks on all new (and existing) developments. Remove the rubbish law that prevents urban use of rainwater in the Ballina Shire. (11) This builds much needed community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is only $2,500. If this were spread over each new 2 person household (est 13,000 pop by 2060) the cost would be a mere $16 million, and combined with automatic-mains top-up, can provide 100% reduction in mains water use!
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

(12) https://www.yourhome.gov.au/water/rainwater

● **Deep underground water storage with surface runoff integration**.

[https://www.abc.net.au/news/2020-03-04/water-banking-aquifers-australia-facing-future-drought/12009702]

[Dillon, P, Stuyfzand, P, Grischek, T et al 2019, 'Sixty years of global progress in managed aquifer recharge', Hydrogeology Journal, vol. 27, no. 1, pp. 1-30.]

[Ross, A 2017, 'Speeding the transition towards integrated groundwater and surface water management in Australia', Journal of Hydrology, vol. Article in press.]

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought. Multiple sources of water rather than putting all our "eggs in one basket" (ie: million$), allows us to route around any points of failure in the water system.

● **Groundwater**, where this is environmentally safe The Australian government provides a lot of information on the ecological impacts and groundwater usage. (13) The Regional Investment Corporation (RIC) which administers the National

Water Infrastructure Loan Facility allow up to 49% lending towards: groundwater and managed aquifer recharge supply schemes and water treatment, including desalination, storage and reuse.
[https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown]

With scalable supply alternatives in place, the **existing supply** from Rocky Ck Dam will be made **resilient** to anticipated times of drought and projected population growth, **without** the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

For a picture journey through part of this incredible landscape please see **David Lowe's amazing photography of the threatened Channon Gorge**:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszAMwn_74HKC02f-BsGKbYCZmwyWg0GYrSAGmaU0UHZCaqKgo

Kind regards,

Zarinka Sinden

From: Ian Colvin
To: Records
Subject: Feedback submission - Future Water Project 2060
Date: Tuesday, 8 September 2020 10:32:45 PM

Dear Sir/Madam,

I appreciate the opportunity to submit feedback on the Future Water Project 2060.

My main concern with the proposed new dam are impacts to biodiversity and indigenous heritage. I have reviewed the original SMEC Terrestrial Ecology Assessment and note that the dam as proposed would impact extensive areas of native vegetation (~ 57 ha), including ~ 34 ha of lowland rainforest - a threatened ecological community. The SMEC report highlighted the rich biodiversity of the locality, supporting numerous threatened species. Under the proposal, habitat for numerous threatened species would be lost, including 7 ha of Tallowwood forest which is primary Koala habitat.

As an ecologist I am keenly aware of the ongoing impacts to biodiversity at a local, state and federal level. At a local level, we have little rainforest remaining of the original 'big scrub', while in northern NSW last years' fires decimated koala habitat and resulted in the deaths of many animals. From the SMEC report and local media I am also aware of the loss of warm temperate rainforest on sandstone for the dam proposal. This is a unique local community and should be preserved and cannot be conveniently 'offset'.

Review of the SMEC flora list also indicates records of Native Guava (*Rhodomyrtus psidioides*) in the study area. This species is now listed as critically endangered with predictions it may be extinct in the next 10 years. If there are populations of Native Guava affected by the dam it is vital they are preserved.

With regard to impacts on indigenous sites, the Widjabul-Wiabal people must have a meaningful seat at the table so they are heard and their opinions respected and acknowledged. The loss of important indigenous sites is something that should concern us all - heritage that should not drowned, archived or relocated.

Finally, I'm also concerned that the new dam is being adopted as a 'big engineering' solution when massive changes can be made at a local level through water saving schemes, rainwater tanks etc. In the Integrated Water Cycle Management Development (IWCMD) report the new dam is ranked last out of the three scenarios assessed, with the most favourable option being groundwater. If this is the case why the hurry to move straight to the dam option without further consideration of groundwater (or other) options? While I appreciate the need for water security for the future, surely this discussion can trigger further exploration of viable options (or a combination of them).

To rush to build a massive dam at the cost of our biodiversity and heritage is a poor trade off.

Sincerely

Ian Colvin
[redacted]

From: carla pressman
To: Records
Cc: [redacted]
Subject: No dam please
Date: Tuesday, 8 September 2020 10:32:59 PM

To The General Manager & Councillors Rous County Council

I am writing to let you know that I really don't want the dam to go ahead and that I believe there are better ways to provide water for future populations than destroying the Channon gorge as it contains threatened fauna and is a unique rainforest remnant.

It is not fair for the people of Dunoon and the channon to live with the trucks and dust tearing through the villages either.

Please consider implementing an area wide audit of water usage and wastage before considering the building of this dam.

Kind regards

Carla pressman

[redacted]

Submission regarding Future Water Project 2060

Submitted by: James Richardson, B.Sc., Dip. Ed., Grad. Dip. T/L.

[redacted]

[redacted]

[redacted]

I recognise and acknowledge the efforts of all those involved in the development of the Future Water Project 2060 by Rous County Council (herein referred to simply as Rous)

Author's background:

Born in [redacted]*, I spent the first 18 years of my life on a dairy farm at* [redacted] *From time to time stone axes and knife tools would be found during cultivation there – something that helped me realise that this has always been Aboriginal land and always will be.*

Leaving school, I undertook a science degree at UNE, majoring in Botany and Plant Ecology before embarking on a 30+ year career in teaching, (including at Casino HS and Byron Bay HS), and sustained promotion of both environmental education and anti-racism.

I currently live on 2.7 hectares of cabinet timber plantation near Clunes, am a member of the Clunes Progress Association, and have been active in a variety of Lismore City Council community planning committees. I retain a watching brief on the Lismore City Council Floodplain Committee, as an observer.

I DO NOT support the proposed The Channon-Dunoon Dam option as a solution to meet our community's future water needs.

My reasons for opposition to this solution can be divided into two groups:

A. Logical/economic
B. Values

A. Logical, economic, and planning reasons why the dam proposal should be halted and other options pursued:

- *An adequate system-wide audit, to identify water efficiency gains to be made within the current supply, has not been undertaken prior to the decision to adopt the dam as the best solution* (White 2020). Hence, the need for the dam is not proven, and the proposed significant investment expenditure of public money not justified.

- *A dam is a high risk multi-million dollar investment in a single project.* As such, it represents a potential "single point of failure" in a planning context that is underpinned by increasingly unreliable and volatile population/demand predictions. There is significant risk this could become a "stranded" asset if these population, climate, or economic assumptions prove wrong.

- *A dam is not flexible nor very scalable, whereas our water supply needs to increase both flexibility and scalability in line with* ***real options planning*** (White 2020) *to cater for a wide variety of potential futures.*

B. Values-based reasons why the dam should not proceed:

- *Construction of the dam will result in the permanent destruction of important Indigenous cultural heritage*. (Ainsworth Heritage 2011). It is widely recognised that huge amounts of Bundjalung cultural heritage have been destroyed since European arrival, and Rous has commendably recognised and responded to this in part through its Reconciliation Action Plan (RAP) of 2017. It is completely unacceptable that ANY significant cultural sites in our area be damaged, let alone destroyed. Rous must not become the Northern Rivers "Rio Tinto", or it will be accurately perceived as simply paying lip-service to valuing Indigenous culture, and prepared to destroy it when it suits another purpose. This alone should have been sufficient reason for the dam to be already ruled out of contention as a solution.

- *Construction of the dam will result in the permanent loss of The Channon gorge and its endangered ecological community of lowland rainforest.* (SMEC Australia, 2011). Less than 1% remains of the Big Scrub which existed for millennia prior to European arrival. Every part that remains is precious beyond any efforts to "offset" their destruction. Rous's efforts in ecological restoration are commendable but again, will be completely undermined by such destruction.

- *Rous is an organisation with the capacity to promote social cohesion and should ensure that it always acts to meet its task of maintaining a reliable and sustainable water supply in ways that avoid the potential for conflict.* The reasons the community previously rejected the dam as an option still remain valid, and viable alternatives are not only available, but if adopted, will enable Rous to use the strengths of our community to become a "best practise" 21st Century water supply authority. We should not squander this chance, by diverting resources into maintaining inefficiency and waste.

I support the following combined suite of water supply options going forward:

No single supply option in this list is the solution, but in combination they provide the flexible scalable solution to our water supply problem.

- *An investment in system-wide water efficiency and strong demand management*.
  The complete water supply must be audited, analysed, improvements costed and deployed, and this will result in a significant employment dividend, at a time of great need. Research consistently finds that the most effective investment in water supply comes from demand management and identifying savings within the existing supply (The Rous Regional Water Efficiency Program 1997)(Watson R. et al 2018). Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is both possible and economical. In comparison, the proposed dam is financially, environmentally and socially irresponsible. (White S 2020)

- *Water re-use in various ways, including indirect use of purified recycled potable water.* A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report on potable water reuse: (Kahn,S, and Branch, A 2019)

- *Water harvesting (urban runoff; rain tanks).*
  The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." (Australian Government Department of Industry 2013). Rous should act to maximise water harvesting and use this as part of the solutions suite.

- *Contingency (real options) planning that will enable Rous to rapidly implement additional supply measures if they becomes necessary in times of drought*.
  This strategy is already in place in the Sydney supply area. Sustainably powered desalination plants represent such an option, which can be planned for, but may never need to be implemented. ***If*** needed and implemented they have the advantage of scalability going forward, and this strategy avoids the risks associated with 'crystal-ball gazing' out to 2060 in an increasingly unpredictable world.

