Richmond Valley Council

[redacted]

[redacted]

Dear Phil

Future Water Project 2060: Submission

At Council's Ordinary Meeting of 18 August 2020, it was unanimously resolved to endorse Rous County Council's proposed *Future Water Project 2060* and the community consultation process that supports it.

Water sustainability is an issue of utmost importance for communities in the Northern Rivers and Council recognises the vital role that Rous County Council plays in supplying sustainable and safe drinking water to more than 110,000 people in our region.

In Richmond Valley, RCC supplies bulk water to the Mid Richmond towns and villages of Broadwater, Rileys Hill, Evans Head, Coraki and Woodburn. Our Council relies on this supply to support continued growth in this region.

Council believes that the Future Water Project *2060* will help to future-proof the region's drinking water supplies and support increased resilience in the face of changing climate conditions. In a region that has recently experienced the challenges of sustained drought and bushfire, a secure and reliable water supply is vital. The RCC Project will provide for the next 40 years of growth within our region and ensure the levels of service our community expects can be maintained.

While Council recognises that both key options proposed – increased use of groundwater, or construction of the Dunoon Dam – will require further development and community discussion in the coming years, we believe it is important to begin these investigations now, to ensure that the future of our region is secure.

Richmond Valley Council is currently undertaking its own investigations to improve water security for the Casino water supply, in the face of a changing climate. This study will consider a number of options, including additional off-stream storage at Casino, raising Jabour Weir, exploring groundwater sources, or connecting to the Rous County Council regional supply.

Given the limited groundwater resources in our district, and the water quality challenges of the Richmond River catchment, Council expects that connection to RCC will emerge as a strong option in the study. In this regard, the Dunoon Dam proposal would be a significant benefit to our community and Council supports continued investigation into this option.

Thank you for considering this submission. Richmond Valley Council looks forward to working with Rous County Council in the future to help secure safe and reliable water supplies for our region.

Yours faithfully

[redacted]

Vaughan Macdonald
General Manager

[redacted]

[redacted]

From:	Josh Jaws
To:	Records
Subject:	Re: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 31 August 2020 12:05:10 PM

Dear Rous Council,

My name is Joshua Shelton and I live at [redacted]

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)

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 thisin 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 outsized andunnecessary 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-dr
awdown>

regards,

Josh Shelton

--

From:	david dreher
To:	Records
Subject:	The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 31 August 2020 12:54:55 PM

David Dreher
[redacted]

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)

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)

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A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?
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Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local

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

Sincerely

David Dreher

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/>
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(12)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
(13)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

[redacted]

From: Kris Hill
To: Records
Subject: Proposed Future Dunoon Dam
Date: Monday, 31 August 2020 2:51:48 PM

My name is Kristine Hill and I live at [redacted].I strongly object to the proposal of building a mega dam at Dunoon/The Channon.I am not connected to town water and we manage.
Reasons
1. The destruction of rainforest (especially that which is growing in sandstone),the destruction of habitat for endangered flora and fauna and the destruction of wildlife corridors.Especially endangered Koala's which Australia has seen a massive loss in numbers due to recent bushfires ,loss of habitat and human activities.

2. The destruction of Widjabul Heritage sites eg Sacred Burial sites

3. I live under 2km from the proposed wall at The Channon.At no stage has anyone from Rous County Council contacted me with information about potential increased flooding to my property and what would happen to my property and our lives if there is a failure with the dam wall.Do we just get washed away never to be found again.I would imagine not too many if anyone on your committee / board would sleep peacefully with that amount of water just up the creek.That is a lot of trust to put in the engineers when nature keeps throwing unprecedented events at us especially with climate change.

There are many other ways to secure water without destroying essential habitats.

1. A system wide audit should be performed to look at water wastage from breaking and leaking pipes and then fix these problems.
2. New housing developments should be made to use multiple water tanks for house supply .Developers need to plan larger blocks to accommodate these and supply them in price of sale.Developers have become so greedy with the tiny sizes of blocks where the house takes up most of the land .Tanks can also be buried underground.
3. Recycling of water in new developments to be used for flushing toilets and watering gardens.
We need a future water plan that is fit for the 21st century.A dam is not it.A dam is the lazy expensive option.

Regards

From: Alison Wilson
To: Records
Subject: Dunoon Dam proposal
Date: Monday, 31 August 2020 2:57:53 PM

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

My name is Alison Wilson [redacted]
I am a Home owner and rate payer [redacted]
I Strongly disagree with the Dam being built .
The supposed benefits of the dam (not to the residents here I might add) does not out weigh the damage that will be caused in the building of it !

Frankly I cannot believe this is even on the table when there are many other avenues available .
-tanks
-desalinator in byron (wategoes should do nicely)
-etc
All more cost effective
I grew up in numulgi on tank water .. you learned to conserve water not waste it ..

Regards
Alison Wilson
NO DAM

From: betty RYAN
To: Records
Cc: [redacted]
Subject: Submission on future water strategy
Date: Monday, 31 August 2020 3:54:37 PM

Name: Betty Ryan

Address: [redacted]

Phone: [redacted]

Plan: Future Water Project 2060; specifically The Channon/Dunoon Dam

I disagree with the proposed dam at The Channon/Dunoon for the following reasons:

- Environmental degradation and loss. Key areas of flora and fauna will be lost within the dam site.

- Cultural loss. Important sites of our Aboriginal heritage and culture will be lost.

- Issues regarding dam construction. The dam is proposed as a rolled concrete construction which is the same as the failed dam near Bundaberg Queensland. The controversy around the Bundaberg dam shows that there is a lack of construction expertise followed by poor problem solving. There is no indication that Rous Water is aware of there being problems with this construction method or that Rous Water has a plan to deal effectively with construction problems when and if they occur. Such issues cannot be left to chance.

- Issues regarding dam financing. Since this project was first mooted the Australian economic environment has changed dramatically. I would like to know that Rous Water is capable of taking these changes into account before proceeding with the dam so that t is clear that construction would not be started (with concomitant loss of environment and cultural heritage) but would be halted due to lack of funds.

- Insufficient emphasis on changed water usage. Rous water is in a powerful position to help people alter their water usage patterns. Funds for a dam would go a long way to supplying water tanks on homes and businesses as well as supplying tertiary treated water from sewerage treatment works for use in non-potable water settings.

With thanks,

Betty Ryan

[redacted]

From:	B M Berghuis
To:	Records
Subject:	Proposed Dunoon Dam
Date:	Monday, 31 August 2020 3:57:32 PM

Name:
Bert Berghuis
[redacted]

Name of Plans:
2014 Future Water Project
Future Water Project 2020
Dunoon Dam Development Strategy

Statement:
I have read the above documents.
Although I agree there are issues in the above documents, I object to the construction of a new Dunoon Dam.

Reasons and background for my Objection:
Attached is a photo of our **rain water harvesting tanks**.
We initially installed a 13,500 litre tank 10 years ago with the assistance of a subsidy from a Rous Water/NSW Government rebate.
This water tank has served us well, we were pleased to reduce our usage (and $ water bills) on mains water by up to 60%.
Following the 2019 drought we decided to install a second 13,500 litre water tank (without any subsidy) as extra security.
We believe that all households should be encouraged to do the same.
Then there should be no need for the huge expense and environmental concerns that building the proposed Dunoon Dam will entail.

.

B & M Berghuis

From: Norman Bell
To: Records
Subject: Dunoon Dam Proposal
Date: Tuesday, 1 September 2020 9:13:06 AM

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

Sent from my iPad
We are writing regarding concerns an objection to the new Dam. We are long term resident of [redacted].
Wenbelieve the Rocky Creek Dam,should be first looked at an fixed before destroying more Aboriginal land.
The beautiful terrain an Rainforest areas are to be preserved at all costs. I object to this Dam Proposal. Kathy & Norm Bell.

From: Gerhard Weihermann
To: Records
Subject: New dam at Dunoon
Date: Tuesday, 1 September 2020 8:29:36 AM

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

Gerhard Weihermann
[redacted]

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:

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

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

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

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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.

