

[REDACTED]

From: Leah Seed [REDACTED]
Sent: Wednesday, 9 September 2020 9:58 PM
To: Records
Cc: [REDACTED]
Subject: The proposed Dunoon Dam within the Future Water Project 2060

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

Leah Seed
[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 grew up in [REDACTED] and the environment and community of the area are still a significant part of my life. I care deeply about loss of habitat and also the impact that this will have on the wellbeing of the community. I also feel that the decisions made have a much broader impact on society into the future and once made, cannot be undone.

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 (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 (2) 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) .

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.

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.(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/Projections>> scroll down to "Local Government Factsheets".
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)
- 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.

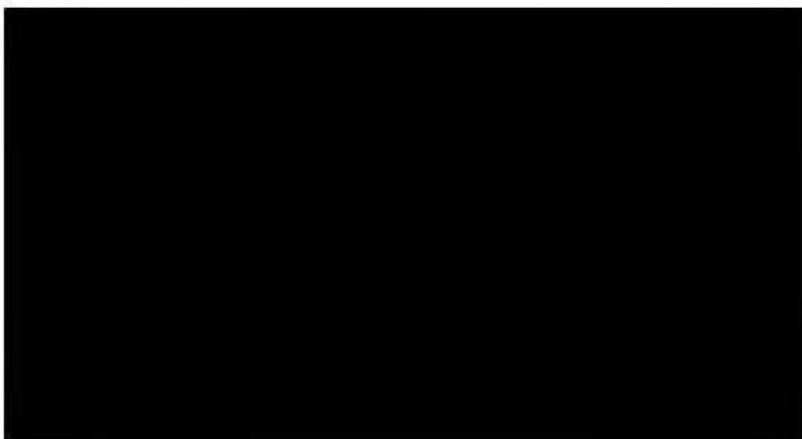
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

- 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 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, environmentally and socially irresponsible. (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? the existing supply.

<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 (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 flooding and scouring of creeks. [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.

<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>
(11)

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, V eolia 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>>

[Sent from Yahoo Mail for iPhone](#)

[REDACTED]

From: Barb Jestico [REDACTED]
Sent: Wednesday, 9 September 2020 10:35 PM
To: Records
Cc: [REDACTED]
Subject: The proposed Dunoon Dam within the Future Water Project 2060

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

Barbara Jestico

[REDACTED]

Female

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

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

As part of The Channon Community I, like others, thank you for the extension date for our submissions. I also acknowledge the complexity & service that Rous water does provide for our region.

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

- 1. Flooding Rocky Creek area would be a complete catastrophe to the wildlife, flora and ecosystem and you know it.**
- 2. The original plans for this dam came about in the 1970s, there are far more modern ways of providing water to the area and you know it.**
- 3. Fix the leaks – thousands of tons of water is saved when you fix the leaks so a dam will not be needed.**
- 4. And last but definitely not least The Channon and wider community are an educated and informed group who urge you seek a better way of providing water for this area without a new dam.**

Barb Jestico

I live [REDACTED] and love it here.

[REDACTED]

From: Luis Feliu [REDACTED]
Sent: Wednesday, 9 September 2020 11:45 PM
To: Records
Cc: [REDACTED]
Subject: The proposed Dunoon Dam within the Future Water Project 2060

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

To: Rous County Council,
[REDACTED]

Dear Rous councillors and General Manager

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

I'm gobsmacked that in 2020, looking ahead to 2060, the dam option is your preferred option for securing water well into the future.

I ABSOLUTELY OBJECT to such a backward proposal, when demand management has not been seriously looked at (a cheaper water-wise education campaign for those on reticulated water), leakage from the regional water system is way too high (around a quarter!), rainwater tanks not mandated or subsidised, even recycling grey water (purple pipes) is not regarded essential by some of your member councils for greenfield development sites.

This is a last-century solution when new ways of recycling, using and harvesting water are here and now, they're just ignored.

I moved to the area almost five years ago and live near [REDACTED], a place of rare beauty which many people regard as a jewel of the area, including its lower reaches with their swimming holes, platypus, birds, rare rainforest, all of which will be severely impacted if a dam is built lower downstream.

I take my grandchildren down there when they visit us here and they were shellshocked when I recently told them a dam to flush more good drinking water down the toilet is planned to be built nearby.

Please stop this insanity!

If flooded, the beauty of the area, its Aboriginal heritage and ecological values will be lost forever.

I urge councillors and staff at Rous to take the time to walk and look at this world-class rainforest area and waterfalls which is part of that creek system, it's simply magnificent.

The recent Rio Tinto controversy where an ancient Aboriginal heritage site was wilfully destroyed has sparked outrage all over the world. I see this plan to dam as equivalent cultural destruction. The dam option has no sound planning nor a basis on whole-of-catchment savings which would negate this nonsense of putting it at the top of a water-security wish list.

I strongly believe we need to take action on a range of available water-wise options and proven alternatives. The tide is turning on renewable and sustainable power and it's well past time to act with this in mind.

By now you would have read or been told in the many other submissions the very important reasons why this option should be discarded, including:

1. Not modelling system-wide water efficiency, which has been proven that by doing so, Sydney added an additional 950,000 people without a rise in consumption, according to the NSW Government.
2. A dam would encourage continued inefficient and wasteful water management by local governments.
3. It's old-hat thinking and not fit for the purpose or future, a single-use dam plan would swallow all resources in one big expensive 'white dinosaur' project.
4. Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
5. 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.
6. There are economically viable and more effective solutions to secure water for the future growth of the region, so Rous can and should avoid this destruction.
7. Noise and visual impacts will be ongoing.
8. It's an un-economic plan with expected higher prices for consumers due to a quadrupling in the cost of water (according to the Rous general manager).
9. The small population increase predicted for the four Rous-supplied councils over the next 40 years does not justify such a large and destructive dam.
10. Water re-use in various ways, including Purified Recycled Potable water. Third-world countries are doing it so why can't we?
11. Water harvesting (urban runoff, rain tanks) with water tanks on all new (and existing) developments promoted or mandated.

Luis Feliu



September 9, 2020

[REDACTED]

From: David Rowell [REDACTED]
Sent: Wednesday, 9 September 2020 11:58 PM
To: Records
Cc: [REDACTED]
Subject: The proposed Dunoon Dam within the Future Water Project 2060

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

David Rowell and Elizabeth McLeod
[REDACTED]

Dear Rous Councillors and General Manager

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

I won't beat around the bush. The proposal to build ANOTHER dam on Rocky creek is appalling!.

Widjabul-Wiyabal impacts

"In terms of the indigenous heritage impacts (there are scar trees and graves in the area to be impacted, with 18 sites identified so far) Cr Williams said, 'the point is to talk to the local people who are concerned, **not just everybody around who's got an opinion**, but the people for whom this is actually a special place, who may have some relationship to the things that are there.'" <https://www.echo.net.au/2020/07/rous-water-chair-puts-case-for-the-dunoon-dam/>

Keith, this is such a transparent attempt to divide and conquer and what's more I found that expression "not just everybody around who's got an opinion" pretty offensive. On the one hand Rous invites the public to make a submission on the proposed Dunoon dam, then on the other hand you try to publicly disenfranchise the opinions of the public before they have even had a chance to make submission. So what, as a non-indigenous Australian, do you want **US** to just look the other way while Rous Council "Rio Tinto's" the culture of the indigenous population of the Lismore LGA. That is not going to happen. It is not the 1950's anymore Keith!

Destruction of remnant Big Scrub

I am sorry but adding another dam to Rocky creek to provide water for McMansions with 11 flush toilets at Broken Head is just WRONG. The Big Scrub is an ancient public asset that was decimated. Over the last 30 years it has been brought back from the edge of extinction. Why anyone would think another dam on Rocky Creek is a good idea is beyond me.

Regards

David Rowell.

[REDACTED]

From: jesse kelly [REDACTED]
Sent: Wednesday, 9 September 2020 9:12 PM
To: Records
Cc: [REDACTED]

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

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

Jesse Kelly
[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. I would like to also acknowledge the complexity of what Rous does to provide water to our region.

I am the owner of a 60 acre property located at the end of [REDACTED].
Each day, I merge [REDACTED], and look over to the proposed Dunoon Dam site.
This deeply concerns me as a land owner, rate and water paying resident and community member [REDACTED] LGA.
This Dam would drastically change the face and identity of the Dunoon & The Channon villages.
I find the proposed project has not sufficiently taken into account the needs and concerns of the local community.

I implore you to take the opposition of this Dam seriously and do not commence on this project.
I outline the reasons against and suggested alternatives below.

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 oversized and unnecessary dam.

Sincerely,
Jesse Kelly.

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>>

FUTURE WATER PROJECT 2060

Rous County Council

Comment from

Evans Head Residents for Sustainable Development Inc.

1. We have examined the six “key documents”¹ regarding the *Future Water Project* and generally commend the County Council and its consultants for the comprehensiveness of their reports including consideration of various scenarios.
2. Notwithstanding this body of work there are still major problems which have not been addressed in these reports, and concerns raised by their findings.
3. Rous County Council (RCC) is clearly hooked on a growth strategy being promulgated by the State governments in their various regional plans. These State plans are long on rhetoric and ‘talking up or advocating for growth’ and very short on detailed analysis and empirical support. They NEVER consider the fact that we live in a finite world with finite resources. No attention is giving to ‘limits to growth’ which include the capacity of the land (read environment) to carry, sustainably, an increasing population. The question is just how many people can you put on the paddock before the environment is damaged or can no longer cope?
4. The Northern Rivers Regional Strategy Secretariat produced a *Discussion Paper: A Region of Villages* (Feb, 2001) which showed that the Northern Rivers was already past its ‘carrying capacity’ almost 20 years ago. Since that time there has been considerable growth although not quite the growth anticipated in the State government Regional Strategy Papers. While the *Region of Villages* paper was initially widely embraced by Councils who supported the project when it was claimed that the region was little over 10% of our carrying capacity, the project was abandoned in a wholesale fashion when a simple error in calculation showed that we were well over that capacity. In other words the councils were happy to embrace the report and its assumptions as long as it fitted with their appetite for growth. Basically councils demonstrated that they were not interested in what happened to the environment when we were past carrying capacity and were driven in their decisions about the future by economic considerations alone. Things have not changed since that time and growth and economic considerations alone are the basis for the assumption that we must build a new dam while the environment is left to hang out to dry. Sustainability does not really figure in any discussion at all about our future.
5. The CWT Feasibility Report on Water Reuse, one of the six “key reports”, demonstrates unequivocally that the environment counts for nothing. Examination of the data provided by the various Councils (served by Rous) for their Sewerage Treatment Plants shows that many of them are producing effluent which while sometimes meeting certain out-of-date criteria for environmental discharge acceptability set by government, are, none-the-less continuing to pollute the environment with impaired water quality (see Tables 5-4 through 5-9). Of course it is argued elsewhere that it is too costly to clean up

¹ https://rous.nsw.gov.au/cp_themes/default/page.asp?p=DOC-KZG-22-16-87

the water to potable or even an acceptable standard for the environment demonstrating that the economic consideration trumps all other variables and the *Principles of Ecologically Sustainable Development*² are being ignored.

6. The failure to consider the environmental cost under the Principles of Ecologically Sustainable Development enshrined in various pieces of State legislation including the The Council's Charter (s.8) under the NSW *Local Government Act*:
 - s.8(A)2 (c) *to properly manage, develop, protect, restore, enhance and conserve the environment of the area for which it is responsible*
 - s.8(A)2 (d) *Councils should consider the principles of ecologically sustainable development*is a clear breach of the principles which should be governing decision-making with regard to management of the water cycle including future water supply.
7. One of the Principle of ESD is that of inter-generational equity. That principle requires *the present generation to ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations*. We see no evidence of this matter being addressed in the reports.
8. Another of the Principles requires the *Internalisation of external environmental costs, that is the polluter pays principle should be adopted. Those who generate pollution and waste should bear the costs of containment. Moreover, the users of goods and services should pay prices based on the full life cycle of the costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste*³.
9. We see no evidence that ESD Principles are being observed with regard to sewerage treatment and make the point that until there is a clean up of waste water to acceptable environmental and health standards where it could be used as part of the water supply there should be a moratorium on further growth on the Northern River.
10. What's happening here is that different aspects of the full water cycle are being treated in separate silos whereas they should be fully integrated into systems thinking about water management for the North Coast. It is basically being argued *sotto voce* that sewerage water is too costly to clean up for both potable and non-potable uses and so we will switch to other alternates which are cheaper, such as a new dam, while still continuing to pollute the environment with poor quality water from our STPs for which Rous is not responsible. It is just not ethical to kick the can down the road for the costs of fixing this problem to future generations. We have an obligation to make sure that we do not leave them a legacy of pollution as part of water cycle management.
11. The CWT Report also leaves us with concern about the basis for some decisions which have been made with regard to water reuse from STPs [WWTPs]. For example Section 2.3 on Richmond Valley Council states: *"it has been determined that the use of these two WWTPs [Coraki and Casino] as sources of recycled water is unlikely to be feasible"* but no empirical evidence is provided to support this decision. The reasons given are feeble and don't even pass 'the pub test'. 'Volume of discharge' and 'distance from a raw water

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http://www.lec.justice.nsw.gov.au/Documents/preston_principles%20of%20ecologically%20sustainable%20development.pdf

³ See footnote 2 for reference to material quoted here.

source' are not arguments against use for recycling particularly when you see that the Broadwater Sugar Mill refuses to use recycled water that could have come from the Evans Head STP for water cooling of the Mill instead of drinking water, and Council abandoned plans for recycling of water for a number of feasible locations for reasons which still are not clear except perhaps for cost. In the meantime the Evans Head STP continues to discharge effluent which is not potable and which comes from Evans Head, Broadwater and Woodburn into a waterway running into Salty Lagoon in Broadwater National Park. The lake is not suitable for swimming, etc. All of this begs questions about local government being guided by ESD Principles in its water cycle management. And it also begs questions about the independence of the decision-making. Who decided that recycling wasn't feasible and on what grounds? It would seem that economic decision alone was the basis for the choice.

12. Residential development is set to increase by 37% by 2060 and non-residential by 83% according to information provided in one of the six key reports producing a shortfall for future water supply in a region that is already past its carrying capacity in 2020. Building a dam is not the solution and irrational adherence to a growth model predicated on unsustainability is not the answer to the problem.

Concluding Remarks

We are opposed to the development of any dam for northern NSW because:

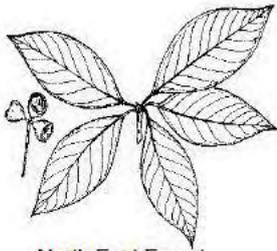
- a. the decision is based on a growth model which has not been demonstrated to be sustainable.
- b. the decision-making fails to take account of the information available to RCC for the past two decades that the Northern Rivers Region is already past its 'carrying capacity' for development yet chooses to ignore this critical information which was widely embraced at the time.
- c. The decision-making fails to take account of the Principles of Ecologically Sustainable Development, most particularly the Principle of Intergenerational Equity and the Principle of Polluter Pays. Economics prevail in the decision-making and the environmental cost is not considered at all.
- d. The decision-making seems to be partly based on assessments made by individual councils with no checks on the independence or validity of the advice offered.
- e. No convincing evidence-based case is made for dam development. The logic of the current case is that we need a dam because there will be more development.

There must be a moratorium on development and therefore a new dam.

Dr Richard Gates

For

Evans Head Residents for Sustainable Development Inc.



North East Forest
Alliance

NORTH EAST FOREST ALLIANCE

Dailan Pugh OAM
NEFA Co-ordinator

9 September 2020

Submission to Rous County Council Future Water Project 2060

This submission focuses on the Rocky Creek Dam catchment as this has previously been the subject of a detailed investigation by the author, which culminated in the submission of the report "Rocky Creek Dam Catchment Management, an issue of regional, national and international significance" (Dailan Pugh 2000) to Rous County Council, which in part assessed the influence on forest structure on water yields and recommended:

The available data on catchment yields needs to be collated and a detailed water balance for the Rocky Creek Dam catchment identified for incorporation into a review of regional water supply requirements. This needs to account for the effects of vegetation structure on water yields and identify the likely increases in yields resultant from a cessation of logging.

That report was presented to all councillors and a verbal presentation to the council was made. It is included as an Attachment to this submission.

This submission has been made at the last minute due to other commitments. Therefore only a quick scan of the documents relied upon to justify this proposal has been made, focussing on how the existing catchment has been considered, so something may have been missed. From this quick review it was assumed that MWH (2014) report Future Water Strategy Integrated Water Planning Process must be the relevant document to ascertain how catchment issues had been considered, as the catchment was not apparently considered in exhibited documents. Though no consideration of the water yields from the Rocky Creek Dam catchment was apparently attempted in any of the primary sources relied upon.

Rous County Council's website provides a glowing description of the 2900 ha catchment of Rocky Creek Dam

Rain falls into the catchment of Rocky Creek Dam. This catchment is a beautiful, healthy ecosystem of rainforest and is one of the best protected catchments in Australia.

Rain filters through the diversity of the subtropical rainforest canopy, eventually landing on the leaf litter of the forest floor. Even when no rain is falling, the water vapour of mist and cloud is caught by the leaves and branches of rainforest trees, forms into droplets and runs down the tree trunks into the leaf litter. Once on the forest floor, the water flows downhill towards creeks and gullies, forming tiny streams that rapidly enter the creeks flowing into the dam.

Not all of the water, however, stays near the surface. Some water soaks into the soil, following the roots of trees and cracks in the soil, and deeper into the ground. Eventually it flows into the groundwater, which also feeds the dam.

Though no mention of water yields from the catchment of the Rocky Creek Dam, and how this is affected by current and future vegetation structure has apparently been made. The abundant evidence I presented to Rous CC 20 years ago has apparently been ignored and Rous still refuses to prepare the needed "*detailed water balance for the Rocky Creek Dam catchment*" so as to identify future yields from the catchment into the dam.

As an example of an inherent problem with Rous County Council, in 1999 Rous Water's General Manager, Paul O'Sullivan claimed:

"For some years there has existed a concerted lobby opposed to logging in the Whian Whian State Forest (SF173) and in more recent times that group has sought to generate wider support for their objective by deliberately highlighting that the catchment of Rocky Creek Dam is within Whian Whian State Forest, and by inference, timber harvesting is putting the local water supply at risk! That inference is untrue, and Rous' comprehensive record attest to that. ... Surely it is only reasonable for of (sic) all parties to avoid speculation on matters where the substantive facts are available."

In 2000 I spent months collating relevant information from 105 scientific papers, reports and other relevant documents in the mistaken belief that Rous would consider such evidence on its merits. These included a report by State Forests on the Rocky Creek Dam, which very conservatively identified a current decline in water yield of 15-23% to the dam as a result of past logging. My report stated:

All the assessments of regional water supplies to date have failed to account for the effect that the structure of the vegetation in the catchment of Rocky Creek Dam has upon water yields to the Rocky Creek Dam. As stands of oldgrowth forests in the catchment were heavily logged there were initial increases in the percentage of the rainfall running off the disturbed ground. After a few years the developing regrowth began to use more water than the original oldgrowth forest for transpiration. Water yields then began to decline until bottoming out some 20-30 years after logging at well below the original yields. The majority of the Rocky Creek Dam catchment is generally considered to be at around this stage now. Continued logging will maintain the affected area around this minima, while a cessation of logging will allow water yields to gradually increase again in line with attributes of forest maturity.

State Forests (Cornish 1997) have conservatively estimated that logging has to date resulted in an overall reduction of 15-23% (5,600 to 8,400 megalitres - ML) in water yields to Rocky Creek Dam from the catchment. Though the actual reduction may in fact be as high as 16,800 ML (Sections 4.2.1, 4.2.3). If logging was now stopped in the whole catchment then its water yield will increase over time in line with forest maturity, with something like a third (1,900 ML to 5,600 ML) of the lost yields recoverable within the next 30 years and two thirds (3,700 ML to 11,100 ML) within 60 years.

The chairman of Rous County Council, Cr. Don Harvey, dismissed my report on the catchment of the Rocky Creek Dam out of hand (Echo 9/5/2000) without any attempt to consider my evidence about water yields.

Hydrosphere Consulting Pty Ltd (2020) Rous County Council Future Water Strategy Coarse Screening Assessment of Options identifies (taking climate change into account):

Rous County Council has identified an expected future shortfall in water supplies for the regional bulk supply system from 2024 and a supply deficit of 6,500 ML/a in 2060.

Despite Rous County Council, and thanks to local conservationists (including NEFA), no logging has occurred in the catchment of the Rocky Creek Dam since 1997. This means that water yields from the catchment have now passed their maximum reduction due to conversion to regrowth and are in a period of rapid recovery, and will go on recovering for the next 100 years. From my 2000 assessment it is apparent that the increasing yields from the ageing forest has the potential to meet a significant portion, if not all, of the increased water yields identified as required by 2060.

It is reprehensible that over the past 20 years that Rous has not apparently made any attempt to assess the significant increases in water yields from the Rocky Creek Dam catchment over time as the forest recovers from past logging. This is gross irresponsibility as there is no excuse for ignorance. As the saying goes, "you can lead a horse to water but you can't make him drink".

Time constraints have not enabled a reconsideration of my original 2000 report so it is attached in full. Though a more recent review of the effects of logging on water yields is presented below.

Logging Impacts on Water Yields

Of the rain that falls upon a forested catchment some is evaporated directly from leaf and ground surfaces and part may be redirected by surface flows directly into streams. Except in intense rainfall events, the majority can be expected to infiltrate the soil where it is used for transpiration by plants, with the excess contributing to groundwater seepage into streams or possibly seeping deep down to aquifers. In a natural forest situation most of the streamflow response to rainfall is provided by the groundwater system.

The [eWater CRC](#) notes:

All plants evaporate water through their leaves. This water is extracted from the soil root zone, and the rate of evaporation depends on the weather, the available soil moisture, and the total area of leaves in the vegetation (trees and understorey). There are differences between various forest types, but basically different forests have evolved to make optimum use of the available rainfall to ensure their survival. Streamflow in drier periods is the "left-over rainfall" that passes beyond the root zone and exudes into the stream from boggy areas and the water table next to the stream. In storms, water runoff also occurs where the rainfall is intense enough to exceed the capacity of the soil to absorb it, or where the soil is already saturated. This runoff results in rapid increases in streamflow, or floods during major storms.

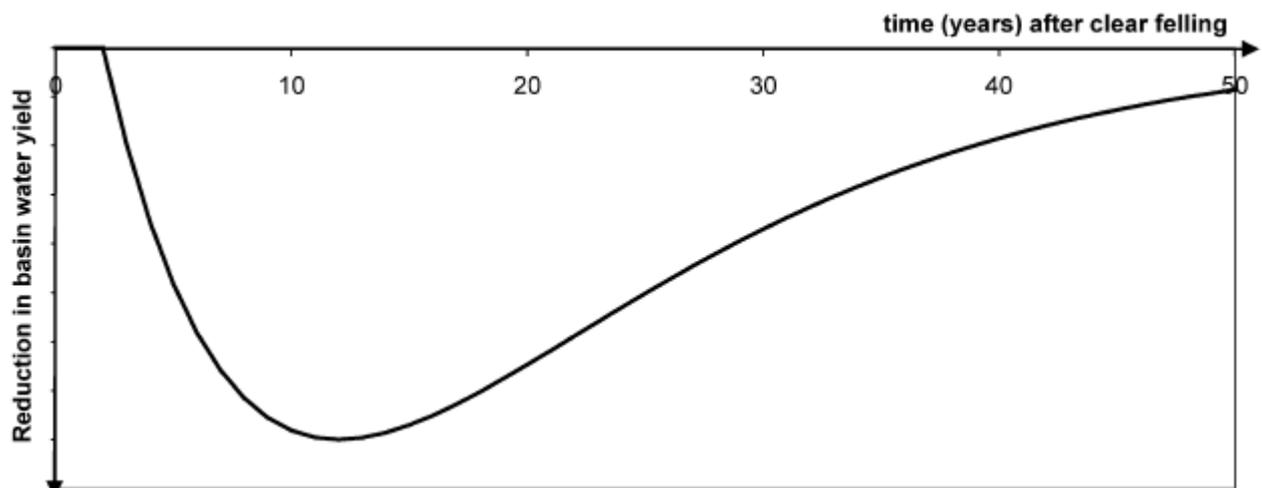
For example, during an average year at a south eastern Australian catchment where the annual rainfall is 1000 mm, the forest canopy may intercept and evaporate 150 mm of the rainfall before it reaches the ground. The forest may consume a further 750 mm by plant transpiration, leaving only 100 mm to appear as streamflow (this is equivalent to a water yield of 1 megalitre per hectare). Of this 100 mm, 80 mm may occur as short-term runoff during storms, while the remaining 20 mm occurs as sustained dry-weather flow or "baseflow".

Dargavel *et. al* (1995) note:

Streamflow is the residue of rainfall after allowing for evaporation from vegetation, changes in soil storage from year to year and deep drainage to aquifers. Forest management operations can interfere with these processes by:

changing the type of vegetative cover on a catchment. Experimental results show that these changes can affect evapotranspiration and therefore streamflow;
changing the soil properties. The ability of the soil to both absorb and store moisture infiltration can affect the proportion of rainfall delivered. Forest operations which compact the soil can reduce both infiltration and storage capacities.

The most significant relationship between water yields and vegetation is that related to forest age. The basic relationship between water yields and eucalypt forest age was established by studies of regrowth Mountain Ash forests following wildfires in Victoria. Kuczera (1985, cited in Vertessy *et. al.* 1998) developed an idealised curve describing the relationship between mean annual streamflow and forest age for mountain ash forest. This shows that after burning and regeneration the mean annual runoff reduces rapidly by more than 50% after which runoff slowly increases along with forest age, taking some 150 years to fully recover.



Kuczera (1985) Curve, reduction and recovery of water yields following loss of overstorey.

Tree water use has been found to be primarily related to sapwood extent, with the thickness of sapwood, and the basal area of sapwood declining as forests age, even though overall basal area increases (Dunn and Connor 1994, Roberts *et al.* 2001, Macfarlane and Silberstein 2009, Buckley *et.al.* 2012, Benyon *et. al.* 2017).

Dunn and Connor (1994) made diurnal measurements of sap velocity in 50-, 90-, 150- and 230-year-old mountain ash (*Eucalyptus regnans* F. Muell.) forests in the North Maroondah catchment finding "The measurements have shown a significant decrease in overstorey water use with age. At the extreme, measured daily water use of the mature forest is 56% smaller than that of the regrowth forest.", concluding:

There was a significant decline with age in the overstorey sapwood conducting area of these forests. In order of increasing age, the values were 6.7, 6.1, 4.2 and 4.0 m⁻² ha⁻¹, respectively. ... Annual water use decreased with forest age from 679 mm for the 50-year-old stand to 296 mm for the 230-year-old stand. ... The annual water use of the intermediate-aged stands was 610 and 365 mm for the 90- and 150-year-old stands, respectively.

Roberts *et al.* (2001) studied water use of different aged stands of *Eucalyptus sieberi* (Silvertop Ash) within Yambulla State Forest, with an average annual rainfall of 900 mm per year, finding:

Stand sapwood area declined with age from 11 m² ha⁻¹ in the 14 year old forest, to 6.5 m² ha⁻¹ in the 45 year old forest, to 3.1 m² ha⁻¹ in the 160 year old forest. LAI was 3.6, 4.0, and 3.4 for the 14, 45, and 160 year old plots, respectively. Because of the difference in sapwood area, plot transpiration declined with age from 2.2 mm per day in 14 year old forest, 1.4 mm per day in 45 year old forest, to 0.8 mm per day in 160 year old forest.

Macfarlane and Silberstein (2009) assessed the water use related characteristics of regrowth and old-growth forest in the high (1200 mm year⁻¹) rainfall zone of jarrah forest in Western Australia, finding (SAI sapwood area index):

The old-growth stands had more basal area but less canopy cover, less leaf area and thinner sapwood. ...SAI of the regrowth forest at Dwellingup (7.0 m² ha⁻¹) was nearly double that of the old growth 3.7 m² ha⁻¹),...

... At the old-growth site, daily transpiration rose from 0.4 mm day⁻¹ in winter to 0.8 mm day⁻¹ in spring-summer. In contrast, at the regrowth site transpiration increased from 0.8 mm day⁻¹ in winter to 1.7 mm day⁻¹ in spring-summer. Annual water use by the overstorey trees was estimated to be ~200 mm year⁻¹ for the oldgrowth stand and ~420 mm year⁻¹ at the regrowth stand, which is 17% and 35% of annual rainfall, respectively.

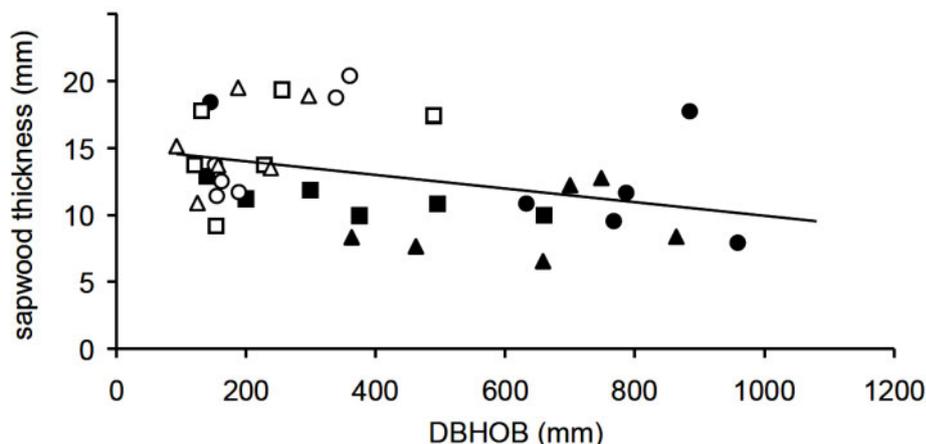


Figure 5 from Macfarlane and Silberstein (2009) sapwood thickness versus tree diameter (measured at breast height over bark, DBHOB) at the old-growth (closed symbols) and regrowth (open symbols) study sites.