- *Groundwater extraction, where this is environmentally safe.*
  I support the use of groundwater extraction where this environmentally safe, as one part of this suite of options. There are also environmental risks to be assessed in this regard (Department of Agriculture, Water and the Environment 2018) , but the amount of extraction needed will be much reduced by the implementation of the other measures above.

Opportunities I see arising from avoiding the dam option:

- As Australia and our region enters the worst economic situation since the Great Depression, our community desperately needs immediate and sustainable employment opportunities. *Auditing and implementation of water efficiency measures and rainwater harvesting while providing rapid water security improvements, are also more likely to generate local and continued employment than a one-off construction of a dam requiring more heavy equipment than people.* While employment generation is hardly Rous's primary concern, it ought to be part of the consideration of social impacts, and may also provide State and Federal funding opportunities. Adopting the dam would drastically reduce the scope and the immediacy of any employment generation opportunities.

- *Rous has a truly golden opportunity at this point in history to become an exemplar water supplier – to collaborate with its community and all interested parties to become THE model for 21st Century water supply in Australia and to live up to honouring and protecting irreplaceable indigenous heritage and rare ecology.* Rous has a good record of attempting the beginnings of water efficiency and rainwater harvesting. It has also had a good record of care for the environment and respect for Indigenous culture. Now is the time to deliver on commitment.

- *Rous, by signalling the dam and asking the community for comment, has focussed attention on water supply and management to an unprecedented level in the community.* The expertise of those offering effective and economic alternative solutions could, and should, be harnessed to deliver a secure water supply plan that unites rather than divides the community.

- *Retention and enhancement of the Northern Rivers national and global tourism image as clean, green, and sensitive to Indigenous culture.* Our community's willingness to find better solutions to water security **will** be marketable.

Reference list:

Ainsworth Heritage 2011, *Cultural heritage impact assessment*, Rous County Council, Lismore.

Australian Government Department of Industry 2013, *Science, Energy and Resources, Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown?*, Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown >

Kahn, S, and Branch, A 2019, *Potable water reuse: What can Australia learn from global experience?*, Water Research Australia Limited, Adelaide.

The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand Management Strategy: preferred options*, Rous County Council, Lismore.

SMEC Australia 2011, *Terrestrial ecology impact assessment*, Rous County Council, Lismore.

Watson, R, Turner, A, and Fane, S 2018, *Water efficiency and demand management opportunities for Hunter Water*, Institute for Sustainable Futures, Sydney.

White, S 2020, *The Rous Sustainable Water Program: towards a secure, reliable and affordable water future*, Institute for Sustainable Futures, Sydney.

From: Xavier Jablonski
To: Records
Subject: Objection to Proposed Dunoon Dam - part of Future Water Project 2060
Date: Tuesday, 8 September 2020 10:50:33 PM

Att: Rous County Council,

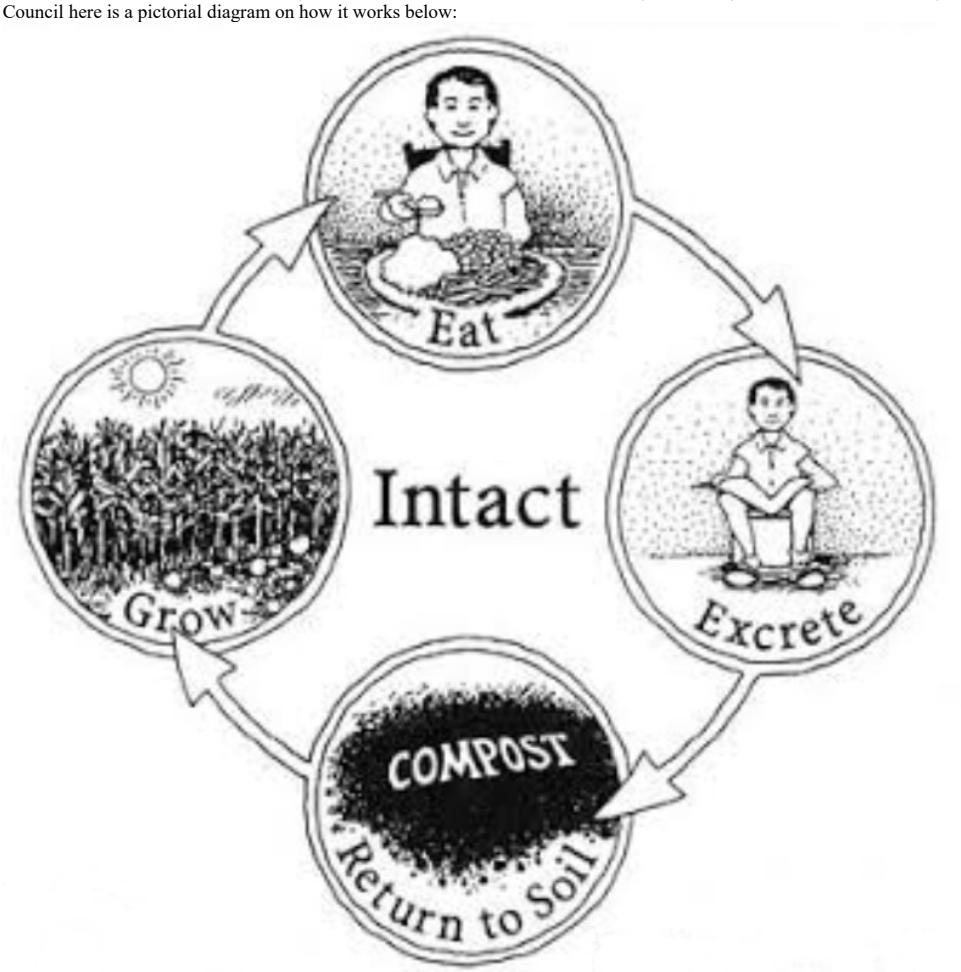
I write in relation to the proposed Dunoon Dam (part of Future Water Project 2060)

It must be asked when tackling a project of this scale that proper due diligence must be taken by the Rous County Council considering all facets of water usage at present and moving forward into the future Otherwise, how do we justify such a dramatic and expensive project? Where is the analysis of system wide water efficiency in relation to this Dunoon Dam project? How can an action such as flooding a huge section of an ancient rainforest be considered 'sustainable' without taking a good look at how our water is presently being used or should we say WASTED

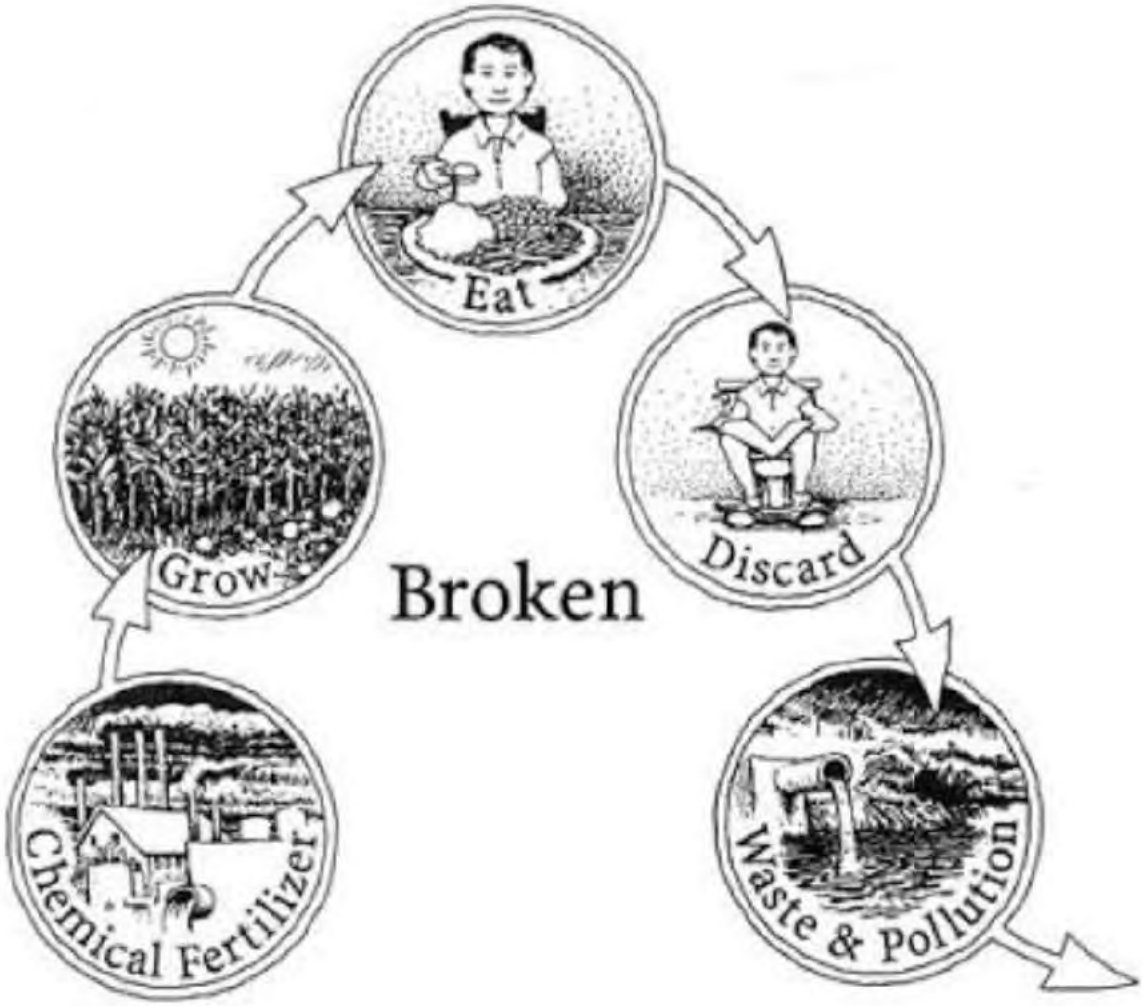
How much Rous Water is flushed down toilets every year (approx 23% of total household water use!)? Crapper designed the first ballcock flushing toilet way back in 1859 but it doesn't mean its a great idea to break the Human Nutrient Cycle and pump our urine and feces into our oceans (after using millions of litres of fresh water processing it) instead of returning it back to the land as compost and plant ready nutrients It's 2020 for goodness sake! How many water tanks are labeled with 'Rain Water Do Not Drink' ? How many bovine animals are allowed direct access to our rivers and creeks where they defecate and urinate their chemical residues into our ecosystems? Rous County Council just turns a blind eye it seems on all counts, and for some reason or another 'can't seem to get it right'