I strongly object to a new dam

Regards
Gerhard Weihermann

From: Daniel Bethune
To: Records
Subject: Proposal for Dunoon Dam
Date: Monday, 31 August 2020 7:25:39 PM

To all concerned,
I'm against the destruction of even more of our rainforest when it's painfully obvious and that the dam is unnecessary.
Water efficiency and proper use of water tanks on every house would be a sustainable option without destroying more of our natural beauty.
I think that bureaucrats take the lazy option because it doesn't effect them personally. It's just planning on a map from afar.
The people of the Northern Rivers certainly don't need more dams just so people on holidays on the coast can have a spa bath at the expense of our natural world.
How much more selfish destruction must human beings do before enough is enough. We have already destroyed over 95 % of the rainforest in our region.
I will defend this last patch with all my conviction as we did with the CSG.
Yours sincerely
Danny Bethune
[redacted]
Sent from my iPhone

From:	trish stuart
To:	Records
Subject:	The proposed Dunoon dam within the water future project 2060
Date:	Monday, 31 August 2020 5:30:48 PM

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

Thank you for giving us the opportunity to provide our input. My family and I are farmers and live at [redacted]

We do not support the proposed Channon Dunoon dam for the following reasons;

1.Water Efficiency.
The leaks in the system must be fixed Before the dam option is explored. First there must be a system wide water audit completed for each council to determine system efficiency. This is by far the cheapest and fastest way to meet the supply demand balance rather than the lazy option of a big dam which will encourage in efficient and wasteful water management by local governments and people's because there is no incentive to change. The dam is not a 21st-century solution, rather a "white elephant" which the water users of the different Shires will be paying for for generations to come.
Currently Rocky creek dam water is currently being used to flush toilets. New developments need to be built on bigger blocks and have their own water tanks whether above ground or underground. Water harvesting needs to be improved and water needs to be recycled.

2. Destruction of indigenous cultural heritage including burial sites as identified in the cultural heritage impact assessment 2011 completed by Rous water. This just demonstrates ongoing disregard for first Nations heritage - let the ancestors lie in peace. Not acceptable.

3. Destruction of the Channon gorge and its endangered ecological community of low land rainforest including regionally rare warm temperate rainforest on Stan stones and it's written flora and fauna species is identified in the terrestrial ecology impact assessment 2011.

Remnant rainforest from the big scrub -leave it alone , leave the koalas alone -and the platypuses. Offsetting the loss of rainforests on Sandstone by regeneration is problematic because the type of vegetation offered as recompense is never equivalent and it takes decades and decades relocating. Bad idea.
This is a bio diverse sensitive region and needs preserving not damming.

4. Concrete dust from construction is a real issue for us locally as well as the construction zone for the Channon community . It will contaminate our tank water and air. The roads are already bad enough . If it goes ahead there are going to be huge trucks on the poor roads not to mention the on going sound impact from pumphouse etc.

5. As a local landowner what flood mitigation levels have you got in place can you give us an undertaking that we won't be flooded back from their artificially holding the water in the landscape. Can you guarantee us that a similar Vivenhoe Dam incident won't happen here? (Where the water Wasn't released from the dam in time of heavy rainfall) st the appropriate time. and ended up flooding a lot of Brisbane In 2010/11 floods.

In summary it's a lot of money for a lazy solution and it's not a 21st-century solution . It's hurried, and a mistake which future generations will end up paying for.
Please go back to the drawing board.

Regards,
Patricia Stuart

Sent from my iPhone

From: Judi Summers
To: Records
Cc: [redacted]
Subject: Proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 1 September 2020 2:38:11 PM

General Manager
Rous County Council

I appreciate the opportunity to respond to the proposed The Channon-Dunoon Dam.
I live on the Wilson River at Eltham on 28 acres where we have 400 Pecan trees. We have tank water and in the past 23 years we have not run out of water, mainly due to the fact that we have had to use water wisely and recycle as much as possible. The 2018-2019 drought was an extreme test on humans capacity to change water use habits. Some cities/regions did very well, others were severely affected and not necessarily due to their own mismanagement of water. The Murray-Darling water trading was an abuse of human rights for many communities.

I do not support the proposed Dam for the following reasons:
* In order to build the dam an immense area of the Channon Gorge and its endangered ecological community of lowland rainforest, threatened flora and fauna species will be 'wiped out'. We have already lost thousands of hectares of habitat in the Northern Rivers - North Coast region and with Climate Change now upon us, we cannot afford to lose anymore flora and fauna, tipping the ecological balance.
* Cultural sites would be destroyed with no respect to our local indigenous communities.
* The dam would encourage continued inefficient and wasteful water management by local governments as they would have no incentive to do things differently.
* Cost efficiency of water. The General Manager himself stated that 'he expected a fourfold increase in the cost of supplying water if the dam is built'.

I support the following alternatives to a costly and destructive dam:
* Water Harvesting - Councils to encourage/demand water tanks on all new (and existing) developments. The Australian Government advises that "depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs". Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.
* Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience exists regarding potable reuse of water.
* An investment in system-wide water efficiency. Analysed, costed and deployed, creating jobs.

To finish I would like to stress that WATER IS OUR MOST VALUABLE RESOURCE. We must manage it to compensate for all times of stress on water supply, i.e. extended droughts. NO WATER - NO LIFE

Regards

Judi Summers
[redacted]

From: Dullah Yusof
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 1 September 2020 2:00:56 PM

Hello,
I forgot to write my name and address.
[redacted].
Cheers

On Tue, 1 Sep 2020 at 13:56, Dullah Yusof [redacted] wrote:

> Hello Rous water and councillor's,
>
> 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 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).
>
> - 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)
>
> 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)

- 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.”

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

From: [redacted]
To: Records
Subject: Submission re the proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 1 September 2020 4:01:29 PM

Submission re the proposed Dunoon Dam within the Future Water Project 2060

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

I am asking that my submission is treated as "CONFIDENTIAL".

I am an active member of a [redacted] and do **oppose** the proposed dam and would like to make the following points **supporting my objection**:

The construction of the dam would cause the destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regional rare warm temperate rainforest on sandstone) and its threatened flora and fauna species. The Dunoon Dam Terrestrial Ecology Impact Assessment (2011), commissioned by Rous County Council, found that significant impacts would occur because of:

- the loss of 34 ha of Lowland Rainforest EEC including 7 ha of warm-temperate rainforest on sandstone. This type of rainforest on sandstone is extremely rare in this region, as it mostly occurs on rhyolitic soils up in the mountainous zones, eg in upper Terania Creek.
- the loss of 9 threatened flora species
- the loss of habitat for 17 species of threatened fauna, including koalas
- the severance of local wildlife corridors

The offsets proposed for the loss of habitat, such as regenerating the weedy slopes above the dam, are ludicrous and do in no way represent the habitat that is being destroyed by the new dam.

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."

The threat to our local wildlife due to land clearing/habitat destruction, climate change, etc. is already immense and we should do anything we can to preserve high value habitat.

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

The cost of the project would be prohibitive and the increase in water rates to consumers could increase by 4 times, according to Rous general manager.

I believe, Rous County Council should focus on the following issues instead:

Water harvesting (urban runoff, rainwater tanks): rainwater tank installation in 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 to reduce the need for new dams or desalination plants, protect remaining environmental flows in rivers and reduce infrastructure operating costs." https://www.yourhome.gov.au/water/rainwater

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

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

My hope is that common sense prevails and the above alternative options and more are being thoroughly explored before such a destructive project like the Dunoon dam is considered.

Thank you for your time.

[redacted]

[redacted]

From: Triny Roe
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 2 September 2020 9:16:04 AM

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

Dear Rous Council and Councillors

I do not support building this dam. Instead we should focus on water efficiency and smart water options. Reducing waste of water throughout the supply chain would also add to savings. No leaks in the pipes or the taps, low flow showers etc.

This dam would also destroy important cultural heritage sites as well as an endangered community of lowland rainforest. Not to mention the fauna which inhabits the area - platypus particularly will not survive when their creek is submerged. Areas of this creek have had substantial regeneration activities carried out along the banks, only to be flooded in this proposed development.

We can use extra water harvesting measures - all new homes can have water tanks - water recycling measures can be utilised.

Expected costs of 4 x the current cost of supplying water is unacceptable especially when combined with the damage to the environment that result from the project.

NO DAM.

Many thanks,
Triny Roe
[redacted]

From: Paul Daley
To: [redacted]
Subject: No Dam! Remember the Franklin?
Date: Wednesday, 2 September 2020 8:03:06 AM

Trying to put a dam just down the road from the Iconic forest blockages of 1979?

There is absolutely no way this community will allow such a thing - please don't put us through this again....

First focus on reducing water wastage from the community; composting toilets are a good start!

--
the creation of a thousand forests lives within the heart of a single seed
a lush forest
[redacted]

From:	Bimbi Gray
To:	Records
Subject:	Opposition to Dunnon Dam
Date:	Tuesday, 1 September 2020 8:31:56 PM

Good evening,

I am writing to express my strong opposition to the proposed development of the Dunnon dam.
As a new resident, homeowner and rate payer of this small village my family and I have significant concerns about the impact this will have on our chosen quiet way of life.