For 'actual evapotranspiration' (E_a) Benyon *et al.* (2017) identify:

*... in even-aged eucalypt forests in south-eastern Australia, catchment mean overstorey sapwood area index (SAI), estimated from a relationship between stand mean sapwood thickness and tree density (trees ha⁻¹), applied to repeated measurements of tree density and mean tree diameter over several decades, was strongly correlated with catchment mean annual E_a , estimated as annual precipitation minus annual streamflow (Benyon *et al.*, 2015).*

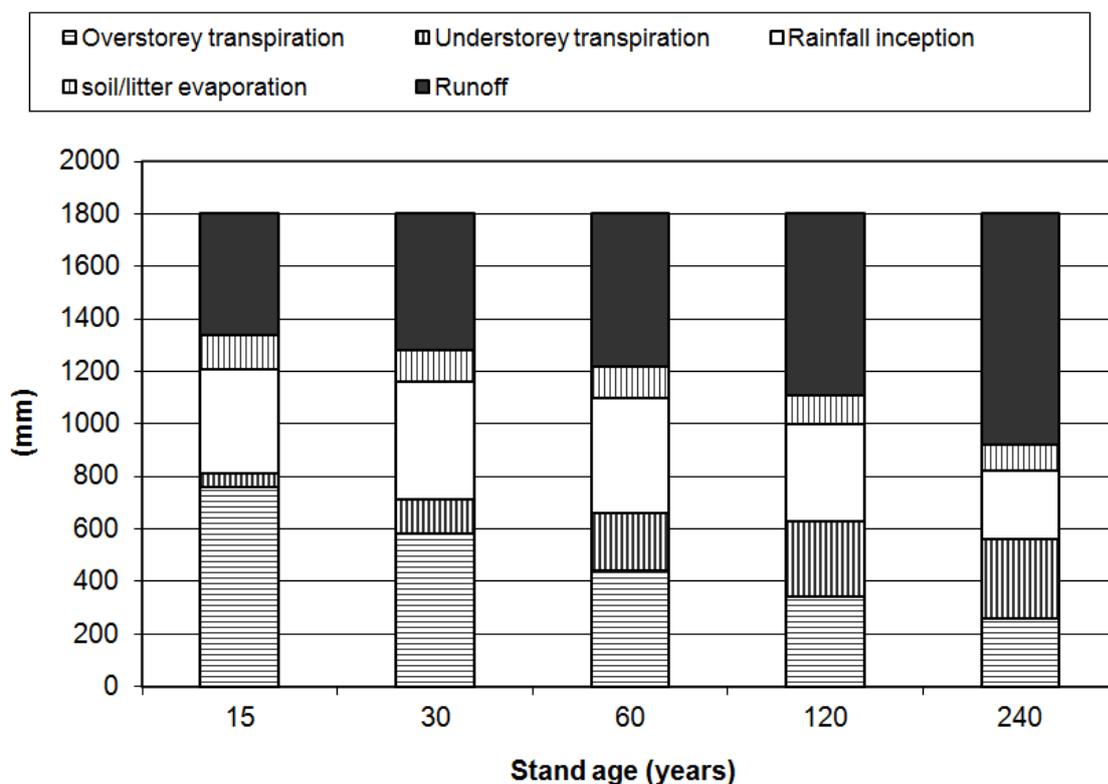
From their study of Mountain Ash forests, Benyon *et al.* (2017) concluded (E_a actual evapotranspiration, SAI sapwood area index):

In non-water-limited eucalypt forests, overstorey sapwood area index is strongly correlated with annual overstorey transpiration and total evapotranspiration. Interception loss from the overstorey is also positively correlated with overstorey SAI.

... Variation in SAI explained almost 90% of the between-plot variation in annual E_a across three separate studies in non-water-limited eucalypt forests. Our results support the use of measured spatial and temporal variations in SAI for mapping mean annual E_a (Jaskierniak et al., 2015b) and for modelling longterm streamflows in ungauged catchments (Jaskierniak et al., 2016).

Vertessy et al. (1998) have attempted to quantify the different components of rainfall lost by evapo-transpiration, identifying them as: interception by the forest canopy and then evaporated back into the atmosphere; evaporation from leaf litter and soil surfaces; transpiration by overstorey vegetation; and transpiration by understorey vegetation. All of these have been measured as declining with increasing forest maturity, with the exception of understorey transpiration which becomes more important as transpiration from the emergent eucalypts declines.

Water Balance for Mountain Ash Forest Stands of Various Ages



Water balance for Mountain Ash forest stands of various ages, assuming annual rainfall of 1800 mm (from Vertessy et al. 1998)

The generalised pattern following heavy and extensive logging of an oldgrowth forest is for there to be an initial increase in runoff from disturbed areas peaking after 1 or 2 years and persisting for a few years. Water yields then begin to decline below that of the oldgrowth as the regrowth uses more water. Water yields are likely to reach a minimum after 2 or 3 decades before slowly increasing towards pre-logging levels in line with forest maturity.

For Mountain Ash forest in Victoria, a mean annual rainfall of 1,800 mm/yr has been found to generate a mean annual runoff from oldgrowth Mountain Ash forest of about 1,200 mm/yr (Kuzcera 1987, Vertessy et al. 1998). After burning and regeneration the mean annual runoff reduces rapidly by more than 50% to 580 mm/yr by age 27 years, after which runoff

slowly increases along with forest age, taking some 150 years to fully recover (Kuzcera 1987). Following clearfelling of a forest there may or may not be an initial increase in water yields for a relatively limited period. Thereafter water yields usually decline relatively rapidly in relation to growth indices of the regrowth, after some decades maximum transpiration of the regrowth is reached and water yields begin to recover with increasing forest maturity.

In the Barrington Tops area Cornish (1993) found that “water yield decline exceeded 250 mm in the sixth year after logging in the catchment with the highest stocking of regeneration and the highest regrowth basal area”. This represents a major reduction given that the mean runoff pre-logging was only 362 mm (38-678 mm) and that only 61% of its catchment was logged.

Cornish and Vertessy (2001) report that the yields kept declining:

Water yields in a regrowth eucalypt forest were found to increase initially and then to decline below pre-treatment levels during the 16-year period which followed the logging of a moist old-growth eucalypt forest in Eastern Australia. ... Yield reductions of up to a maximum 600 mm per year in logged and regenerated areas were in accord with water yield reductions observed in Mountain Ash (Eucalyptus regnans F.J. Muell.) regeneration in Victoria. This study therefore represents the first confirmation of these Maroondah Mountain Ash results in another forest type that has also undergone eucalypt-to-eucalypt succession. Baseflow analysis indicated that baseflow and stormflow both increased after logging, with stormflow increases dominant in catchments with shallower soils. The lower runoff observed when the regenerating forest was aged 13–16 years was principally a consequence of lower baseflow.

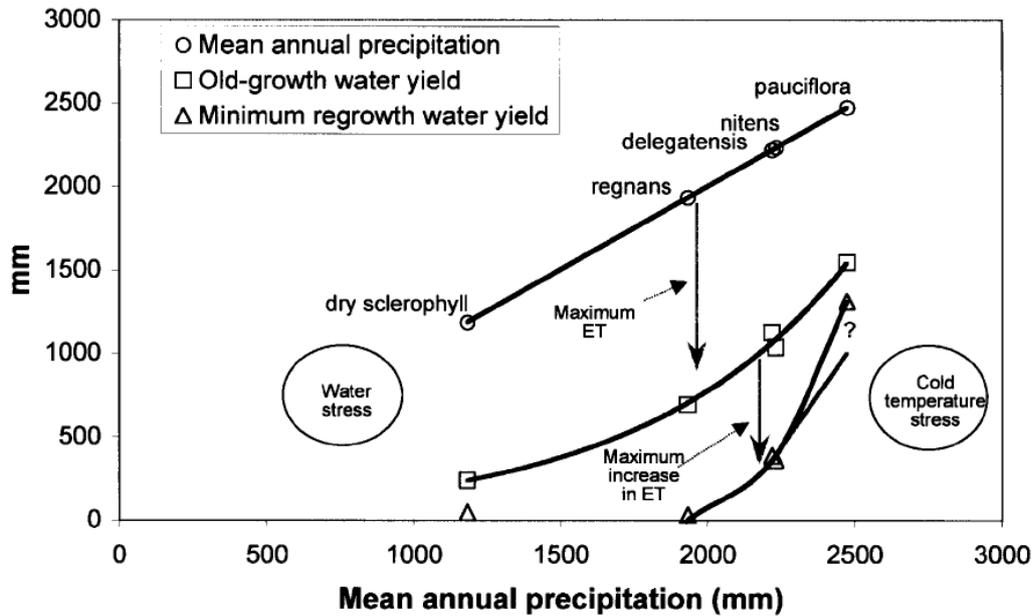
Cornish and Vertessy (2001) elaborate:

This analysis indicates that (in common with the results of many previous studies, e.g. Bosch and Hewlett, 1982) canopy removal increased water yield substantially. Mean increases here were frequently significant while the regrowth trees were less than 3 years old. As the trees increased in age water use increased, but mean water use was not significantly different from the pre-treatment forest between ages 3 and 12. Water yields then declined further between ages 13 and 16 years, resulting in mean reductions being statistically significant in all but one catchment.

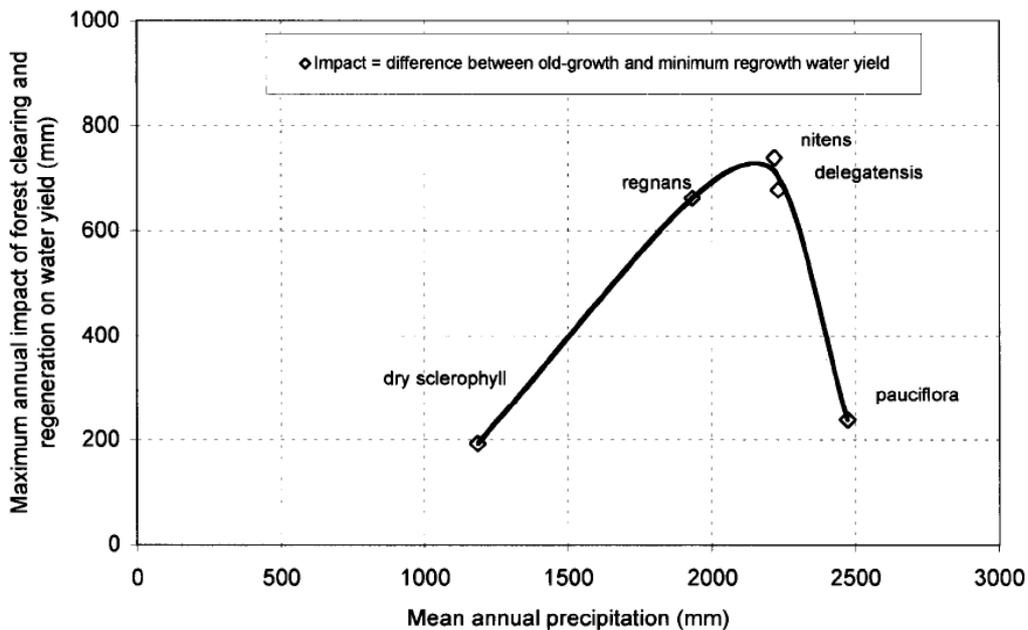
Vertessy (1999) notes that “the maximum decrease in annual streamflow is over 60 mm per 10% of forest area treated, which is similar to the maximum reductions noted for Victorian mountain ash forests”.

The process of increasing water use by regrowth is relatively well understood and has been found to apply across forests, though localised impacts are complicated by varying vegetation types and conditions within a catchment, the depth of soils, rainfall and a multitude of environmental variables, and the compounding effects of events over time.

For example Peel *et. al.* (2000) undertook modelling in the Maroondah and Thomson catchments to identify the variations in water yield depressions according to forest types and rainfall.



Summary of simulated impacts of forest clearing and regeneration on water yield, showing the relationship between species, precipitation, and water yields. From Peel *et. al.* (2000)



Relationship between species, precipitation and maximum impact of regeneration on water yields. From Peel *et. al.* (2000)

Given the abundant evidence of how forest maturity affects water yields and the significance of the impacts it is grossly irresponsible for Rous County Council not to have taken this into consideration. They have not done due diligence.

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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: David Ellemor-Collins

Address: 

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 oversized and unnecessary dam.

References and Notes

- (1) Metropolitan Water Plan 2006. NSW Government. Exec Summary section of the doc <https://www.dropbox.com/s/pu98980c6kocrph/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: _____



Date: _____

9/9/20

At this point it is clear: we need to be protecting and extending forests, not destroying them. There are effective alternatives to a large dam: please pursue those alternatives.

From: Thomas Driftwood

9th September 2020

To: Rous County Council and the Rous Councillors,

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



Photo David Lowe. The Channon Gorge. This would be flooded if the proposed dam goes ahead.

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 – much needed and appreciated.

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 cost 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 we all have enough water. By focusing on system efficiency, Sydney added an additional 950,000 people without a rise in water 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 and risky '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 better.

- **Destruction of beautiful Whian Whian Gorge**, the second largest remnant of the 99% cleared Gondwana 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, 7kms 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 18kms 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 would be reduced.
- **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]
- **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011) (2). Ongoing disregard for First Nations' heritage.

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 storm water 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-BsGKbYCYmwyWg0GYrSAGmaU0UHZCagKgo

Kind regards,

Thomas Driftwood



Photo David Lowe

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/>](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 area, based 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, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

Tanja Krebs-Nelson

9th September 2020

Dear Rous Councillors and General Manager

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

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

- 1) The destruction of culturally significant indigenous sites, including burial sites and scar trees.
- 2) The dam would destroy The Channon gorge and its endangered flora and fauna. Of special note is the rainforest on sandstone within the proposed dam site – this is very rare and needs protecting.
- 3) Higher cost of water for consumers to pay for the building of the dam.
- 4) The option to invest in a system-wide water audit has not been investigated.
- 5) Potential for severe flooding downstream during severe storm events.

I DO support:

- 1) Ground water use where environmentally sustainable.
- 2) Water audit and system-wide water efficiency program across the county, as advocated by Professor Stuart White.
- 3) Incentivising the use of shower timers. At our current address we are solely dependent on tank water. We have fixed timers that shut off the showers and it has helped enormously to curtail water use. We use an Australian made product called Shower Timers Australia.

This product could also be made mandatory in all hotels, motels, backpackers, hostels, air bnbs, holiday rentals, etc which would help to save millions of litres each year.

- 4) Strongly advocate for the use of recycled drinking water with the NSW government. This would free up a huge amount of waste water that is literally going to waste.

I trust that Rous County Council will take my concerns into consideration on this matter.

Sincerely
Tanja Krebs-Nelson

Re: Proposed Dunoon Dam within the Future Water Project 2060

Councillors and General Manager
Rous County Council
PO Box 230
Lismore NSW 2480

From: [REDACTED]

Dear General Manager and Councillors,

Thank you for extending the timeframe for submissions for this important proposal. This allows time for people to become more informed of implications of the proposal and the challenges that are faced by Rous Council.

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

- * Destruction of important Indigenous cultural heritage which includes burial sites (1).
- * Destruction of critical koala corridors, loss of habitat for these and other highly vulnerable species, e.g. platypus, and other threatened flora and fauna. The Channon Gorge contains 62 ha of rainforest that is listed as a Lowland Rainforest Endangered Ecological community. Half of this endangered forest would be submerged, and the remainder would be fragmented. The endangered community includes 7 ha of forest growing on sandstone. This is an extremely rare type of forest and 6 ha of it would be destroyed (2).
- * Loss of rich and productive farmlands
- * Lost opportunity to invest in system wide water efficiency and demand management, and the related opportunities to educate the public, including children, of the true value of water and ways that it can be more intelligently used and conserved in a time of Climate Emergency.
- * Innovative ways to purify and recycle potable water, including water harvesting, eg. collecting urban water runoff, water tanks on all new and existing sites, incentives for water saving systems like composting toilets, grey water systems to reduce demand and usage, have not been fully explored.
- * High cost of dam construction at a time of Covid economic constraints, the negative impact of such vast construction, the further contribution to Greenhouse gases and the risk to The Channon being flooded downstream in worst floods.
- * Significant increase in water costs for consumers.

We believe Rous has an opportunity to be guided by Stuart White, Director of the Institute for Sustainable Futures, to introduce water management strategies which he believes "would enable the region to become internationally recognised for its commitment to sustainable water management". He further proposes that the cost of the most ambitious water efficiency measures would be a fraction of the cost of building the Dunoon Dam and it's associated infrastructure (3).

We hope you will consider this well resourced and innovative thinking and decide against building the Dunoon Dam.

Yours sincerely,
Gai Longmuir
Convenor, on behalf [REDACTED]

References:

- (1) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
- (2) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

(3) White, S. (2020) The Rous sustainable water program: towards a secure, reliable and affordable water future, presentation for Rous County Council.

From:
Sent:
To:
Subject:

Michele Wainwright
Wednesday, 9 September 2020 7:01 AM
Michele Wainwright
Petition

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

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

From: [REDACTED]
Address: [REDACTED]

MICHELE WAINWRIGHT

Finally Rous does to provide water for our region

DO NOT support the proposed The Channon-Duncoon 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 650,000 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, bromeliad flora and fauna species.³⁾ Rous's plan to offset the loss of rainforest on 5000ha with re-plantation of degraded land in the buffer zone is problematic as the type of vegetation offered as replacement is not equivalent (rainforest, eucalypt forest) and requires 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.
- Infiltration/contamination zone for The Channon/Duncoon 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 12,720⁵⁾ 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.⁶⁾

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, coded and deployed, creating jobs. (We understand Rous has not coded 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⁾



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 and 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 tinctoroides*) 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.



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 Bopple 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 essential for their genetic potential for future development of the commercial crop. Wild macadamias are now rare and are listed as Vulnerable in NSW, Qld. and Federally. Found on 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 porphyropetalata*) 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.

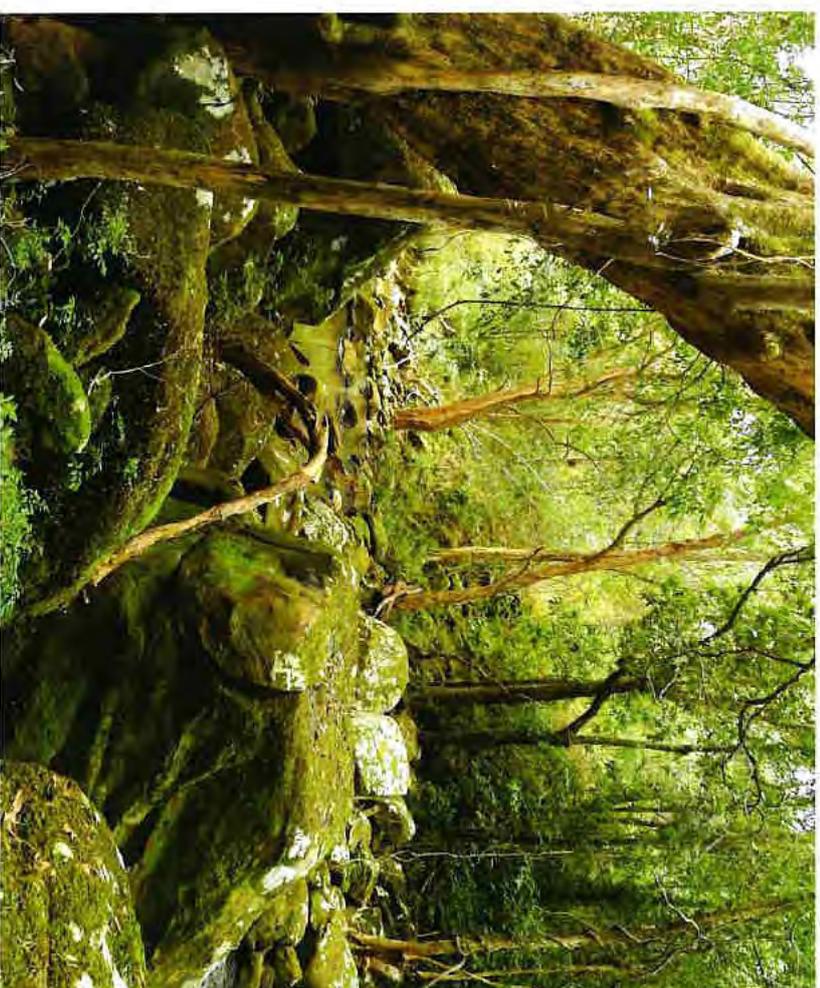


The significance of the presence of Stream Lily (*Helmholtzia glaberrima*) is that the dam wall will destroy the southern-most location for this species in the world and the only place it grows on sandstone.

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 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 problem. We must not add to this burden.

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.



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 acanthocladium*) 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.



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.

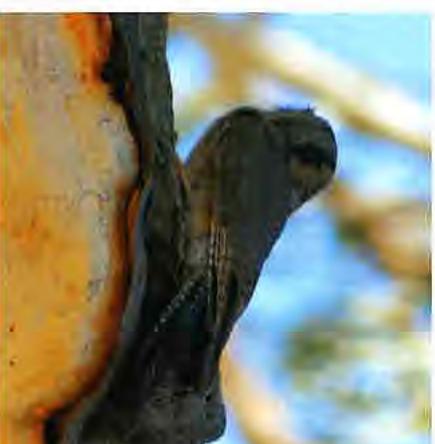


This shrub can occasionally be found as a small tree. *Corokia (Corokia whitetana)* has a very limited distribution and is listed as Vulnerable in both NSW and Commonwealth legislation. Found on site.



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 Owllet-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.



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.

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.



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 Millidge



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.



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.

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 Ecology 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

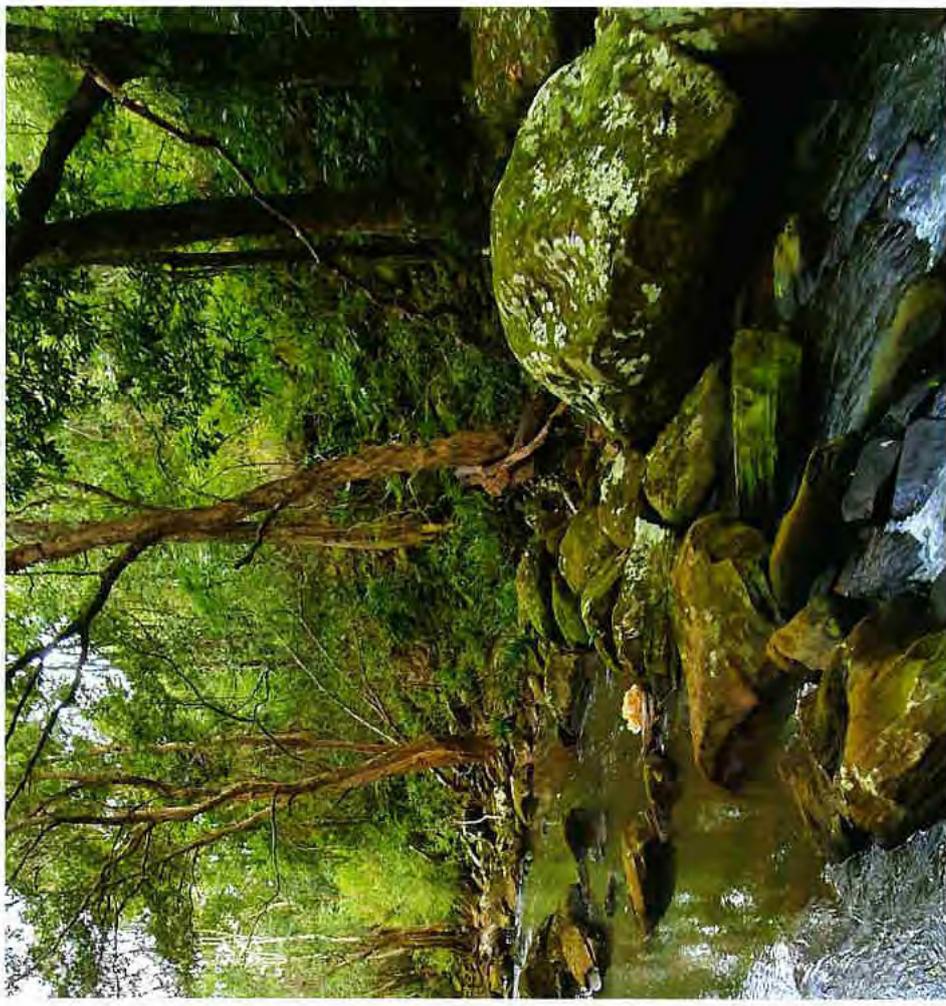


Construction of a new dam and its infrastructure will remove important corridors for the local Koala population. Recent bushfires have reduced the koala population in NSW by an estimated 71%. At a time when there is very real potential for the koala to become extinct within the life of this Future Water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

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.



My name is Hugh Nicholson. I live at 391 The Channon Road, The Channon - on Rocky Ck downstream 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.

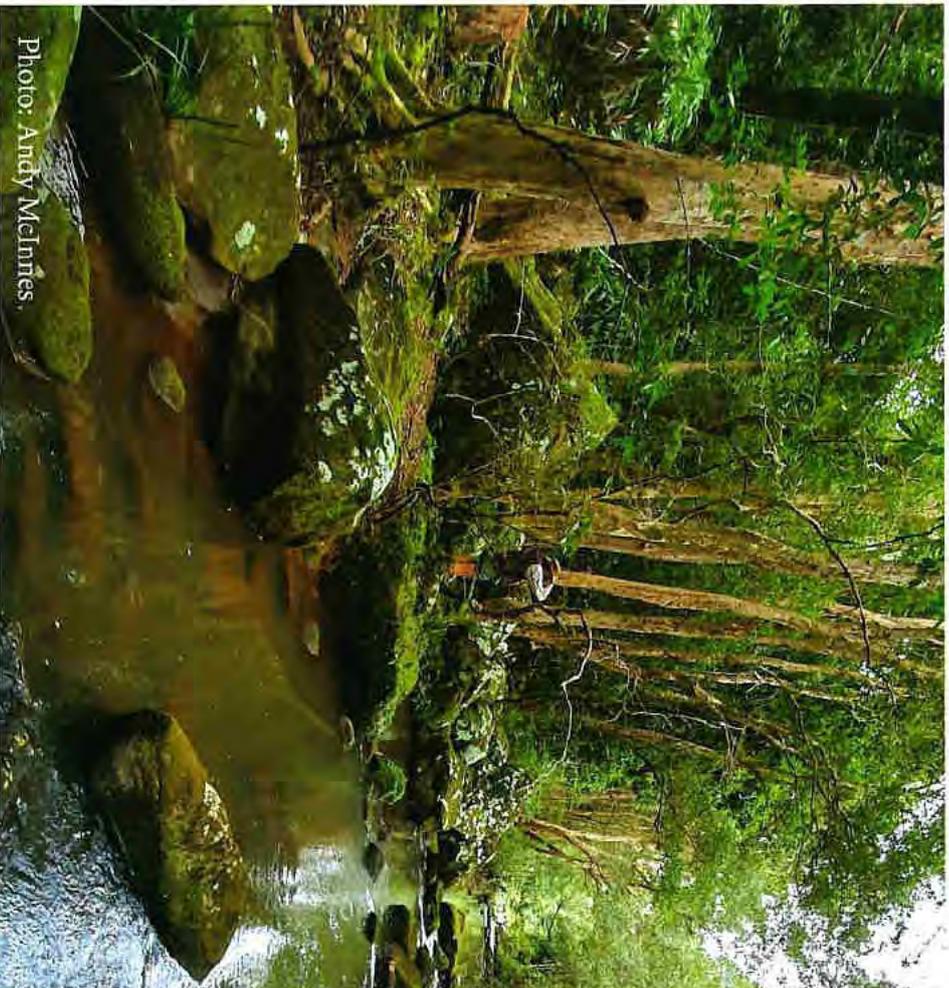


Photo: Andy McInnes.

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.



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



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



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.