The real problem here is blatant mismanagement of ALL Rous County Council managed waterways and Rous County Council municipal water in general

It must be asked, does the Rous County Council know what the Human Nutrient Cycle actually is? To break it down for you simple folk at Rous County Council here is a pictorial diagram on how it works below:



And here is another pictorial diagram showing Rous County Councils current and completely unsustainable system bellow:



I find it baffling that of the less than 1% of Big Scrub Rainforest remaining (Yes that's right we have successfully wiped out 99% of it in less than 150 years (since Rous discovered the Richmond river), that Rous County Council think that increasing access to water 'for sometime in the near future' is more important than an ancient rainforest! All the while Rous County Council supports flushing literally millions of litres of our precious fresh water down the 'Crapper' and labelling rainwater tanks 'not potable drinking water' What's the message here? Where is the municipal Human Waste (Human Resource) management system? A waterless system that takes responsibility for our own bodily excretions, converts them to a valuable commodities such as Struvite and Compost and guides the wealth of the waste back to the Earth while earning the Council a consistent tidy sum ongoing It's not rocket science There's big money in waste and it CAN be done properly the current system is clearly broken when our puny populations that consume outrageous amounts of water carelessly and wastefully suddenly need yet another Dam Without looking at the real issue here of how our water is actually being used, then no amount of dams will save us Instead, we will always have to build another while polluting and neglecting our poor mother It should be noted that Australians on average use over 100,000ltrs of water per person per year (you can times that by a factor of ten (x10) if you consider the water used in making the food for that single individual for that same year (source: https://www.yourhome.gov.au/water) On a global scale when it comes to water usage that makes us proud Australians the most water wasteful humans on the planet bar none Now that's truth

I strongly oppose the proposed Dunoon Dam until such a time that Rous County Council, NSW State Government and the Australian Federal Government (you are all the same thing to me) can show proper water management of the water we already have and are presently neglecting as if it will never run out Stand up Rous County Council and be accountable for you own pathetic, dated, miss-management of OUR water

Take a good hard look at YOURSELF, and your lovely 100,000+ltrs per year per person plump Australian life styles This is where the real problem resides

Sadly,

X Jablonski

[redacted]

From:	Leanne Davis
To:	Records
Subject:	Submission regarding Future Water Project 2060
Date:	Tuesday, 8 September 2020 11:16:06 PM

from: Leanne Davis

[redacted]

Plan or document I am commenting on: Future Water Project 2060 proposal

Dear Councillors,

I object to the proposal at present.

I believe further investigation is required to determine if building the Dunoon Dam is the best way to secure the future water needs of the community. I believe detailed carbon accounting must be done and taken into consideration, not just the financial cost. Climate change is one of the main determinants of our future water storage needs, along with population growth and given that no one seems prepared to even discuss limiting population growth, we need to consider building the Dunoon Dam, much as I would hate to see such precious rainforest and Indigenous cultural places destroyed.

Of course it is desirable to protect natural areas with high biodiversity conservation values and Indigenous cultural values. It is also desirable to protect highly productive agricultural land but a much larger area of this has already been lost and continues to be lost on the Alstonville plateau due to low density residential development. If the Dunoon Dam were to be built, I would like to see a similar sized area of the 'Big Scrub' area replanted to rainforest (not eucalypts for koalas). Of course it would not have the diversity of the rainforest at Dunoon, but it would still become of great ecological value over time.

We are fortunate to have much higher average rainfall than areas further inland but this will likely mean more pressure to house more people and grow more food in future due to climate change. We may need water efficiency measures AND dams if we attract 'climate refugees' from other parts of Australia.

I think 50GL of water storage in tanks could have a greater carbon footprint than building the Dunoon Dam but would like to see this calculated by professionals. Desalination would require manufacturing solar panels with only a 20 to 30 year life span (and perhaps a pumped hydro system to be able to pump at night) or possibly more tall concrete water reservoirs in towns unless a pipeline and pumping stations were built to pump desalinated water to Rocky Creek Dam – more and more energy use when we don't even have enough 'alternative' energy to reduce our current use of coal fired electricity.

So, at this point in time I am not prepare to support the building of the Dunoon Dam. More analysis, carbon accounting and projections of hydrological factors in a less predictable and drier climate, by professional hydrologists is required first.

Sincerely,

Leanne M Davis

From: Jane Lee
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 11:24:43 PM

8th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

My family and I have for over 40 years. My family have lived in the [redacted] and enjoyed the rainforests, creeks and wildlife in the northern NSW region for over 40 years. Words cannot describe our deep appreciation for this land. In addition to the local community of farmers nd local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)
- **The 21st century is about a suite of smart water options.** This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and often wasteful water management by local governments.** They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011)(2) . Ongoing disregard for First Nations' heritage.
- **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest** (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3) .

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and

aquatic habitats and water catchments. (4)
Rous is required to avoid this destruction because there are economically viable and more effective solutions.
● **Industrial/construction zone for** The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
● **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● **The small population increase** predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti ons> scroll down to "Local Government Factsheets".(5)
● **Catastrophic flooding downstream in worst floods,** particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)
● **Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.**

I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8)
Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

● **Water re-use in various ways**, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?
https://www.waterra.com.au/publications/document-search/?download=1806(9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)
● **Water harvesting** (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.(11) This builds community resilience -much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12) https://www.yourhome.gov.au/water/rainwater

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
● **Groundwater, where this is environmentally safe**
The Australian government provides a lot of information on the ecological impacts and groundwater usage.(13)
https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

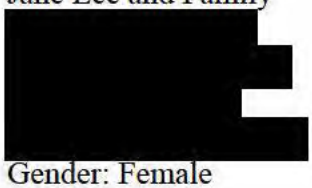
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >
Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets".
(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options , Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water , Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10) Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
(11) Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12) $220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
(13) Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home , Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
(14) Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

Yours sincerely,

Jane Lee and Family



Gender: Female

From: malveena martyn
To: Records
Cc: [redacted]
Subject: Re: The Proposed Dunk in Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 11:25:05 PM

Dear Rous Coucillors and General Manager,
Thankyou for extending time for submissions. The community appreciates it as we understand the complexity of what Rous does in providing water to our region.
Since moving to this area in 1992 from Italy, as a family we just loved being so close to the beautiful rainforests, the abundance of fresh water in the creeks and waterways as well as the diverse wildlife. We developed a deep appreciation and reverence for this beautiful land and along with many other farmers, nature lovers, scientists, ecologists, politicians believe and support the protection of this unique ecosystem.
I DO NOT support the proposed Channon-Dunoon Dam for many reasons:
* Lost opportunity to invest in system-wide water efficiency. Sydney added an additional 950,000 people without a rise in consumption by focussing on system efficiency.
× The 21st century is about a suite of smart water options, and this dam would be a lost opportunity to make our system fit for The 21st century, as it would swallow all resources in one big expensive 'white elephant project.
× the dam woiuld would encourage continued inefficient and wasteful water management by local governments. There would be no incentive to do things differently.
× Destruction of important indigenous cultural heritage, including burial sites, and the ongoing disregard for first nations'heritage.
× The destruction of the Channon Gorge and it's already endangered ecological community of lowland rainforest is unthinkable! And we all know that offsetting the loss with regeneration of degraded land is never equivalent to what is lost. Councils are required under state planning regulations to: Focus development to areas of least biodiversity sensitivi t in the region and implement the 'avoid, minimise, offset'heirarcyyy to biodiversity, includingareasnnof high environmental value" (NSW Department of Planning, Industry and Environment 2019.
Roussos required to avoid this destruction because there are economically viable and more effective solutions.
Then there would be the ongoing impact of noise, machinery, trucks in the construction zone.
×Higher prices for consumers. The general manager when asked by councillor Vanessa Ekins, said he expected a 4 fold increase of supplying water if the dam were to be built.
×The small population increase predicted from 2020 t0 2060 does not justify such a large and destructive dam.