Here are some of our concerns-

1.Increased traffic to a road in disrepair, which will be hazardous and noisy.

2.This infrastructure development is to support greater regions outside of our postcode yet we as ratepayers will absorb the significant local burden of the development.

3.There has been lack of consultation with the local community regarding the developmental impact of the dam.

4.There has been a very limited environmental impact statement provided to the local landowners and ratepayers in the village and surrounding properties.

We will stand with our local community in strong opposition to this development.
Alternative options to secure water supply must be considered.

Sincerely,
Bimbi Gray

[redacted]

[redacted]

From: Graeme
To: Records
Cc: [redacted]
Subject: I DO NOT support the proposed The Channon-Dunoon Dam
Date: Tuesday, 1 September 2020 8:25:55 PM

Dear Councillors,
I DO NOT support the proposed The Channon-Dunoon Dam

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. (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.

- 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.

- 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 outsized and unnecessary dam.

Graeme
[redacted]

From:	Duncan Dey
To:	Records
Subject:	submission on Future Water project 2060
Date:	Tuesday, 1 September 2020 7:18:11 PM
Attachments:	DD to Rous re future water.pdf IPART on variable sydney water prices 20 03.pdf

---

G'day Rous

I attach my submission, which is in two documents: the submission itself
plus reference material in a second PDF entitled IPART ...".

Thanks and Cheers, Duncan

☺ **Duncan Dey**

water engineer, BE(Civil), MIEAust

[redacted]

Rous County Council
Lismore NSW 2480
<council@rous.nsw.gov.au>

1 September 2020

submission: Future Urban Water Supply

Dear Rous Councillors and General Manager

I am a Civil Engineer specialised in flood hydrology and with a good working knowledge of the rest of the water cycle, including water supply and sewerage (both urban and rural).

I am very familiar with the activities and approach of urban water and sewerage authorities through having been a member of several Advisory Committees of Byron Shire Council over the last 25 years.

I was a Councillor on Rous Water 2012-16 and am familiar with operation and philosophy of your organisation. During that period, we oversaw investigations for the project that you have brought to a further stage with your Future Water Project 2060, currently on public exhibition and on which I make this submission.

While on Rous, I made the following observations on its approach:

a) Rous supplies only one quality of water. Hence all water supplied has to be top quality (ie drinking water quality);

b) Rous makes no arrangements to limit the quantum of its supply. Rous doesn't mandate demand management by its four constituent Councils or by its direct customers. Pricing offers almost no incentive to conserve water. Rous connects new customers on call (both via the Councils or direct) with no consideration of their alternatives;

c) Rous's costs revolve around (i) maintaining & expanding its network of trunk pipelines; (ii) treating its supply to drinking water quality standards; (iii) electricity including for lifting raw water 200m in altitude from its Wilsons Creek source at sea level to its Nightcap Water Treatment Plant; and (iv) planning for expansion.

I believe the imperative to open up a new supply of virgin water from a new catchment plus traditional on-creek storage dam (*Dunoon Dam*) is the result of poor organisational choices. These choices are driven by preferences around my observations a) and b) above, and by the layout of Rous's facilities locking in its current management approaches.

Were Rous to amend its approach on those matters, the security of water supply (including that required by future urban areas) could be guaranteed without the need for a new dam.

Were Rous to produce or to encourage the Council's to produce non-potable water, that water could supply more than half the daily needs of urban users in the region.

About 1.5% of Rous's potable supply actually gets ingested - the rest is not ingested. Rous aims to provide households with 160 litres/person/day. 1.5% of that = 2.4 litres/person/day.

The ABC reported in 2018 as per the link below on the quantum of water humans ingest. The article suggests that the 1945 recommendation of the Food and Nutrition Board of the United States National Research Council still holds: "A suitable allowance of water for adults is 2.5 litres daily in most instances ... most of this quantity is in prepared foods."

https://www.abc.net.au/news/health/2017-10-18/how-much-water-do-we-need-to-drink-a-day/8996668

The estimate of 2.5 litres could rise in a warmer climate such as ours. I use my own experience as an example. I live alone and filter my water into bottles for direct drinking, including taking a bottle when I go out. I've thus monitored my usage in this climate over many years. In winter I drink less than one litre/day. In summer I drink up to about three litres/day.

Possibly more relevant figures are what an average household uses, from various pipe outlets. Sydney Water has pretty good numbers on this, at:

> https://www.sydneywater.com.au/SW/education/drinking-water/Water-use-conservation/index.htm

They say: "On average, each person in Sydney uses about 200 litres of water a day!". Sydney Water says that, of that 200 litres, 26% is showers; 23% outdoors; 20% toilets; 12% washing clothes; 12% inside taps; 6% bathtubs; 1% dishwasher.

Were Rous to supply the 12% that must be potable and the 1% dishwasher, then 87% of Rous's supply could be non-potable. With a bold education programme, we could wean ourselves off drinking shower and bath water as well (total 32%). Even without that change, 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 Woodburn groundwater 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.

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 200m^2 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).

I recognise that administration of water treatment is easier when equipment is centralised but suggest that decentralisation may be required if Rous stays involved in operating the diverse sources that I propose.

Likewise, I recognise 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). My view is that 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.

I gather 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. I ask Rous to consider Direct Non-potable Reuse - as is already practiced in Ballina Shire, but with hiccups that need attention. 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. This is a first very small step towards saying to Australia "when the dam empties you'll need a second source, which we don't provide". The impact should be that we conserve the last litres for drinking and get creative about the rest. Reasons to do this are that we value our wild places so incredibly highly that we won't drown them just for our urban convenience. In fact, we'll pay to keep them.

Yours faithfully,

[redacted]

please ensure attachment "IPART on variable sydney water prices 20 03"
accompanies this submission

IPART
Independent Pricing and Regulatory Tribunal
New South Wales

REVIEW OF PRICES FOR SYDNEY WATER

FROM 1 JULY 2020

Greater rewards for conserving water

The price you pay for water includes a **water usage price** that reflects Sydney Water's costs to supply an additional kilolitre of water to your tap.

The **water service charge** is a fixed fee charged to all customers. This fee recovers all other fixed costs to maintain the water system.

We propose more flexible water prices so that customers have more control, and can benefit from lower bills in these uncertain times. Specifically, we propose to:

- Increase the water usage charge and decrease fixed charges, giving customers **more control** of their bill
- Vary the water usage charge in response to dam storage levels, to **signal changes in the cost** of supplying water

Current water usage price/kL	New 'average weather' usage price/kL	New 'drought' usage price/kL
$2.11 (FINAL)	$2.30	$3.12

Current water service charge	New water service charge (all weather conditions)
$96.69	$21.22

Using price as a signal

During drought, Sydney Water incurs additional costs. We consider that the most efficient and equitable way to recover these costs is to have a **higher usage price during drought.** As such, drought costs would be passed onto customers through an uplift in the usage price when dam levels are low.

This approach would mean that customers are charged higher prices when the cost of water provision is higher, and also provides a stronger incentive for customers to reduce their water consumption.

How does our flexible pricing work?

From 1 July 2020, if dam levels are above 60% at the start of each quarter, then the water usage price will be $2.30 per kilolitre. This price has been set with reference to the long term cost of providing water under 'average weather' conditions.

When dam levels fall below 60%, the price would increase to $3.12 per kilolitre as water becomes more costly to supply. This higher price would stay in place until dam levels are 70% at the start of the quarter.