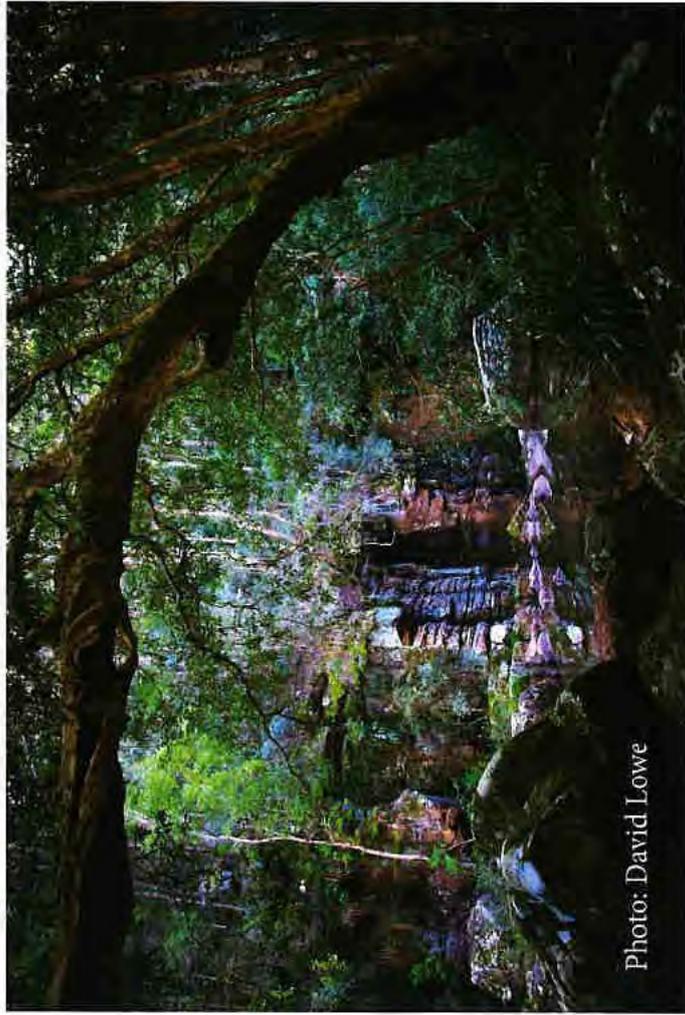


Photo: David Lowe



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

Submission re Future Water Project 2060

Hugh Nicholson

[Redacted]

From: Ruth White [Redacted]
Sent: Wednesday, 9 September 2020 5:24 PM
To: Records
Subject: Attention - Andrew McKenzie

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

Appreciate your time on the phone today Andrew, with the opportunity to discuss our services and learn a little more about Rous Council’s current and future plans.

In brief; Blyss Personnel provide specialist recruitment consultancy service across the engineering sector including environment, water, marine, energy, defence, infrastructure, rail, mining, oil & gas filling both contract and permanent vacancies globally.

We provide staff for any stage of a small or large project from tender, design, commissioning, engineering, through to trades people covering maintenance and operations, and can create a service tailored to suit whether providing a Consultancy Service from a subcontractor perspective, once off Permanent Placements, Contract Staff covering payroll administration through to Project Management.

Blyss Personnel’s founder, Andrew Preston is an experienced Engineer and Project Manager and has had 20 years plus of close collaboration with many businesses and professionals. Being located rurally minimises our overheads allowing us to provide modest rates to our customers.

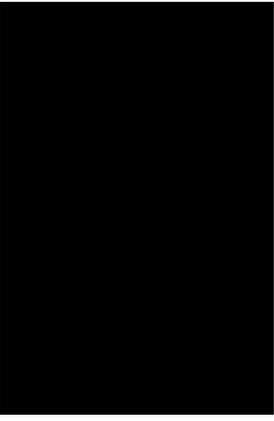
Our approach is more personal, with a focus on building long term relationships with our customers and candidates as we journey with both from project to project. We are less about filling your Inbox with documents of information you don’t have time to read, but more about picking up the phone or visiting to learn about how we can best meet your specific needs. Without doubt this leads to the best outcome for everyone.

If you have any questions just give a call, we don’t charge for conversation!

Kind regards
Ruth White (Mon to Thurs)

[Redacted]
[Redacted]
[Redacted]
[Redacted]

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[REDACTED]

From: Terri Nicholson [REDACTED]
Sent: Wednesday, 9 September 2020 9:17 PM
To: Records
Cc: [REDACTED]
Subject: [By Elwood 10yo] RE: The proposed Dunoon Dam within the Future Water Project 2060

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

Elwood Nicholson-Moss (10yo boy) [REDACTED] 9th September 2020
Rous County Council,
[REDACTED]

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

Please accept the attached submission by Elwood Nicholson-Moss (10yo boy) who has written/drawn a message to you to OBJECT to the proposed dam.

Message says:

Hi my name is Elwood and I am 10 years old. I highly recommend you don't build the dam because it will flood our beautiful rainforest as well as kill many creatures that inhabit that area now. This is why I don't want you to build the dam. So please don't. NO DAM.
From Elwood Nicholson-Moss

8 September 2020
 hi my name is ELWOOD
 and I am 10 years old,
 I highly recommend you
 don't build the dam
 because it will flood
 our beautiful rainforest
 as well as kill many
 creatures that inhabit the
 area. now this is why
 I don't want you to build
 the dam. so please don't.

N O D A M

from ELWOOD nicolson-moss

[REDACTED]

From: Terri Nicholson [REDACTED]
Sent: Wednesday, 9 September 2020 9:25 PM
To: Records
Cc: [REDACTED]
Subject: [By Jett 7yo] RE: The proposed Dunoon Dam within the Future Water Project 2060

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

Jett Nicholson-Moss (7yo boy) [REDACTED] 9th
September 2020
Rous County Council,
[REDACTED]

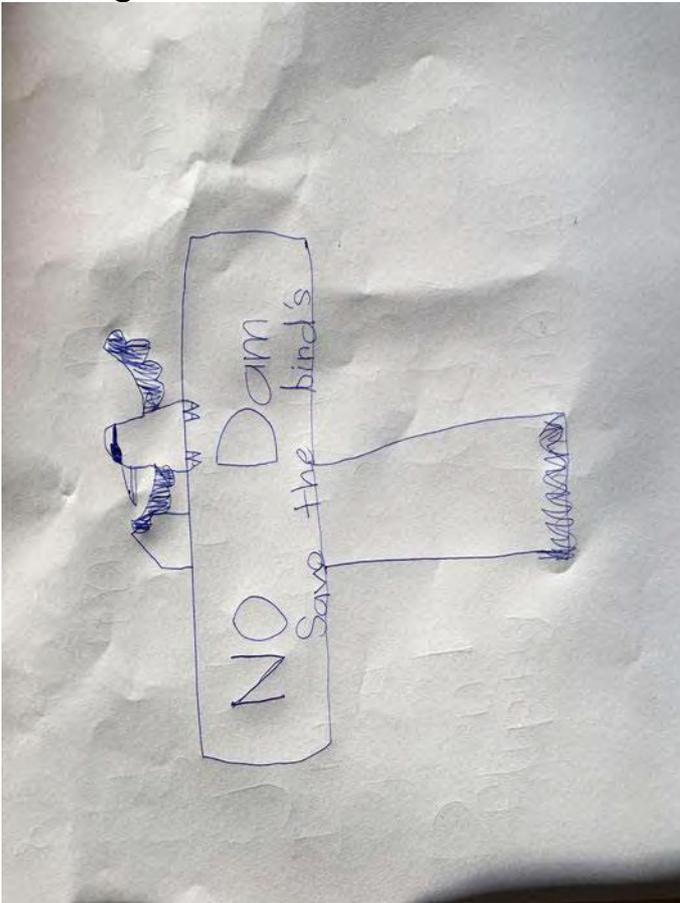
Dear Rous Councillors and General Manager
Re: The proposed Dunoon Dam within the Future Water Project 2060

Please accept the attached submission by Jett Nicholson-Moss (7yo boy) who has written/drawn a message to you to OBJECT to the proposed dam.

Message says: Hi my name is Jett. 'Damn you dam". I'm seven years old. Don't build the dam please. I care about the birds. Don't flood their nests. From Jett.

8 Sep 2020
Hi mi Name
Jett. "Damn
"Damn"
You flipping seven
I'm years old.
Don't build the
flipping damn please.
I care about the
bird's. Don't fluid
thar nests. from ~~the~~ Jeff

Drawing: No Dam - Save the birds.



[REDACTED]

From: Terri Nicholson [REDACTED]
Sent: Wednesday, 9 September 2020 10:34 PM
To: Records
Cc: [REDACTED]
Subject: [By Terri Nicholson) RE: The proposed Dunoon Dam within the Future Water Project 2060

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

Terri Nicholson

[REDACTED]

Gender: Female

Age: 44

9th September 2020

Rous County Council,

Lismore NSW 2480

[<council@rous.nsw.gov.au>](mailto:council@rous.nsw.gov.au)

Dear Rous Councillors and General Manager

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

Hi, my name is Terri Nicholson, and I have been born and bred at [REDACTED] I continue to live with my husband and our four kids.

I appreciate how complex the task of water supply is for our community, and we are thankful that the submission period was extended to allow more time for feedback. Even with the extension, the majority of people I have come across had not even heard about the dam, even with Rous's promo. This concerns me, as I do not think there was sufficient time allowed for proper community consultation, especially give COVID restrictions to group meetings/consultation.

I'd like to state clearly that I OBJECT STRONGLY TO THE PROPOSED DAM.

Among the many reasons I do not support this dam proposal, which I'll summarise below, there are personal concerns also.

Social Impact:

Some of my immediate family members would be directly impacted.

My husband grew up on the property where the dam wall is proposed, and where my mother-in-law still lives. Her house is 350m from the proposed wall, and the unknown future of her home and land is definitely causing high stress on top of her heart condition.

The other family members are my parents, Nan and Hugh Nicholson, who live less than 2km below the proposed 13 storey high dam wall. Independent hydrologists have said that they wouldn't live under a dam like that as it would be too dangerous in potential massive flood events. In cyclone Debbie, the flood water already came to within a meter of their house, so the thought of a massive flood/rain event spilling 8m over the dam wall which is what Rous has allowed for, their entire property would be completely covered.

My children visit their grandparents and explore up and down Rocky Creek where there has been substantial rainforest regeneration projects taking place. This will be impacted by years of construction and destruction.

Other concerns:

I'm going to keep this short as I'm sure you have received many submissions covering concerns regarding loss of ecological, cultural heritage and farm land. I also believe that the destruction of those is unacceptable.

Alternatives I support:

Professor White's "Rous Sustainability Water Program" proposal.

I hope by now all councillors and staff have a copy of Professor Stuart White's documents regarding a system-wide water efficiency program 'Rous Sustainability Water Program'. This expert information is a shift in paradigm which involves valuing water on it's whole journey.

We need to focus on Supply-Demand Balance, not just about increasing supply.

By functionally decreasing usage (demand) through system-wide efficiency measures, we essentially increase the supply available.

By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)

He details exactly how to achieve optimal water efficiency in Rous areas, and why the proposed dam is unnecessary and financially risky and unwise.

Please read these as a matter of urgency: www.bit.ly/Prof-Stuart-White-Rous-slides, www.bit.ly/Prof-Stuart-White-Rous-Water-augmentation-proposal

What is the rush to push the dam decision through?

I'd like to see a PAUSE in the push towards a dam as the one big option and an engagement with experienced experts such as Prof. White.

Thorough costing and assessment of a suite of smart options should be laid out before community or councillors can really decide. At the moment they don't have all the information - it's not an informed decision.

This region can be a leader in water reform and innovation. We would love to support you with that.

We can do better than wreck a whole landscape and community for a financially risky and irresponsible dam, which essentially encourages councils to continue to waste water.

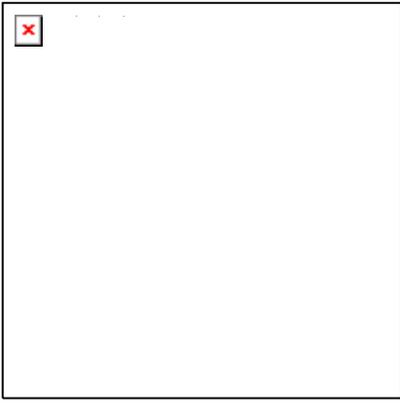
Please STOP the proposed dam and any further movement towards that option.

We will continue to raise awareness and help people come to the common-sense conclusion, based on expert information, that the dam should simply not proceed.

Regards,

Terri Nicholson

--



Terri Nicholson

Earthpreneur, Change Artist,
Healer/Masseuse/Naturopath,
Singersongwriter
Mumma of 4 lads :)



[REDACTED]

From: howie [REDACTED]
Sent: Wednesday, 9 September 2020 10:54 PM
To: Records
Subject: Channon dam proposal (future water 2060)

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

I am writing to strongly oppose the proposed dam, the enormously expensive dam, at Channon-Dunoon area in the Northern Rivers for a number of reasons, firstly because of the destruction of the Whian Whian and Channon Gorges and their unique rainforest and already vulnerable or threatened fauna species

The Whian Whian gorge is the second largest remnant of the mostly already obliterated Gondwana subtropical rainforest and it is critical to maintain the corridor links between the Whian Whian, and Channon and Dunoon and for example specific Koala habitat The gorge is also much loved for its legendary waterfalls which would be destroyed by flooding

Also given the area has significant Aboriginal cultural significance, to what degree have the concerns of indigenous community been seriously fully heard and considered?

In this day and age of looking for efficiency in water use by encouraging water tanks, prudent use and recycling of water, why go for a massively expensive project that will trash the environment, drive up water costs and in the essence not encourage people to be waterwise right at their homes

Here is a quote that highlights this:

- 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 a mere \$2,500. If this were spread over each new 2 person household area (est 12,000 pop by 2060) the cost would be a mere \$15 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.

<https://www.yourhome.gov.au/water/rainwater>

We need Councils and water management authorities to optimise water usage with innovative affordable across-community policies instead of wasting water with outmoded big scale projects that are environmentally destructive, expensive and ultimately inefficient

yours sincerely

Howie Cooke

[REDACTED]

1)

[REDACTED]

From: hannah prinn [REDACTED]
Sent: Wednesday, 9 September 2020 10:59 PM
To: Records
Subject: Dam proposal for the Channon.

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

Having heard about this over the last couple of weeks I have read an article in the echo and seen some video footage of the proposed site for the dam I have concerns about the idea. I think perhaps more time and resources should be put in investing in ways for people to become more water smart.

Lots of people grow food and have gardens. I think a move towards reusing our water on a local and industrial scale rather than destroying more ecology and sacred land to indigenous people is something to consider...

I have just started to study bush regeneration and am gaining a great passion for it. To hear of how rare, diverse and necessary it is as a seed bank, habitat, spot of beauty, it seems a significant and important ecological system that shouldn't be destroyed.

It will be a real shame and disappointment. If it goes ahead. In my opinion.

[REDACTED]

From: Paul Tait [REDACTED]
Sent: Wednesday, 9 September 2020 2:00 PM
To: Records
Subject: Doon Doon Dam

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

Dear Council and Councillors, We would like to register our objection to the 50 gigalitres dam proposed for the land between The Channon and Dunoon. We do not want one tree of our precious rainforest to be destroyed. The cedar getters and Forestry Corporation have already nearly destroyed all of the original “Big Scrub” Rainforest and we certainly do not want any further destruction and are amazed that this area where we have fought so hard to save little remaining remnants and have seen to it that they are largely preserved as National Parks and World Heritage could be considered for such a project against the ethic of our community.

This dam will cause the destruction of important indigenous cultural sites, will destroy TheChannon Gorge with its endangered ecology and lowland rainforest environment. It could if it went ahead cause flooding downstream and will increase heavy traffic especially during construction on our narrow, poorly maintained roads. We just feel that there are other more sustainable and economic solutions to projected increased water needs. These could include water re-use by purification and increasing the use of recycled water, harvesting more water in rainwater tanks and effective contingency planning for supply needs in time of drought.

Please do not in our name and with our money destroy anything further in our region. Why do you think people visit here? Why do you think people come here to live? Because of the natural beauty and environment which needs to have priority over every other consideration. There are other ways to achieve your desired destructive ends. Please don't go ahead.

Thank you for your consideration,

Jeni Kendell and Paul Tait

[REDACTED]

[REDACTED]

From: Bailey [REDACTED]
Sent: Wednesday, 9 September 2020 1:50 PM
To: Records
Subject: Dunoon dam

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

I deplore the use by annexure of rural and natural areas to serve the infrastructure needs of urban areas. Instead I encourage the supply of urban water by methods other than a new dam such as recycled water, more tanks and public campaigns to save water.

I am also concerned by the damage to indigenous heritage caused by the dam.

Also of concerned is the loss to the environment by the flooding of the beautiful Channon Gorge.

I ask the Rouse Water to undertake research into alternatives.

Yours John Bailey

[REDACTED]

From: Natasha Kasselis [REDACTED]
Sent: Wednesday, 9 September 2020 11:01 AM
To: Records
Subject: Dunoon Dam objection letter

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

To whom it concerns,

My name is Natasha Kasselis and I [REDACTED]. I am writing to object to the proposed Dunoon Dam as part of the 2060 Future Water Project.

There are many reasons why the Dunoon dam is a terrible proposal, some include:

- *\$220 million white elephant proposed by Rous Water when 17% of water is lost to leaks in the current network plus we need more research into implications of silting and ensuing diminishment of effectiveness of water holding capacity
- *Conflict of interest for Rous Water to propose and manage the dam when they are in the business of selling water
- *Indigenous heritage and burial sites will be flooded and lost
- *5% of remaining pristine and very rare old growth rainforest will be flooded and lost
- *With a very small population increase of 12,700 people across the 4 councils by 2060, the economics don't stack up
- *loss of prime agricultural land
- *Significant increase in flooding 3kms downstream directly impacting the Channon village
- *There are better and cheaper ways to supply our water needs, such as system efficiency, water tanks and recycling water

Kind regards,
Natasha Kasselis

[REDACTED]

From: Isaac Vitesnik [REDACTED]
Sent: Wednesday, 9 September 2020 7:23 PM
To: Records
Subject: Dunoon Dam objection

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

To whom it concerns,

My name is Isaac Vitesnik and I [REDACTED]. I am writing to object to the proposed Dunoon Dam as part of the 2060 Future Water Project.

There are many reasons why the Dunoon dam is a terrible proposal, some include:

*\$220 million white elephant proposed by Rous Water when 17% of water is lost to leaks in the current network plus we need more research into implications of silting and ensuing diminishment of effectiveness of water holding capacity

*Conflict of interest for Rous Water to propose and manage the dam when they are in the business of selling water

*Indigenous heritage and burial sites will be flooded and lost

*5% of remaining pristine and very rare old growth rainforest will be flooded and lost

*With a very small population increase of 12,700 people across the 4 councils by 2060, the economics don't stack up

*loss of prime agricultural land

*Significant increase in flooding 3kms downstream directly impacting the Channon village

*There are better and cheaper ways to supply our water needs, such as system efficiency, water tanks and recycling water.

Isaac Vitesnik

[REDACTED]

From: Don Granatelli [REDACTED]
Sent: Wednesday, 9 September 2020 3:18 PM
To: [REDACTED]
Subject: Dunoon Dam Proposal

Importance: High

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

Dear Rous Water, Janelle, Kevin

THIS IS A STUPID IDEA!!!!

It is like someone who has a leaking oil tank
BUT instead of fixing it, they just keep buying more oil.

We need

- to preserve as much land and biodiversity as possible. This is a time of diminishing native forests, species on verge of extinction and land for native wildlife being destroyed or taken over to preserve the land.
- to have financial incentives for more people to have local or home rainwater storage for use on gardens or home use
- to have more water saving devices in more homes <free>
- to encourage more grey-water use both domestically and commercially
- to ensure Native Title areas are protected and not destroyed. We have been here only 200 years not 60,000!!!
- to make sure we as a generation use our water sensibly and not just build another dam whenever we think we don't have enough. WE HAVE ENOUGH

We need to be smarter

We need to spread the load of water consumption

We need to use water saving and capturing for our gardens and for use in home as greywater systems

with respect

don

Granatelli & Stone - Architecture and Design

[REDACTED]

[REDACTED]

From: Mindy Greenwood [REDACTED]
Sent: Wednesday, 9 September 2020 5:30 PM
To: Records
Subject: Dunoon Dam submission

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

I am writing to object to the Dunoon Dam proposal.

I strongly believe Rous should be investing in water saving and education initiatives, as well as improving existing infrastructure to prevent inefficiencies.

The attitude of many North Coast locals toward water availability is simply unsustainable, increasing water supply in such an atmosphere will do nothing to address the long-term water wastage problem.

Investing in water saving technologies - new and old - will create employment, reduce consumption, and create a more sustainable North Coast community.

Regards

Mindy Greenwood

[REDACTED]

[REDACTED]

From: Nathan [REDACTED] >
Sent: Wednesday, 9 September 2020 6:52 PM
To: Records
Subject: Dunoon dam submission

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

Hi I am writing to voice my objection to damming this valley. I don't think enough rainforest is left to dam some that is remaining and I think there is more suitable options. Please consider the future as you can't fix this once it is done.
Regards Nathan Hicks

Ps you can expect some serious blockading on this

Sent from my iPhone

[REDACTED]

From: Heather Dunn [REDACTED]
Sent: Wednesday, 9 September 2020 10:16 PM
To: Records
Cc: [REDACTED]
Subject: Feedback Submission Re: Proposed Dunoon Dam within the future water project 2060

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

SUBJECT LINE: RE: The proposed Dunoon Dam within the Future Water Project 2060

Heather Dunn

[REDACTED]
[REDACTED]
[REDACTED]
[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. 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:

- **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 Gondwana 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."

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

[\[https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown\]](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-BsGKbYCYZmwyWg0GYrSAGmaU0UHZCaqKgo

Kind regards,

Heather Dunn

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

Sent from my iPhone

[REDACTED]

From: melisa marsh [REDACTED]
Sent: Wednesday, 9 September 2020 10:12 PM
To: Records
Subject: Future Water Project 2060 - Feedback Submission

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

To whom it may concern,

I Melisa Marsh [REDACTED] STRONGLY OBJECT to the proposed Channon/Dunoon Dam for the following 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)
- **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 oversized 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. 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 area based 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, viewed 6 August 2020, <<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>>

Regards,

Melisa Marsh

[REDACTED]

From: [REDACTED]
Sent: Wednesday, 9 September 2020 10:09 AM
To: Records
Subject: Future Water Project 2060 - Submission

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

Maria Matthes
[REDACTED]

RE Future Water Project 2060

Thank you for the opportunity to comment on the current stage of this proposed project. I support the concept of future water security. I do not support the proposal as it stands in its entirety.

Dunoon Dam

I do not support the Dunoon Dam proposal. The impact on threatened species and ecological communities is not acceptable. Offsets are not acceptable. The scales are tipped as low as they can go against nature and our koalas. We need to 10 times provide more habitat, not take it away, to even begin to bring the scales into balance. The cumulative loss of threatened species habitat is never considered. The death by 1000 cuts has to stop.

I am extremely concerned for the impact of the Dam proposal directly and indirectly on koala habitat in the study area as well as the surrounding area. I refer to the Dunoon Dam Terrestrial Ecological Impact Assessment report (SMEC 2011). While there are some disparities in the data presented, it does provide some indication of the impacts. SMEC 2011 identifies koala habitat as being Tallowood Open Forest (TOF) and Flooded Gum-Tallowood-Brush Box Open Forest (FG-T-BB OF), of which 25 ha and 70 ha respectively, occur in the study area. Note – koalas love to eat flooded gum where available, and will eat brush box, particularly in dry times. Camphor Laurel forest and Plantations may also be used by koalas for sheltering particularly on hot day, and their use by koalas has not been considered. 23 ha of koala habitat will be lost and another 49 ha will potentially be affected in the buffer. To understand the impacts to koalas requires an understanding of the individual koalas:

- Which koalas utilise the study area as residents?
- Which koalas have a regular travel route to other areas of habitat outside the study area?
- which trees are preferred by each individual?
- which of those trees will be impacted?
- which will be retained?
- for which koalas will travelling routes be fragmented or isolated?
- How old are the koalas?

These are just some of the information which must be understood. Not just 4 days of looking for scats where only 7 sites were undertaken in almost 100 ha of habitat in the study area and 4 outside the study area. The Koala Presence Assessment locations (Figure 6 SMEC) do not provide any meaningful understanding of koala habitat use on the site. While sometimes koalas share trees, we know koalas pick their own trees for feeding based on a number of physical and chemical attributes as well as social factors. They have an attachment to those trees. Clearing an individual's favourite trees, in many cases will result in death, starvation, disease, vehicle strike or dog attack. What has happened/is happening to colonies of Ballina's koalas as a result of the Pacific Highway Upgrade as a result of habitat loss, competition for resources, etc is nothing short of horrific. This must never be allowed to reoccur.

P114 SMEC 2011

Camphor Forest and Plantation – 101 ha to be removed, 207 ha in study area
Dry Sclerophyll Forest – 7 ha to be removed, 18 ha in study area
Rainforest and Wet Sclerophyll Forest – 50 ha to be removed, 116 ha in study area

P 133 SMEC 2011

Indicatively, 7 ha of TOF to be removed, and 11 ha in buffer to be offset, while 16ha of FG-T-BB OF is to be removed and 38 ha in buffer to be offset. The loss of a koala tree is just that a loss. It cannot just be offset. You cannot just recreate that attachment to that tree, you cannot recreate the chemical properties desired in the leaves on that tree, the moisture, the microenvironment. You cannot say its ok we will clear 23 ha of koala habitat and expect to recreate what makes that tree a favourite tree.

Despite tree clearing protocols, tree clearing koala habitat always poses a risk to present koalas. Studies undertaken have shown the difference in detecting koalas between general wildlife ecologists and specialized koala spotters. Koala detection dogs can miss koalas. Drones can miss koalas. Spotlighting can miss koalas. Too many times koalas are killed directly as a result of being in a tree felled or in an adjacent tree sustaining fatal injuries. Those who lose their trees are more vulnerable to stress induced disease, intra-specific aggression with competition for resources and space, dog attack and vehicle strike. Every koala is important and every koala habitat tree is important. Also worth noting is that Tallowwood has high levels of toxic chemical compounds and plants are rarely eaten by koalas before around 18 years old. Older Tallowwoods are important.

It is not clear where additional pipelines may be located and assessment of these areas as koala habitat would need to be included in any ecological surveys and EIS undertaken in the next Phases of the Project it should proceed to the next Phase.

It is not clear the effects of water storage in the proposed Dunoon Dam on downstream dependent farms, ecosystems, species, creeks, rivers etc. I am concerned that creeks will run dry in dry times and that will flow on to viability of everything else around. I cannot reiterate enough how much koalas rely on moisture from leaves for their wellbeing and cooler riparian habitats during dry, drought and heatwave conditions. Should the proposal move to Phase 2, any assessment of impacts must include the indirect effects of the water storage on entire creek and river systems and the farmers and species who rely on that water.

Groundwater Augmentation

I support reduced water use through agricultural innovation. I am concerned at the amount of groundwater already extracted, groundwater seepage and subsequent evaporation from floodplain drains, combined with the drought conditions over the last 4 years, and the effect these had on the groundwater dependent ecosystems, koala habitat, rainforest etc Even on our floodplains most koalas struggled over the last 2 years.

I support the exclusion of some of the groundwater sources identified as previous options. I am still concerned at the effect the proposed Alstonville and Marom Creek groundwater removal would have on both agriculture and the environment. In particular I am concerned at the effect on koala habitat for Ballina's Koalas. When leaf moisture is reduced below around 50% leaves begin to lose palatability for koalas. It is easy to say we will make sure the environment has enough, when that enough is competing against people who want to use (waste) water however and whenever they want, be it for personal, agricultural or commercial purposes in dry and drought conditions. How are you going to measure what is enough for our koalas?

I am also potentially concerned additional pipelines or pipeline upgrades may be required which will further impact on local koala habitat in the Northern Rivers.

I would support every property receiving a rainwater tank in order to save water in the long term without putting our precious groundwater at risk. Our groundwater must be protected not exploited.

If you have any questions or would like to discuss these comments further please don't hesitate to contact me on

Yours faithfully
Maria Matthes

[Redacted]

From: [Redacted]
Sent: Wednesday, 9 September 2020 11:11 AM
To: Records
Cc: [Redacted]
Subject: Future Water strategy Submission

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

Attention Councillors. I write to ask for a thorough investigation and costing of a system wide water efficiency system, including water harvesting, water recycling and this combined with increasing already initiated measures including the rainwater tank subsidy initiated by rous and obvious areas like water wastage leakage evaporation etc. Such a measure is a minimum requirement given that the proposed dam would decimate an exquisite unique rare sandstone rainforest area, including wildlife habitat and land of aboriginal cultural significance as well as farmland, small communities and individuals, most of which have existed for long periods of time and would be wiped out in a sudden violent action if the proposed dam went ahead. I have lived in the Northern Rivers for about 30 years and it is my home and much beloved. I ask for these intrinsic beings to be considered in a future water strategy and that the progressive use of smart sustainable alternatives be adopted as Rous has already begun in a number of areas. Please no dam. Regards

Howard Rees

[Redacted]

[REDACTED]

From: Annette McKinley [REDACTED]
Sent: Wednesday, 9 September 2020 5:54 PM
To: Records
Subject: Fwd: Re the proposed Dunoon Dam within the Future Water Project 2060

I am re-sending this email as the former version did not appear to go through.

Would you mind acknowledging receipt of this submission.

Thank you

----- Forwarded Message -----

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

Date: Wed, 9 Sep 2020 14:49:33 +1000

From: Annette McKinley [REDACTED]

To: council@rous.nsw.gov.au

CC: [REDACTED]

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 particular 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

Nan Nicholson

Angus Underwood

Barbara Stewart

for the

Conservation Ecologists Association



[REDACTED]

From: [REDACTED]
Sent: Wednesday, 9 September 2020 6:26 AM
To: Records
Subject: FWP 2060 Submission Copy

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

Hi there,
Would you please send me a copy of my submission to the Future Water Project 2060 Public Submission.
Posted from Paul Jones – email: paul@oceanarc.com.au

Kind regards



Paul Anthony Jones Architect [REDACTED]
[REDACTED] [REDACTED]

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www.avg.com

[REDACTED]

From: [REDACTED]
Sent: Wednesday, 9 September 2020 8:25 PM
To: Records
Subject: I oppose the construction of a new dam in northern NSW. Thank you. Mason Pillars.
[REDACTED]

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

Sent from my Huawei phone

[REDACTED]

From: Andrew Kemmis [REDACTED]
Sent: Wednesday, 9 September 2020 12:17 PM
To: Records
Cc: [REDACTED]
Subject: No Dam in Dunoon

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

Dear Manager of this Project.