×Catastrophic flooding downstream (environmental flows assessment 2011).
I SUPPORT THESE ALTERNATIVES:
We need to take action on a suite od of smart water options and proven alternatives.
The tide is turning on renewable and sustainablenpower and it's time we did the same to meet our water needs. Australia needs to move toward the thinking of the 21st century rather than continuing with the dinosaur mentality of 'digging it up and shipping it out. We can do so much better than that!
× An investment in system wide water waternnefficiencyand strong demand management. Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.
×Water reuse - purified recycled potable water. Globally many places use recycled water,

London, Namibia for many years have been using recycled water.
× Water harvesting - urban runoff, rain tanks. Water tanks should be compulsory on all new and existing developments. Even the australian government advisesthat depending on tank size and climate , mains water use can be reduced by up to 100%. This in turn helps to reduce the need for new damsor desalination plants, as well as protecting remaining environmental flows in rivers.
Rainwater harvesting also decreases storm water runoff, helping to reduce local flooding and scouring of creeks.
With these alternatives the Rocky Creek dam will be made more resilient to anticipated times of drought and projected population growth, without the environmentalmdestruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.
I sincerely hope and anticipate that Rous Water will shelf this plan and respect the wishes of the community, and most importantly respect Indigenous cultural heritage and the Environment that supports and sustains us all.

Malveena Martyn,
[redacted]

L

From:	Lavender
To:	Records
Subject:	The proposed Dunoon Dam within the Future Water Project 2060
Date:	Tuesday, 8 September 2020 11:57:04 PM

PLEASE DIRECT THIS EMAIL TO THE GENERAL MANAGER

Dear Mr Rudd,

The proposed Dunoon Dam within the Future Water Project 2060

I appreciate that planning for the future water needs of this region is important and that the projected population growth is a significant factor. I am also greatly concerned that the pressure to develop and upgrade facilities can override the need to preserve endangered ecological features, destroy Indigenous cultural sites and increase the possibility of downstream flooding in severe weather events.

- I am not an environmental scientist, but I place high value on the unique far north coast natural heritage. Having lived here for nigh on 30 years I have grown to understand the rich variety of this region and have great respect for those who have worked for its preservation - and who continue to do so.

I am not an engineer, but have a special interest in water as my engineer grandfather's research contributed to the development of Warragamba Dam.

I am not a resource planner, but I am aware that developing and providing smarter water options would enhance supply-demand aspects of water use – as has been shown by Sydney Water in recent decades.

I am not an environmental planner, but I am concerned that proposed regenerative works to replace the loss of sandstone rainforest could not be beneficial in the overall ecological strata.

I am not a resource engineer, but I am aware that there are ways of increasing water supplies that have not been used / developed sufficiently hereabouts eg. greater rainwater harvesting, more efficient and extensive grey water use, more extensive use of household water tanks (perhaps with subsidies) for all households and buildings, not just new developments.

I am not a tourist, but know that many people come to this region – some from other countries even - to experience our forests, our hills, valleys and rivers, the flora and fauna, and our interesting towns, villages and farmlands.

For the above reasons I do not support the proposed Dunoon-Channon dam. I am sure there must be other ways to provide water for this region. Therefore, I respectfully urge you to investigate and explore other ways to approach this issue.

Yours etc.

K. Lavender.

K. Lavender
[redacted]

From: [redacted]
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 12:39:02 AM

Dear Rous Councillors and General Manager

I have read the report: Rous Regional Supply: Future Water Project 2060 - Integrated Water Cycle Management Development: Assessment of Augmentation Scenarios, By Hydrosphere Consulting (2020), and this report is solely referenced throughout my submission for brevity's sake.

In summary I support the report's recommendations in the following order:

1st preference - Demand Management.
For example;
* Water loss management.
* Smart metering.
* Recycled water.
* Rainwater tank rebates.

I conclude from the report that the best way to supply the increasing population is more fully exploring Demand Management of our existing sources, although the report states "the level of water conservation in the community
already achieved means that there is less opportunity for further reduction in consumption", I don't believe the figures were explored fully for this option, especially in residential and industrial rainwater collection. A further study on Demand Management especially on the potential for storage of urban rainwater as an augmentation option would be prudent, this report doesn't attempt any analysis of this subject.

2nd preference - Wastewater recycling.
Indirect potable reuse to surface waters & Dual reticulation (urban), as per the recommendations in the report. It is one of the options that passed the Coarse Assessment test in Table 3) - Wastewater Recycling & Indirect potable reuse. These two options passed the report's Coarse Assessment test, and were stated as Climate resilient water sources, but the quantity of water available has not been confirmed. I think this needs further research.

3rd preference - Desalinisation, in Byron Bay, where the water is used seasonally and is near the source of excess demand - however not in the present form of the technology, but an option in the future, when the technology has become more power efficient and less polluting to the environment. As per the report's Coarse Screening Assessment, which recommends: Desalination as a "Climate resilient water source but with significant power requirements and brine management constraints to be addressed.", but that "improvements in technology are likely to improve the attractiveness in future".

I disagree with the report's recommendations that there are only two potential source augmentation scenarios to provide water security to 2060:
Scenario 1 – Groundwater (with Marom Creek).
Scenario 2 – Dunoon Dam.

And I disagree with both Scenario 1: Groundwater, and Scenario 2: Dunoon Dam for the following reasons:

Scenario 1: Groundwater (with Marom Creek)
I oppose this option as groundwater environments can have high biodiversity, and the ecological importance of caves and aquifers is well-known, as per this Australian Government factsheet https://www.environment.gov.au/system/files/resources/1f3ca8af-a881-4c3a-b6bb-07d7ebaef0ca/files/what-are-the-ecological-impacts-of-groundwater-drawdown.pdf. For example, in Table 3: Summary of a multi-criteria analysis (MCA) outcomes, in Scenario 1: Groundwater (with Marom Creek) the report states "Groundwater

has the most favourable scenario based on the MCA"... "the most favourable scenario is groundwater and the groundwater scenario has a lower NPV", but still "include impacts on threatened ecological communities, flora and fauna, Aboriginal heritage and cultural sites, non-Aboriginal heritage sites, acid sulphate soils and sensitive receptors for noise and waterways".

Scenario 2: Dunoon Dam
In Table 3 Scenario 2A: Dunoon Dam (20 GL) and 2B: Dunoon Dam (50 GL)
The report states: "There is a trade-off between the high initial cost and environmental/social impact of the dam and the long-term cost-effectiveness and certainty provided", and regarding the Dunoon Dam Option in the Coarse Screening Assessment: ": Environmental and cultural heritage impacts will need to be assessed and potentially offset". - I find this trade-off unacceptable, the report itself states "Cultural heritage impact assessments undertaken for Dunoon Dam have identified significant Aboriginal cultural heritage values and sites. This remains a key risk to be addressed for this scenario". The national cultural and environmental significance of this site as above is too high to be "offset".

My personal connection to the Dunoon Dam proposal:
I am a resident of [redacted] have a personal connection with this valley. I moved here 25 years ago because of a love for the natural surroundings and do not see a dam being built here as a good thing for the people that live here. I have spent countless hours in that stretch of creek, swimming 400m downstream from the proposed dam wall in a waterhole on my friend's property with my family for 20 years (swimming in what is referred to in the report as the " The large pool below the proposed dam wall remained weakly thermally stratified for the entire survey period"). I have undertaken projects with Landcare at Coronation Park and have worked on rehabilitation of Rocky Creek 800 meters below the proposed dam wall site in a project that received a Fish Habitat Grant from the NSW Department of Primary Industries. "Hydrosphere Consulting (2020c) considered that the proposed dam will present a barrier to both upstream and downstream fish migration". We have worked long and hard to care for Rocky Creek, the proposed works will entail a disruption initially and potentially forever. So yes, I have a vested interest personally for my memories of the creek, but as well as environmentally for the areas that have worked on with community to environmentally regenerate and care for. I know full-well the high environmental value of the land that will be inundated from personal experience.

In summary, I disagree with the report's findings that recommend the source augmentation options of 1) Groundwater (with Marom Creek) and 2) Dunoon Dam, for securing our regional water supply.

I support further investigation of the following options, mentioned in the report, but not fully realised in the research:
* Demand Management, and
* Indirect potable reuse (treated wastewater from constituent council wastewater treatment plants transferred to RCC surface water supplies).

I see future potential in Desalinisation, but not in it's current state of technology as "improvements in technology are likely to improve the attractiveness in future". And that drastic, culturally and environmentally damaging options like the two main scenarios currently being explored in this report could be one day eclipsed by a new and emerging technology such as environmentally improved desalinisation techniques, and in the mean-time we should make use of Water Management and Wastewater Recycling before embarking on the huge, costly and irreversible project that would be Dunoon Dam.

Thankyou for reading my submission.

Joanna Pitt
[redacted]

From: Gina Crane
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 12:50:30 AM

Gina Crane
[redacted]

9th September 2020

Rous County Council,
Lismore NSW 2480
council@rous.nsw.gov.au

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thank you for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I have lived in [redacted] for 20 years and raised my children here. We have deep respect, appreciation, and connection to this unique patchwork of eucalypt forest, rainforest, farmland, creeks, ridges and valleys teeming with wildlife.

Over this time, I have observed the local koala population and believe the population is healthy and increasing. I have planted koala food trees to link into the local koala corridors which are an extremely important system for the survival of this increasingly threatened iconic animal. I believe the dam construction would greatly impact the local Koala population and long-term health with disastrous results.