We will only pass on Sydney Water's efficient drought costs:

- Sydney Desalination Plant operation
- Water conservation projects
- Water restrictions advertising and enforcement
- Shoalhaven pumping

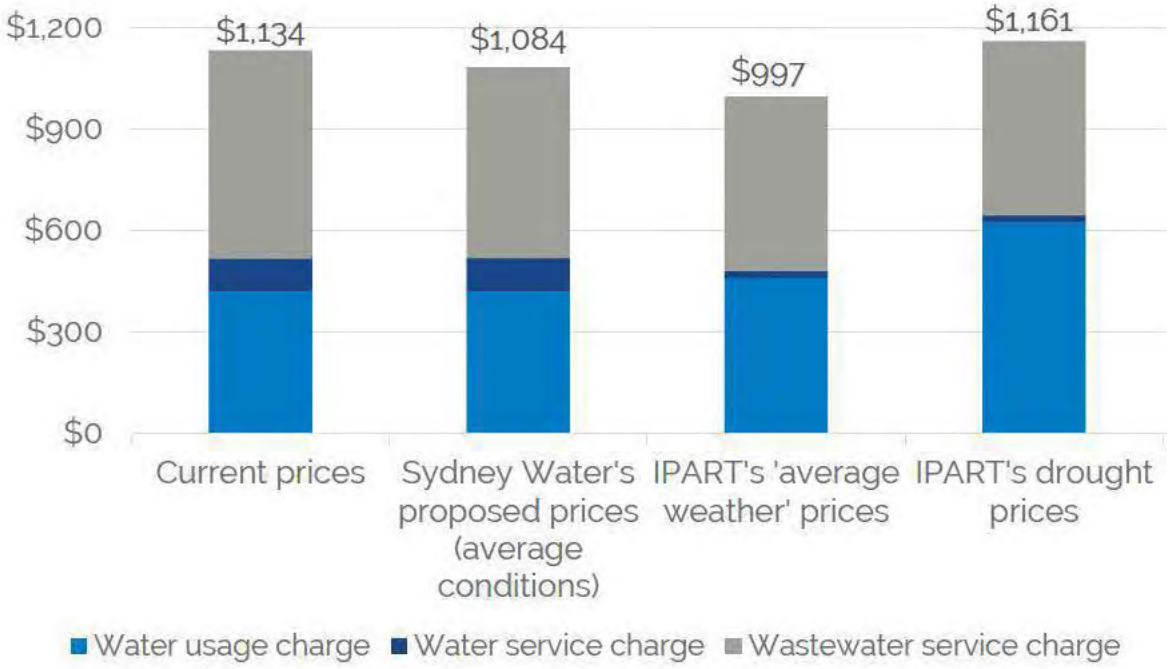
We will continue to set the base water usage price with reference to the long run marginal cost of water supply, or LRMC. This approach is efficient because it sends an accurate message to water users and providers about the long-term costs of supplying water.

This approach signals the higher cost of supplying water in periods of scarcity, while keeping prices simple so that customers have the ability to react when prices change.

Water bills will fall in normal conditions, and rise in drought

Compared to current prices, a typical household's water bill would be

Average water bill under different pricing proposals



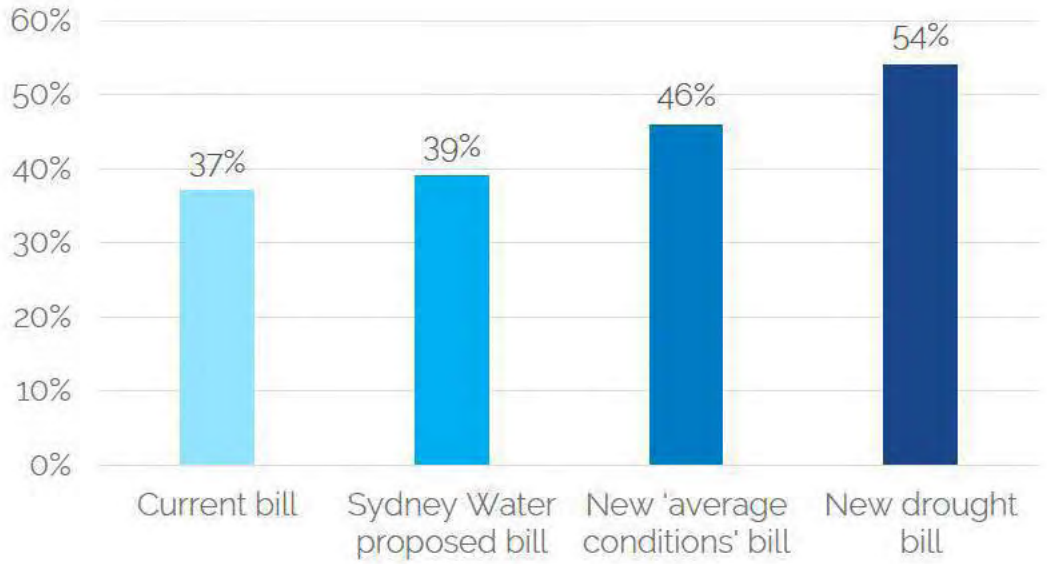
Currently dam levels are well above 60%, meaning that bills will be lower, providing relief for customers during these uncertain times. However, should Sydney return to drought and dam levels drop significantly, the water usage price will rise, encouraging water conservation.

Pensioners, who receive Government rebates, could see an increase in their bills if nothing else changed. This is because the existing rebate reduces the service charge rather than the usage charge. We are happy to work with the Government to review how it sets pensioner rebates to reduce the impact on pensioner bills.

More control over your bill

We propose to rebalance water bills, so that usage charges are higher but service charges are lower.

This means that the proportion of the average bill that is variable is increasing...



This would give customers more control of their water bill. **Saving water means a greater reduction in your bill.**

If the average household cut their water use, they could make big annual savings. For instance, cutting water use by...

10%
they would save
$46
in average conditions
$62
in drought

20%
they would save
$92
in average conditions
$125
in drought

We considered a range of other options before selecting this approach

Our current approach creates too much risk for Sydney Water

We currently set usage prices with reference to the long run marginal cost of providing water. However, this approach does not fully factor in the increased costs of supplying water in periods of scarcity, nor does it sufficiently address Sydney Water's revenue risks in times of drought.

Sydney Water's proposal would not encourage water conservation during drought

Sydney Water proposed adding the costs of drought to the fixed service charge as opposed to the water usage charge.

This approach would not send the right signal to customers about the value of water during periods of scarcity, and goes against stakeholder preferences for costs to be predominantly recovered through usage prices.

Setting a higher price for households that use a lot of water would not be well-targeted, efficient or equitable

Under an inclining block tariff (IBT), customers would be charged a relatively low price for water up to a point, but the price would increase if they used more water. This aims to impose a higher cost on 'discretionary' uses of water (such as watering gardens or filling swimming pools). We looked at whether there would be benefits to low income households from setting an IBT.

However, we did not find any evidence that this approach is equitable. The main driver of water consumption is the number of people in a household, so setting a higher price for households that use a lot of water would penalise larger households. Further, having two prices is not efficient because at least some water consumption is priced incorrectly.

A pure scarcity price is currently not feasible

Under a pure scarcity price, the price of water would vary with dam levels to balance supply and demand. However, our analysis suggests this approach could result in a significant increase in the water usage price during drought.

Under this approach, Sydney Water's revenue would also become more volatile, meaning that it could significantly over or under recover its costs. Further, as water bills are issued quarterly, customers would find it difficult to adjust behaviour in response to frequent price changes.

From: Trevor Acfield
To: Records
Subject: The dam
Date: Tuesday, 1 September 2020 6:06:32 PM

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

There is heaps of evidence to not build dams. The flooding of land, the killing of fish and other life forms as a result of habitat change. The change in water temperature at the bottom of the dam. When released this kills life downstream.
Im surprised Rous has got to this stage with all the evidence that has been around for a long time. Sure, the National Party love dams, but the Science community knows better. Its in every environmental textbook. Read a few of them!
And then there are options. My favourite is tanks. Many roofs that could collect water. Has council researched this? Large numbers of tanks could save Rouss Water having to build a dam. This would save the taxpayer heaps of money.
Finally, is council prepared for the fight? Ask Metgasco, because this will be 'full-on' for Rouss County Council. The movement opposing this draft proposal for a dam is building. Is council prepared for the police presence. Has council budgetted money to deal with the opposition to this potential environmental disaster?
Trevor Acfield
[redacted]

From: Louise Litchfield
To: Records
Cc: [redacted]
Subject: Submission regarding the Proposed Dunnon Dam within the Future WaterProject 2060
Date: Wednesday, 2 September 2020 1:16:43 PM

This email is addressed to the General Manager Rous County Council and to all Councillors, from

LOUISE LITCHFIELD
[redacted]

Thank you for providing a period of extension to allow community members such as myself to make a submission regarding the Proposed Dunoon Dam.
I write the following submission in acknowledgement of the complexity of the work Rous Water does to provide water to our region.