It is disappointing to say the least that a movement such as this is a priority for our government. There are many alternatives that could be implemented to solve the issue of our water crisis. There are many reasons for me to explain to you why it is a disgrace to Dam this beautiful valley but I simply do not have the time. Much as you are saying in your mind right now, I do not have the time to read this email. The bottom line is, there is to be a water shortage, and you feel, along with your colleges that the solution lies in a valley 800km away from Sydney. Your education has brought you to this conclusion. Interesting. How about a simple process of extracting salt from sea water. We are surrounded by all the water the planet could possibly want to use and at the same time we could be reducing the sea water levels. Surely someone there has thought of this. If you are serious about your proposal, please tell me the reason that this could not work. We have at our disposal, the smartest scientists on the planet and still, this is not an option. Can you see the frustration, or maybe I come to your backyard and say we are going to build a dam to save our water crisis. Come on you idiots. Switch on please. You are suppose to be looking after this country.... not destroying it. Please consider this option. Kind regards
Andrew

Sent from my iPhone

[REDACTED]

From: Bead Zoo [REDACTED]
Sent: Wednesday, 9 September 2020 8:43 PM
To: Records
Subject: No Dam

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

Dear Councilors,
I wish to lodge my objection to the proposed dam at Dunoon/ The Channon.
The ecosystem is too rare and valuable to destroy. We cannot afford to lose it.

I am sure you are familiar with all the reasons the dam should not go ahead from all the many other submissions you have received.

I will keep mine brief for that reason.

I oppose, and will continue to oppose this proposed dam, and I will support others who do not want this dam.

I am a biology teacher and understand the significance of this area.

I urge all decision makers to actually hike through the area you want to flood. Until you do this you are too remote from the place to make an informed decision. There are many people who would love to guide you and educate you on such a hike, so you may develop a proper understanding of what you intend to do, and the consequences. At the very least you should look at the photographs I am sure you have received.

Yours faithfully
Angela Froud

[REDACTED]

[REDACTED]

From: Jamie Uren [REDACTED]
Sent: Wednesday, 9 September 2020 3:30 PM
To: Records
Subject: NO DAMN PLEASE.

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

To whom it may concern,

Please refrain from going ahead with Damn proposal at Channon/ Dunoon.

Kind Regards,

Jamie.

[REDACTED]

From: Marissa Treichel [REDACTED]
Sent: Wednesday, 9 September 2020 8:13 PM
To: Records
Subject: oppose proposed dam

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

To whom it may concern,

We strongly oppose this short sighted disaster.
Please protect this iconic ecosystem.

Sincerely,
Marissa Treichel (Director) and Jake Whitfield (Arborist),



--



[REDACTED]

From: ian cohen [REDACTED]
Sent: Wednesday, 9 September 2020 10:41 AM
To: Records
Subject: Opposition to Dunoon Channon proposed dam

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

Alison Drover
[REDACTED]

I strongly Oppose an extension of the Dunoon Dam to increase the Dams catchment area

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 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).

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. 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. Offsetting for road construction i.e. the recent Byron Bypass project is a farce in terms of conservation.

Globally from the Namada Dam in India which displaced hundreds of thousands of tribal people to essentially allow the new rich to wash their cars in Madras to the loss of a world environmental wonder in the inundation by the three Gorges dam in China cutting water supplies to farmers downstream and ruining an environmental wonder of global renown, dams have been an ecological and humanitarian catastrophe.

It is unacceptable that the proposed extended catchment would inundate Aboriginal peoples (and thus all Australians) cultural heritage. Any further destruction of Aboriginal Heritage, and proposed innundation of Aboriginal grave sites, is 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. On these grounds alone the project should be halted.

Past attempts at Dam projects have failed in this area. As a resident who lives outside the town water supply I am comfortable to manage my own water resources with adequate tank infrastructure and grey water recycling. Instead of holding onto a monolithic and outdated, centralised water system mentality we have the opportunity to encourage roof water catchment and reuse of non potable water as has been successful in Ballina shire.

This has been a theme of sections of the Nationals in the Coalition Government. It won't be successful and will eventually lead to much needed reform of Rous Council.

I implore that consideration be given to more modern and environmentally supportive modes of securing water supplies. The rainfall is plentiful in this region and thousands of decentralised catchments from the rooftops in the towns of the region will not only supply sufficient water but also a strong local and environmentally friendly industry building, installing and maintaining on site water catchment systems.

Thank you for your attention to this submission

Alison Drover

[REDACTED]

From: Judy Singer [REDACTED]
Sent: Wednesday, 9 September 2020 8:57 PM
To: Records
Cc: [REDACTED]

Subject: Opposition to the Dunoon Dam

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

To Whom it May Concern,

I am writing to voice my strong opposition to the proposed Dunoon Dam. Having lived in this region for over 17 years, I have come to fully appreciate the natural beauty of this area. I am deeply concerned about the negative impact the proposed dam will have on the natural environment, the community and the region's unique offerings to tourists. I have read various reports about the proposed dam and strongly believe that such a development should not proceed.

Yours sincerely
Judy Singer

[REDACTED]

From: Paul Geense [REDACTED]
Sent: Wednesday, 9 September 2020 9:19 PM
To: Records
Subject: Proposed Channon-Dunoon dam

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

Dear Sir, Madam,

I am writing to express my concern regarding the proposed dam between The Channon and Dunoon as described in your 2060 water plan.

The dam would cause the loss of rare sandstone rainforest, endangered species and koalas.

I find this unacceptable since smarter water use would make the dam unnecessary. Much more can be done to collect and store water and to reduce water use in the domestic, agricultural, commercial and industrial sectors.

A comprehensive audit needs to be done in the whole area Rous Water is responsible for compiling all water use, all opportunities to reduce water loss and water waste and all opportunities for water saving measures and improvements in water efficiency, and lastly all possibilities for localised rainwater capture and storage. If this were done, it could be conclusively determined whether a new dam is really necessary or not.

In the light of the current state of deforestation, bushfires and climate change, inundating natural ecosystems is in my opinion never an option.

Kind Regards, Paul Geense

[REDACTED]

From: Michele & David [REDACTED]
Sent: Wednesday, 9 September 2020 2:38 PM
To: Records
Subject: Proposed dam at Dunoon

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

To Whom it May Concern (Rous County Councillors)

We are writing to ask you to consider other options to the construction of a dam at Dunoon. The Impact assessment by RCC of 2011 found many significant impacts of building such a dam. These issues eg loss of rainforest on sandstone, loss of threatened flora & fauna species, are still very relevant. However, our country now more than ever, needs to look at innovation & opportunities which present & which could very well lead to much better water use & optimising of our water resources. We urge you to consider investing in system-wide water efficiency - we can be smarter about how we use our water. Such an investment would also generate many jobs. As ratepayers, we would prefer to have our rates fund this kind of enterprise which seems to us, to be the way to go in these current times.

Thank You
Ms Michele Lacroix
Mr D McCarthy
[REDACTED]

[REDACTED]

From: Sally Cusack [REDACTED]
Sent: Wednesday, 9 September 2020 9:26 PM
To: Records
Subject: Proposed Dam at Dunoon

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

Dear Councillors

Please withdraw the plans for this project. While more water needs to be assured for this region, this dam is not the answer. There are so many more effective, modern solutions for dealing with this issue. We are so much more informed and creative in this region than to stoop to such unnecessary destruction of the environment.

Thank you

Sally Cusack
[REDACTED]

[REDACTED]

From: Kelly Dick [REDACTED]
Sent: Wednesday, 9 September 2020 10:04 AM
To: Records
Subject: Proposed dam at Dunoon

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

Hi,

I don't think the dam is a good idea and I don't want it to go ahead.

It is my belief that streams, creeks, springs and rivers are living systems and need to be running wild and freely to be healthy and supply water to all living things in their vicinity.

Thank you,
Kelly Dick

[REDACTED]

[REDACTED]

From: Jen Harkness [REDACTED]
Sent: Wednesday, 9 September 2020 9:21 PM
To: Records
Subject: Proposed dam

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

Dear Sir, Madam,

I am writing to express my concern regarding the proposed dam between The Channon and Dunoon as described in your 2060 water plan.

The dam would cause the loss of rare sandstone rainforest, endangered species and koalas.

I find this unacceptable since smarter water use would make the dam unnecessary. Much more can be done to collect and store water and to reduce water use in the domestic, agricultural, commercial and industrial sectors.

A comprehensive audit needs to be done in the whole area Rous Water is responsible for compiling all water use, all opportunities to reduce water loss and water waste and all opportunities for water saving measures and improvements in water efficiency, and lastly all possibilities for localised rainwater capture and storage. If this were done, it could be conclusively determined whether a new dam is really necessary or not.

In the light of the current state of deforestation, bushfires and climate change, inundating natural ecosystems is in my opinion never an option.

Respectfully yours,

Jennifer Harkness

[REDACTED]

From: Susan Ash [REDACTED]
Sent: Wednesday, 9 September 2020 8:06 PM
To: Records
Subject: Proposed Dunoon Dam in the Future Water Proposal 2060

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

Dr Susan Ash
[REDACTED]

Dear Rous Councillors and General Manager I do not support the Dunoon Dam project because I believe building more dams is using old technology which allows water evaporation and potentially creates a risk if the dam wall breaks or leaks or overflows. I have had personal experience of the recent Brisbane 2011 floods. Not only this but Indigenous heritage sites and the iconic Channon Gorge will be flooded. We need smarter solutions in the vein of renewable energy solutions such as solar and wind farms.

I support alternative solutions such as investment in water efficiency systems and demand management; water harvesting; and water reuse.

I hope you will consider my email,

Regards

Susan Ash

Sent from my iPhone

[REDACTED]

From: Kristy Limbrick [REDACTED]
Sent: Wednesday, 9 September 2020 4:25 PM
To: Records
Cc: [REDACTED]
Subject: Proposed Dunoon Dam 2060

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

Kristy Limbrick
[REDACTED]

Rous City Council,

To Councillors and General Manager,

As a local resident I DO NOT support the proposed Channon/Dunoon Dam and am incredibly concerned for the negative impact this will have on our area.

The destruction of Indigenous cultural heritage sites and damage to the ecological community of and within the rainforest and it's threatened flora and fauna is unacceptable.

If State planning regulations are to 'Focus development to areas of least biodiversity in the region and implement the 'avoid, minimise, offset' heirachy to biodiversity, including areas of high environmental value', then how can this possibly be seen as viable?

The irreversible impact to the area should not be considered with more effective solutions available. The small population increase does not justify this project in any way and the terrifying risk of flooding is also unacceptable.

As a local resident I ask that Rous Council looks at water re-use options and water harvesting as alternatives.

It is clear that the local community do not support this dam and do not support Rous Council on this.

Regards,
Kristy

[REDACTED]

From: Mark Seiffert [REDACTED]
Sent: Wednesday, 9 September 2020 7:27 PM
To: Records
Subject: Proposed Dunoon dam within the Future Water Project 2060

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

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

As a former resident [REDACTED], I am concerned about this proposal for the reasons outlined below. The impact on this unique ecological environment and potential loss of indigenous heritage is very worrying and should not be allowed to happen.

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)
- **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).

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](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/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 oversized and unnecessary dam.

[REDACTED]

From: Laura Shore [REDACTED]
Sent: Wednesday, 9 September 2020 8:27 PM
To: Records
Subject: Proposed Dunoon Dam within the Future Water Project 2060

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

Laura Shore
[REDACTED]

Dear Rous Councillors and General Manager,

As a 25 year resident [REDACTED], I am concerned about the unchecked development and growth of this precious area. I appreciate the resource of good clean water from the tap and am grateful for the existing water catchment area. When I read the Rous water statement of why we need this proposed dam, I felt concern that we look to capturing more water at the risk of harming the rainforest rather than questioning how we are using our water and how we can save more water. I have been reading what I can about this issue as I feel deeply the biodiversity of our area is under siege. I love to hike in the Dunoon area and have long enjoyed the rainforest there. I feel we need to try any other means of saving water and system efficiency including more rain tanks before undertaking such a huge project. I would also like our local councils to hold strong against more developments and population growth in such a sensitive and loved environment as this area is.

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 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.
- **Alternative solutions have not been assessed comprehensively.** Alternative solutions include de-salination, water tanks, water recycling, etc. This suite of options needs to be fully assessed before deciding to build this dam.
- **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. A previous proposal to build this dam was rejected on these grounds.
- **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 environmental value.” NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 0 August 2020 < <https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan> >, Directi
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. River pollution will be caused by sediment released throughout the building process.
- **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to 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 **do 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⁾

Sincerely,

Laura Shore

[REDACTED]

From: jasmine scheidler [REDACTED]
Sent: Wednesday, 9 September 2020 9:36 PM
To: Records
Subject: proposed Dunoon Dam within the Future Water Project 2060 objection
Attachments: Submission JS.docx

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

9 september 2020
Rous County Councillors

Jasmine Scheidler, Gwanji Monks, Malina Monks, Dennis Monks, Raphael Monks, Ethan Monks.
Kookaburra Community [REDACTED]

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

Firstly, I would like to thank you for supporting the extension of the submission date. Also, thank you for managing the amazing dam we already have (Rocky Creek Dam) so well. It is a beautiful site, and the cabinet timber plantation is fantastic.

We are long time Locals, representing 3 generations in the area and 3 generations in [REDACTED]

While climate change and water shortage is understandably an important resource for the future, we do not believe the Dam proposal is the way to safe guard water.

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.
- **Alternative solutions have not been assessed comprehensively.** Alternative solutions include de-salination, water tanks, water recycling, etc. This suite of options needs to be fully assessed before deciding to build this dam.
- **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. [A previous proposal to build this dam was rejected on these grounds.](#)
- **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. River pollution will be caused by sediment released throughout the building process.
- **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⁾

-

I SUPPORT these alternatives:

I believe we need to examine all the smart water options and proven alternatives available, and act.

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. (I 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⁾
- **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.⁽¹²⁾ *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>

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

How about also looking into water harvesting from the air? A system that does this can be viewed at “The Farm”, Byron Bay. See <https://www.theland.com.au/story/5678758/fresh-water-from-fresh-air/>

● **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.

Thanks so much for your consideration,

Kind regards,

Jasmine Scheidler

Gwanji Monks

Malina Monks

Dennis Monks

Raphael Monks

Ethan Monks

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) 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 area based 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, viewed 6 August 2020, <<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>>

[REDACTED]

From: Meg Barron [REDACTED]
Sent: Wednesday, 9 September 2020 10:32 PM
To: Records
Cc: [REDACTED]
Subject: Re: : The proposed Dunoon Dam within the Future Water Project 2060

Meg Barron
[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.

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\(9\)](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\(10\)](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>

Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

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.

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".

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

The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, 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.

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

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

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

\$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).

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>>

[REDACTED]

From: Isabel Lucas [REDACTED]
Sent: Wednesday, 9 September 2020 10:09 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

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. 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:

- **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 we all have enough water.** By focusing 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 and risky '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 better.
- **Destruction of beautiful Whian Whian Gorge, the second largest remnant of the 99% cleared Gondwana 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 03 August 2020 <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]
- **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011) (2) . Ongoing disregard for First Nations' heritage.

I SUPPORT these alternatives:

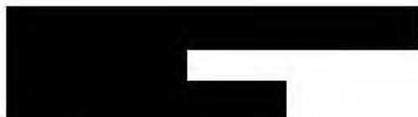
I believe we need to take action on a suite of smart water options and proven alternatives. The tide is turning on renewable and sustainable resource use. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.

- 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.**
[\[https://www.abc.net.au/news/2020-03-04/water-banking-aquifers-australia-facing-future-drought/12009702\]](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.
[\[https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown\]](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 oversized and unnecessary dam.

Thank you for taking the time to read this.

Sincerely,
Isabel Lucas



[REDACTED]

From: Sue Nakkan [REDACTED]
Sent: Wednesday, 9 September 2020 11:16 AM
To: Records
Subject: Re: Dunoon Dam

Hello,

I DO NOT WANT A DUNOON DAM. This is not a 21st Century solution for water security.

What we need is a system wide water audit, as Sydney Water did. Identify the leaks, etc. and fix them. Which creates jobs and will save water.

We need more water tanks for private use, which would save enormous amounts of water.

We should not be destroying rainforest, at this time of the earth's problems, from now on we should not cause any more destruction. This is Ecocide. The animals in our forests have declined by 70%, (since the recent bushfires) and now Rous Water thinks its ok to take away more habitat!!!

There are significant Aboriginal heritage sites that the proposed dam will flood. How is this ok??????
It's another slap in the face for our Indigenous people, AGAIN.

We need to utilise the re-use of water where ever possible. Purple pipes in all new housing subdivisions. Are there purple pipes at the North Lismore subdivision???

Allow more water-less toilets, as in composting toilets. Let's stop flushing our clean rainwater.

Education on how to be water-wise for people on town water. People with water tanks know the value of water and are not wasteful.

More productive farmland going under water. What planet do you all live on? Does not make sense at this time of the earth.

Bad idea, choose a suite of better, cleverer ideas for managing water for future generations.

Lets be progressive, NO NEW DUNOON DAM.

Sue Nakkan
[REDACTED]

[Redacted]

From: Samuel Curran
Sent: Wednesday, 9 September 2020 11:49 AM
To: 'Mick Lacey'
Cc: Michael McKenzie; Records
Subject: RE: Emailing: FINAL Urban water supply options for Australia

Thanks Mick, will pass on to the Future Water Project team for their information/consideration.

Regards

Samuel Curran
Asset Planning Engineer
Rous County Council

[Redacted]

Our offices and operations will be operating a little differently due to COVID-19. Rous County Council staff are still working to maintain all core services. Please help us work safely by showing your support from a distance. The best way to get in touch with us is through email council@rous.nsw.gov.au or by phoning (02) 66 233 800. Further information on how we are operating due to COVID-19 can be found on our website.

-----Original Message-----

From: Mick Lacey [Redacted]
Sent: Wednesday, 9 September 2020 11:01 AM
To: Samuel Curran [Redacted]
Subject: Emailing: FINAL Urban water supply options for Australia

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

Hello Sam,

A few things today please:-

I see the submissions close today for the Dam, Future Water Project. You guys are all in the know just passing on the attached document which you've probably seen recently released by WSAA. Depending on your perspective the document allows for a range of options and as always how one would interpret the data is in the eye of the beholder. Maybe something that should go into the mix in a final report for Securing the Future if not already considered.

Interesting for me as well because Rous were going to build the dam back in the 90's but two this happened. Public pressure and Dr Stuart White. In hindsight maybe Dr White's Demand Management Strategy may have been a disservice. If a dam is genuinely on the table it would have been much cheaper to build then than now obviously. Round about 1994 / 5, the good Dr produced a report about 50mm thick which basically canned the dam and promoted rainwater tanks as the saviour. But we all new that was not going to be the long term answer. Having said that I think there is still a few options and strategies that could be explored. When you go to Rocky Creek dam what a fantastic facility. Ultimately, security is the goal. Also interesting is your own (Rous Water) current Regional Demand Management Plan. When you view that data and we see in there that there hasn't been any increase in demand for the last 8 years despite population growth would suggest that some of those strategies are working. We can only surmise what could be achieved further with further strategies and some intestinal fortitude around development policies and pricing structures. The RDMP also paints LCC in a bad light with respect to zero recycled water compared to Ballina and Byron. Our efforts in this area not matching our neighbours. LCC a long way from delivering any recycled water. Not sure what you were doing about 12/13 years ago when state government had the grand plan for water management which was catchment based. Several changes of Ministers in quick succession foiled than plan and pressure from Local Government. When they presented a plan that was going to pluck water & sewerage out of Council and create a catchment authorities, Rous was quick to put their hand up for that but unfortunately the Council's had their way and nothing changed. Ultimately I think that model proposed back then was the way of the future. Until the current model changes true water cycle management will never be achieved. Council's are splintered in their minds with respect to For example why does Ballina and Byron have recycled water and LCC, nil. Why does Byron have volume based sewer usage charges and no one else does? When its all said and done the public pressure will have a significant bearing on the outcome I'm sure. We shall wait and see.

Enough of that. I haven't forgotten about the Secondary Dwelling data. The spreadsheet was only a total figure of LCC and RW. I'm just plucking out the RW data for you. Will deliver soon.

Thank youMick

Your message is ready to be sent with the following file or link attachments:

FINAL Urban water supply options for Australia

Note: To protect against computer viruses, email programs may prevent you from sending or receiving certain types of file attachments. Check your email security settings to determine how attachments are handled.

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom it is addressed. It is confidential and may contain privileged information. No confidentiality or privilege is waived or lost by any mistaken transmission to you. If you receive this email in error, please immediately delete it from your system and notify the sender.

Opinions, conclusions and other information contained within this message that does not relate to official Council business are those of the individual sender and shall be understood as being neither given nor endorsed by Lismore City Council.

[REDACTED]

From: Liora C [REDACTED]
Sent: Thursday, 10 September 2020 12:21 AM
To: Records
Subject: Re premature closure of submission time
Attachments: Future Water 2060 submissions closed.JPG

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

Dear Sir

I went online as advised in the council newsletter to fill the form out and submit it before midnight. I filled the submission form out giving my strong disapproval of the project however when I went to submit it I was told that submissions were closed even though it was not yet midnight. I would like to speak to someone about having my submission accepted.

Sincerely,
Liora Claff

[REDACTED]

Basically I agree that we need to act to secure water for the future but not at the expense of the flora and fauna that have lost so much in the bush fires and we must begin to respect Indigenous culture - not just pay lip service to it.

This proposed dam will not benefit our community, it will destroy the Channon Gorge - UNTHINKABLE!!! There are other ways to live sustainably on the planet. Desalination, Recycled water, water tanks, planting trees to support the lifecycle of fresh water creation.

I have copied and pasted my form and re-written parts that didn't copy.
Sincerely, Liora Claff

FUTURE WATER PROJECT 2060 - FEEDBACK SUBMISSION FORM

Thank you for taking the time to submit your feedback on Rous County Council's Future Water Project 2060 proposed plan.

Please complete the form and submit by the **9th of September, 2020**.

Details on the general submission process and suggestions on how to make a good submission are available [here](#).

Information on the Future Water Project 2060 is available on the [Rous County Council's website](#).

About this form:

- An *asterisk indicates a mandatory question.
- This form automatically saves so that you can close the form and return to it at a later stage before you submit.
- It is estimated that this form will take you 10 minutes to complete.

If you have any questions about this form - contact [Rous County Council](#).

Select your age category.

65-74 years

Select your gender.

Female

Do you identify as Aboriginal and/or Torres Strait Islander?

YESNO

What is the postcode of your usual place of residence?

2480

In which local government area is your usual place of residence?

City of Lismore

Are you a town water customer via either your local council or directly connected to Rous?

YESNO

Were you involved in the Future Water Strategy 2014 community consultation process?

YESNO

How did you hear about the Future Water Project 2060?

check_box

Print newspaper

check_box

Facebook

check_box_outline_blank

LinkedIn

check_box_outline_blank

Rous County Council website

check_box_outline_blank

Television

check_box_outline_blank

Radio

check_box_outline_blank

Online newspaper

check_box

Word of mouth

check_box_outline_blank

Formal information session

check_box_outline_blank

Local council e-news or newsletter

check_box_outline_blank

Other

Have you reviewed any of the Future Water Project 2060 documents?

YESNO

What documents did you find most useful, if any?

Please indicate how you agree to the statements below:

STRONGLY AGREE: I am familiar with Rous County Council (RCC) and understand what they do.

strongly disagree disagree agree strongly agree

STRONGLY AGREE: The information provided, enables me to understand why RCC decided on specific strategies to secure future water supply.

strongly disagree disagree agree strongly agree

STRONGLY AGREE: We should act now to secure the water supply we will need for our future.

strongly disagree disagree agree strongly agree

STRONGLY DISAGREE: I support the Future Water Project 2060's direction for securing future water.

strongly disagree disagree agree strongly agree

Please comment on why you strongly disagree/disagree:

It is ignoring indigenous culture, sites and advice

The bush and animals have lost enough - we cannot keep stealing their habitat. We are part of a whole ecosystem - if we keep destroying ecosystems we are destroying our own habitat as well.

There are other ways - more sustainable and less expensive ways to secure water for the community

STRONGLY DISAGREE: I support the preferred options to secure the region's future water, inclusive of the Dunoon Dam project.

strongly disagree disagree agree strongly agree

STRONGLY DISAGREE: I support the alternative options to secure the region's future water being multiple groundwater sources within our region.

strongly disagree disagree agree strongly agree

Please provide your views on how we should provide water security for our region.

Tanks, harvesting from the atmosphere, growing trees. living with nature, recycling water and desalination plants.

I am concerned about the economic implications of the Future Water Project 2060.

strongly disagree disagree agree strongly agree

I am concerned about the environmental implications of the Future Water Project 2060.

strongly disagree disagree agree strongly agree

I am concerned about the cultural heritage implications of the Future Water Project 2060.

strongly disagree disagree agree strongly agree

I support the short term actions as a part of the decision.

strongly disagree disagree agree strongly agree

Please comment on why you strongly disagree/disagree:

Do you have any further feedback about any aspect of the Future Water Project 2060?

[Submit](#)

Submissions are closed at this time.

Liora (Lalita) Claff



Everything we put in or on our bodies should at best be nourishing & supporting and at worse be 100% safe.

. . The Dalai Lama, when asked what surprised him most about humanity, answered: " Man, because he sacrifices his health in order to make money. Then he sacrifices his money to recuperate his health. Then he is so anxious about the future that he does not enjoy the present; the result being that he does not live in the present, or the future; he lives as if he is never going to die, and then dies having never really lived."

[REDACTED]

From: Pietro [REDACTED]
Sent: Wednesday, 9 September 2020 1:25 PM
To: Records
Subject: Re Proposed Channon/Dunoon Dam submission

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

Pietro Fine
[REDACTED]

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

Dear Rous Councillors and General Manager,

Firstly, thanks 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 enjoyed the rainforests, creeks and wildlife in the northern NSW region for decades. Words cannot describe our deep appreciation for this land. In addition I have volunteered as as supplier and operator of PA systems for several Rouse Water sponsored events at Rocky Creek damn, as part of my commitment to the rebuilding of our natural environment.

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

1. Destruction of beautiful Whian Whian Gorge, the second largest remnant of the 99% cleared Gondwana 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. Plus the beautiful Channon Gorge will be lost and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species.
2. Higher prices for consumers due to a 4x increase in the cost of water.
3. 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)
4. In the 21st century, water infrastructure should be about a suite of smarter options. This dam would be a lost opportunity to make our system fit for the 21st century, swallowing huge resources in one big expensive project.

5. The dam may just encourage continued inefficient and often wasteful water management by local governments removing incentive to do things differently.
6. Important indigenous archeological sites, burial grounds, creation waterholes and artefacts would be destroyed.
7. I am especially opposed to the placing of the dam into "State Significant Project Status" as I understand this will make it very difficult for future objections to prevent it from going ahead.

Please add this to submissions against the construction of this proposed dam.

regards,

Pietro Fine

[REDACTED]

From: [REDACTED]
Sent: Wednesday, 9 September 2020 9:55 PM
To: Records
Cc: [REDACTED]
Subject: Re proposed Dunoon dam with future water project 2060

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

Tim Childs
[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 have been a resident in the northern rivers for nearly 20 years and over that time have come to value and appreciate the unique and incredible land we share here. Once existing flora and fauna is gone...it's gone.. there is no going back, surely with everything we have learnt about The impact we are having on biodiversity, the impact Of the way we treat the land and animals we share this planet With, we must make decisions as custodians to secure a future that is about sustainability, compassion and kindness, Where value of cultural heritage and endangered species must over ride continued growth and consumption.

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

(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.

Government)

- Destruction of important Indigenous cultural heritage, including burial sites (Cultural (2) 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 (3) 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/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-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.

- 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.

(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/Projects> (5) > scroll down to "Local Government Factsheets".
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres (6) below. (Environmental Flows Assessment 2011)
- 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

(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,

(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? the existing supply.

<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 (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.

water for 30 years using advanced technology. <https://www.wingoc.com.au/our-history>

groundwater usage. <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground-water-drawdown> (11)

(9)

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.au/>>

(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>>

Sent from my iPad

[REDACTED]

From: [REDACTED]

Sent: Wednesday, 9 September 2020 1:59 PM

To: Records

Cc: [REDACTED]

Subject: RE: The Proposed Danoon Dam Within the Future Water Project 2060

Dear Rous councillors and general managers,

My name is Vera McAllister and [REDACTED]. I cared very much about the dam proposal built in my beautiful area as it would mean that everything that I fought for during the catastrophic bushfires season, including the animals, the unique plant life and Aboriginal cultural artefacts will be submerged under this dam. These are beautiful and priceless remnants of ancient Gondwana forest; forest that are fast disappearing today, inhabited by platypus and koalas that are also endangered by dramatic changes in their environment.

I would like to say thank you for supporting the extension of the submission date. While also acknowledging the complexity of what Rous does to provide water in our region I do not support The Channon-Danoon Dam for these reasons:

- **Lost opportunity to invest in system wide water efficiency** – This is the cheapest and fastest way to ensure to ensure system wide supply-demand balance. For example, Sydney added an additional 950 000 people without a rise in consumption (Metropolitan Water Plan, 2006, NSW Government)
- **The 21st century is about a suit of smart water options.** This dam would be a lost opportunity to make our system 'future proof' to meet demands of the new millennium. Instead all the resources would be swallowed up by big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and often wasteful water management** by local government as they would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Statement, 2011). This is an ongoing disregard for our First Nation heritage. Please be better than Rio Tinto.
- **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest**, including rare regional warm temperate rainforest on sandstone and its threatened flora and fauna species terrestrial Ecological Impact Statement, 2011).