The forest and creeks behind my property that interconnect up into the Gorge have had a positive impact on the character building of my children. As a teenager my son explored every creek, ridge, valley, and forest he could walk to. The day he discovered The Gorge that is destined to be drowned under your proposed Channon/Dunoon Dam, he came home super happy and excited saying "he'd found his Kakadu!" It was a place he took his friends to explore, look for freshwater crayfish and go fishing. He insisted I come and check it out. After scrambling up the creek I understood his awe for this remarkable part of the forest. On one trip exploring The Gorge, my son and his friend saw a Puggle (baby platypus). My son took a series of short videos on his little flip-phone of the Puggle clambering over the rocks and walking over his friend's shoe and back into the creek. The platypus is yet another iconic threatened species that is in the direct line of your planned Dam destruction; along with the potential experiences of connecting to nature and unique, endangered species for future generations.

I live on the fringes of your proposed destruction construction and will be potentially impacted by increased industrial sounds, breakdown of natural eco-systems, exposed to increase risk of flooding but I am not alone in opposing this devastating drowning of culture and nature to flush

water down a toilet! Many local and national scientists, ecologists, hydro & sewage engineers, and politicians have come forth to express their outrage and support towards protecting this land we know is a unique and irreplaceable ecosystem.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

● **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) *(1)*

● **The 21st century is about a suite of smart water options.** This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

● **The dam would encourage continued inefficient and often wasteful water management by local governments.** They would have no incentive to do things differently.

● **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011) *(2)* . Ongoing disregard for First Nations' heritage.

● **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest** (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011) *(3)* . Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)
Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.

● **Industrial/construction zone** for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

● **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

● **The small population increase** predicted for the four Rous-supplied councils of 12,720 (5) between 2020-2060 **does not justify** such a large and destructive dam. The dam risks being **an expensive white dinosaur**, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, *'NSW population projections'*, Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections > scroll down to "Local Government Factsheets". (5)

● **Catastrophic flooding downstream in worst floods,** particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011) (6)

● **Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.**

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

● **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has *not* costed this in creating their future water plan)

Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. *(7) (8)*

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible. *(9)* (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

● **Water re-use in various ways,** including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806 *(9)*

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history *(10)*

● **Water harvesting** (urban runoff; rain tanks): Water tanks on all new (and existing) developments. *(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.* The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. *(12)*
https://www.yourhome.gov.au/water/rainwater

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

● **Groundwater, where this is environmentally safe** The Australian government provides a lot of information on the ecological impacts and groundwater usage. *(13)*
https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc
https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections '*, Sydney, viewed 03 August 2020, < https://www.planning.nsw.gov.au/Research-and-Demography/Population-

projections/Projections >
Scroll down to “Local Government Factsheets”.
(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand Management Strategy : preferred options* , Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for Hunter Water* , Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10)Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?,* Water Research Australia Limited, Adelaide.
(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020 ,*Our history | Wingoc,* Veolia Environment, Windhoek, viewed 3 August 2020, < https://www.wingoc.com.na/ >
(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
(13)Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home* , Canberra, viewed 3 August 2020, < https://www.yourhome.gov.au/water/rainwater >
(14)Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020,
< https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown >

I urge you to cease the plan to build the proposed Dunoon Dam and find sustainable alternatives.

Kind regards,

Gina Crane

From: Louise Frare
To: Records
Subject: Re proposed new dam
Date: Wednesday, 9 September 2020 2:35:57 AM

As a long time resident of this area I would like to submit my 100% support for a new dam.
Rous Water has done a brilliant job of many years with schemes and incentives to reduce water waste and increase water tank storage. My husband and I have participated in all these from replacing toilet cisterns and shower heads to tank installation. All have saved a tremendous amount of water over our lives. Your water wise education too has been very helpful.

You know what you are doing and what is needed.
I have complete faith in Rous Water and commend them and thank them for all water wise measures taken to date.
Keep up the great work and let's get this dam moving before it is too late and we hit another major drought.

Regards

Louise Frare
[redacted]

From: [redacted]
To: Records
Cc: [redacted]
Subject: Re: Future Water Project 2060 - Feedback Submission Submissions due: 9 September 2020
Date: Wednesday, 9 September 2020 4:02:43 AM

RE: The proposed Dunoon Dam within the Future Water Project 2060

[redacted]

7th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous nsw.gov.au>
Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thankyou for supporting the extension of the submission date. The community appreciates it.
We also acknowledge the complexity of what Rous does to provide water to our region.
About me example: (optional to personalise)
My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 25 years. Words cannot describe our deep appreciation for this land. In addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
- Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)

. Ongoing disregard for First Nations' heritage.

- Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)

.Please can we start caring for "our home" THE EARTH
Yours sincerely
Susan Schuler

From: Jen Ireland
To: Records
Cc: [redacted]
Subject: Proposed Channon-Dunoon Dam within Future Water Project 2060
Date: Wednesday, 9 September 2020 6:04:16 AM
Importance: High

Jennifer Ireland
[redacted]

9th September, 2020

Feedback Submission regarding the proposed The Channon-Dunoon Dam within the Future Water Project 2060 – Rous Water

Thank you for the opportunity to comment on the proposed The Channon-Dunoon Dam and the extension of time in which to lodge a submission with Rous Water. This additional time has been absolutely necessary, as there are many issues involved, and to understand and to comment on in this proposal, as I am sure Rous Water are aware.

I DO NOT support the proposed Channon-Dunoon Dam for the following reasons:

- **Permanent destruction of The Channon Gorge containing endangered ecological community of lowland rainforest.** Within this ecological community is the rare warm temperate rainforest on sandstone and threatened flora and fauna species (including koalas). 1. (Terrestrial Ecology Impact Assessment, 2011). *These will be gone forever.* There is also farmland in this area. 272 hectares of productive land and rainforest cleared and gone! While it is commendable that Rous Water is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in a buffer zone, "Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most." 2. (Nan Nicholson, Botanist, 2020).

- **Destruction of important Indigenous cultural heritage.** These include burial sites 3. (Cultural Heritage Impact Assessment, 2011). *These will be gone forever.* This is *a blatant example of ongoing disregard for First Nations' heritage* and I believe, is very detrimental to Rous Water's social capital and reputation.

- **Rous Water making operational decisions conducive to 21st Century options.** If this dam is to go ahead, the $240 million would swallow all resources in one big expensive 'white dinosaur' project**.** Better decision making can be made! *The opportunity to make 21st Century operational decisions will be gone forever.*

- **Continued efficient and wasteful water management by local governments.** The dam would encourage inefficiency and often wasteful water management by our local governments, *as they would have no incentive to do things differently and continue with outdated decision-making – an opportunity lost forever*.

- **Rous Water overlooking the investment in a system-wide water efficiency.** Sydney Water were able to supply an additional 950,000 people *without a rise in consumption* 4. (Metropolitan Water Plan 2006, NSW Government). A whole of system approach is the cheapest and fastest way to ensure supply-demand balance, *by focusing on system efficiency.* Rous Water could be seen as leaders in this field in regional New South Wales, *otherwise they will wear the negative results of this decision forever.*

- **Industrial/construction zone for The Channon-Dunoon Community**. This would entail noise, machinery, trucks, visual impact. *Of particular concern, is the ongoing sound impact from the pump house, etc.* This is of huge concern to the local community.

- **Higher prices for consumers due to a fourfold increase in the cost of water.** In response to a question from Councillor Vanessa Ekins, the Rous General Manager, Phil Rudd, said he expected a fourfold increase in the cost of supplying water if the dam is built. *This is an issue of immense concern to the local community!*

- **The small population increase does not justify such a large and destructive dam.** The small population increase predicted for the four Rous-supplied councils of 12,720 5. (NSW Department of Planning, Industry and Environment 2019, 'NSW Population Projections', Sydney) between 2020 and 2060 does not justify such an expensive water project in the form of this mega dam. The mega dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. *Please Rous Water – make decisions relevant to the population numbers and predicted 21st Century need!*

- **Catastrophic flooding downstream in worst floods**, particularly for those living in the first three kilometres below the dam 6. (Environmental Flows Assessment 2011). The results of this catastrophe *will not be able to be reversed* . Climate change predictions forecast more extreme weather events, including flooding, not less.

<u>I SUPPORT these alternatives for the following reasons:</u>

- **An investment in system-wide water efficiency and strong demand management.** *Analysed, costed and deployed*, creating local jobs for local people. Existing research over the past ten years has consistently found that the optimum investment in water supply comes from demand management and identifying savings within the existing supply – strategic management 7. (The Rous Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy: preferred options, Rous County Council, Lismore); 8. (Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney).

- **The re-use of water in a variety of ways**, including Purified Recycled Potable water. *A wealth of global research and experience already exists* regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia, and in this case Rous Water, learn from global experience? 9. (http://www.waterra.com.au/publications/documdnt-search/?download=1806) An example of this: The city of Windhoek in Namibia in South Africa has been using purified recycled water for 30 years using advanced technology. 10. (https://www.wingoc.com.na/our-history).

- **Water harvesting** eg, utilising urban run-off, water tanks, etc. *Water tanks on all new and existing developments, as recommended by the Australian Government*. As well as the storage and supply of water, the installation of rain water tanks builds community resilience, which is much needed after the recent extreme bushfire season has shown. Depending on tank size and climate, mains water use can be reduced by up to 100%. Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks 11. (https://www.yourhome.gov.au/water/rainwater).

- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought. *Part of strategic planning!*

- **Groundwater usage, where this is environmentally safe**. The Australian Government provides a wealth of information on the ecological impacts and groundwater usage – *21st Century thinking!* 12. (https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown).

- **Requirements of Councils under State planning regulations** include "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." 13. (NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03August2020 https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan).

- **Scalable supply alternatives in place** would mean the existing supply from Rocky Creek Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Finally, I would urge Rous Water to consider more seriously the extensive knowledge and experience of Prof. Stuart White from the Institute for Sustainable Futures, UTS and to work with Prof. White on viable alternatives to those in the mega dam proposal 14. (Rous Water supply augmentation proposal – brief review", 10th August 2020) and 15. (The Rous Sustainable Water

Program: Towards a secure, reliable and affordable water future, 4 September 2020).

There is another alternative, which would not show Rous Water as "backing down" but actually "stepping up" to be leaders in this field!

Thank you for reading this submission and including my concerns in your considerations.

Jennifer Ireland

References

1. Terrestrial Ecology Impact Assessment, 2011
2. Nan Nicholson, Botanist, 2020
3. Cultural Heritage Impact Assessment, 2011
4. Metropolitan Water Plan 2006, NSW Government
5. NSW Department of Planning, Industry and Environment 2019, 'NSW Population Projections', Sydney
6. Environmental Flows Assessment 2011
7. The Rous Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy: preferred options, Rous County Council, Lismore
8. Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney
9. http://www.waterra.com.au/publications/documdnt-search/?download=1806
10. https://www.wingoc.com.na/our-history
11. https://www.yourhome.gov.au/water/rainwater
12. https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown
13. NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03August2020 https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan
14. White, S. (Prof), Rous Water supply augmentation proposal – brief review, 10th August 2020
15. White, S. (Prof), The Rous Sustainable Water Program: Towards a secure, reliable and affordable water future, 4th September 2020

From: Carol Perry
To: [redacted]
Subject: Submission Future Water Project 2060
Date: Wednesday, 9 September 2020 7:50:43 AM

Name: Carol Perry

[redacted]

Dear Rous County Councillors and General Manager,

Submission: I DO NOT SUPPORT the proposal for the construction of a dam on Rocky Creek, Dunoon/The Channon
for these reasons:

1. The projected population growth for 2060 based on Council estimates is 12,720. This increase in population does not
justify a costly dam and will mean that the costs to ratepayers will disproportionately affect the current population.
The state estimates for 2060 are significantly higher. This brings me to raise the question as to whether Rous County Council
bending to pressure from the State in a way that will disadvantage the current ratepayers.
Over-population on the coast and hinterlands will lead to further degradations - the use of outmoded dam technology could be seen as
an early signal of an attitude of destructive technology over contemporary, smart and sustainable practices in water management.

It seems that Rous is in line with the State and Federal policy to expand the state population from 6.75 to 18 million by 2060 (275%).
This translates to a population in our region of 400,000 by 2115 (95 years off), and explains the apparent overcapacity of the proposed Dunoon Dam to match that.
Ref: "NSW Blueprint 2040". This, I understand, is driven by the National Water Infrastructure Development Fund and backed by fast-tracked massive loans.
An agenda of this proportion needs to be made transparent, because according to Rous general manager, in response to a question from
councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
Water is already a costly service for the average householder. A plan that increases costs, at the same time as wasting water in toilets and
laundries is not acceptable.
2. **Increased dangers of intense weather events:**There is no mention in the Future Water Project 2060 of the increasing dangers,
that we are seeing globally, of intense weather events. In this case, a Possible Maximum Flood.
Regardless of one's belief in the causes,
global heating is occurring and this needs to be taken into account in any plans for water security for the future. The dam, in a maximum flood,
is likely to endanger households directly below the dam as well as those situated on Keerong Road.

Projections need to include more than population increase. They need to include consideration of devastating effects of increases in
rainfall and flooding such as information about the insurances held by Rous County Council to cover damages occurring as a result of the
dam construction. A project of this dimension needs to cover these matters for it to have any credibility with ratepayers. I would need to see
transparent reports from a number of hydrology engineers on the safety aspects. I therefore find the proposal unacceptable as this has not been
done at the outset. Global weather patterns have changed significantly the initial proposal for the dam ten years ago.

3. **I support an investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs.
(We understand Rous has *not* costed this in creating their future water plan) Existing research over the past decade consistently finds that the
best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.[7] [8] Professor Stuart White
from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly
how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially,
environmentally and socially irresponsible.[9] (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

4. **I support Water re-use in various ways,** including Purified Recycled Potable water. A wealth of global research and experience already exists regarding
potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?
https://www.waterra.com.au/publications/document-search/?download=1806[9] Example: The city of Windhoek in Namibia in Southern Africa has
been using purified recycled water for 30 years using advanced technology.
https://www.wingoc.com.na/our-history[10]

5. **I support Water harvesting** (urban runoff; rain tanks): Water tanks on all new (and existing) developments.[11] *This builds community resilience.*

6. **I support Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
Thank you

Carol Perry

From: [redacted]
To: Records
Cc: [redacted]
Subject: Submission - The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 7:54:52 AM

We Do Not support the proposed Dunoon Dam for the following reasons:

**** The valley & gorge where the dam will be constructed is unique. The flora, fauna and ecosystem ecology is rare and irreplaceable. You only need to have walked the gorge to understand this. Our family have [redacted] for 30 years and know it is home to such an abundance of life and provides a habitat that will never be replaced by remedial work. The remnants of big scrub rainforest, the sandstone base, all contribute to its uniqueness. How can anyone in their right mind choose this location for a dam.

**** The proposed site holds significant relevance to the Widjabul Wyabul people of the Bundjalung nation. This must be respected, respected not just in words but in actions. Too often sacred sites are being decimated, our first nation people's history destroyed. Talk the talk, walk the walk, hands off!

**** The proposed Dam wall is situated so close to the Channon village. Why would this be contemplated. Yes modern engineering technique's etc etc. But why risk an unforseen incident that could have disastrous effects. Who will hold their hand up then and say "we were responsible, we chose this location".

**** We believe the answer to future water needs are based in water efficiency, a diversified range of sources and technology, and a consistent approach across the LGA's involved. Stop thinking about the cheapest option for now. Sustainability will not be achieved through another dam on the same water source. Who did the Risk Management on this approach? Don't risk the Region's funding and future by putting all your eggs in the one basket. Are we not always being told to think smarter, think outside the box. The proposed dam is just more of the same, not just the same technique but the same water source.

We say:

No to the destruction of a unique environment.

No to the decimation of aboriginal sacred sites.

No to the proposed dam.

Maria Gillam
Robert Gillam
Michael Reed
Judy Reed

[redacted]

From: [redacted]
To: Records
Subject: Re: Submission - The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 8:01:40 AM

On 9 Sep 2020 07:54, [redacted] wrote:

> We Do Not support the proposed Dunoon Dam for the following reasons:
>
> **** The valley & gorge where the dam will be constructed is unique. The flora, fauna and ecosystem ecology is rare and irreplaceable. You only need to have walked the gorge to understand this. Our family have lived in [redacted] 30 years and know it is home to such an abundance of life and provides a habitat that will never be replaced by remedial work. The remnants of big scrub rainforest, the sandstone base, all contribute to its uniqueness. How can anyone in their right mind choose this location for a dam.
>
> **** The proposed site holds significant relevance to the Widjabul Wyabul people of the Bundjalung nation. This must be respected, respected not just in words but in actions. Too often sacred sites are being decimated, our first nation people's history destroyed. Talk the talk, walk the walk, hands off!
>
> **** The proposed Dam wall is situated so close to the Channon village. Why would this be contemplated. Yes modern engineering technique's etc etc. But why risk an unforseen incident that could have disastrous effects. Who will hold their hand up then and say "we were responsible, we chose this location".
>
> **** We believe the answer to future water needs are based in water efficiency, a diversified range of sources and technology, and a consistent approach across the LGA's involved. Stop thinking about the cheapest option for now. Sustainability will not be achieved through another dam on the same water source. Who did the Risk Management on this approach? Don't risk the Region's funding and future by putting all your eggs in the one basket. Are we not always being told to think smarter, think outside the box. The proposed dam is just more of the same, not just the same technique but the same water source.
>
> We say:
>
> No to the destruction of a unique environment.
>
> No to the decimation of aboriginal sacred sites.
>
> No to the proposed dam.
>
> Maria Gillam
> Robert Gillam
> Michael Reed
> Judy Reed
>
> [redacted]

Submission Re: Proposed Dunoon Dam within the Future Water Project 2060

To: General Manager
Rous County Council
PO Box 230
Lismore NSW 2480

From: Gai Longmuir
Bodhi Farm
[redacted]

Dear General Manager,

Thank you for the extension to the timeframe for submissions on this vital matter. It has given people the opportunity to learn about the extent of the project and its many implications.

I DO NOT support the proposed The Channon Dunoon Dam for these reasons:

* Construction of the dam and the huge costs involved represents a lost opportunity to invest in system wide water efficiency. This is the cheapest, fastest, most comprehensive way to ensure supply demand balance. Sydney was recently able to supply water to an additional 950,000 people utilising system efficiencies without a rise in consumption. (1)

* Destruction of important Indigenous cultural heritage, including burial sites. (2)

* Destruction of The Channon Gorge and it's endangered ecological community of lowland rainforest, threatened flora and fauna species (3), including critical koala corridors and habitat.