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

- **There is an urgent need to to invest in system-wide water efficiency,** not just in our corner of the world but nationally and indeed internationally. This dam would represent a lost opportunity to invest in system-wide water efficiency. Sydney demonstrated that by focusing on system efficiency it added an additional 950,000 people without a rise in consumption. (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)
- As we move into the 21st century humans need to become smarter with our water systems. **This project will be very expensive, not smart.**
- The dam, were it to be realised, would be a **disincentive for future local government to be smarter and do things differently**.
- **Important indigenous cultural sites, including burial sites, would be damaged or lost forever**. (Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011)
- **The Channon Gorge and its endangered ecological community - flora and fauna - of lowland rainforest would be destroyed and lost forever.** (SMEC Australia, Terrestrial Ecology Impact Assessment, 2011) 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." (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.
- **Residents living in the Channon/Dunoon community will be directly impacted** by the noise, machinery, trucks and visual impact. There will also be on-going noise pollution from the pump house.
- **The water will be more expensive for all consumers**. The Rous General Manager

is on record saying that there is an expected four-fold increase in future water water prices.

- **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 diverting expenditure away from more sustainable, flexible and effective solutions**. This information is confirmed in the 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")

I SUPPORT the following alternatives:

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

- **An investment in system-wide water efficiency and strong demand management**. Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. (The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy: preferred options , Rous County Council, Lismore and; Watson R , Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water Institute for Sustainable Futures, Sydney I have been led to believe that Rous has not done a thorough comparative costing of system-wide efficiencies in creating their future water plan.
- **Water re-use in various ways, including Purified Recycled Potable water**. A wealth of global research and experience is available regarding potable re-use of water.
  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/ >
- **Use of Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage. Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown?*| Department of Agriculture, Water and the Environment, Canberra, 6 August 2020,
  < https://www environment gov au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown >
- **Contingency planning** would enable Rous Water to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **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." *$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). Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. (Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home , Canberra, 3 August 2020, < https://www yourhome gov au/water/rainwater >)

Kind regards,

Louise Litchfield

From: Tim Allen
To: Records
Subject: FW: The proposed Dunoon Dam
Date: Monday, 21 September 2020 2:49:13 PM

This one?

Tim Allen
ICT Manager
Rous County Council
PO Box 230, Level 4, 218-232 Molesworth Street LISMORE NSW 2480 | 02 6623 3800 | 0427 068 854 | [redacted] | http://www.rous.nsw.gov.au

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From: Marie Mathieson [redacted]
Sent: Wednesday, 2 September 2020 1:54 PM
To: Records <records@rous.nsw.gov.au>
Cc: [redacted]
Subject: The proposed Dunoon Dam

Re: Future Water Project 2060

Dear Councillors,

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.
- The dam would encourage continued inefficient and wasteful water management by local governments.
- Destruction of important Indigenous cultural heritage, including burial site.
- Destruction of the Channon Gorge and its endangered ecological community of lowland rainforest.
- Catastrophic flooding downstream in worst floods.

I would urge you to please invest in alternatives such as water harvesting and water re-use.

Regards,

Marie Mathieson
[redacted]

From:	Bev Blake
To:	Records
Subject:	Channon-Dunoon Dam
Date:	Wednesday, 2 September 2020 3:24:51 PM

Beverly J Blake
[redacted]

Project 6060
For a dam to be put in at Channon/Dunoon

I strongly object to this beautiful rain Forrest area being destroyed, the wild life is getting less and less habitat. I believe there is other diverse more modern ways of dealing with water shortages.
I have many friends and family in this area and visit it frequently, to trash and destroy 7 acres of the most beautiful rain Forrest in this area would be a crime.
It should be a heritage protected area for what's left of the wild life living there and trees for creating the moisture and rain. I find it hard to believe the Rous council would even consider trashing this most wonderful Forrest.
Thank you for reading my definite OBJECTION
yours truly
Bev Blake

[redacted]

From:	Amanda Pattie
To:	Records
Subject:	Dunoon dam proposal
Date:	Thursday, 3 September 2020 6:24:10 AM

Please formally note my objection to the proposed dam in the valleys below Dunoon based on the serious ecological distruction of essential and critical habitat that will occur if the dam is built and the lowlands flooded.

Amanda Pattie
[redacted]

From: Narelle
To: Records
Cc: [redacted]

Subject: Objection to the proposed Dunoon Dam within the Future Water Project 2060
Date: Wednesday, 2 September 2020 8:01:55 PM

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

Thank you for the opportunity to make a submission relating to the above-mentioned project and thank you also for extending the date for submissions.

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

- **Destruction of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011) (1) . 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) (2) .

  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. (3)

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

- **The small population increase predicted** for the four Rous-supplied councils of 12,720 (4) 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". (4)
- Industrial/construction zone **for The Channon/Dunoon community; noise, machinery,** trucks, visual impact. Ongoing sound impact from pump house etc.
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011) (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. (MetropolitanWater Plan 2006, NSW Government) (6)

I SUPPORT these alternatives:

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

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

  A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?
  https://www.waterra.com.au/publications/document-search/?download=1806 (9)
  Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology.
  https://www.wingoc.com na/our-history (8)

References:

(1) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(2) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(3) 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) 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) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(6) 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
(7)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 >
(8)Windhoek Goreangab Operating Company (Pty) Ltd 2020 ,Our history | Wingoc, Veolia Environment,
Windhoek, viewed 3 August 2020, < https://www.wingoc.com.na/ >

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Narelle Jarvis
[redacted]

From: emma pittaway
To: Records
Cc: [redacted]
Subject: Submission - proposed Dunoon Dam with Future Water Project 2060
Date: Wednesday, 2 September 2020 5:20:07 PM

Submission regarding the proposed Dunoon Dam with Future Water Project 2060

Thank you for the opportunity to provide input into this process. I **DO NOT** support the proposed Dunoon Dam for the following reasons:

1. My main concern is the location of the dam, because it will destroy the endangered ecological community of the Channon gorge, as shown in the *Terrestrial Ecology Impact Assessment 2011*. This makes up a part of the remnant Big Scrub rainforest that remains standing, and offsetting by regenerating degraded land cannot make up for the loss of this unique rainforest.

2. I am also concerned by the loss of Indigenous cultural heritage sites as outlined in the *Cultural Heritage Impact Assessment 2011*.

3. In addition I am concerned about the lost opportunity, should the dam go ahead, for the region to be at the forefront of more sustainable water harvesting, storage and usage practices. If the dam goes ahead it will be expensive and culturally and ecologically destructive, and will provide no incentive for local councils or communities to adopt smarter policies and practices regarding water usage and storage, including water management efficiency and consistent uptake of rainwater tanks. A big dam is a 20th Century solution, and we need to be smarter and more innovative in our use of resources in the 21st Century.

I urge you to reconsider this proposal and instead adopt a range of smart water options that will enable us to provide for the region's future water needs in a way that is ecologically sustainable.

Yours sincerely,
Emma Pittaway

127243

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: Benita Carey

Address: [redacted]

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

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

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

I SUPPORT these alternatives:

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

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

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

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

References and Notes

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

Kind regards, Signatu [redacted] Date: 31/08/20

127249

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: Melissa Williamson

Address: [redacted]

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

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

- **Lost opportunity to invest in system-wide water efficiency.** This is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption.[1]
- **The 21st century is about a suite of smart water options.** This dam would be a lost opportunity to make our system fit for the 21st century by swallowing all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and wasteful water management by local governments.** They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage**, including burial sites.[2]
- **Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest**, threatened flora and fauna species.[3] Rous's plan to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone is problematic as the type of vegetation offered as recompense is not equivalent.(Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value."[4] Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.
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- **The small population increase** predicted for the four Rous-supplied councils of 12,720[5] between 2020-2060 **does not justify** such a large and destructive dam. The dam risks 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]
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  Water tanks on all new (and existing) developments.The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."[10] Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.[11]
- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[12]

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

References and Notes

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

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

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

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

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

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

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

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

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

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

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

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

Kind regards, Signature: [redacted] Date: 31/8/20

127250

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: PHIL CORAM

Address: [redacted]

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

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

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

I SUPPORT these alternatives:

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

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

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

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

References and Notes

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

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

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

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

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

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

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

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

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

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

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

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

Kind regards, Signature: [redacted] Date: 31/08/20

127257

FUTURE WATER PROJECT
FEEDBACK.
PO BOX 230.
LISMORE. 2480.
N.S.W.

PAUL BRECHT.
[redacted]

TO WHOM THIS MAY CONCERN.

SUBMISSION OBJECTING TO DUNOON DAM PROPOSAL IN CHANNON VALLEY.