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

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

Councils are required under State planning regulations to "Focus development in 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', viewed 04/09/2020).

The impact on the population of The Channon and Danoon should also be considered:

- Industrial construction zone for The Channon community; noise, machinery, trucks and ongoing sound from the pumps etc.
- Higher prices for consumers due to 4x the increase in prices. Rous general manager in response to councillor Vanessa Ekins, said that he expects 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(5). 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".
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment, 2011).
- 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.
- 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? 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. (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 (<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.

(<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground>)

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 oversized and unnecessary dam.

Vera McAllister, [REDACTED]
[REDACTED]

[REDACTED]

From: Peter Maher [REDACTED]
Sent: Wednesday, 9 September 2020 9:04 PM
To: [REDACTED]
Subject: Re: Proposed Dunoon Dam

NEW INFORMATION

Further to my email objecting to the proposed Dunoon Dam

I live at [REDACTED]
[REDACTED]

I have learned today that the proposed reservoir level will be at RL 82.5
According to the topographical map. my house is located at RL 60 approx and is about 900m West of the location of the proposed dam wall.
We are on porous sandstone.
In very wet times before the drought, we had many small springs on our property.
My concern is that the creation of the reservoir could lead to many larger springs on our property which are likely to cause severe damage to the very thin coating of sandy soil.
In the event of that occurring, I would seek compensation.

Have any geological studies been done to indicate whether new aquifers could result from the building of the proposed dam?

Please reply
Peter Maher

On Sat, Sep 5, 2020 at 6:17 PM Peter Maher [REDACTED] wrote:
Dear Councillor

I am Peter Maher
I live [REDACTED]
I have lived here for about 30 years, paying land rates and water rates to Lismore City Council.

I am writing to **OBJECT TO THE PROPOSED DUNOON DAM.**

My main focus is that the proposed Dunoon Dam is unnecessary.

NSW Dept of Planning website has given me population figures for the four shires (Ballina, Byron Bay, Lismore and Richmond Valley) which I have aggregated.

Population in 2016 was 144250
in 2041 projected to be 151700, an increase of 7950 or 5.5%. increase in 25 years.
A further 5.5% increase over 25 yrs suggests a population of 160043 in 2066

(since these are pre-covid19 figures we should actually expect lower population growth due to the slump in immigration)

Rous County Council's website tells me that Rocky Ck Dam holds 14000ML and Emigrant Ck Dam holds 820ML.

That is 103000L per person in 2016.

If a 50000ML dam is added, THAT GIVES US 405000L per person in 2066.

We clearly do not need that much water.

I also have objections to:

- * the loss of biodiversity and habitat,
- * the loss of farmland in the reservoir,
- * the loss of environmental flows,
- * the loss of flows for the farmers downstream on Rocky Creek and Terania Creek along Keerong Rd,
- * the increased risk of flooding for my neighbours on The Channon Road downstream of Robertsons Bridge, as well as residents of The Channon village, and the family who lives immediately downstream of the proposed dam wall,
and
- * the loss of amenity to residents of The Channon Road , Dunoon Road, Fraser Road and Munro Road during construction,

Furthermore

Ecological has done an *Environmental Flows Assessment (2012)* and an *Aquatic Ecology Assessment (2012)*.

Neither of these documents makes any reference to environmental effects of the proposed pipeline and construction access.

Nor has there been an assessment of the effects of the proposed dam on indigenous heritage.

Nor has there been an assessment of the benefits of water saving measures, including, but not limited to, fixing pipeline leaks.

If after all the submissions have been considered, you decide to proceed with the dam anyway, why not build it at the upstream end of The Channon Gorge?

We would get a smaller reservoir and much less environmental destruction.

Regards

Peter Maher

[REDACTED]

From: Ana Jol [REDACTED]
Sent: Wednesday, 9 September 2020 1:06 PM
To: Records
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2020

RE: The proposed Dunoon Dam within the Future Water Project 2020

We live on one of the properties adjacent to the proposed Dam.
We are developing a 36 acre Bush Tucker Permaculture Farm adjacent to number 80 Standing street, location of proposed dam wall.

We are located within walking distance from the Gorge and have explored its length. We understand to full capacity it's ecological and cultural value.
Destruction of this remnant would negatively impact our farm, removing its genetic influence. We are supporting a flourishing acreage of rainforest, a project designed by Janelle Schafer for ecological preservation, education, research and future tourism.

I take pride in our community for being leaders in sustainability and environmentally regenerative practices. We are cutting edge pioneers of new future forward green technology and solutions.

Many Hectares of this exceptional rainforest is on sandstone, which occurs nowhere else. Once it is gone.. it is gone. It cannot be restored.
Damming is a destructive equivalent to logging a further 5% of the remaining Big scrub. Rare and Endangered species, Bundjalung Cultural heritage, Koala habitat.

From a Permaculture perspective, we strongly oppose the dam.
We must pioneer real solutions.
Future forward water solutions exist. Great ideas await!
We do not need to destroy our greatest wealth. Our future depends on these remnants which hold the last remaining genetic diversity required to restore ecosystems.
These remnants are our future.
Alternative solutions abound: Water wise community awareness and management practices such as system wide water efficiency.
If Sydney can do it, so can we:

[Professor Stuart White at the UTS in Sydney.](#)

We call on future forward thinking, especially when it comes to water. Water is our greatest asset but not one we should take, steal, then waste.

As well as water education and management, a true Permaculture solution would be to harness rainwater everywhere where excess water poses a problem. Subsidising of rainwater tanks and installation.

This rare rainforest is an ecological treasure of extreme cultural and environmental significance! We must preserve and protect it.
We need every bit of rainforest we have left.
Let's create a a bright future together with water smart communities living alongside flourishing rainforests.

Thank you
Best regards,
Anna Jol

[REDACTED]

From: Eliza Erskine [REDACTED]
Sent: Wednesday, 9 September 2020 9:42 AM
To: Records
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Eliza Erskine

[REDACTED]

Gender: Female

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

My family & friends have enjoyed the rainforests, creeks and wildlife in the northern NSW region for many years. Words cannot describe our deep appreciation for this land and the original custodians of it, our aboriginal brothers and sisters.

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)
- 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)
- 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.

- 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 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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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>
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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.
- Groundwater, where this is environmentally safe. The Australian government provides a lot of information on the ecological impacts and groundwater usage. <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 oversized 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.
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- (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>

[REDACTED]

From: [REDACTED]

Sent: Wednesday, 9 September 2020 9:44 AM

To: Records

Cc: [REDACTED]

Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Dear Rous Councillors and General Manager

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

My name is Phil Borrow and my family and I are a long term residents of The Northern Rivers and blessed to have settled in this area sharing the views of most in the community with regards to living our lives with as little impact on the natural environment as possible. I believe very strongly in learning lessons from the past and working toward new innovative solutions and to educate ourselves on how to reduce rather than compound the damage that is being done to our environment and natural ecosystems. In fact just last night my family & I caught an episode of "The Great Acceleration" aired on the ABC that highlighted exactly the type of forward thinking that is occurring around the globe and within Australia, finding those solutions to undo much of the devastation that has been done to our environment including some great examples of better Water management practices.

Along with all the points below, that have been collated amongst the many concerned citizen, I ask that if you have not done so already please view the information in last nights episode. It may inspire you to consider the possibilities that are just around the corner!

<https://iview.abc.net.au/show/great-acceleration/series/1/video/DO1845H004S00>

It has some very credible scientific backing demonstrating how this innovation is mitigating further impacts on our eco-systems whilst still achieving it's goal of sustaining our communities.

Thankyou for supporting the extension of the submission date. We also acknowledge the complexity of what Rous does to provide water to our region.

However 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 focusing 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

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- (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).
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- (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>

Phil Borrow

[REDACTED]

[REDACTED]

[REDACTED]

From: Kylie Ezart [REDACTED]
Sent: Wednesday, 9 September 2020 10:38 AM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Kylie Ezart, [REDACTED]
[REDACTED]
[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 Kylie, and I live in [REDACTED]. I love visiting the Channon and walking in the rainforest there. My husband grew up in [REDACTED] and we are very concerned about this Dam proposal. Dams are expensive and destructive and we believe there are better options for moving forward with water security into the future.

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:

Dams are expensive and destructive and instead we need 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)

This proposed Dam will lead to the **Destruction of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011). This is ongoing disregard for First Nations' heritage.

The Dam will also lead to the **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/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan](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.

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

And the Dam will increase 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. This is not acceptable!

I am aware there are other options and 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> 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. *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. <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.

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,

[REDACTED]

From: kirsten [REDACTED]
Sent: Wednesday, 9 September 2020 11:44 AM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Kirsten Clarke

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Dear Rous Councillors and General Manager,

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

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

As a psychologist, I provide professional psychological services to children, young people and their family community. I believe that children's wellbeing can be nurtured by their connection with nature through outdoor adventure and play. I'm passionate about protecting the environment for future generations. To activate about climate change and share my passion I work locally, minimise carbon emissions, and purchase green

Having lived in the northern NSW region for over 20 years, I find a great sense of peace and enjoyment in nature. My son (aged 13) and I often explore the rainforests, creeks and wildlife in the area. We feel a connection with and appreciation of our land. In addition to the local community of farmers and local nature enthusiasts, national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth to activate the process of protecting this land we know to be 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 Vanessa Ekins, Mr Rudd said he expected a fourfold increase in the cost of supplying water if the dam was built. [Rudd, Rous general manager]

● The **small population increase** predicted for the four Rous-supplied councils of 12,720 (5) between **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 and Environment 2019, 'NSW population projections', Sydney, viewed 03 August 2020, <<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>> screenshot "Local Government Factsheets".(5)

● **Lost opportunity to invest in system-wide water efficiency** - this is the **cheapest & fastest** way to meet water demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without increasing 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 develop a water 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 councils. They would have no incentive to do things differently.

● **Destruction of beautiful Whian Whian Gorge**, the second largest remnant of the 99% cleared Gondwanan 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 of 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 same zone. "Offsetting' with similar plantings is problematic because the type of vegetation offered as recompense is not 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, compensate' 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>]

2. Enhance biodiversity coastal and aquatic habitats and water catchments. (4) Rous is required to avoid damming 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 warrigal 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 species due to destruction of 6kms and genetic islanding of over 18 kms of migratory native fish habitat pressure on 19 threatened plant species, and 24 threatened fauna species. [As recorded within the 2011 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 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 for the Widjabal-Wiyabal People of the Bundjalung nation. The unique geology of "Basalt Meets Sandstone" lends itself to a meeting place for tool building, rich fertile land and sanctuary. The waterholes, trees and the Rocky Creek landscape tell one of an intact and well documented Australian dream-time story in the epic of the goanna (Ngumarhl) and snake (Ngoonjbear) which formed the Northern Rivers waterways and headlands. Preschools and Councilors alike pay their respects to the Bundjalung People and Ancestors' safe custodians of 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 lived in the region for many thousands of years in a sustainable relationship with the natural environment. The catchment areas managed by Rous County Council are a part of the natural landscape that forms the identity, spirituality and resource base for the Widjabal/Wiyabal people of the Bundjalung nation. Despite the significance of the past 200 years, the Widjabal/Wiyabal people still maintain a responsibility and deep relationship with the 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 the values of Integrity, Commitment, Trust, Social Responsibility, and Accountability."

[\[https://rous.nsw.gov.au/cp_themes/default/page.asp?p=DOC-NWB-13-07-78\]](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 and 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 "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 through 21st century thinking.

- An **investment in system-wide water efficiency and strong demand management**. Analysed, costed, deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan). Evidence 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 already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable 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 community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is \$2,500. If this were spread over each new 2 person household (est 13,000 pop by 2060) the cost would be \$192 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 to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, 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/12009444>

[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', 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" 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 re-anticipated times of drought and projected population growth, **without** the environmental destruction, s 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 photo threatened Channon Gorge**:

<https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszABsGKbYCYZmwyWg0GYrSAGmaU0UHZCaqKgo>

Kind regards,

Kirsten Clarke

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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(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-Local-Government/Coast/Delivering-the-plan>, Direction 2: Enhance biodiversity coastal and aquatic habitats and water cat

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

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(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 the Rous Region, Institute for Sustainable Futures, Sydney.

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

(10) Windhoek Goreangab Operating Company (Pty) Ltd 2020, Our history | Wingoc, Veolia Environment, 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 in terms of community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the population predicted to come to our area based 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, viewed 6 August 2020, <<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>>



© Andy McInnes

This would be flooded if the dam went ahead...

[REDACTED]

From: Lelli Brown [REDACTED]
Sent: Wednesday, 9 September 2020 12:11 PM
To: Records
Cc: [REDACTED]

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

From: Lesley Brown

[REDACTED]

Gender: Female
9 September 2020
To: Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>

Cc: Regional Mayors and Councillors

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 with regards to the above. I also acknowledge the complexity of what Rous does in providing water to our region which I have benefited from for the past 15 years until moving just last week to Stokers Siding. I have also for the last 15 years (more if you include the prior 19 years that I frequently, at least annually often 2 or 3 times a year, visited the Byron Region whilst living in [REDACTED] before moving to the area) enjoyed the rainforests, creeks and native animals in the northern NSW region. The environment here is without comparison and mere words cannot describe my immense appreciation for this country in its natural beauty and bio-diversity.

I can only therefore express my utter disappointment and outrage at the Dunoon Dam proposal and the destruction it will cause to land, habitat, and indigenous culture. And so... I am writing to add my voice to those of the local community of farmers and local nature enthusiasts; local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their utmost concern and support towards protecting this land from completely unnecessary development and inundation. There are far better ways that this money can be expended to make this region water sustainable and water wise without this proposal. To even the consideration, let alone the construction, of a dam I say **"NO"**.

The following are the reasons that I have for NOT supporting the proposed The Channon-Dunoon Dam:

- 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.
- 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.

- Destruction of beautiful Whian Whian Gorge, the second largest remnant of the 99% cleared Gondwana 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.

- 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]

- 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)
- A developers' dam: There is a strong Federal and NSW State push towards a population growth via immigration to 400,000 people in this region and beyond 30 million in Australia by 2060. [NSW Future Blueprint 2040] Developers are called on to invest in our "Rous, runs as a Corporate Entity" through the surcharges on developments, with expected returns on investments. Also the rapid expansion of the National Water Infrastructure Fund, lines of credit with 5 year interest free loans, merely feeds the financialization of our childrens' future, and leaves them prisoner to the piper's tune. [Debtwatch: Neoliberalism and economic breakdown: By Steve Keen" February 20, 2009.]
Australians currently enjoy 6 to 7 times the consumption of an average person on Earth. At the current rate the world population is raising its standard of living to that which Australian's enjoy, in 25 years we would require another 4 planets Earths!
[<http://data.footprintnetwork.org/#/countryTrends?cn=10&type=earth>] Obviously while such metrics are fantasy, what they clearly flag is that there is an immense pressure on Australia's and the world's ecosystems.
To have a sustainable future for our Earth or "Planet A" involves understanding that we are immediately facing many "tipping points" or failures in the Earth's ecosystems. When large areas of sensitive habitats are destroyed, extinctions of flora and fauna species accelerate, and along with climate change these ecosystems begin to fail in unexpected ways, and our planet becomes our own death trap. In order to maintain a diverse, resilient and well-functioning biosphere we need to remove the pressures on our local ecosystems, and not expand the population on the largest desert island in the world. And not build an unnecessary dam for short term profits for a few.
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

I am in total SUPPORT of these alternative initiatives:

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 'bang-for-buck' 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 a mere \$2,500. If this were spread over each new 2 person household area (est 12,000 pop by 2060) the cost would be a mere \$15 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 oversized and unnecessary dam.

Yours faithfully,

Your Name

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/>>

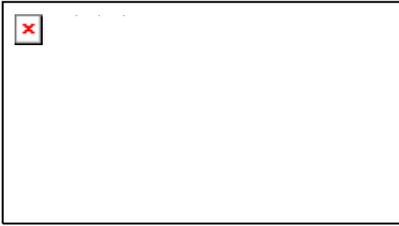
(11)\$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at \$3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL 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, viewed 6 August 2020,

<<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>>

lelli



[REDACTED]

From: Pademelon [REDACTED]
Sent: Wednesday, 9 September 2020 12:46 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

M. Patrick
[REDACTED]

Thank you for extending the submission date.
I acknowledge the service Rous does provide to our region, a most daunting task.

I have lived in this region for more than 40 years and care about the region and its unique environment. For most of the time I have lived in the region I was not connected to the main water source and therefore gained valuable insight into how precious our water supplies really are and how to capture and use this precious resource efficiently .

I DO NOT support the proposed The Channon-Dunoon Dam.

In the main, the reasons I do not support are as follows:

- a. That a more efficient use of our current water supply is available to explore.
- b. We must learn from experience and the present excellent knowledge we do have access to, to give us smart water options.
- c. We cannot continue to be wasteful with our water and having access to a new dam does not encourage water efficiency.
- d. Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)
- e. Ongoing disregard for First Nations' heritage.
- f. Destruction of The Channon Gorge and its endangered ecological community, I believe offset programs do and will not replace what is lost.
- g. The cost of a new dam to the local rate payers.
- h. Higher costs of water to consumers.
- i. A potential increase in downstream flooding in these unpredictable climate times.

I do believe that an investment in system-wide water efficiency and strong demand management would provide the area with sufficient water supplies for many years into the future.

Yours faithfully
M Patrick.

[REDACTED]

From: AnA Wojak [REDACTED]
Sent: Wednesday, 9 September 2020 1:16 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Mx AñA Wojak

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

9th September 2020

Rous County Council,

Lismore NSW 2480

council@rous.nsw.gov.au
<mailto:council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

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

Thankyou for the opportunity to give community feedback on this proposal.

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

Economically it doesn't make sense:

- * It's 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 Government) (1)
- * The 21st century is about a suite of smart water options but this dam would swallow all

resources in one big expensive project when there are cheaper alternatives (outlined further in this submission)

* The dam would encourage continued inefficient and often wasteful water management by local governments and individuals. They would have no incentive to do things differently and would be lulled into a false sense of security.

It destroys precious cultural heritage:

* Causes destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage. This was one of the reasons given for shelving the project in 2013, nothing has changed.

It causes irrevocable loss to the environment.

* Destroys 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). Offsetting by regeneration of degraded land in the buffer zone, as proposed by Rous is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist) This was also a factor in the rejection of the 2013 proposal, It is still a major factor.

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>
<https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan?fbclid=IwAR0DHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY

>, 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/*./

The dam causes disruption and increased costs for the community it claims to be serving:

* 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 elephant, 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>

<[Demography%2FPopulation-](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.planning.nsw.gov.au%2FResearch-and-Demography%2FPopulation-projections%2FProjections%3Ffbclid%3DIwARODHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT1tT-KxbVKQ980bjp5ebANG4nM5tHj8CjJvpitSTytrMwTDIHasxef3ch774hQMhbzihUSasf0hcXld8ROcxfoIPde3RGJzhE1FZlaOPhv7B8_cGV8q2H_KRMdu8VU3qcwd_4_Gg1JfVF9yN2UxPdRQ>></p></div><div data-bbox=)

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KxbVKQ980bjp5ebANG4nM5tHj8CjJvpitSTytrMwTDIHasxef3ch774hQMhbzihUSasf0hcXld8ROcxfoIPde3RGJzhE1FZlaOPhv7B8_cGV8q2H_KRMdu8VU3qcwd_4_Gg1JfVF9yN2UxPdRQ>>

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.

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

*

I SUPPORT these alternatives:

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

In the 21st century renewable and sustainable power are the way forward. It is high 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 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

<https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.bit.ly%2FProf-Stuart-White-Rous-slides%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT11kIDQg7IEKfvk853QqRuwr8a8jcTxc45uJy9c-1B5cTgi-a_qJaMZtkZGJoj9kBicLpkSgAA5RgvZtc1og-1NkH9FaMIO3N2MXGobNy9kdFWVueuPNfHNT0214kgvcEX_Gyr2OYjb5ZFhISL9Xla>

* 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>

<https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.waterra.com.au%2Fpublications%2Fdocument-search%2F%3Fdownload%3D1806%26fbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT1FBUBNROd2EqT3j0Bx-iWIO9CrhT388leXf0dc6M-HbT0SUoyz2cxdEvC7YW9OhtYQc2EA8c_wmJzEXxKNH5ThElhOlv8IfHog0sXzNHKwW7NLAM1kZ-mJg3zVOhRLcvku9KDAvWxZE9VnXrJ3npbk45Zyy_50HMVknI6_s3ilgbyL_EcQykPA4CHjrKHHlumUQCFZybYRqHNJiyX3uNeC0RxYpZwd6tzKitOs1iPjIoX8yjH9tYWHAWlxDH_s1PYEqadQgxi6yx8pPLiXnJW_Bi0cQqvhuyr7_Oo8Xw9kw>(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>

<https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.wingoc.com.na%2Four-history%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT3KcFmwyA2B05Utp8bLk13wnSgbavR2_aAKTzGWSRFhDbDRJd60BqSIsPgjf6P_S3baTJZ8s9qwQ_q41H__kzD9Vu3dtuHlwnFofSIA_gB76jqUuheWXQYM-VBM1ut_rNrLa7ZuF3tIGGfSVx6YnWxC>(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>

<https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.yourhome.gov.au%2Fwater%2Frainwater%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT0Ku9m-inK7a0U7-9Bord752M-hcz9iDmP_fYccCAknWUUI9Q_F8rA69sOF_C9SaylzYr41fgDDTwYyRjvFdExisbFIm7xMfnSTu_Qnd40kFEzOBdCZ76-B9oHy4k-6cNEJENvERWHDEEtd128BaiP>

* 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>

<https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.environment.gov.au%2Fwater%2Fpublications%2Fwhat-are-the-ecological-impacts-of-groundwater-drawdown%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT25qBzK9Xag_LmXrGlzC99k_L2DceXkc0mruGgiY41WjyRZvVW0ch_oobnyEJa03pvYLayvw1hREG40zScMnGPaOVHUX_yGQp65PVVo0NpKrY6jDEtDuIDwHBMcasiSz0F4KxO2SJVET58absz3q1R>

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>

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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. Stuart White, 2020
\[www.bit.ly/Prof-Stuart-White-Rous-slides\]\(http://www.bit.ly/Prof-Stuart-White-Rous-slides\)
 <\[https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.bit.ly%2FProf-Stuart-White-Rous-slides%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT05bFDvIRIPzRXzmap8ewGFJVYwLE3s9ZGwU5fAy3TKXhzyLlj0muBJFYQx4Mwq5m3U00NsdKXN_D2CJ5qHuPORJ538PYXkx3IFLmMgZvXE-Kb8ymeA368T3ul_JbNdGbxdt8HNY__2s6l8xnEaps0>\]\(https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.bit.ly%2FProf-Stuart-White-Rous-slides%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT05bFDvIRIPzRXzmap8ewGFJVYwLE3s9ZGwU5fAy3TKXhzyLlj0muBJFYQx4Mwq5m3U00NsdKXN_D2CJ5qHuPORJ538PYXkx3IFLmMgZvXE-Kb8ymeA368T3ul_JbNdGbxdt8HNY__2s6l8xnEaps0>\)>
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 <\[https://www.yourhome.gov.au/water/rainwater\]\(https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.wingoc.com.na%2F%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT2KJ4U9BdS2QHij2LFGZQSA5rEtOSeRrfuMRuUpytvQX7i2tWfaTxH8Iz2SgaSEXFL-e7jnkf-tX4jfsr3uEKQHxvTCikhrLk7eWSJu7MD-GMRsSl8JBCMc7usBsTGr59QKSQj0kQRc8AwSih5obl8>>>
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, <>>

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<<https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.yourhome.gov.au%2Fwater%2Frainwater%3Ffbclid%3DIw>

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<[regards,](https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown?fbclid=IwAR0DHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY>></p></div>
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~AnA Wojak

--
AnA Wojak

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[REDACTED]

From: anajolmetalcouture [REDACTED]
Sent: Wednesday, 9 September 2020 1:33 PM
To: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

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

We live on one of the properties adjacent to the proposed Dam.

We are developing a 36 acre Bush Tucker Permaculture Farm adjacent to number [REDACTED] location of proposed dam wall.

We are located within walking distance from the Gorge and have explored its length. We understand to full capacity it's ecological and cultural value.

Destruction of this remnant would negatively impact our farm, removing its genetic influence. We are supporting a flourishing acreage of rainforest, a project designed by Janelle Schafer for ecological preservation, education, research and future tourism.

I take pride in our community for being leaders in sustainability and environmentally regenerative practices. We are cutting edge pioneers of new future forward green technology and solutions.

Many Hectares of this exceptional rainforest is on sandstone, which occurs nowhere else. Once it is gone.. it is gone. It cannot be restored.

Damming is a destructive equivalent to logging a further 5% of the remaining Big scrub. Rare and Endangered species, Bundjalung Cultural heritage, Koala habitat.

From a Permaculture perspective, we strongly oppose the dam.

We must pioneer real solutions.

Future forward water solutions exist. Great ideas await!

We do not need to destroy our greatest wealth. Our future depends on these remnants which hold the last remaining genetic diversity required to restore ecosystems.

These remnants are our future.

Alternative solutions abound: Water wise community awareness and management practices such as system wide water efficiency.

If Sydney can do it, so can we:

[Professor Stuart White at the UTS in Sydney.](#)

We call on future forward thinking, especially when it comes to water. Water is our greatest asset but not one we should take, steal, then waste.

As well as water education and management, a true Permaculture solution would be to harness rainwater everywhere where excess water poses a problem. Subsidising of rainwater tanks and installation.

This rare rainforest is an ecological treasure of extreme cultural and environmental significance! We must preserve and protect it.

We need every bit of rainforest we have left.

Let's create a a bright future together with water smart communities living alongside flourishing rainforests.

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)⁽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/Planning-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 and 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 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) Ainsw 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-p> , 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 20 *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) Ltc 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 increa community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 r people predicted to come to our area based on 194L/person/day average water use (Rous). (13)Australian Goveer 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>>

Thank you

Best regards,

Anna Jol



[REDACTED]

From: Aiko nakano [REDACTED]
Sent: Wednesday, 9 September 2020 2:38 PM
To: Records
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Aiko Nakano
[REDACTED]
[REDACTED]
[REDACTED]

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. We also acknowledge the complexity of what Rous does to provide water to our region.

About me/personalise here: (optional)

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 we all have enough water. By focusing 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 and risky '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 better.

- **Destruction of beautiful Whian Whian Gorge**, the second largest remnant of the 99% cleared Gondwana 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]

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

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.

[\[https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown\]](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-BsGKbYCYZmwyWg0GYrSAGmaU0UHZCagKgo

Kind regards,

Aiko

[REDACTED]

From: Jacqui Lachmann [REDACTED]
Sent: Wednesday, 9 September 2020 2:31 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Rous County Council
[REDACTED]

As a resident of [REDACTED] and having grown up in the Northern Rivers area, I am strongly opposed to the construction of the proposed Dunoon Dam.

Whilst I acknowledge the complexity of what Rous Water does to provide water to our region, the construction of a new dam is unnecessarily destructive to the environment, and an inefficient way of providing water. I am deeply concerned about the destruction of Aboriginal heritage, agricultural land and rainforest that the proposed Dunoon dam would cause, should it go ahead.

Only a small fraction of the high quality drinking water that Rous Water provides is needed for potable uses such as drinking and cooking. We are literally flushing drinking water down our toilets. At the same time, huge volumes of stormwater runoff from urban areas are directed to the stormwater infrastructure and piped out to sea.

This inefficient method of managing water should not be perpetuated through the construction of another dam. I understand that some alternatives have been considered, but I don't think the full potential of system optimisation, rainwater capture, demand management and pricing tools have been investigated adequately.

Roof runoff can easily provide clean water if the rainwater tank system is correctly designed. In the past our family benefitted from the rainwater tank rebate from Rous Council. However, we currently have a complying development application in with Ballina Council to increase our rainwater tank storage capacity – it cost \$1,000 just to lodge the application and we still don't have an approval from Council after more than three months. I am extremely disappointed with the costs and barriers still in place for harvesting roof water. Councils and Rous Water need to work together to remove these barriers.

Water is an essential resource and personally I am happy to pay the true cost of what is provided to me. I would like to see a system of water charges where the cost increases with greater use. This would mean that a preset amount of water would be charged at a lower cost, to recognise water as a basic human need that should be affordable to everyone for a basic level of use. Once household use reaches a predetermined volume per month or quarter, the price per kilolitre should increase. There could be several of these price brackets. People then have a real incentive to minimise their household water use. Conversely, if water charges are increased to cover the cost of a new dam, people may feel they have a right to use as much water as they want.

Jacqueline Lachmann
[REDACTED]

[REDACTED]

From: Aiko nakano [REDACTED]
Sent: Wednesday, 9 September 2020 2:38 PM
To: Records
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Aiko Nakano
[REDACTED]
[REDACTED]
[REDACTED]

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. We also acknowledge the complexity of what Rous does to provide water to our region.

About me/personalise here: (optional)

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

- **Destruction of beautiful Whian Whian Gorge**, the second largest remnant of the 99% cleared Gondwana 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.

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[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:

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

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[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

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

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.

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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)

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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." 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.