* Negative impact of an Industrial/construction zone for The Channon/Dunoon community: heavy machinery, high levels of noise, movement of trucks, visual impact and implications for visitors to the World Heritage rainforests nearby,

* Increased water costs to consumers, predicted to be a 4 fold increase.

* Loss of opportunity to create smart solutions through innovation, education and incentives for further developing options to reduce demand for low level functions, e.g. grey water systems, tanks for new and existing properties, composting toilets, education programs for the range of water re use options. (4)

At a time of profound uncertainty, in a Climate Emergency, with so many pressures on our ecosystems and the huge economic demands associated with Covid issues, it seems a critical time to apply fresh thinking to difficult issues. It is an opportunity for Rous to fully embrace demand management and utilise existing resources without the environmental destruction, social costs and the risk of over capitalising on huge and unnecessary dam. In making your decision you will all have an opportunity to create a resilient and progressive water policy.
Thank you for your hard work on this difficult and complex issue.

Yours sincerely,
Gai Longmuir

References:
(1) Metropolitan Water Plan 2006, NSW Government. Exec. Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) $220 million dollars the estimated cost of the new dam could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than

covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).

From: J ie Mcmaster
To: Records
Cc: [redacted]
Subject: e p oposed Du oo Da w t t e F: tu e Wate P oject 2060
Date: Wednesday 9 September 2020 8:33:53 AM
Attachments: page2image935424.png
page2image948864.png
page2image934464.png
page3image996288.png
page3image996672.png
page3image996864.png
page3image852928.png
page4image858112.png
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Julie Mc Master
[redacted]

Dear Rous Councillors and General Manager

Firstly thank you for supporting the extension of the submission date The commu ity appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I have lived in this area for the last forty years and my family and I have enjoyed the rainforests, creeks and wildlife in this area.I would like to support the local community of farmers and nature enthusiasts, local and national scientists, ecologists Hyde and sewage engineers in oppo ing the de elopment of the Dunoon Dam so as to protect this unique area.

I DO NOT support the proposed The Channon-Dunoon Dam f he e e so s

- **Lost opportunity to invest in system-wide water efficiency** - this is th cheapest & fa est way to nsure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropoli an Water Pla 2006, NSW Government) [1]

- **The 21st century is about a suite of smart water options.** This dam ould be lost oppor unity to make our system fit for he 21s century. It would swallow al resources in one big expensive 'white dinosaur' project.

- **The dam would encourage continued inefficient and often st f l wate manag m b l l go m nt** They would have no incentive to do things differently.

- **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011)[2] Ongoing disregard for First Nations' heritage.

- **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest** (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)[3]

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. [ ]

Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.

- **Industrial/construction zone** for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

- **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

- **The small population increase** predicted for the four Rous-supplied councils of 12,720[5] between 2020-2060 **does not justify** such a large and destructive dam. The dam risks being **an expensive white dinosaur**, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, *'NSW population projections* ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti ons> scroll down to "Local Government Factsheets".[5]

- **Catastrophic flooding downstream in worst floods,** particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)[6]

- **Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.**

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

- **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has *not* costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.[7] [8]

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.[9] (Stuart White, 2020 www bit ly/Prof-Stuart-White-Rous-slides)

- **Water re-use in various ways,** including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?

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https://www waterra com au/publications/document-search/?download=1806[9]
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history/[10]

- **Water harvesting** (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.[11] *This builds community resilience - much needed as the recent extreme bushfire season has shown.*

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.[12] https://www.yourhome.gov.au/water/rainwater

- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

- **Groundwater, where this is environmentally safe**

The Australian government provides a lot of information on the ecological impacts and groundwater usage.[13] https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Thank you

Regards

Julie Mcmaster

From: Elushia Parker
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 8:35:47 AM

Wendy Parker

[redacted]

9th September 2020

Rous County Council,

Lismore NSW 2480

<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

My name is Wendy Parker and I have lived in the [redacted] for 16 years. I have lived on the coast mostly but have also lived in [redacted]. I know the extreme impact this dam would have on all our wildlife and trees and the loss is far too great. I am writing to express my objection to the proposed dam because our environment can not sustain us continuing to use resources as we do. Its our responsibility as humans to modify our water use. I propose recycling water that is currently wasted and a change in how we use water. People living on the land all use water "wisely" its is well within everyone's ability to begin to be more aware starting now. I value the habitat that exists in this area and believe at this time of climate emergencies we consumers of resources are ready and willing to do what it takes to have less impact on the environment. At every level our lifestyles need to change starting with water use and consumption of resources

Thankyou for supporting the extension of the submission date. We also acknowledge the complexity of what Rous does to provide water to our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

●Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW

Government)

(1)

●The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

●The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

●Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)

(2). Ongoing disregard for First Nations' heritage.

●Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

Councils are required under State planning regulations to: “Focus development to areas of least biodiversity sensitivity in the region and implement the ‘avoid, minimise, offset’ hierarchy to biodiversity, including areas of high environmental value.” NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03 August 2020 https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan,

Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

Rous is required to avoid this destruction because there are economically viable and more effective solutions.

●Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

●Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

●The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, ‘NSW population projections ’, Sydney, viewed 03 August 2020,

https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections

scroll down to “Local Government Factsheets”.(5)

●Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

●Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives.

The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

●An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan) Existing research over the past decade consistently finds that the best ‘bang for-buck’ investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal “The Rous Sustainable Water Program” which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

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https://www waterra com au/publications/documentsearch/?download=1806

(9)

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(10)

●Water harvesting (urban runoff; rain tanks):

Water tanks on all new (and existing) developments.

(11)

This builds community resilience -much needed, as the recent extreme bushfire season has shown.

The Australian government advises that:

“Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.”

Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12)

https://www.yourhome.gov.au/water/rainwater

●Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

●Groundwater, where this is environmentally safe

The Australian government provides a lot of information on the ecological impacts and groundwater usage.

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https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary

References and Notes

(1)

Metropolitan Water Plan 2006, NSW Government Exec Summary section of the doc

https://www dropbox com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary pdf?dl=0

(2)

Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

(3)

SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

(4)

NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www planning nsw gov au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments

(5)

NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www planning nsw gov au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets"

(6)

Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia

(7)

The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore

(8)

Watson R , Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney

(9)

Stuart White, 2020 www bit ly/Prof-Stuart-White-Rous-slides)

(10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide

(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www wingoc com na/>

(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation That is 1 66GL storage with no evaporation and much increased community resilience for future climate risks This more than covers the 0 9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous)

(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www yourhome gov au/water/rainwater>

(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www environment gov au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

From:	dennis brown
To:	Records
Subject:	Proposed Channon Dunoon dam
Date:	Wednesday, 9 September 2020 8:42:15 AM

CYBER SECURITY WARNING – This message is from an external sender – be cautious, particularly with hyperlinks and/or attachments.

Dear Councilors

Please read Annie Kia's and Nan Nicholson's articles in the September issue of the Nimbin Good Times newspaper and consider that there are more cost effective and less destructive ways of ensuring we have enough water to meet our needs than building a very expensive dam .

Yours faithfully
Dennis Brown

From: Kim Brereton
To: Records
Subject: Proposed Dam at Dunoon/Channon
Date: Wednesday, 9 September 2020 8:44:36 AM

CYBER SECURITY WARNING – This message is from an external sender – be cautious, particularly with hyperlinks and/or attachments.

I wish to voice my opposition to the proper dam at Dunoon/Channon. My submission is brief, but I cannot let the submission date go by without expressing my grave concerns at the prospect of this dam going ahead. I've lived in the area for over 30 years. Like many others my life is busy. I've raised a generation of children in the area and now supporting my 3 grandchildren. I want them to be able to grow up and continue to live the lifestyle I was fortunate to have. The prospect of the dam was on the agenda many years ago and now it's back. Future planning requires new initiatives in a changing world. The dam is not the solution. Projection for massive population growth and consumption. Water reducing technology, rain water tanks and further investment into new methods of water saving are the only way. We can not carve up our precious unique Sub tropical environment With diverse and unique flora and fauna... a diversity hot spot. Please make the wise and ethical decision to go no further with this destructive project.
Kim Brereton. [redacted] [redacted]
Sent from my iPhone

From:	Tristan Mules
To:	Records
Subject:	Proposed Dunoon Dam
Date:	Wednesday, 9 September 2020 8:53:35 AM

Hi Rous

Please register this as a concern raised against the building of the above dam, with reasons being further entrenchment of the extent of human control over the planet, further centralisation and control of humans by the government, and a decision made by unelected and unqualified officials (Rous councillors) to supposedly act on behalf of people whom they have not consulted.

Thanks
Tristan Mules

From: chris cooney
To: Records
Subject: Dunoon Dam
Date: Wednesday, 9 September 2020 8:59:31 AM

CYBER SECURITY WARNING – This message is from an external sender – be cautious, particularly with hyperlinks and/or attachments.

To whom it may concern
9/9/2020
Submission
Having listened to both sides of this difficult situation I am now in agreement with those groups who are opposed to this dam being built. Please note that the people who have presented indepth submissions have a long experience in environmental protection.