THE REASONS BEING = DESTRUCTION OF INDIGENOUS SACRED SITES ESPECIALLY IN THE LIGHT OF A NATIONAL SPOT LIGHT ON MINING DECEIT & DESTRUCTION IN W.A.
FAUNA & FLORA HABITAT DESTRUCTION OF ENDANGERED SPECIES, ALSO THE SUB-TROPICAL RAINFOREST THERE IS GROWING ON SANDSTONE & THERE IS UNCERTAINTY IF THERE IS ANOTHER EXAMPLE OF THAT TYPE IN THE LOCAL RESERVE SYSTEM.
BETTER TO CONSERVE WATER EG: MORE RAIN WATER TANKS, WATER COULD BE RETICULATED FROM ROCKY CRK DAM.
HOW MUCH GREEN HOUSE WILL BE EXPENDED?
ALSO RICH FARM LAND PRESENTLY GROWING MACADAMIAS WILL BE LOST.
IF DAM WATER NEEDS TO BE RELEASED LIKE THEY DID ABOVE BRISBANE IT WILL CAUSE MAJOR FLOODING.

1.

THESE REASONS ARE VALID REASONS NOT TO BUILD THIS DAM IN THIS AREA.

I LOOK FORWARD TO YOUR REPLY ASAP.

YOURS,

P. Brock

From: Peach Darvall
To: Records
Subject: re The Proposed Dunoon Dam within the Future Water Project 2060
Date: Thursday, 3 September 2020 9:56:40 AM

I am a disabled person with very little energy to do normal life tasks let alone make a submission about anything. The fact that I have given away some of my scarce resources to this cause is testament to how strongly I feel about it.

Thankyou for the extension to the submission date. I and the community appreciate it.
I acknowledge the complexity of what Rous water 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 focusing 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) (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, 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 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 outsized and unnecessary dam.

References and Notes

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

https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, 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,
(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,
(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,

Sincerely,

Peach Darvall

[redacted]

From: Ella Rose
To: Records
Subject: Proposed Dunoon Dam
Date: Thursday, 3 September 2020 11:57:56 AM

To Whom It May Concern,

I am Ella Hegh, a resident of [redacted], and I am writing in response to the proposal for the Dunoon dam. Firstly I would like to acknowledge and thank you for the extension of submission dates, I and the community appreciates it. I also acknowledge the efforts Rous council goes to provide clean water for our region. However, I am opposed to the proposed dam for the following reasons.

Dams are going to become increasingly outdated as we move forward, this would be a lost opportunity to invest in water efficiency which would be cheaper and easier than large scale infrastructure projects. For example, Sydney was able to service an additional 950,000 people without a rise in consumption (Metropolitan
Water Plan 2006, NSW Government). The 21st century is about making things as environmentally conscious and efficient as possible. The dam is at risk of becoming costly and outdated and a waste of resources. (1)

To facilitate the building of the dam would include the destruction of important Indigenous cultural heritage, including burial sites. This shows the ongoing disregard for First Nation's heritage.

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)(2)
.
I understand Rous is planning to offset the loss of rainforest on sandstone with the 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.” (3) There are more economically viable and effective solutions.

The industrial and construction zone close to The Channon and Dunoon communities would cause noise from machinery, trucks and create a negative visual impact as well. There would be ongoing sound impacts from the pump house. I believe this would negatively impact tourism and the image of the Channon as a peaceful community that looks after its natural environs.

The small population increase of 12,720 between 2020-2060 does not justify this destruction. As outlined above the ecological, cultural, and economic impact of the proposal is not justified when you consider that ith effective and modern water management strategies it could be avoided altogether.

I understand it is not enough to simply oppose a proposal without offering more agreeable alternatives. I support investment in water efficiency across the board. Existing research shows over the past decade that the most cost-effective investment in water supply comes from demand management and identifying savings within the existing supply. (4) (5)

Water re-use in various ways, including Purified Recycled Potable water. A successful example of this is the city of Windhoek in Namibia that has been using purified and recycled water for 30 years (6).
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. It has been proven to be a reliable water management strategy.

Utilising water harvesting, urban runoff and rain tanks as well as water tanks on all new and existing developments. As the recent extreme bushfire season has shown, tanks are an invaluable resource in property protection and accessing clean water. It can reduce the need for new dams and desalination plants, protecting river courses and reduce infrastructure costs. Harvesting rainwater decreases stormwater runoff, reducing the local flooding and scouring of creeks (7).

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 overcapitalisation risk of an outsized and unnecessary dam.

Thank you for your time,
Ella Hegh

(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) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(3)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) 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>
(5) 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.
(6)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment,
Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(7)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>

Sept 3rd 2020

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

I wish to acknowledge the Traditional custodians of the land on which I work & live & acknowledge aboriginal elders, past present & emerging & the connection the Aboriginal & Torres Straight Islander people have with our land & water.

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.

However I DO NOT support the proposed Channon-Dunoon Dam for the

following reasons:

It would completely **destroy The Channon Gorge & with it the loss of habitat for so many**

of our endangered species of both flora & fauna. I have lived in The Channon for 30 years and its only been in the last 10-15 years that the current Koala corridor has enabled so many Koalas to move freely into & out of the village & surrounding areas close to my home. Platypus habitats and those of other wildlife in the gorge & pockets of rare sub tropical rainforest would all effectively be destroyed.

Along with the loss of flora & fauna comes the **loss of Indigenous Sites & disrespect for our Indigenous Heritage**. This Includes the loss of rare rock art, sacred sites & burial grounds. I work within an Aboriginal Community Service and being able to talk with elders has given me even more of an insight & understanding into the connections between the land & people, yet we continue to always push to take that little bit more. Our planet cannot continue to sustain such intrusion & further destruction that a dam would bring.

To me **the 21st century is about using technology to develop & instil smart water options** and the building of this dam is not going to allow for that, just as building new coal power stations does not allow for development of solar & future energy developments.

A new Dam is another **opportunity lost to invest in system-wide water efficiency** yet is said to be the cheapest & fastest way to ensure supply-demand balance. The dam would **encourage continued inefficient and often wasteful water management by local governments** as they would have no incentive to do things differently. The construction zone itself being intrusive, would impact the whole area not just by means of access but noise levels. Then there is the huge cost to the ratepayer over many years to come.

My belief is that the population increase predicted for the four Rous-supplied councils of approx 13,000 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 & also increases the risk of **Catastrophic flooding downstream,** particularly for the first 3 kilometres below the wall which would include The Channon bridge & village access & many residences further downstream.

I SUPPORT the following alternatives:

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

As I mentioned previously 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 Water ***has not*** costed this in creating their future water plan).

Water re-use in various ways, including Purified Recycled Potable water & possible desalinisation plants closer to where future developments are planned.

Water harvesting including urban runoff; rain tanks.

I chose to live in this area because of the nature that surrounds me. I come from a long standing Lismore family. My mother grew up on the banks of the Richmond River & watched unknowingly as the Big Scrub cedar getters floated logs down the river past her front door. Today we have but a small portion of that Big Scrub left & are fortunate to have the knowledge & resources available to make informed decisions for the future of our environment. I will stand alongside my community in the hope alternatives can be reached & the dam proposal does not proceed.

Kind regards,

Yours Sincerely,

Robyn Hill

[redacted]

From: Robyn Hill
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Thursday, 3 September 2020 12:24:52 PM
Attachments: Dam 2.odt

Good morning Rous Water,

Please find attached my Submission re the Dunoon/Channon Dam project.

Thank you for taking the time to read consider all options.

Robyn Hill

[redacted]

[redacted]

I acknowledge the Bundjalung People as traditional custodians of the land on which I work and live.

From: ciannait
To: Records
Cc: [redacted]
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Thursday, 3 September 2020 12:42:30 PM

I DO NOT support the construction of the proposed Dunoon-Channon dam because:

- Destruction of habitat and biodiversity at the Channon gorge
- Destruction of Indigenous heritage
- Increased likelihood of downstream flooding
- higher price of water to consumers
- Lost opportunities for efficiency management

Furthermore, investing in this costly project represents lost opportunities to invest in system wide efficiencies, and better management practices by local governments. Consumers are more than able to get on board with efficient use and water capture options that should be able to reduce consumption significantly. For example the property where I live has 25 people living on it (give or take a few part-time children). We have 5 10,000L water tanks and did not run out of water during last year's drought. We became extremely efficient. It wasn't easy, but we managed. Our next door neighbours have a 10.000l tank between two people. They have already run out of water this year while our tanks are still 4/5th full. And none of us need a dam to keep us in water!

The point is domestic water tanks, and government harvesting of run-off can fill the perceived gap in future water requirements and help establish an attitude of conservation in the minds of the public.

No new dams, and definitely no Channon-Dunnoon dam!