[\[https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown\]](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-BsGKbYCYZmwyWg0GYrSAGmaU0UHZCagKgo

Kind regards,

Aiko

[REDACTED]

From: Torsten Lachmann [REDACTED]
Sent: Wednesday, 9 September 2020 4:42 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Rous County Council
[REDACTED]

Against the proposal to build a new dam at Dunoon

The proposal to build a new dam for drinking water in the Northern Rivers is flawed in so many ways. Economically it doesn't make sense to put all your eggs in one basket. It destroys animal habitats and unique flora. Indigenous sacred sites and artefacts that may yet to be discovered would be gone. Trees, desperately needed to absorb carbon emissions, gone. Hopefully other submissions will go into more detail on those topics.

In this submission I want to focus on the consumer side of this issue around supply and demand of drinking water. This quote I just read in the Echonetdaily is spot on: "On average, we use in our region 160 litres per person per day, yet a person can only ingest 2.5 litres of water! It's raised to the highest level of drinking water standard, but yet we use it to flush poo down toilets, to mix cement, and clean driveways and to do all sorts of things."

Four years ago, shortly after moving in, we installed a 10,000 litre rainwater tank so that the rainwater that lands on our roof doesn't just get wasted into the stormwater system. We received a rebate from Rous Water and [REDACTED] council approved the connection to our entire house. We have multiple systems in place to make sure the water is as clean as possible before it enters the tank including first flush diverters on every downpipe. We also have multiple filters in place after the tank going to a micro level to make sure the water is safe to drink. We follow the recommendations by NSW Health.

With normal rainfall, we only use water from our tank and don't use any town water. That includes watering our large garden. During the drought in 2019 our tank was empty for long periods so we decided to increase our capacity. Earlier this year we made an application to Ballina Council to add an additional tank. Based on our calculation this would enable us to remain on rainwater throughout a drought like the one in 2019.

Unfortunately Rous Water doesn't provide any further rebates beyond 10,000 litres. [REDACTED] council also doesn't treat this as an exempt development so we had to make a complying development application that comes with a significant fee. A [REDACTED] Council staff member visited our proposed site and made it clear that he objects to people using rainwater for drinking. He pointed us to NSW Health guidelines that people should (but not must) use town water where available. Even after noticing the various systems we have in place to filter and clean water and admitting that our water would be safe to drink, he continued to object to our proposal. Many months went by with no approval of our application. That is despite [REDACTED] council having already approved our house connection in 2016 which is not being changed. We are just adding further storage capacity. We recently received another Section 68 certificate in addition to the one we already received in 2016. As of today we are still waiting for the Complying Development Certificate required to install the additional tank.

When I look around houses in our area, I see many houses that don't have rainwater tanks despite people living in this area generally being environmentally more conscious than elsewhere. With Rous Water only providing a rebate for up to 10,000 litres that only covers some of the cost and with [REDACTED] council requiring a lengthy and costly process to install a tank beyond 10,000 litres and have it connected to the house, I can see why.

Rous Water and local councils in the area need to get their act together and encourage the installation of rainwater tanks so that valuable drinking water that lands on our roofs gets used and not wasted. On that basis I strongly reject the proposal to build a new dam.

Torsten Lachmann

[REDACTED]

[REDACTED]

From: Emily yantra [REDACTED]
Sent: Wednesday, 9 September 2020 4:59 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Emily Coleing

[REDACTED]

[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

Please do not proceed with the Dunoon Dam proposal
The reasons it was stopped last time are still relevant.

We need to use other means.

A dam at Dunoon seems like an easy fix but it points to a trajectory for development that is insatiable. The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a large dam. There are economically viable and more effective solutions. Please take the lead with sustainable priorities to protect what is valued by our community in this region. Cheap water and environmental sustainability.

Offsets?

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, highly respected Botanist and local community member).

State planning regulations require Councils 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

<https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/>

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

Cultural heritage

Cultural heritage is increasingly valued by non indigenous Australians, as part of our shared heritage. It's really important to me that the past is understood, because even if it's not my heritage, it's the land I live on. There are important cultural and burial sites that could be impacted by the proposed dam, according to Ainsworth Heritage 2011 'Cultural Heritage Impact Assessment'.

Thanks for respecting your community in the area of the proposed dam
Yours sincerely,

Emily



[REDACTED]

From: vanessa [REDACTED]
Sent: Wednesday, 9 September 2020 5:36 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Vanessa Eden
[REDACTED]

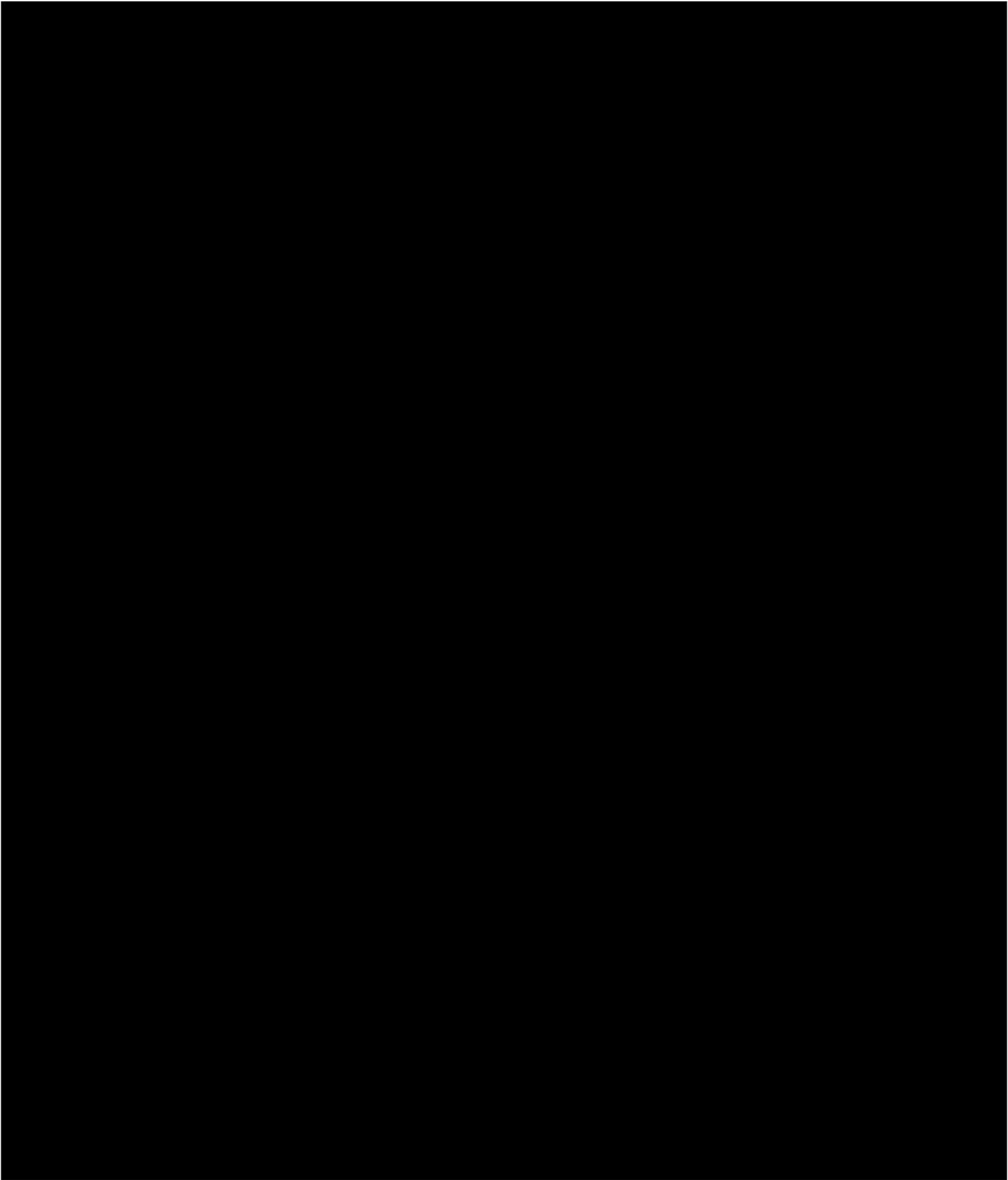
Dear Rous Councillors and General Manager,
Re: The proposed Dunoon Dam within the Future Water Project 2060

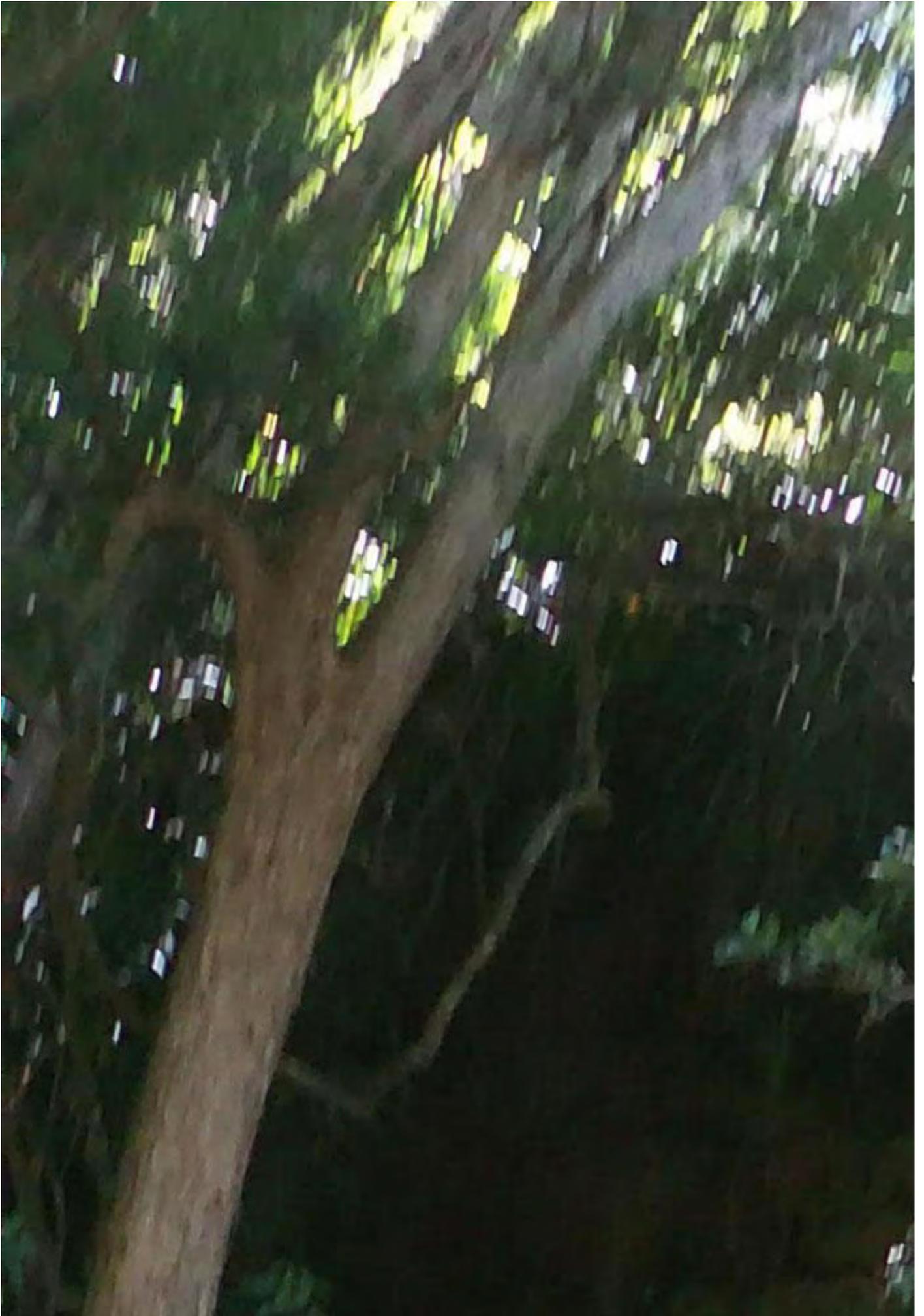
Firstly, thank you for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 50 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.

We should be limiting population growth in this ecologically sensitive region and protecting the natural surroundings from which our spiritual beings derive nourishment.

My children have spent many of their childhood hours exploring The Channon Gorge over many summer days. This has brought about an appreciation of nature and their place in the world. It has also helped them to build resilience and independence. I have included some photos of them enjoying the natural beauty of the gorge.









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- **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."

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

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Kind regards,

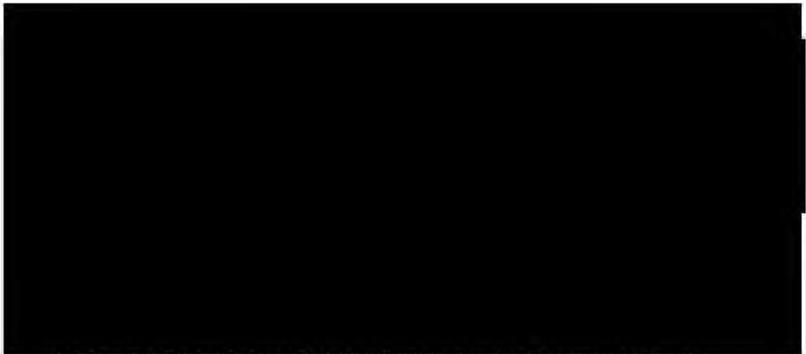
Vanessa Eden

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>
 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, viewed 6 August 2020, <<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>>



About the document The Department of the Environment and Energy commissioned a team of Australia's leading fresh...

[REDACTED]

From: Madeleine Connor [REDACTED]
Sent: Wednesday, 9 September 2020 6:49 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

[REDACTED]

10th September 2020 Rous County Council, Lismore NSW 2480

My name is Madeleine Connor, an extremely concerned Northern Rivers resident wishing to communicate the widely shared concerns around the proposed The Channon-Dunoon Dam.

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 <

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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, 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 oversized 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, 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,

(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, (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,

Kind regards,

Madeleine Connor

Digital Marketing and Social Media Specialist

[REDACTED]

From: Louise Railton [REDACTED]
Sent: Wednesday, 9 September 2020 8:39 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Louise Railton
[REDACTED]

9th 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. 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 (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/.../Population-pr.../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/...>

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\(10\)](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/.../what-are-the-ecological-im...>

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/.../NSW%20Govt%202006%20MWP%20summary...>

Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

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.

NSW Department of Planning, Industry and Environment 2019, 'NSW population projections', Sydney, viewed

03 August 2020, <<https://www.planning.nsw.gov.au/.../Population-pr.../Projections>> Scroll down to “Local Government Factsheets”.

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

The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, 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.

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

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

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

\$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).

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/.../what-are-the-ecological-im...>>

Yours sincerely,

Louise Railton

[REDACTED]

From: Antony Payn [REDACTED]
Sent: Wednesday, 9 September 2020 8:54 PM
To: Records
Cc: [REDACTED]

Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Attachments: IMG_7498.JPG; IMG_7496.JPG

Antony Payn



Male

9th September 2010
Rous County Council
Lismore NSW 2480
council@rous.nsw.gov.au

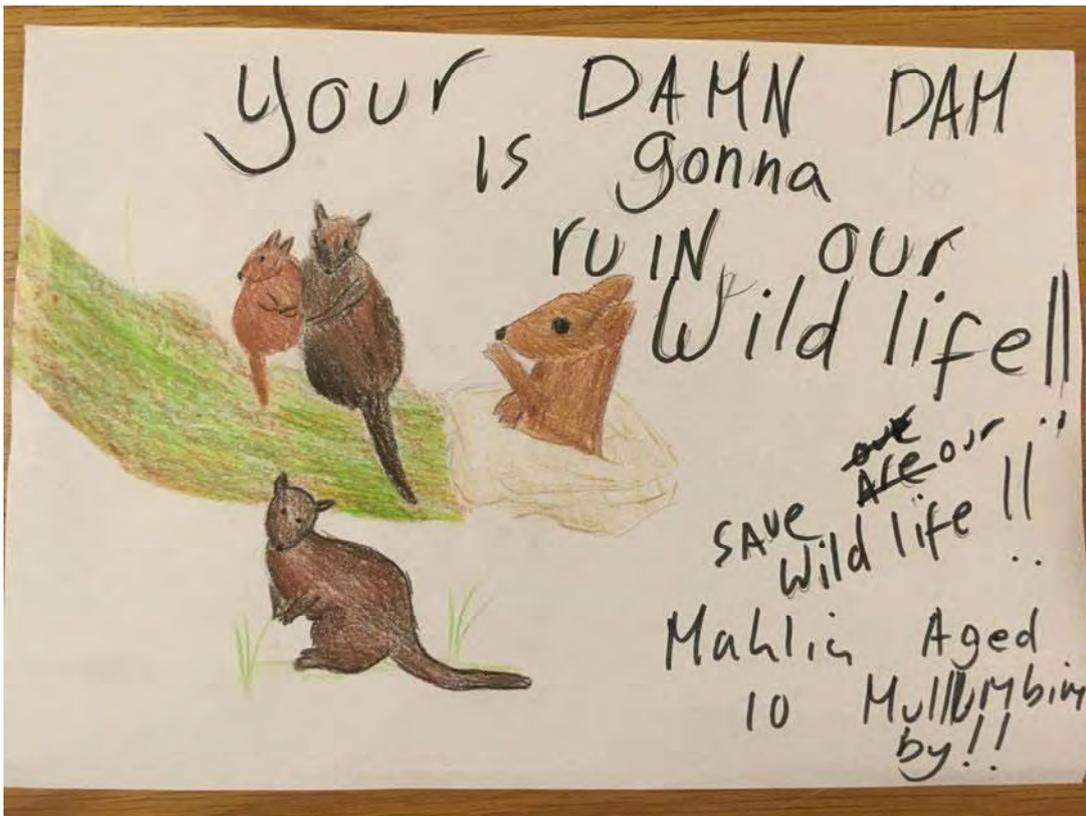
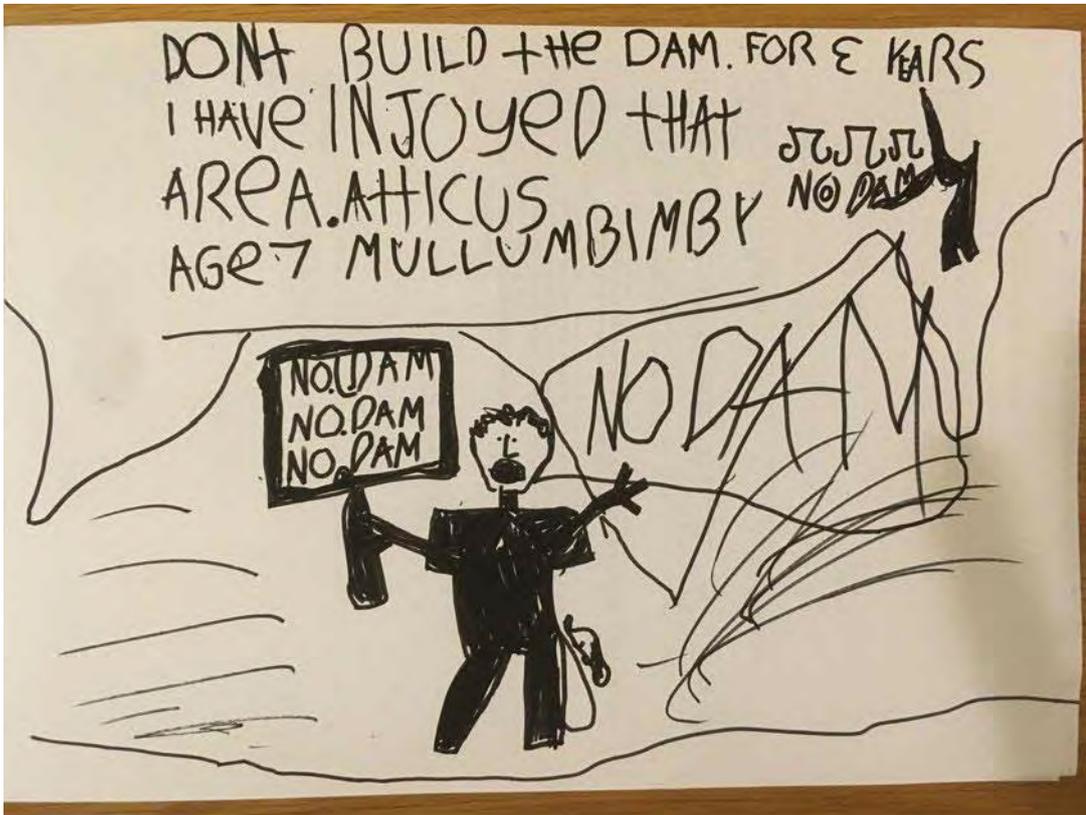
Dear Rous Councillors and General Manager

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

My children are not happy about the dam proposal. They drew this for you.

Thanks.

Antony



Antony Payn



[REDACTED]

From: Maureen Brannan [REDACTED]
Sent: Wednesday, 9 September 2020 8:59 PM
To: Records
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060

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

This will not be a standard response as I have left this till literally the last minute but I have been following the Dunoon Dam proposal for long enough to know that the ecological and heritage destruction will outweigh by far any benefits you believe this scheme will have. I have been opposing main channel dams since 1970's, the Paradise Dam in particular. The World Commission in Dams found them to be obsolete technology, and that was two decades ago! Please read this expose: <http://worldatpolarity.blogspot.com/2018/07/paradise-dam-case-of-ecocide.html>
No new dam must be built before this catastrophe has been recognised.

Maureen Brannan
[REDACTED]

[REDACTED]

From: Raga Eagle [REDACTED]
Sent: Wednesday, 9 September 2020 9:00 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Attachments: Robyn Eagle submission.pdf

9 September 2020
Rous County Councillors

Robyn Eagle
The Channon, NSW 2480

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

My family and I moved to [REDACTED] 4 years ago, shortly before the Cyclone Debbie floods of 2017, in which our entire home and property went under. We have been extremely affected by this event, and are still repairing our home and (potential) gallery business from this flood. It has set us back years, however it has not dented our love of the area. We feel like we have found the most special, peaceful place to live, and love our community and the surrounding environment. We like to visit Rocky Creek dam, and commend Rous on its management of that area. We also live on Rocky Creek, just downstream of the proposed 90 m dam wall. We sit at 40m above sea level, The Channon being a very low lying area. **We are extremely concerned by The Channon-Dunoon Dam project, and strongly disagree with the proposal.** For us, it would be a disaster – we are still emotionally, financially and psychologically recovering from the last flood – and the climate modelling predicts more similar high rain events, more frequently in future, increasing the risk of catastrophic flooding downstream.

I question the necessity of the Dam project for long-term water security, and **DO NOT** support the proposal for these reasons:

- **Catastrophic flooding downstream in worst flood events, particularly for the first 3 km downstream (Environmental Flows Assessment 2011¹) – that would be us.**
- **Destruction of critically important Indigenous cultural heritage (Cultural Heritage Assessment 2011²) – the area contains sacred creation waterholes, scar trees and burial sites. A previous proposal of the Dam was rejected on these grounds – how in 2020 is it now acceptable to further disregard First Nations heritage??**

- **Destruction of the regionally unique rare warm temperate rainforest found in the Channon Gorge ecosystem, and loss of habitat and connectivity for threatened species of flora and fauna** (Terrestrial Ecology Impact Statement 2011³) – This includes **remnant patches of Big Scrub, of which there is 1% left in Australia.** **After the catastrophic bushfire season we have had, and which we will likely face more of in future, it is unconscionable that Rous would willfully permit further destruction of this ancient remnant rainforest. Who knows when we will lose more even when we fight to save it, I am blown away that it is allowable for this proposal to disregard the ecological value of this area.** Koalas use it, many threatened species require it and a healthy aquatic ecosystem needs running water for all lifecycles of its underwater organisms. This is a major concern of our community, and we will not back down in this respect. **This type of ecosystem cannot be offset by any regeneration project in our lifetime** – local hero, botanist and Landcare member Nan Nicholson is adamant in her disapproval of Rous offering to offset the damage in this way – the vegetation is irreplaceable and ‘this example is worse than most’.
- Turning the Channon and Dunoon community in to a **multi-year industrial construction zone** – including **noise (during construction and from the pumping station), visual and environmental pollution** – the clearing of the forest will release sediment, promote topsoil loss and further clog and damage our already terrible roads.
- **4x increase in water prices for consumers and long-term, massive financial commitment payable by community** – responding to Cr Vanessa Ekins, Rous’ general manager said he expected a fourfold increase in prices. Further, Cr Jeff Johnson can recently be quoted saying **the dam will cost “..\$640 million in 2020, over the 80 year proposed lifespan of the dam....Ultimately these costs will be borne by residents and businesses via increased rates and charges for water..”** – For many of us, basic living costs in this area can be exorbitant, and we can’t afford a hike in water prices, especially when **there are simpler in-situ water harvesting options such as water tanks (with rebate support).** In the end we will pay for this project, whether further assessments or the entire project blows out. Why is Rous considering committing us to this solution when **innovations are rapidly progressing, and further studies may reveal better options in the next 10 or 20 years.** Water security and requisite technology may look very different, very soon. **Water harvesting from the atmosphere is just one recent development that may radically change the way we capture and store water in future (E.g. the local work of Three Blue Ducks from Byron Bay!!).**
- **A 2019 study in to Australian dam construction costs (examining 98 dams constructed since 1888) found an overrun median of 49% and a mean of 120% (Petheram & McMahon 2019⁴).** Further findings indicate **dam overcosts are more prevalent in sedimentary rock than hard rock** – The unique sandstone outcropping of The Channon Gorge is sedimentary rock. It is then even more reasonable to suggest that this proposal, if it went ahead – would be likely to blow out significantly – and **risk leaving us with a stranded asset as other technologies become viable and available.**
- **Further, the demand figures underlying the report are predicated on projected regional growth, predominantly in the Ballina Shire – most of the people do not live here yet.** If new developments were planned appropriately **then the inclusion of recycled water systems, water tank requirements and other water saving technologies (purple pipes, drought tolerant landscaping, storm water harvesting etc.) should be a bare minimum** – especially if current residents of the region, especially of the Dunoon and The Channon areas, are being asked to even consider a mega-dam proposal with such significant long term and localised costs; environmental, heritage and financial. In addition, Large users should be required and assisted to

formulate and implement plans to transition to recycled water options, which would decrease demand and associated cost figures significantly.

- **I believe this is a significant lost opportunity for Rous to intelligently invest in system-wide water efficiency – best practice from the beginning, not single-use mega dam wastage.** In 2011 Cr Silver is quoted by the Northern Star on alternatives to the Dam “....we would have to look at technical engineering solutions such as the use of reclaimed water for potable replacement (outdoor use and toilet flushing) using dual reticulation, which can reduce consumption by a third.” (Northern Star 2011⁵) – **Rous has had 9 years to explore other options and yet none of these options appear to be explored in their Future Water Plan 2060.**

In all this time there has **never been a system-wide efficiency audit** – which seem **unforgivably negligent** with a proposal of this kind and scale. How can we have faith Rous is exploring the most effective and sustainable solutions, with realistic future-proof planning, without such an examination? It would seem a logical first step, rather than swallowing all possible investment funding in one risky, outdated project.

The projected population growth for the four council areas serviced by Rous (12, 720 between 2020-60 per NSW Department of Planning, Industry and Environment 2019⁶) does not justify such environmental destruction and massive financial commitment. I further refer to Sydney’s Metropolitan Water Plan 2006, in which the Greater region was able to supply an additional 950, 000 persons without increasing demand – **by focusing on within-system efficiency we may be able to more than adequately meet our needs going forward, with a range of smart, modern alternatives (harvesting, recycling, strong demand management etc.)** and the existing Rocky Creek dam as a reserve during drier seasons.

I want to thank Rous for the extension of the submission date, and also extend my respect and appreciation for the complexity they must face in managing water security moving forward. We are proud of our region and want a Plan we can also be proud of, one that protects and respects local communities, our environment and our Indigenous cultural heritage moving forward.

Thankyou each for your time and efforts,

Robyn Eagle

References and Notes

(1) Environmental Flows Assessment Proposed Dunoon Dam, 30 August 2012, Eco Logical Australia

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

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

(4) Petheram, C & McMahon, TA 2019, 'Dam, dam costs and damnable cost overruns', Journal of Hydrology, vol. 3

(5) Northern Star, A Parks 2011, "Sacred sites could stop Dunoon dam", The Northern Star, viewed 2nd September 2020 < <https://www.northernstar.com.au/news/sacred-sites-could-stop-dunoon-dam/1208756/>>

(6) 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>>

[REDACTED]

From: Bianca Jones [REDACTED]
Sent: Wednesday, 9 September 2020 9:08 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Bianca L Jones

[REDACTED]

[REDACTED]

[REDACTED]

[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 am writing to oppose the construction of the proposed Dunoon Dam. A 50 gigalitre dam extending 6km upstream of the dam wall, that destroys First Nations' heritage, and social and ecological assets within its footprint (and beyond) is an old world response (and not a solution) to a new world problem. The impacts of which cannot be off-set by tree planting and bicycle paths. There are alternative options including but not limited to: water efficiency, water harvesting, and water re-use that are economically viable and warrant continued investigation rather than dismissal, as Rous County Council prioritises and promotes the Dunoon Dam as it's top choice for water security into the future.

Rocky Creek has seen child births and christenings. It has seen children tyre-riding down its waters for kms to be picked up by parents at the end of the day – enriched by nature, physically

spent. It has seen the gatherings of loved ones in forested shade on 45°C Summer days. It has seen silent, dawn platypus-spotting as the mist and birdcall rises. And it has seen the ashes of loved ones loosed to its care - for we believed it would always be here for us.