Chris Cooney

[redacted]

[redacted]

From:	peter lehner
To:	Records
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Wednesday, 9 September 2020 9:00:54 AM

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peter lehner
[redacted].

Dear Rous Councillors and General Manager Re: The proposed Dunoon Dam within the Future Water Project 2060

there's a LOUD NO from me and my community about this destructive and unnecessary dam proposed

no, please educate our community with water care, effeciency and smart water options instead.

wake up to the changes needed and stop destructing sacred sites and habitat for precious fauna and flora

love and morelove (lovemore)
peterlehner
--
I currently live and work on the land of the widjabul waibel people of the Bundjalung Nations. Wherever we live and walk in Australia, we live and walk on Aboriginal or Torres Strait Islander land. Their Sovereignty - never ceded <3

From: Helene Collard
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 9:18:28 AM

Helene Collard
[redacted]

9th September
Rous County Council,
Lismore NSW 2480
council@rous.nsw.gov.au

Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Project 2060

Hello, I am a local resident and I strongly oppose the proposed Dunoon Dam.

Thank you for supporting the extension of the submission date. I also acknowledge the complexity of what Rous does to provide water to our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
• Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)
(1)

• The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
• The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
• Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
(2)
. Ongoing disregard for First Nations' heritage.
• Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)
(3)
.
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

(4)

Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
● The small population increase predicted for the four Rous-supplied councils of 12,720
(5)
between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".
(5)

● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)
(6)

● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet
our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.
(7) (8)

Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.
(9)
(Stuart White, 2020

www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?

https://www.waterra.com.au/publications/document-search/?download=1806
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Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history
(10)

● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.

(11) This builds community resilience -

much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.”
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
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The Australian government provides a lot of information on the ecological impacts and groundwater usage.
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With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental
destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03
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, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, ‘NSW population projections ’, Sydney,
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(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for
Hunter Water, Institute for Sustainable Futures, Sydney.
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(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of
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<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr
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Helene Collard
B.Trauma&Healing (Law & Justice)
Specialist Trauma-informed Facilitator
Professional Reiki Teacher & Practitioner
[redacted]

From: V
To: Records
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 9:18:43 AM

Varesha Stepanavicius

[redacted]

Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

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Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.

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4. NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney,

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5. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets".
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7. The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.
8. Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney.
9. Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
10. Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
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12. Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
13. Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

Yours in hope,

Varesha Stepanavicius.

Ms Robin Allan (F)
[redacted]

8th September 2020

Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

Firstly, thank you for supporting the extension of the submission date. The community appreciates it. I also acknowledge the complexity of what Rous does to provide water to our region.

I have lived and owned property at [redacted] for 45 years. We own 5 beautiful acres with a house built by my husband, John Allan. The house is approximately 600 metres from the proposed dam wall, on our neighbour's land. Our land is largely regenerating forest, mixed wet sclerophyll, lowland rainforest and warm temperate rainforest. Our whole property is situated on a sandstone bed, one of the rare parts of this area that pre-dates the Wollumbin (Mt Warning) volcanic eruptions, around 23 million years ago.

Our own few acres are but a tiny scrap of this unique ecology; consequently our extraordinarily diverse ecology of trees and associated flora, bisected by a tiny trickling creek, is unlikely to remain viable without the protection and support of the forest next door, which will be concreted, flooded and replaced with a different ecology altogether.

One of my favourite forest friends grows only 30 paces from our back door. It is a fragile and rare 'Small Bolwarra' tree, *Eupomatia Bennetti*, a remnant of Gondwanaland forest which has been around for over 50 million years. Each spring I wait eagerly for the one day it flowers, a single waxy creamy flower, pink tinged, growing on the leading growing tip. On the one day it flowers, it is (hopefully) pollinated by a weevil I have never seen – also a Gondwanaland relic. This pairing of rare

and precious tree and weevil are unlikely to survive the drying that will be caused by the clearing you intend to do for the dam.

Our children and two of our grandchildren grew up wandering this forest, our neighbour's forest and the lower reaches of Rocky Creek, above the bridge over The Channon Road. They perfected their swimming in a beautiful platypus-inhabited swimming hole which will, if the dam goes ahead, be part of a concrete spillway. They frequently explored upstream, clambering over the sandstone rocks, paddling and swimming in other pools, discovering caves, glow-worms/fireflies, yabbies and a host of other water creatures, including swimming spiders. What we called 'the second swimming hole' (a prosaic name to describe stunning beauty) will be blasted and concreted over completely, its caves, sandstone lined pools, creatures and flora gone. As you can imagine, this is heart-breaking, and comes just as my third grand-child, my 11- year-old grand-daughter is now living nearby and exploring and delighting in this exquisite wonderland.

The noise pollution during the construction phase of the dam , only 600 metres away from our house, will also be a huge factor – not just for us, but for the local birds, the echidnas – extremely sensitive to the pressure changes in the ground from blasting – and to the wallabies, the koalas and others who share our home with us. I expect these creatures to pretty much disappear during the construction phase. Perhaps we will have to as well.

As you know, the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, as well as politicians, have all come forth in their outrage and in support of protecting this land I always knew was a unique ecosystem.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

● If the Dunoon Dam goes ahead it will be **a lost opportunity to invest in system-wide water efficiency** - which is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney was able to service an additional 950,000 people - without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)[1]

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● **The 21st century should be seen as an opportunity to leave behind costly, inefficient mega-projects like the proposed Dunoon Dam.** If this dam is approved we will have ignored a suite of smart water options which are fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

● The dam would **encourage continued inefficient and often wasteful water management** by local governments. They would have no incentive to do things differently.

● Construction of the Dunoon Dam will result in the **loss of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011)[2], and will be yet another example of white Australia's ongoing disregard for our First Nations' heritage.

● **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest** (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)[3]

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Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020. See: https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast See "Delivering the Plan, Direction 2: "Enhance biodiversity coastal and aquatic habitats and water catchments."[4]

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Rous is required to avoid this destruction because there are economically viable and more effective solutions.

● **Industrial/construction zone for The Channon/Dunoon community**; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

● **Higher prices for consumers** due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.

● The **small population increase predicted for the four Rous-supplied councils** of 12,720[5] between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions.

● **Catastrophic flooding downstream** in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)[6]

● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise **unnecessary, and stranded, asset.**

I SUPPORT these alternatives:

I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. These suggestions are 21st century thinking.

● **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan).

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[5] NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020: https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections Scroll down to "Local Government Factsheets".

[6] Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.

Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.[7][8]

Professor Stuart White from the University of Technology, Sydney (UTS) has provided a detailed and costed proposal "*The Rous Sustainable Water Program*" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.[9] See: www.bit.ly/Prof-Stuart-White-Rous-slides

● **Water re-use in various ways, including Purified Recycled Potable water**.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? See: https://www.waterra.com.au/publications/document-search/?download=1806 [10]

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history [11]

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(12) https://www.yourhome.gov.au/water/rainwater

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

● **Groundwater, where this is environmentally safe** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[14] With scalable supply alternatives in place, the existing supply from Rocky Creek Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Thank you for your careful and informed attention to this submission,
Yours sincerely, Robin Allan.

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From: Bobbi Allan
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 9 September 2020 9:26:48 AM
Attachments: Dunoon dam submission - Robin Allan.docx

See attached and below my submission in relation to the proposed Dunoon Dam within the Future Water Project. (The footnotes/references have not copied into this email – see the attachment for the full submission. Thank you, Robin Allan.

Ms Robin Allan (F)
[redacted]

8th September 2020

Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060

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● The **small population increase predicted for the four Rous-supplied councils** of 12,720[5] between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions.

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Thank you for your careful and informed attention to this submission,
Yours sincerely, Robin Allan.

Robin Allan

[redacted]

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Feedback Submission Re: Proposed Dunoon Dam within the Future Water Project 2060

To: General Manager, Rous County Council
PO Box 230, Lismore NSW 2480

From: STACEY KNIGHT

Address: [redacted]

Firstly, the community appreciates the submission extension. We also acknowledge the complexity of the work Rous does to provide water for our region.

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- **Lost opportunity to invest in system-wide water efficiency**. This is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption.[1]
- **The 21st century is about a suite of smart water options.** This dam would be a lost opportunity to make our system fit for the 21st century by swallowing all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and wasteful water management by local governments.** They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage,** including burial sites.[2]
- **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest**, threatened flora and fauna species.[3] Rous's plan to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone is problematic as the type of vegetation offered as recompense is not equivalent.(Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value."[4] Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.
- **Industrial/construction zone** for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
- **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
- **The small population increase** predicted for the four Rous-supplied councils of 12,720[5] between 2020-2060 **does not justify** such a large and destructive dam. The dam risks diverting expenditure away from more sustainable, flexible and effective solutions.[5]

I SUPPORT these alternatives:

We need a suite of smart water options and proven alternatives, not a huge new dam. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too.

- **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. *(We understand Rous has not costed this in creating their future water plan)* Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.[6] [7]

- **Water re-use in various ways, including Purified Recycled Potable water.** A wealth of global research and experience exists regarding potable reuse of water.[8] Eg: The city of Windhoek in Namibia has been using purified recycled water for 30 years using advanced technology.[9]
- **Water harvesting** (urban runoff; rain tanks):
  Water tanks on all new (and existing) developments.The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."[10] Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.[11]
- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[12]

With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

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Kind regards, Signature: [redacted] Date: 8/9/2020