Regards
Ciannait Low

From:	Helga Jolley
To:	Records
Subject:	Submission regarding Dam at Dunoon proposal
Date:	Thursday, 3 September 2020 12:42:40 PM

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

Dear Council

I am concerned about the building of a second dam at Dunoon. I am a ratepayer for over thirty seven years and understand and appreciate the importance of having water. My opposition to the proposal is because of the following reasons:

I/There are alternative sustainable strategies such as rainwater tanks and water restrictions during drought. We alllgot through the last year without problems in this area.

2/ For people living below the dam such as The Channon residents It is a frightening proposal with the incredible amount of rain that falls in this area such as in March 2017 when residents downstream from the dam were warned about leaving their homes at one point in case of the dam collapsing. There would be a threat from both dams.

3/ My most important issue is the prospect of Whian Whian falls and the pools below being affected for future generations. This is a sacred place for many people including past generations. This would be the saddest thing for me. It reminds me of my late son who loved jumping from the rocks into that deep water Pool and I love this place.

4/ I have heard about the rare rainforest gorge further down that would be lost.

5/ The incredible rainfall we have in this area.

Sincerely]

Helga Jolley
[redacted]

From: [redacted]
To: [redacted]

Subject: Proposed Extension of Rocky Creek Dam a.k.a. Dunoon Dam
Date: Thursday, 3 September 2020 1:39:24 PM

Dear Sir/Madam,

MRS. FASHA STEEN,
[redacted]

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:

(I would like to include the following bullet points in my submission and add my opinion regarding education and water diversification and management in the community)

- **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. This would include not using fresh dam water for the flushing of domestic waste and community facilities. It would also include catchment of storm run off water for irrigation and storage, instead of current wastage of rain water.

- **The dam would encourage continued inefficient and often wasteful water management by local governments.** They would have no incentive to do things differently. So therefore if there were no dam local government could implement and encourage a water saving initiatives within local communities just as we currently do with solar and renewable energy.

- **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011)[2]. Ongoing disregard for First Nations' heritage and historical natural sites which have existed for thousands of years, which seem to be an unnecessary destruction just for storage of dam water.

- **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 and the original Big Scrub which has been almost entirely destroyed and will never be regained or replaced by tree planting offered as a recompense. 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 >, Direction2:Enhancebiodiversitycoastalandaquatichabitatsandwatercatchments.)[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".)

- **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 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.(

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://wwwwaterra.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-dra wdown

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

I would like to thank you for considering my submission and taking the opportunity to implement some innovative strategies for the 21st Century which would include water usage and storage within the community.

Yours sincerely,

Fasha Steen

7) (8)

From:	Mardi Wilson
To:	Records
Subject:	RCC Future Water Proposal
Date:	Thursday, 3 September 2020 1:43:47 PM

Dear council members,

I am not against securing a water supply for the next 40 years, however, I believe it is imperative that we look into ways of improving our current system (addressing leakage and making the system more efficient) and recycling water before digging up a new dam and in the process damaging our communities and (further) disrupting sacred Indigenous sites.

Some of my concerns are listed here:

-$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 waterIndigenous 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.

Best wishes,
Mardi Wilson

[redacted]

I offer my respect to the Widjabul People of the Bundjalung Nation, Traditional Custodians and First People of the land on which I live and work.

Bundjalung Country; always was, always will be.

From: martina driftwood
To: Records
Cc: [redacted]
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Thursday, 3 September 2020 1:46:31 PM
Attachments: Submission to Rous Water.docx

Please find attached my submission concerning the proposed Dunoon/ The Channon dam

Thank you for your time and have a nice day

Martina Driftwood

Martina Driftwood
[redacted]

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

First of all thankyou for the extension of the submission date which I really appreciated to have time to get to do some more research about the proposed dam. With the research I did, I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

Firstly I think it is time for people to start living within their means, which in this case means learning how not to waste water, manage their own water use and stopping to think that infinite growths is possible or even desirable.

It is a lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance, and also educates people on how precious water is and what they can do to reduce their consumption of it.
By focusing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan
Water Plan 2006, NSW Government)(1)

We are in the 21st century and there are a lot of smart water options. This dam would be one of those mega projects that costs a lot of money and would not help the resilience of the area. It's too vunerable if something happens in the supply chain of the water to the customers. Rainwater tanks would be a way better option to help make the area more resilient to whatever might come our way with climate change.

The new dam could encourage continued inefficient , doing business as usual, water management by local governments. They would have no incentive to do things differently.

Also that important Indigenous cultural heritage, including burial sites, would be destroyed for this project is not acceptable and in my opinion very disrespectful to the indigenous people of this land who have lived here for thousands of years.(Cultural Heritage Impact Assessment, 2011)(2)
It would be part of the ongoing disregard for First Nations' heritage.

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, is also something I can not support just for the reason of building this dam and so that people are able to keep on wasting water, and using as much as they like, just because people think they have the 'right' to do so,without having to reassess their practices of how they are relating and using water.(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, which is not the same as having old growth forest. Offsetting is never as good as keeping what is there in the first place, because the type of vegetation offered as rcompensation 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. The people who live here do so for a reason, and it is the peaceful atmosphere around here and the stillness that people have been drawn to. That would be destroyed if that dam goes ahead.

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 DO 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!

● Rainwater tanks/Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments, for use of flushing toilets,washing machines and gardens. Since they will be refilled every time it rains there might be little demand on extra water from Rous for these activities if residents have their own rainwater tanks!
(11)It also 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

● An investment in system-wide water efficiency and strong demand management.
Analysed, costed and deployed, creating jobs. (As far as 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 savingswithin the existing supply.(7) (8)

Also a higher price of water usage after a certain amount can be an incentive for people to use less water or install more water efficient appliances.

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

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

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

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

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc
https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03
August 2020 <
https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >
, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.
(5) NSW Department of Planning, Industry and Environment 2019, ‘NSW population projections ’, Sydney,
viewed 03 August 2020,
<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
Scroll down to “Local Government Factsheets”.
(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for
Hunter Water, Institute for Sustainable Futures, Sydney.

(9) 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>

From: Catherine Tomlinson
To: [redacted]
Subject: dunoon Dam
Date: Thursday, 3 September 2020 3:16:19 PM

The proposed Dunoon Dam within the Future Water Project 2060

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)

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

Please consider the alternatives stated above.

Catherine Tomlinson
[redacted]

From: Janice Best
To: Records
Subject: Submission: Future Water Supply - Dunoon Dam
Date: Friday, 4 September 2020 8:48:56 AM

To:

Rous County Council
Lismore NSW 2480

Dear Rous Councillors and General Manager

I am writing in response to the Dunoon Dam. We have been disrespecting our environment for far too long. We have better ideas ,better solutions we just need to be honest with our community about the use of water. Money would be better spent subsidising tanks, updating home water systems. We have the intelligence to do it better so let's do it!

Kind regards,

Janice Dutton
[redacted]

From: Jewel Musica
To: Records
Subject: Re: The proposed Dunoon Dam...Future Water Project 2060
Date: Thursday, 3 September 2020 8:49:43 PM

Hi. My name is Julie Wattus, [redacted]

I am writing to comment on The proposed Dunoon Dam...Future Water Project 2060

Thanks for extending the submission deadline. I am writing to let you know **I am opposed to the proposed Dunoon Dam for several reasons.**

Firstly, I would like Rous to invest in the cheapest & fastest way to ensure supply-demand balance through focussing on system-wide efficiency, as Sydney did in 2006. There is system-wide water wastage. Installation of a dam would give no incentive to improve this situation.

Secondly, I am opposed to the destruction of The Channon gorge and its endangered ecological community of lowland rainforest. I believe this destruction should be avoided because there are economically viable and more effective solutions.

Thirdly, I am concerned about the increased risk of Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. Floods are predicted to become more severe as a result of climate change.

I would like to see:
- Demand management - incentives for households to be more water efficient.
- Water harvesting - So much of our water is already captured by roofs and storm-water drains. This water should be used locally. Localised infrastructure roll-out and dual-plumbing systems in existing houses need to be thoroughly explored.
- Water re-use in various ways, including Purified Recycled Potable water.

Yours Sincerely,
Julie Wattus
--
Julie Wattus
[redacted]

From: Sharon Kidner
To: [redacted]
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Thursday, 3 September 2020 8:29:27 PM

I, Sharon Squire, [redacted]

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)

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

Regards

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,
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<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
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(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
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(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-dr

From: Rachel Macgregor
To: [redacted]
Subject: Submission Re: The proposed Dunoon Dam
Date: Thursday, 3 September 2020 8:02:07 PM

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

Firstly, I want to personally thank you for supporting the extension of the submission date. The community really 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:

- **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).