We will fight to save our connection to place, we will fight to save Rocky Creek, because the provision of water and water security need not be reliant on yet another dam. We acknowledge the complexity of providing water and water security to the region and respectfully request that alternatives to the Dunoon Dam continue to be investigated.

The reasons I DO NOT support the proposed Dunoon Dam include the following:

- **Lost opportunity to invest in system-wide water efficiency** - the most rapid and economical way to ensure a balance of supply and demand. Sydney has demonstrated that a focus on system efficiency can allow for population growth (citing an additional 950,000 people) without a rise in water consumption. (Metropolitan Water Plan, 2006, NSW Government) [1]
- **There are several water efficiency options** that would be preferable to The Dunoon Dam and support a system-wide approach to water efficiency. Analysis carried out by Rouse of these options and cost investment has, to date, been inadequate. (Professor Stewart White, 2020, UTS, Sydney).
- **Poor water management by local government would be perpetuated** by the dam rather than analysis, intervention, and investment being directed into 21st century solutions for water security in the region.
- **Destruction of a 6-7 hectares of a listed, critically endangered ecological community** of flora (Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)) – Lowland Rainforest of Subtropical Australia. Even rarer for this region as it includes warm temperate rainforest on sandstone.
- **Destruction The Channon Gorge and ~55 hectares of Big Scrub Rainforest remnant.** Only 1% of The Big Scrub remains and this 55 hectares of Big Scrub is of huge ecological importance and value. It has avoided centuries of post-colonial destruction to now be threatened by Rous County Council for an unnecessary dam.

- **Disregard and destruction of First Nations’ cultural heritage** on Widjabal/Wi-abal country of The Bundjalung Nation, including significant burial sites and artifacts (Cultural Heritage Impact Assessment, 2011)(2).
- **Destruction and fragmentation of existing habitat and wildlife corridors** of high importance for the movement of fauna, as key habitat and for biodiversity of flora and fauna (including conservation species) (McNally [et.al.](#), 2000; Jensen and Robertson, 2001; Landmark Ecological Services, 2012).
- **The proposed dam is the antithesis of “the six guiding principles under the Part 3A assessment process (DEC and DPI 2005).** These principles are, to: Maintain or improve biodiversity values; Conserve biological diversity and promote ecologically sustainable development; Protect areas of high conservation value; Prevent the extinction of threatened species; Protect the long-term viability of local populations of a species, population or ecological community; and Protect aspects of the environment that are matters of national environmental significance” (SMEC, 2011).
- **Offsets cannot mitigate the permanent ecological damage** and changes in the ecosystem, lack of recovery, trans-boundary effects and cumulative effects this dam project will cause.
- **Rous is required to *avoid* this destruction because there are economically viable and more effective solutions that do not have the following:**
 - **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.

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)

I SUPPORT these alternatives:

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 oversized and unnecessary dam.

References and Notes

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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>>

[REDACTED]

From: Prue Ritchie [REDACTED]
Sent: Wednesday, 9 September 2020 9:06 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Prue A. Ritchie
[REDACTED]
[REDACTED]
[REDACTED]
[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 am writing to oppose the construction of the proposed Dunoon Dam. A 50 gegalitre dam extending 6km upstream of the dam wall, that destroys First Nations' heritage, and social and ecological assets within its footprint (and beyond) is an old world response (and not a solution) to a new world problem. The impacts of which cannot be off-set by tree planting. There are alternative options including but not limited to: water efficiency, water harvesting, and water re-use that are economically viable and warrant continued investigation rather than dismissal, as Rous County Council prioritises and promotes the Dunoon Dam as it's top choice for water security into the future.

Rocky Creek has seen child births and christenings. It has seen children tyre-riding down its waters for kms to be picked up by parents at the end of the day – enriched by nature, physically spent. It has seen the gatherings of loved ones in forested shade on 45°C Summer days. It has seen silent, dawn platypus-spotting as the mist and birdcall rises. And it has seen the ashes of loved ones loosed to its care - for we believed it would always be here for us.

We will fight to save our connection to place, we will fight to save Rocky Creek, because the provision of water and water security need not be reliant on yet another dam. We acknowledge the complexity of

providing water and water security to the region and respectfully request that alternatives to the Dunoon Dam continue to be investigated.

The reasons I DO NOT support the proposed Dunoon Dam include the following:

- **Lost opportunity to invest in system-wide water efficiency** - the most rapid and economical way to ensure a balance of supply and demand. Sydney has demonstrated that a focus on system efficiency can allow for population growth (citing an additional 950,000 people) without a rise in water consumption. (Metropolitan Water Plan, 2006, NSW Government) [1]
- **There are several water efficiency options** that would be preferable to The Dunoon Dam and support a system-wide approach to water efficiency. Analysis carried out by Rouse of these options and cost investment has, to date, been inadequate. (Professor Stewart White, 2020, UTS, Sydney).
- **Poor water management by local government would be perpetuated** by the dam rather than analysis, intervention, and investment being directed into 21st century solutions for water security in the region.
- **Destruction of a 6-7 hectares of a listed, critically endangered ecological community** of flora (Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)) – Lowland Rainforest of Subtropical Australia. Even rarer for this region as it includes warm temperate rainforest on sandstone.
- **Destruction The Channon Gorge and ~55 hectares of Big Scrub Rainforest remnant.** Only 1% of The Big Scrub remains and this 55 hectares of Big Scrub is of huge ecological importance and value. It has avoided centuries of post-colonial destruction to now be threatened by Rous County Council for an unnecessary dam.
- **Disregard and destruction of First Nations’ cultural heritage** on Widjabal/Wi-abal country of The Bundjalung Nation, including significant burial sites and artifacts (Cultural Heritage Impact Assessment, 2011)(2).
- **Destruction and fragmentation of existing habitat and wildlife corridors** of high importance for the movement of fauna, as key habitat and for biodiversity of flora and fauna (including conservation species) (McNally et.al., 2000; Jensen and Robertson, 2001; Landmark Ecological Services, 2012).
- **The proposed dam is the antithesis of “the six guiding principles under the Part 3A assessment process (DEC and DPI 2005).** These principles are, to: Maintain or improve biodiversity values; Conserve biological diversity and promote ecologically sustainable development; Protect areas of high conservation value; Prevent the extinction of threatened species; Protect the long-term viability of local populations of a species, population or ecological community; and Protect aspects of the environment that are matters of national environmental significance” (SMEC, 2011).
- **Offsets cannot mitigate the permanent ecological damage** and changes in the ecosystem, lack of recovery, trans-boundary effects and cumulative effects this dam project will cause.

- **Rous is required to *avoid* this destruction because there are economically viable and more effective solutions that do not have the following:**
 - **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.

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)

I SUPPORT these alternatives:

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\(9\)](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\(10\)](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 oversized and unnecessary dam.

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[REDACTED]

From: Fiona Strelan [REDACTED]
Sent: Wednesday, 9 September 2020 9:25 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Fiona Strelan
[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 have lived in and around the [REDACTED] area for a number of years in Keerong, [REDACTED]. I love this beautiful area, it is ecologically unique and special; the prospect of the proposed dam and potential destruction of rainforest and Indigenous cultural heritage saddens me, as I feel it is not the way forward in terms of efficient water management. Please take the right action to ensure future water security in our community using sustainable methods that promote resilience and longevity of resources, with minimal disruptive impact to the ecological environment, rather than this proposed dam which would perpetuates short-sighted, outdated and inefficient methods of water management.

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) (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?

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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. ⁽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.
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References and Notes

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Yours sincerely,

Fiona Strelan

[REDACTED]

From: julie dillon [REDACTED]
Sent: Wednesday, 9 September 2020 9:32 PM
To: Records
Cc: [REDACTED]

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

Ms Julie Dillon

[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 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)

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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.

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

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

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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>

Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

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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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<<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>> Scroll down to "Local Government Factsheets".

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

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

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

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

Windhoek Goreangab Operating Company (Pty) Ltd 2020, Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020,

<<https://www.wingoc.com.na/>>

\$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).

Australian Government Department of Industry 2013, Science, Energy and Resources, Rain water | 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>>

This is my submission. Please consider these very viable alternatives to the proposed dam.

Yours faithfully

Julie Dillon

[REDACTED]

From: Arty Party Face Painting [REDACTED]
Sent: Wednesday, 9 September 2020 9:54 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Michelle Colpus
[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.

Thank-you for allowing me to provide my opinion on the proposed dam.

I DO NOT support the proposed The Channon-Dunoon Dam for several reasons, namely:

The dam would result in 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.

The site of the dam would result in loss of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.

Flooding the proposed area would result in the 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 do however 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\(9\)](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\(10\)](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 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 oversized and unnecessary dam.

Thank-you for your time and consideration,

Michelle Colpus.

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>>

[REDACTED]

From: Sue Nakkan [REDACTED]
Sent: Wednesday, 9 September 2020 10:30 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

From: Sue Nakkan
Sent: Wednesday, 9 September 2020 1:15 AM
To: council@rous.nsw.gov.au <council@rous.nsw.gov.au>
Subject: Re: Dunoon Dam

Dear Rous Councillors and General Manager,

I DO NOT WANT A DUNOON DAM. This is not a 21st Century solution for water security.

What we need is a system wide water audit, as Sydney Water did. Identify the leaks, etc. and fix them. Which creates jobs and will save water.

We need more water tanks for private use, which would save enormous amounts of water.

We should not be destroying rainforest, at this time of the earth's problems, from now on we should not cause any more destruction. This is Ecocide. The animals in our forests have declined by 70%, (since the recent bushfires) and now Rous Water thinks its ok to take away more habitat!!!

There are significant Aboriginal heritage sites that the proposed dam will flood. How is this ok??????
It's another slap in the face for our Indigenous people, AGAIN.

We need to utilise the re-use of water where ever possible. Purple pipes in all new housing subdivisions. Are there purple pipes at the North Lismore subdivision???

Allow more water-less toilets, as in composting toilets. Let's stop flushing our clean rainwater.

Education on how to be water-wise for people on town water. People with water tanks know the value of water and are not wasteful.

More productive farmland going under water. What planet do you all live on? Does not make sense at this time of the earth.

Bad idea, choose a suite of better, cleverer ideas for managing water for future generations.

Lets be progressive, NO NEW DUNOON DAM.



[REDACTED]

From: Jules Petroff [REDACTED]
Sent: Wednesday, 9 September 2020 11:03 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Attachments: signature.asc

Mrs Robyn & Dr Julius Petroff

[REDACTED]

Gender: Female & Male

5th 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. I am aware of the work that Rous does in providing water to our region, and the complexity this must entail from the point of view of the technical, meteorological, legal and social dynamics.

About Us

Over the past 46 years my family have enjoyed managing an ecologically sustainable property that actually lies within the proposed dam site. The property consists mainly of cattle, agroforestry, macadamias and pecans. We also have been passionate about our resident private Subtropical Rainforest, Wet Sclerophyll Forest, 3 kms of Rocky creek frontage and thousands of native birds and animals. Words therefore cannot describe our deep appreciation for this land and our sadness at its potential loss.

We understood that this dam was untenable back in 2013 based on its failure on the 4 EIS reports - Aquatic, Terrestrial, Indigenous and Geological. (It only passed the other options on a raw cost basis.)

We celebrated, and realigned our priorities, investments and dreams.

So imagine our surprise that it has now been raised from the dead! And imagine to our greater surprise that following this recent brief 8 week consultation period, a community of local farmers, nature enthusiasts, scientists, ecologists, hydro & sewage engineers, indigenous brothers and politicians, have rallied forth to lend their strong opposition to the proposed Dunoon Dam.

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

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 lent 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 now 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 past 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 archaeological sites, burial grounds, creation waterholes and artefacts would be destroyed.** [Cultural Heritage Impact Assessment, 2011]

Also terribly important is the significance these objects hold in connecting them to country, their songlines, and the role these Indigenous people play as educators and custodians. I am aware through personal discussions with Widjabal-Wiyabal people that **they strongly reject this dam** on the basis of the destruction of their Heritage and their spiritual connection to this land (which was never conceded). Additionally, they have raised with me, serious concerns as to an (ongoing) **failure in engagement** with any of their members throughout the process of this project since its inception in 1989.

I therefore can only support their position on strongly rejecting this dam.

Destruction of the beautiful Whian Whian Gorge:

The Whian Whian gorge and downstream riparian vegetation represent a section of rainforest that is the **second largest remnant of the Gondwana Sub-Tropical Rainforest.** At more than **60Ha*** **this represents 40%** of the area of the largest remnant, The Big Scrub Flora Reserve, a rainforest which is World Heritage recognised.

*I mention 60Ha rather than 57Ha stated in the 2011 Terrestrial Ecology Report, as the scientists' time-limited surveys omitted a few large chunks of high value subtropical rainforest that lie along parts of Rocky Creek that runs through our property. Also of note, the maps prepared by Hydrosphere to the Councillors describing land use, omitted over 75% of the Rainforest areas altogether! (Figure 7, as per END interview with Keith Williams).

Of very great importance, these two largest remnants are able to **form a functional habitat** as these two remnants **connect geographically** through a rich riparian environment, 8 kms downstream from

the Rocky Creek Dam. By way of very brief summary, the basin of the proposed dam contains the last 10% (and second largest remnant) of the 1% remaining Gondwana Sub-Tropical Rainforest.

As a side-note, much of the 175ha described as "Camphor Laurel" in the 2011 Terrestrial Ecology Report is actually an excellent canopy, rich in natural rainforest regeneration and re-plantings. The canopy contains a substantial percentage of emergent native trees, healthy native under-story, and contains rich seed banks of rainforest species. On our land with minimal labour and effort, we are only several years away from turning 30ha of our Camphor Laurel "Nurseries" back into rainforest. Also currently, in conjunction with Whian Whian Landcare, and a generous project of \$55,000 co-funded by NSW Fisheries, we are in the process of doing exactly this along a 1.5 km section of our Rocky Creek property, over the next 3 years.

Destruction of the beautiful The Channon Gorge:

The Channon Gorge is a unique and beautiful ecosystem with 6.5 Ha lowland rainforest. This includes a state significant rare warm-temperate Rainforest on sandstone that meets the standards of an **Endangered Ecological Community**. [Terrestrial Ecology Impact Assessment, 2011]

Any consideration towards "offsetting the loss of rainforest on sandstone with regeneration of other lands in the buffer zone is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most." ~Nan Nicholson, botanist.

Flooding of over half of the popular Whian Whian Falls recreational area:

This involves the 450m reach below the main Falls which would be permanently flooded at Maximal Fill Height to 82m AHD. This is one of **the most beautiful and accessible** swimming and recreational areas, and would flood the **sacred Aboriginal women's ceremonial pools**. In high rainfall events, which are increasingly predicted with Climate Change, a dam would also backfill and inundate the Falls (90m AHD) completely (to 92m AHD). [This was confirmed by a hydrologist who also read the 2020 Rous Water Summary Report.]

Accelerate extinction of at least 46 of vulnerable species:

The dam introduces an extinction level pressure on 3 vulnerable fish species due to destruction of 6kms and genetic islanding of over 18 kms of migratory native fish habitat. These are Purple Spotted Gudgeon, Eastern Freshwater Cod and Oxleyan Pygmy Perch. These species have all been observed by myself and local naturalists on rare occasions over the past 25 years.

The dam will permanently remove a significant amount of habitat available for these species within the inundation area. I also assert that the so-called "natural barrier of Whian Whian Falls" also presents **no limitation to passage** of Australian Bass, Eastern Freshwater Cod or Eels when the right-hand Falls section is flowing in late Summer. These species have been line caught or sighted in the 8km creek section above the Falls for decades. Therefore any conclusions that the proposed dam "will not isolate or decrease the availability or quality of habitat to significantly impact the species so that the species is likely to decline", is patently **incorrect**. The justifications for omitting a fish ladder and environmental flows are therefore seriously **flawed**.

Also on this last point, given that about 60% of Australian native fish species **rely on the surge flows to migrate, breed and feed**, a dam (particularly one without a fish ladder) will result in serious impact on the remaining 13 native fish and several macropods (Crayfish/ Shrimp) populations.

We have always been proud of the absence of Carp and other introduced species in Rocky Creek, however it is well recognised that dams' low oxygen, lack of riffle and algae blooms, favour exotic species. We therefore fear that a dam will result in **wiping out most of the 13 native fish species** in the entire Rocky Creek ecosystem.

There is also extinction pressures on 19 "Threatened Conservation Status" plant species*. These are species that we have targeted for regeneration on our land and include the Red Boppel Nut (*Hicksbeachia pinnatifolia*). According to UNESCO: "The outstanding geological features displayed around shield volcanic craters and the high number of rare and threatened rainforest species are of **international significance for science and conservation.**"
[*As recorded within the 2011 Rous Ecological Surveys].

The loss of habitat the dam poses also means that 24 "Threatened Conservation Status" fauna species are also at risk for extinction. [As recorded within the 2011 Rous Ecological Surveys]. This includes **Koalas, Rose-Crowned Fruit Dove, Emerald Dove, Osprey, Yellow-tail Black Cockatoos, Grey Flying Fox, White-crowned Snake, Three-toed Snake-tooth Skink, Pale-headed Snake, and Stephens' Banded Snake.**

The Gondwana Rainforests also provides the principal habitat for many threatened species of plants and animals. As the rainforest is a life support system for many birds, and birds and bats fertilize and propagate rainforest plant seeds, **the loss of 10% of Gondwana rainforests is highly significant.** That means that even so-called "common" birds for our area, such as White Headed and Top-knot pigeons, are seriously endangered through the loss of rainforest. The UNESCO World Heritage Centre therefore considers **nearly all** of our rainforest fauna and most of its birds as "**Threatened Conservation Status**" species, due to that designation being applied by their metrics to our Rainforests.
[<https://whc.unesco.org/en/list/368/>]

Koala habitat:

Koala habitat and important "corridors" connecting Whian Whian, Dunoon and The Channon permanent resident populations of Koalas. These would be cut off by the dam.

Geotechnical considerations:

The basalt soils on the northern aspect are prone to severe landslides and silt run off from the macadamia farms. Sedimentation will soon reduce the lifespan of the dam to decades.
[Interview with Mark Stanton-Cook, Soil Scientist on 22.7.20]

The fractured sandstones of the Channon Gorge are prone to leakages through to The Channon with potential dam failure and/or massive cost blowouts. This will result in scouring the wall footprint and western ridge back to bedrock, massive steel cabling being fixed into the bedrock; and extensive use of fillers to plumb the cracks and fissures.
[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

Higher prices for consumers:

Water prices are to skyrocket due to a 4x increase* in the cost of water according to Phil Rudd, Rous general manager. 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. *According to Professor Stuart White the cost is actually 900% more due to an incorrect accounting method applied.

The small population increase:

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)

Consumption growth will not save Australia, growth will bury us:

Australians currently enjoy 6 to 7 times the consumption of an average person on Earth. At the current rate the world population is raising its standard of living to that which Australian's enjoy, in 25 years we would require another 4 planets Earths! Obviously while such metrics are fantasy, what they clearly flag is that there is an immense pressure on Australia's and the world's ecosystems. [<http://data.footprintnetwork.org/#/countryTrends?cn=10&type=earth>]

To have a sustainable future for our Earth or "Planet A" involves understanding that we are immediately facing many "tipping points" or failures in the Earth's ecosystems. When large areas of sensitive habitats are destroyed, extinctions of flora and fauna species accelerate, and along with climate change these ecosystems begin to fail in unexpected ways, and our planet becomes our own death trap. In order to maintain a diverse, resilient and well-functioning biosphere we need to remove the pressures on our local ecosystems, and not expand the population on the largest desert island in the world. And not build an unnecessary dam for short term profits for a few.

A resilient suite of smart water options:

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

I therefore 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 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. 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) (1) (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 a mere \$2,500. If this were spread over each new 2 person household area (est 12,000 pop by 2060) the cost would be a mere \$15 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; and 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>

With joint CSIRO-NSW Govt **Climate Change modeling indicating 5-20% higher rainfall** in our region over the next 60 years, rainwater tanks seem the **obvious choice**. Furthermore, increased rainfall runs counter to the **Hydrosphere's unreferenced arguments of lower rainfall**, and brings to question their motives and possibly vested interests in dam development.

<https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/Climate-projections-for-your-region/North-Coast-Climate-Change-Downloads>

● **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:**

This 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: hundreds of million\$), allows our region 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:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFsZAMwn_74HKC02f-BsGKbYCYZmwyWg0GYrSAGmaU0UHZCaqKgo

Kind regards

Mrs Robyn & Dr Julius Petroff

--



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 Dunoos 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, viewed 6 August 2020, <<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>>

[REDACTED]

From: Maureen McInnes [REDACTED]
Sent: Wednesday, 9 September 2020 11:23 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Dear Rous Councillors and General Manager
Firstly, thank you for supporting the extension of the submission date. I also acknowledge the complexity of what Rous does in providing water to our region.

My husband & I bought our property at [REDACTED] almost 36 years ago. We had a dream to build a home where our children could grow up with the freedom of being in the country, with space to explore & to learn about our beautiful environment first hand.

I think our four children have explored every inch of our 132 acres over that time & discovered platypus, echidna, potterooos, koalas, glow worms; have fished from Rocky Creek; camped beside the beautiful waterholes where we have also cooled off on many hot summer days. We have remnants of rainforest, amazing eucalypt trees - the home of many birds & wildlife.

We have a deep appreciation of this land, & have a connection that we hoped to have all our life.

When our children were young we had one 5000gal tank of rainwater to provide for all our needs & we were a family of 6. Not a drop of water was wasted, & most recycled eventually onto the garden. We have very water conscious children & now grandchildren. We must educate the general population to make better choices about their water usage, instead of providing more ways for them to continue to waste as they do now. It should be mandatory for every house in town to have a water tank for their toilet & washing needs, & for the garden.

Rous Water put a cloud over our dreams when about 20-25 years ago they announced they were planning to build a dam here which will take most of our land. I feel we have been put on hold for so long & it was with great relief when they informed us about 6 years ago that they were no longer going ahead with it. We would never have been able to afford a piece of land like ours with the money that was offered to buy it which was not market value.

So you can imagine our devastation this year when we were told our land was once again the preferred option.

I feel education about sustainable living is the key to our future. Our children have grown up with solar power, solar hot water, recycling & a deep appreciation about where water comes from.

Our land is our paradise & we hope to be here for a long time in the future.

I appreciate you taking the time to read my thoughts.

With Regards,

Maureen McInnes



[REDACTED]

From: Meg M [REDACTED]
Sent: Wednesday, 9 September 2020 11:56 PM
To: Records
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Megan McInnes
[REDACTED]

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. I also acknowledge the complexity of what Rous does in providing water to our region.

My name is Megan McInnes. I was born [REDACTED], and grew up on [REDACTED] with my large, wild, cow herding family for the last 35 years. My soul soars through this valley, I would never be able to describe how deep my appreciation and love goes with this land. This project will take the best 100 acres of our home, which is the left side paddock before the wall.

I have had the joy of growing up amongst fields of grass hanging high over my head. We would follow the cow tracks down to the creek with our rods and spend hours exploring the rocks, find new dug outs from platypus, and get freaked out by eels hanging in the shadows. When the rains came, we'd blow up our tractors tires and get ripped down through the gorge, getting spat out at The Channon oval where mum would pick us up a few hours later. Big clans of friends would come. It was/is a place for epic adventures. Dreams ran wild. Pirates rampaged up and down the creek. Faeries lived under tree roots clinging to the sandstone cliffs. It is a wonderland of your highest imagination. We have found some of the largest water dragons sun basking on the rocks in all their primal glory. My entire childhood and early adulthood have grown with these lands. My blood, sweat and so many tears have been swept up in this calm scape.

Not only for the memories, but also now, my family still farms this land. Generations of cattle have grown, frolicked, munched out their lives on this land. The income from the cattle subsidised our living. Energy has been poured out to keep the property as weed free as possible. Helping the riparian area to sustain the waterways for the future. We currently have 3 generations of family living here, and plan to have this piece of wonder to enjoy for generations to come. We are proud to live in this beautiful country and try to be gracious custodians. But this energy and integrity is drowned if this proposal goes through.

We have also only ever lived off tank water. 5000gal for a family of 6 is what we started with, and this tank kept us going for 10 years before we invested into more. Drilled into ethos that every drop counts. We had baths, but instead of letting the water out we bucketed it onto the gardens. Never once did we leave the water going while brushing our teeth. Water efficiency is our second language as we've grown up to know just how important it is. I wonder why such a resource is so willingly flushed down/let run into storm water drains. Water hoarding is big business these days. This much is evident. Why not implement funding for every pre-existing home and new builds? this should be mandatory throughout the whole region.

Why also use drinking water for the toilet/washing machine/ gardens? This common practice is absurd. grey water should be able to be used and/or purified recycled water. How efficient is the town or region relative to how efficient it could be? I know that there's a pipe near Curry Road that bursts every few months with thousands of litres wasted every time. This is only one of the pipes that are in this region. From growing up dealing with pipes and tanks, I know how easy it is for one to burst...But how many more pipes go unnoticed and then cheap repair job, only for it to burst again. There would be so many jobs made just implementing a leakage and pressure management scheme.

Before letting this catastrophic decision go ahead, why not go through all the other water efficiency measures?

Surely the leaks should be fixed before implementing environmental destruction. This seems like a Rio Tinto moment. One that will bite back for a long time to come. It's time to start thinking smarter about water security.

Thank you for reading my concerns and thoughts. I will never support this dam proposal.

Megan McInnes.

Below: youngest grandson Harry learning to ride his first motorbike. Inset: Ella, Harry with 'Pop' Dave. This take just before the wall will be.



[REDACTED]

From: b t [REDACTED]
Sent: Wednesday, 9 September 2020 11:57 PM
To: Records
Cc: [REDACTED]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060

Brett Thompson

[REDACTED]
9th September 2020

Dear Rous Councillors and General Manager

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

I oppose the Channon Dunoon Dam for the following reasons:

- Destruction of ancient Widjabul country, artefacts and burial sites.
- The loss of the Endangered Ecological Community of Lowland rainforest.
- The loss of threatened flora species.
- The loss of habitat of threatened fauna species.
- The severance of local wildlife corridors.

I support other alternatives including :

- Harvesting of rainwater in appropriate ways such as household tanks and swales.
- Water efficiency.
- Composting toilets.

Kind Regards,
Brett Thompson

[REDACTED]

From: AnA Wojak [REDACTED]
Sent: Wednesday, 9 September 2020 1:39 PM
To: Records
Cc: [REDACTED]
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060 ~ CORRECTION

Apologies, had incorrect phone number at the head of my previously sent submission. Here it is corrected.

On 9/9/20 13:16, AnA Wojak wrote:

> Mx AñA Wojak
>
> [REDACTED]
> [REDACTED]
> [REDACTED]
> [REDACTED]

>
>
> 9th September 2020
>
> Rous County Council,
>
> Lismore NSW 2480
>
> council@rous.nsw.gov.au
> <mailto:council@rous.nsw.gov.au>

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

>
>
> Thankyou for the opportunity to give community feedback on this
> proposal.

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

>
> Economically it doesn't make sense:
>
> * It's 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 Government) (1)
- > * The 21st century is about a suite of smart
- > water options but this dam would swallow all
- > resources in one big expensive project when
- > there are cheaper alternatives (outlined
- > further in this submission)
- > * The dam would encourage continued inefficient
- > and often wasteful water management by local
- > governments and individuals. They would have
- > no incentive to do things differently and
- > would be lulled into a false sense of security.
- >
- > It destroys precious cultural heritage:
- >
- > * Causes destruction of important Indigenous
- > cultural heritage, including burial sites
- > (Cultural Heritage Impact Assessment,
- > 2011)(2). Ongoing disregard for First Nations'
- > heritage. This was one of the reasons given
- > for shelving the project in 2013, nothing has
- > changed.
- >
- > It causes irrevocable loss to the environment.
- >
- > * Destroys 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). Offsetting by
- > regeneration of degraded land in the buffer
- > zone, as proposed by Rous is problematic
- > because the type of vegetation offered as
- > recompense is never equivalent. This example
- > is worse than most. (Nan Nicholson, botanist)
- > This was also a factor in the rejection of the
- > 2013 proposal, It is still a major factor.
- >
- > 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/No](https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/No-rth-Coast/Delivering-the-plan)
- > <[https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/No](https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/No-rth-Coast/Delivering-the-plan?fbclid=IwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY)
- > >, 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/*./
- >

- > The dam causes disruption and increased costs for the community it
- > claims to be serving:
- >
- > * 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 elephant, 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-pr](https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections)
- > ojections/Projections
- > <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.planning.nsw.gov.au%2FResearch-and-Demography%2FPopulation-projections%2FProjections%3Ffbclid%3DIwARODHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT1tT-KxbVKQ980bjp5ebANG4nM5tHj8CjJvpitSTytrMwTDIHasxef3ch774hQMhbziHU&sf0hcXld8ROcXfoIPde3RGJzhE1FZlaOPhv7B8_cGV8q2H_KRMdu8VU3qcwd_4_Gg1JfVF9yN2UxPdRQ>>
- > 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.
- > * Industrial/construction zone for The
- > Channon/Dunoon community; noise, machinery,
- > trucks, visual impact. Ongoing sound impact
- > from pump house etc.
- > *
- >
- > I SUPPORT these alternatives:
- >
- >
- > I believe we need to take action on a suite of smart water options and
- > proven alternatives.
- >
- > In the 21st century renewable and sustainable power are the way
- > forward. It is high 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 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
- > <https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.bit.ly%2FProf-Stuart-White-Rous-slides%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT11klDQg7IEKfvk853QqRuwr8a8jcTxc45uJqy9c-1B5cTgi-a_qJaMZtkZGJoj9kBicLpkSgAA5RgvZtc1og-1NkH9FaMIO3N2MXGobNy9kdFWVvuePnFHNT0214kgvcEX_Gyr2OYjb5ZFhISL9Xla>
- > * 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>
- >
- > <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.waterra.com.au%2Fpublications%2Fdocument-search%2F%3Fdownload%3D1806%26fbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT1FBUBNR0d2EqT3j0Bx-iWIO9CrhT388leXf0dc6M-HbT0SUYoyz2cxdEvC7YW9OhtYQc2EA8c_wmJzEXxKNH5ThElhOlV8IfHog0sXzNHkww7NLAM1kz-mJg3zVOhRLcvku9KDAvWxZE9VnXrJ3npbk45Zy_y_50HmVknI6_s3ilgbyL_EcQyKPA4CHjrKHHlumUQCFZybYRqHnJiyX3uNeC0RxYpZwd6tzKitOs1iPjloX8yjH9tYWHAWlxDH_s1PYEqadQgxi6yx8pPLiXnJW_Bi0cQqvhuYr7_Oo8Xw9kw>(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>
- > <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.wingoc.com.na%2Four-history%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT3KcFmwyA2B05Utp8bLk13wnSgbavR2_aAKTzGWSRFhDbDRJd60BqSlSpgjf6P_S3baTJZ8s9qwQ_q41H__kzD9Vu3dtuHlwnFofSIA_gB76jqUuheWXQYM-VBM1ut_rNrLa7ZuF3tIGGfSVx6YnWxC>(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>
- > <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.yourhome.gov.au%2Fwater%2Frainwater%3Ffbclid%3DIwARODHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT0Ku9m-inK7a0U7-9Bord752M-hcz9iDmP_fYccCAknWUUIIn9Q_F8rA69sOF_C9SayIzYr41fgDDTWyYRjvFdExisbFlm7xMfnSTu_Qnd40kFEzOBdCZ76-B9oHy4k-6cNEJENvERWHDEEtd128BaiP>
- >
- > * 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>
- > <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.environment.gov.au%2Fwater%2Fpublications%2Fwhat-are-the-ecological-impacts-of-groundwater-drawdown%3Ffbclid%3DIwARODHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT25qBzK9Xag_LmXrGlzC99k_L2DceXkc0mruGgiY41WjyRZvVW0ch_oobnyEJa03pvYLayvw1hREG40zScMnGPaOVHUZx_yGQp65PVVo0NpKrY6jDEtDulDwHBMcasiSz0F4KxO2SJVET58absz3q1R>
- >
- > 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
- > oversized 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>
- > <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.dropbox.com%2Fs%2Fpu9898oq6kocrph%2FNSW%20Govt%202006%20MWP%20summary.pdf%3Fdl%3D0%26fbclid%3DIwARODHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT1MMDmMW9S3ATJicylSR4ICMrCTVVCx4ewNRGCH0AwwKTkf-Q5I2-VuY6F_KL9ejjaQvn5oDT7-ARDJpOfOS3Mhc-ECcn3aOnly7rGJY-q4bxFyqzVGmqRkMJntFL_u6pgNlz5rVKAKG07i3TBXiDm>
- > 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/No-rth-Coast/Delivering-the-plan>

> <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.planning.nsw.gov.au%2FPlans-for-your-area%2FRegional-Plans%2FNorth-Coast%2FDelivering-the-plan%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT1E4UVSFN0TGEVKK8JBps5KyJQgv11ErEgEBjHvpjZzrn_Y2vJJFW3taLR6Ee3MMFBOUKS9ugikEABPHqhXIIH7MxsAih5FkM-xGObQi8ASpiqIQ_o7uUgTPDnOKw6_Sn3afKiZhNxmCROI8HQQ5ft>

> > , 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>>

> <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.planning.nsw.gov.au%2FResearch-and-Demography%2FPopulation-projections%2FProjections%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT13mDGtC4a9b0F2NW2a55epAN7In1XqVtwsO_VRhHUu9RfJRttmC-Vzn7LthW0VAw1Upp7Y1sK5cRfXmT1QR1STnk5NMmhozxiNYqapzrQLrA5PuY_xvCyZweDPlxwNidUCJHCSob5ZTORU6_fnw9ln>>

> 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

> <https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.bit.ly%2FProf-Stuart-White-Rous-slides%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT05bFDvIRIPzRXzmap8ewGFJVYwIE3s9ZGwU5fAy3TKXhyzLlj0muBJFYQx4Mwq5m3U00NsdKXN_D2CJ5qHuPORJ538PYXkx3IFLMmqGzVXE-Kb8ymeA368T3ul_JbNdGbxdt8HNY__2s6l8xnEaps0>

> 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/>>

> <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.wingoc.com.na%2F%3Ffbclid%3DIwAR0DHpijKKXc4NaKWACERlyxF_Vv_6LmM93z2cn0zu5a8CHMUk2b9IRHIY&h=AT2KJ4U9Bds2QHij2LFGZQSA5rEtOSeRrFuMRuUpytVQX7i2tWfaTxH8Iz2SgaSEXFL-e7jnkf-tX4jfSr3uEKQHxvTcikhrLk7eWSJu7MD-GMrSsCl8JBCMc7usBsTGr59QKSQj0kQRc8AwSih5obl8>>

> 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>
> <https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.yourhome.gov.au%2Fwater%2Frainwater%3Ffbclid%3DlwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY&h=AT3Cq9uakon7gEgzoCBaoLSkEW8-V9SjEXLbwaHOyJX6LLOSrI7iO0djqL4rmspfKuus7IRV29KJiq-XemdrQfF3zaoH9aYYjmrpBGCu6sS5QzX_P_UlzLiwD4BHidvtWsu4ByMvhzezWjLd_wbl1U>>
> 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>
> <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown?fbclid=IwAR0DHpijKKXc4NaKWACERlyxzF_Vv_6LmM93z2cn0zu5a8CHMUK2b9IRHIY>>
>
>

> regards,
>
> ~AnA Wojak

--
AnA Wojak

[Redacted signature block]

[Redacted line]

[Redacted signature block]

[REDACTED]

From: Jeff Parr [REDACTED]
Sent: Wednesday, 9 September 2020 1:47 PM
To: Records
Subject: SUBJECT LINE: RE: The proposed Dunoon Dam within the Future Water Project 2060

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

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 we all have enough water. By focusing 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 and risky '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 better.
- **Destruction of beautiful Whian Whian Gorge**, the second largest remnant of the 99% cleared Gondwana 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]

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

Dr Jeff Parr

--
Dr Jeff Parr
BA UNE, B Applied Science (1st Class Hons)
Environmental Science and Management
PhD Environmental Sciences


Director of Plant and Soil Research

Plantstone Pty. Ltd.



Adjunct Professor
Fujian Academy of Forestry Sciences,

Honorary Research Fellow

Zhejiang Agricultural and Forestry University

[REDACTED]

From: Chris Fisher [REDACTED]
Sent: Wednesday, 9 September 2020 4:24 PM
To: Records
Subject: Submission - Proposed Dunoon Dam

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

Dear Rous Water Councillors,

I do not agree that the Dunoon Dam should be included as the preferred option of the Future Water Strategy at this time.

My reasons include:

Bundjalung Cultural Heritage Significance

A preliminary Cultural Heritage Impact Assessment (CHIA) conducted by Ainsworth heritage for Rous Water dated May 2013 identified many sites of cultural significance to Widjabul and other Bundjalung peoples that would be impacted by the proposed Dunoon dam.

The preliminary CHIA consulted with Aboriginal 'stakeholders' including individuals, organisations and Widjabul Custodians. Regarding the sites of cultural significance identified, all Aboriginal 'stakeholders' consulted through this assessment indicated that no level of disturbance is considered acceptable to them.

The preliminary CHIA having documented many sites of cultural significance identified that further archaeological and anthropological surveys and reports were now required to facilitate the formal assessment of the significance of the material and places against the seven criteria of The Burra Charter. Assessment through the Burra Charter is the current legal process in determining cultural heritage significance.

The preliminary CHIA also recommended that consultation with Aboriginal stakeholders be ongoing regarding the proposed Dunoon dam, meeting at least every six months.

Further archaeological and anthropological surveys and reports have not been conducted and consultations with Aboriginal stakeholders regarding the proposed Dunoon dam have not been ongoing, ceasing in 2013. Until this work is resumed and completed the Dunoon dam should not be re-introduced as an option in the Future Water Strategy, as the significance of the sites of cultural significance identified may well preclude this country from such a 'high impact' development, as was the conclusion of the the preliminary CHIA.

Koala Habitat and Rainforest remnant

Large scale destruction of koala habitat and remaining rainforest remnants of the big scrub is not acceptable in any context.

Yours Sincerely

Chris Fisher
[REDACTED]





[REDACTED]

From: ian cohen [REDACTED]
Sent: Wednesday, 9 September 2020 9:31 AM
To: Records
Subject: Submission against proposed Dam Channon Gorge

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

To Rous County Council

Submission on proposed Dam at Channon Gorge

[REDACTED]

I am in total opposition to the proposal!

I am shocked that such an archaic proposal has been thrown into the faces of the local community. I understand the concept of an engineering solution sold to the current government. It is unimaginative, destructive and just around the corner from the birth of protest history in this region Terania that has had worldwide implications. What a foolish move. You could reignite the 'green fire' that has lately lain dormant in this region. Bring it on I say and thinking about Bently ect why haven't you guys learnt to work with a highly expert local community?

As a Green MP with 16 years of State Parliament (1995-2011) I am on the ticket for the next LG elections and will be making sure that either Duncan Day or I will be on the Rouse Advisory Committee. You guys will not get off lightly as currently. There are significant ecological and traditional sites including burial sites that will be inundated.

I live on a property with rainwater tanks and grey water recycling. It is sustainable and not rocket science.

A total of 55% of daily use (outdoor + toilets + washing clothes) should not be potable.

Were Rous to supply just that 45% of its current and future estimates of 'demand', its

current supply would be adequate for many decades beyond 2060.

Clearly, the remaining 55% of water must also be provided. Were Rous to divest itself of

that responsibility, the four constituent Water Authorities could fill the gap from various local sources rather than from a new central dam.

Ballina Shire Council is already leading the way, with dual reticulation in new subdivisions and with supplying suitably treated water. It also has access to alternative existing sources

(Maron Creek, Alstonville Plateau). Byron Shire Council supplies locally procured water to Mullumbimby, though without a significant storage - an off-creek storage could be added to. Boost security of that source. Richmond Valley Council's area includes the Woodburngroundwater source. While that may not yield potable water, treatment for non-potable use is not as complex as for potable.

A key problem lies in the high cost to date of supplying non-potable water compared with that from Rous sources. This is actually a dual problem - supply by Rous is cheap, because no compensation is required for the permanent loss of the land beneath Rocky Creek Dam (current surface water storage). This loss includes elements that we can no longer assess for the existing dam but can and must assess for the proposed Dunoon Dam.

Were Rous to add to its water price the value of preserving terrain that would otherwise be lost beneath the proposed Dunoon Dam (including the kudos gained within this community) that income above Rous's on-going costs could be set aside to subsidise alternate sources

like those described above, plus any or all of the following supply methods (for existing development): conventional demand management; leak detection, roof-water tanks, stormwater harvesting, recycled water for non-potable uses and supplying multiple streams (so drinking quality water is only for drinking).

I acknowledge that responsibility for such methods runs across many parties (Rous, the Councils, the users) and would require organisational change.

For future development, Rous Water would support urban water users managing their own supplies (as do rural users) either singly or collectively via a variety of methods including:

roof-water tanks;

water licences for access to streams or bores;

stormwater harvesting;

recycled water for non-potable uses;

and multiple streams.

(DD:DD to Rous re future water, page 3)

Were Rous to recognise the huge increase in security of supply that results from tapping into more than one mode of supply, the efficacy of multiple sources would shine. For example, roof-tanks are sensitive to droughts of a few months duration while dams are sensitive to droughts over several years. During those dry years, a roof-tank fills and empties many times - even in a dry year half* the annual average rain still falls:

* Alstonville Tropical Fruit Research Station (BoM site number 058131) has

rainfall records from 1963 to 2011. This site is often used for regional modelling.

Average annual rainfall is 1805mm. The highest fall was 2888mm (160% of the average) in 1988 and the lowest fall was 1122mm (62% of average) in 1986.

Mullumbimby's average annual rainfall is 1753mm (Fairview Farm; BoM site # 058040). A three-bedroom house might have 200m² of roof area. The annual average catch of that roof would be 350 kilolitres. That household's annual water use is less (say 290 kL).

Such a resource relieves the dam of supplying huge volumes during its dry years. Having these two modes working in unison means that one is likely available when the other is stressed. They thus each boost the others' security of supply. Overall security rises.

I ask Rous to recognise and investigate the hydrologic advantage of multiple sources. They raise secure yield by their multiplicity, not just by their volume. This thus raises the security of our whole regional system. Taking advantage of this hydrologic fact requires however a different style of cooperation between players (customers, the four water authorities, Rous).

Administration of water treatment is easier when equipment is centralized but decentralisation may be required if Rous stays involved in operating the diverse sources.

Likewise, the 80-year-old nature of the structure of Rous itself. This has

strengths and weaknesses. The 'board of directors' is an amalgamation of Councillors, two selected from each of the four constituent Councils (by the Councils). Much administration and indeed the relationships between Rous and the constituent Councils are set through cooperation by staff members from each organisation (without Councillors contributing). Administration is sound but leaves little room for innovation of the type we need to modernise water supply in the Northern Rivers region. Modernisation is however what communities in this area expect. It includes respecting our natural places.

From the "community information" that Rous has published, that the current supply is

over 12 Gigalitres per year, to about 110,000 residents. Most of that supply comes from

fresh water catchments. Rous acknowledges that climate change will cause secure supply from current sources to decline from the current annual 13.4 GL to 10.4 GL in forty years' time (ie in 2060).

The failure attributed by Rous to Indirect Potable Reuse (IPR) should not be used as a

shield against other types of Reuse. Rous should consider Direct Non-potable Reuse - as

is already practiced in Ballina Shire. While Rous's role may not include supplying such water, Rous could have a role in promoting such reuse.

Sydney Water gained approval from IPART this year (as attached) to vary its 'usage' price according to the level of Warragamba Dam.

Hon Ian Cohen (retired)

[REDACTED]

From: Eron Young [REDACTED]
Sent: Wednesday, 9 September 2020 9:00 PM
To: Records
Cc: [REDACTED]
Subject: Submission for Proposed Dam

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

To whom this may concern,
my name is Eron Young. I grew up in [REDACTED] exploring the creeks, as my two boys do now. Once this hidden valley is flooded it would never be the same.
This undisturbed area of diverse forrest and stream habitat is home to endangered species and Widjabul sites and should not be dammed. Everyone wants precious water, especialy after the fires and droughts. However we already pump out of the Wilsons Creek at Boatharbour, I assume back into the Rocky Creek Dam. So why would we even need a new dam? The Wilsons Creek never stopped flowing last drought and with such a high average rainfall we should be utilising run-off.
We've got the pipeline, we don't need a new dam.
Yours Sincerely,
Eron Young

Address: [REDACTED]

[REDACTED]

From: Anasuya [REDACTED]
Sent: Thursday, 10 September 2020 12:02 AM
To: Records
Subject: Submission not accepted before closing time

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

Dear Rous,

I would like to understand why your submissions closed before midnight. It was 11:59pm (just turned) and when I hit the submit button the message came up that submissions were closed. This was BEFORE the cut off time.

I would like to speak to someone please to determine how to have my submission included.

Many thanks,

[REDACTED]

--

Think Before You Print

1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere

1 sheet of A4 paper = 10 litres of water



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[REDACTED]

From: Stuart White [REDACTED]
Sent: Wednesday, 9 September 2020 4:10 PM
To: Records
Subject: Submission on Dunoon Dam proposal
Attachments: 20200904 Rous Water augmentation v2.pdf; 20200904 Rous Water RSWP v3.pdf

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

Dear Sir/Madam

I would like to provide two papers which suggest that the Dunoon Dam may not be required, or that further investigation should be undertaken into the potential for large scale water efficiency programs prior to the commitment to Dunoon Dam. These submissions are self-explanatory and should be read in combination.

I would be very happy to respond to any questions or elaborate on these findings.

Kind regards
Stuart

Professor Stuart White
Director

Institute for Sustainable Futures
University of Technology Sydney

[REDACTED]

ISF acknowledges and respects the Aboriginal and Torres Strait Islander custodians of Australia and the Gadigal peoples upon which the UTS City Campus now stands. We continue to value the generations of knowledge Aboriginal and Torres Strait Islander Peoples embed within our University and we pay our respect to their Elders past, present and emerging.



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[REDACTED]

From: Saadi Allan [REDACTED]
Sent: Wednesday, 9 September 2020 7:38 PM
To: Records
Cc: [REDACTED]
Subject: Submission on the proposed Dunoon Dam and the Future Water Project 2060

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

Saadi Allan
[REDACTED]

Gender: Male

To: Rous County Councillors & General Manager

Regarding the proposed Dunoon Dam and the Future Water Project 2060

I appreciate the complex and vital work Rous County Council performs in management of water in the Northern Rivers. However, I strongly disagree with the assessment that the proposed Dunoon Dam is the best option for water security in the Northern Rivers between now and 2060. I have reviewed the Future Water Project 2060 documents and consulted experts to form my opinion.

My home in [REDACTED] is 500m from the proposed dam wall that will destroy The Channon Gorge, which has been a big part of my life since I was a child and is home to a rare and vulnerable Subtropical ecosystem teeming with aquatic and terrestrial life that does not exist outside this area.

My neighbours up the valley at Whian Whian have similar local knowledge of the threatened ecosystem in the Whian Whian Gorge that will also be inundated should the dam go ahead.

Throughout the valley to be inundated there are also indigenous sites of significance that are important to preserve for both indigenous and non-indigenous members of our community, not to mention prime agricultural land.

The civil works associated with the dam will also impact our communities for years during the construction phase and significantly degrade our quality of life.

As the CEO of a high growth company that employs 19 people, mostly based in the Northern Rivers the stress that comes with the uncertainty of my home and way of life being threatened is already impacting me significantly as well as my neighbours, many of whom are small business owners. The hidden cost to our local economy from those of us in business already impacted by the global pandemic and difficult financial conditions has not been considered in your report and I can tell you from first-hand experience it is a real cost.

I am a pragmatist if I felt the case for the Dunoon Dam showed it to be the best alternative I would with a heavy heart accept that outcome. However, my extensive evidence-based research has steeled my resolve that fundamental errors have been made in the analysis of the case for the dam and it is not the right solution.

The reports produced by water use expert Stuart White that have been shared with Rous County Council outline some serious issues with the case for the dam, paramount among them are the errors in marginal cost, assumptions around energy costs and climate change scenarios.

- From my perspective as a CEO miscalculations of the marginal cost are inexcusable, especially on a project of this size and undermine the credibility of all data within Future Water Project 2060 report. (reference 1&2)

- Assumptions regarding cost of energy projected decades into the future are irrelevant as there is too much uncertainty as we are in the middle of a major energy transition and global imperatives are pushing an acceleration of high-efficiency generation, high-density storage and high-efficiency technologies. (reference 3)

- The assertion that climate change will result in decreased water security in the Northern Rivers is not in line with the NARCLiM data that the NSW government has commissioned jointly with its own climate scientists and a team at UNSW that shows increased rainfall in the Northern Rivers as a result of climate change. (reference 4)

I fully support the modernisation of our regions water infrastructure but a new dam does not fit that bill and will be a lost opportunity to embrace global best practice and build a water system we can be proud of.

References:

1. [Rous Sustainable Water Program, Stuart White](#)
2. [Rous Water Augmentation, Stuart White](#)
3. [CSIRO Energy Generation Technology Cost Projections 2017-2050](#)
4. [NARCLiM North Coast Climate Change Downloads](#)

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Warm Regards,

Saadi Allan
CEO

subpod



[REDACTED]

From: [REDACTED]
Sent: Wednesday, 9 September 2020 11:17 AM
To: Records
Subject: submission re Dunoon dam extention

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

Attention: Rous Water

Re: Submission on Proposed Dam at Dunoon

I add my voice to the chorus of people clamouring for a more sustainable future. Building new dams or enlarging existing ones is not the solution to our future water needs – it's a dinosaur technology, hugely destructive and inefficient. Rous water has other far more innovative options, including water efficiency and reuse to cope with projected needs.

Byron Shire spent millions building new sewerage treatment plants, capable of producing potable water and recycling wastewater for agricultural use. This water is now pooling over the Byron Golf Course and Belongil Creek is currently used to discharge treated water into the ocean. The Valence's road plant (Mullumbimby) is not functioning as a renewable resource, and Ocean Shores plant discharges into the Brunswick River and is under threat of closure, there is no justifiable reason for this appalling management of STPs.

Rainwater continues to inundate our sewerage system and overload our STPs yet no funds are available to replace the "collection system" of old broken terracotta pipes. Flooding also inundates our towns and villages which could be captured with smaller less destructive spill-overs ponds and diversions for run-off during peak rain events.

Household rainwater tanks and recycling of grey water should be encouraged, and subsidised, to reduce demand and is a far cheaper option than building another dam.

Extending the Dunoon dam as proposed will cause catastrophic destruction of the local environment and river systems and is completely unacceptable to our struggling wildlife, our indigenous people and local communities. It is the worst possible outcome for our overheated, stressed planet. Future rainfall and weather patterns will be far more erratic and unpredictable and could make this massive project unviable – another stranded asset.

Rous Water must seek the best environmental outcomes and sustainable water management strategies to reduce demand and improve efficiency and reuse of water. We also need to protect our forests and waterways and limit growth to maintain healthy viable communities.

Rous Water's projected growth for this region far exceeds other planning documents and fails to consider the vulnerability of farming and tourism and the lack of industry and business activity to sustain this massive growth in population.

I fully support the comprehensive submission prepared by Professor Stuart White (UTS, Sydney) and the Channon/Dunoon community who will be most affected by the proposed dam extension. I join with them in urging Rous Water to drop the proposal to extend the Dunoon dam and refocus efforts on improving efficiencies, reuse and recycling our water.

Rous Water can help us be a far healthier sustainable waterwise community, without destroying our magnificent forests and natural environment. Be leaders for the 21 century - look forward towards innovation, and create viable solutions that are affordable and sensible and acceptable to all members of our diverse community – including our furry, feathered, fishy friends.

Michele Grant

[REDACTED]

[REDACTED]

[REDACTED]

From: James Bennett-Levy [REDACTED]
Sent: Wednesday, 9 September 2020 10:56 AM
To: Records
Cc: [REDACTED]
Subject: Submission re-proposed Dunoon Dam - WORKING WITH COMMUNITY and CO-DESIGN is the way to go

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

To the General Manager, Rous County Council

I write to oppose the proposal for Dunoon Dam, proposed by your Council.

In opposing this proposal I draw on two core values: (1) The necessity of drawing on top expertise and scientific credibility (2) Respect for our Aboriginal cultural heritage.

What I am aware of is the extraordinary work that Professor Stuart White, Director of the Institute of Sustainable Futures, University of Technology, Sydney, has done to address issues of water security over many years. Professor White is nationally and internationally recognised as a leader in the field. We in the Northern Rivers have been fortunate enough to have Professor White look at local issues of water security since the mid-90s. As a long-time resident of The Channon and latterly Bangalow, I have followed Prof. White's career with much interest. His report of 1997 and recent update make it abundant clear that the proposal for a Dunoon Dam is (i) reckless (ii) an extraordinary waste of money (even more so at this perilous time in Australia's economic history) and (iii) utterly fails to address sensible, sustainable alternatives.

It also seems that Rous Council is happy to follow Rio Tinto's lead and destroy local Aboriginal cultural heritage sites, including burial sites. Really???

C'mon, Rous Council! You can do better than this! Think Sustainable, Think Community, Think Cultural Heritage. Think Respect for the Peoples who have lived on these lands for tens of thousands of years.

On the North Coast, we have a tradition of leading the rest of the nation against environmental recklessness (Terania Creek, Bentley etc). Can we please learn our lessons and have the issue of an environmentally sustainable water supply *led by Government - rather than government having eventually to respond to massive community opposition?*

It is obvious that community opposition to the dam will be implacable if this proposal were to go ahead. We know that North Coast is a strong, resilient, environmentally aware community - that's why people come to live here, and why the politics are different from other areas of Australia. It would be prudent for Rous Council to recognise that its populace will not take environmentally and culturally hazardous decisions lying down.

So ... can I suggest that Rous Council **work WITH the community** on this occasion, and **co-design a set of proposals** that meet community needs. This save a lot of money, heartache, and needlessly wasted time, energy and productivity along the way - and create a model of citizen-involved processes for key local decision making where, yet again, the North Coast can lead the way.

Kind regards

(Dr.) James Bennett-Levy

Professor of Mental Health and Psychological Wellbeing - The University of Sydney

University Centre for Rural Health

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

From: Anastasia Guise [REDACTED]
Sent: Wednesday, 9 September 2020 7:23 PM
To: [REDACTED]
Subject: Records
Submission to the Proposed Channon-Dunoon dam development

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

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

9th September 2020

Rous County Council,
Lismore NSW 2480

[<council@rous.nsw.gov.au>](mailto:council@rous.nsw.gov.au)

Dear Rous Councillors and General Manager

I write to strongly oppose the proposed Channon-Dunoon Dam.

This dam would unacceptably impact an endangered ecological community (lowland subtropical rainforest) and furthermore destroy a rare and unique form of rainforest on sandstone. These ecosystems cannot be offset and the species which rely on them cannot be moved. "Biodiversity offsets" are inherently problematic and cannot compensate for hundreds of years of biological adaptations and climatic adaptations.

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)

The proposed Channon-Dunoon would also destroy the unique Channon gorge and destroy important Indigenous cultural heritage, including burial sites (Cultural HERitage Impact Assessment, 2011 (2)).

I believe water management and planning for future growth must focus on 21-century solutions and not out-dated, expensive and inefficient ones. Water management must focus first on behavioural change and water saving measures.

A further summary of reasons for my objection are outlined below:

- **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.
- **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.**
- 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
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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.
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>>

Sincerely,
Anastasia Guise

[Redacted]

From: Naomi Shine [Redacted]
Sent: Wednesday, 9 September 2020 9:40 PM
To: [Redacted]
Subject: The Future Water Project 2060; proposed Dam, future water strategies.

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

Naomi Shine
[Redacted]

9th September 2020
Rous County Council,
Lismore NSW 2480
<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager,

Planning future water supply for our region is a very important job and it seems you will find many people interested in the Future Water Project 2060. This is because how we use, consume and plan for water is integral to our sustainability as a region. I suggest that only the most leading edge, well thought-out, tried and tested, sustainable water supply plans will please community and not much else.

I write in support of the efforts of community members and groups who have sought to inform the broader community, bringing together information and ideas to inform ourselves and Rous Water about options for intelligent future water strategy. It is possible for our region to be an example for other parts of the world if we introduce diverse water sustainability strategies (some are listed below); let us become a good news story about water, livability and good planning.

This from Ballina Shire Councillor Jeff Johnson;
The NSW Government is currently undertaking its own review of the future water needs of our region including domestic, agricultural and commercial usage. The Rous Water study only looks at urban water usage and supply. Surely, we need to at least wait to see what the NSW Government’s review comes up with before being asked to determine a long-term strategy with massive cost and sustainability implications?

Currently, the public is being asked to choose either Option A or B (the Dunoon Dam or a massive increase in ground water usage). What if there are options C, D or E, or a combination between them that haven't been given proper consideration?

The total cost of the Dunoon Dam over an expected '80-year life span' would be over \$650 million in today's dollars. All water users in the region would have to pay for it through increased rates and water usage charges. Rous Water currently supplies water to the local government areas of Ballina, Lismore, Byron and Richmond Valley. If the Dunoon Dam goes ahead, Rous Water estimates that water usage and supply charges will need to increase by 400%.

Is building a new dam the best way forward?

For a start, all major new subdivisions in the Ballina Shire have a recycled water pipe built into the infrastructure for toilets, laundry and garden usage. This greatly reduces the demand for 'new water' to be supplied. Surely programs like this can be extended or retrofitted to areas of high-water usage? If we could get closer to closing the loop then a new water source wouldn't be needed. The concept of building a massive new dam just to flush the water down the toilet and into the creeks, rivers and ultimately the ocean doesn't seem right to me.

It's time we looked at closing the loop with our water rather than just building larger dams or unsustainably tapping into the aquifers for a single use water management strategy.

Instead of investing all our resources into the proposed Dunoon dam, a range of alternative strategies need further investigation and investment. A suite of options that encourage greater water usage efficiency and reuse could provide an even more secure long-term water strategy. For example:

Approximately 15-20% of the existing water supplied by Rous is wasted through leaking pipes. Greater investment to reduce this huge amount of lost water should be a priority.

Greater reuse options – expand the 'purple pipe' infrastructure to increase water reusage, particularly for industry, new subdivisions and large water users.

Rainwater tanks – increase the rebates and requirement for rainwater tanks.

We are fortunate in the Northern Rivers given our high rainfall. How are other areas going to secure their 'long term water needs' when they receive far less rainfall than our region? In the recent drought, one of the worst on record, our region was the least affected. As outlined above, there are other options available to secure our long-term water needs.

My thanks to the wonderful 'No Dam at The Channon or Dunoon' people who put the following together and with which I completely agree;

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 is completely unacceptable. (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 reuse in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water asset 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