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.

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

- Ongoing disregard for First Nations' heritage.

- **Destruction of important Indigenous cultural heritage,** including burial sites (Cultural Heritage Impact Assessment, 2011)

Planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone is problematic because the type of vegetation offered as recompense is not equivalent. This example of offsetting is worse than most.

> 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>

I SUPPORT THESE ALTERNATIVES:

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

● **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.
● **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 awareness, bushfire and drought resilience and promotes water independence.*

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-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 for your time,
Rachel Macgregor

From:	Felix Mack
To:	Records
Subject:	Fwd: Ground Water - Public Submission
Date:	Thursday, 3 September 2020 4:59:59 PM
Attachments:	PUBLIC SUBMISSION ROUS DAM.pdf

Good evening,

please see attached.

Regards,
Professor Hill

Submission to Rous Water on Proposed Future Water 2060 Plan.

Alternative to proposed Channon Dam.

Local newspaper articles concerning this dam have highlighted the alternative of groundwater supplies as a solution to future water requirements.
However, those same articles suggest that not enough is known about any such supplies for them to be taken into account and that, further, investigations will be necessary to establish the nature and location of any existing supplies before they can be put forward as an alternative to a dam.
Please accept the following information which refutes any such assertions.

In NSW the, post WWII, Water Conservation and Irrigation Commission, later to become The Water Resources Commission, was commissioned, on behalf of the people of NSW, to establish the quality, quantity and location of groundwater resources in that State.

In the late 1970's the Commission's Hydrogeological Section appointed a hydrogeologist, Mr Len Drury, to establish the groundwater resources of the Tweed and Richmond River Basins.

After travelling from Sydney for several investigations Mr Drury relocated his family to a home in Ballina where they lived for two years while Mr Drury attended to his professional task.

During this investigation a series of test bores were drilled, and the Hydrogeological Section's geophysics team conducted Seismic and other surveys, including along the coastlines of the Tweed and Richmond River Basins.

Mr Drury, now Dr Drury, retired later in that decade, having completed his professional investigations of the groundwater resources of The Tweed and Richmond River Basins, to take a private consulting role as a groundwater consultant with the firm Cofee and Partners. later in that decade.

The results of these hydrogeological investigations having been undertaken on behalf of the people of NSW must be on record for the appraisal of those whose task it is to ensure the public water supplies of the Northern Rivers Region.

While the controversy of "water mining" holds a high public profile at the present time, it is important to emphasise that the great proportion of groundwater in the Tweed and Richmond River Basins is held in coastal sand dunes and in the sands and gravels of the river beds themselves.
These aquifers, (water givers) are composed of sediments which are "unconsolidated" unlike the solid rock aquifers which once mined may take many, many years before surface water can penetrate and "recharge" them.

Unconsolidated aquifers are routinely recharged during the region's frequent floods.

The test bores from that time, tested the types of sediments in the river beds, and were also “test” pumped, a process whereby the amount by which the level of water in the bores drops during the pump test indicates the amount of water contained in the aquifer.

A test bore locate near the confluence of the Richmond and Wilson Rivers was unable to reduce the water level in the bores at all, indicating that a vast amount of fresh, clean water is available in this aquifer.

The seismic surveys, one of which was undertaken near Tuncester, where the test bores still exist, established the surface of the bedrock upon which the sands and gravels of the aquifer sit.

The profile and the sediment samples taken from the test bores establish, to a degree, the total extent of the aquifer, while the “yield” or amount of water capable of being pumped from these aquifers is also tested.

In the geological past when the river beds were being eroded from the bed rock, differing rates of rainfall existed, and the seismic surveys revealed a deep “V’ shaped lower bedrock cross section of the river beds, this increasing the amount of water bearing sediments.

The aquifer itself may persist, connected along its length, as an existing test bore located 20 kilometres north of Kyogle might indicate.

In short the potential groundwater resources, recharged by frequent flooding might easily match those proposed to be supplied by the Channon Dam.

The information provided refutes any assertion that the ground water resources of the Northern Rivers are “unknown”, and is quite contrary to what the reading public may have been led to believe from local press articles on this subject.

Some might suggest that for such information on the Northern Rivers water supplies, already paid for out of the public purse and for the public benefit, would elicit cries of “scandal” if ignored in favour of a $200 Million dam proposal.

Scandal is indeed the word to be used to describe a similar dam built in the Bega Valley of The State of NSWin the late 1960’s.

The Brogo Dam costing, then, $20 million dollars was built in the electorate of the then State Government Minister Mr Jack Beale, a civil engineer, now deceased.

A coastal valley the dam was built in a region of high and regular coastal rainfall and this saw the relevant professional authority of the State government to reject the proposal as unnecessary.

The Minister scandalously stood over the shoulder of a young cadet engineer of the Water Conservation and Irrigation Commission directing that the numbers of the technical assessment be changed to favour approval of the dam, and these fraudulent figures were

presented the next day in the NSW State Parliament to ensure the passing of approval of the building of this dam.

Needless to say, this was not likely to escape the attention of the professional engineers who have produced the original, unchanged and contradictory report.

Also of relevance to this argument concerning the proposes Channon Dam, was the fact that the assessed groundwater resources of the Bega Valley were of the same magnitude of The Brogo Dam, and could be accessed for less expense that $20 Million.

The same can be said of the proposed $200 Million price tag of the Channon Dam.

Inland NSW cities such as Wagga Wagga population 50,000 people derive their drinking water supplies from ground water. Such information can hardly have escaped the attention of water supply professionals.

In the Early 1980's a drought reduced the water supplies of the Moruya region of Southern Coastal NSW, causing crisis during the summer tourist season. The situation was resolved by tapping the groundwater reserves of the nearby geological formation known as The Tomago Sands, an extensive coastal dune system buried during past geological times.

Here is a precedent arguing against the building of expensive dames to achieve the same result.

The Brogo Dam scandal took place before the establishment in 1988 of the NSW Commission Against Corruption, any repetition of that type of water supply scandal will not escape detection.

From: Duncan Thomson
To: Records
Subject: Future Water Project 2060 - submission
Date: Friday, 4 September 2020 10:03:03 AM
Attachments: image001.png
image002.png
image003.png
image004.png
D Thomson submission - FWP 2060.pdf

Hello, please find attached my submission on the above document.

Regards

Duncan Thomson
Director | Environmental Engineer

[redacted]

Submission on Future Water Project 2060

I do not support Key Action 2 – New 50GL Dunoon Dam of the Future Water Project 2060, for the following reasons:

1. The dam is not recommended by RCC's own studies

The Future Water Project (FWP) 2060 document contradicts the key supporting document, being the *Integrated Water Cycle Management Development: Assessment of Augmentation Scenarios* (IWCM) report. On page IV of the IWCM report, it states that *"based on the multi-criteria analysis (MCA), the most favourable scenario is groundwater"* and this is reflected in Table 3 of that same report. The 50GL Dunoon Dam is ranked last out of the 3 scenarios assessed and yet has been proposed by RCC as the preferred option. It is strange to undertake an MCA and then adopt the scenario that ranked last in the MCA. This would not look good in the proposal justification section of an EIS.

Concerningly, on page 13 of the business paper for the 17 June 2020 RCC meeting it states *"the MCA concluded that Scenario 2b – Utilisation of Marom Creek Water Treatment Plant with Dunoon Dam (50 GL) - is the preferred option for Council's future water supply"*. This is an incorrect and misleading statement.

The FWP 2060 document appears to discard groundwater as a viable option because it *"would not provide a sufficient volume of water to meet demand in 2060"*. Yet, the IWCM report states that the groundwater scheme *"will be able to meet demand until approximately 2072"* (page II). I understand that there are concerns about the viability of some of the groundwater sources (e.g. Newrybar). If RCC has formed the view that groundwater in general is not a viable option, this needs to be clearly demonstrated and explained. At present, groundwater is presented in the IWCM report as being viable and is the preferred option based on the MCA.

2. The justification for the dam is lacking

The FWP 2060 document states that *"the Dunoon Dam option has been identified as the lowest cost scenario while providing water security to 2060 and beyond"*. As such, it appears as though 'lowest cost' is the key reason for adopting the dam as the preferred option. However, according to Table 2 of the IWCM document, the 50GL Dunoon Dam ranks 2nd on whole of life cost and 3rd on NPV, with NPV being the most commonly used and accepted cost metric for assessing infrastructure options.

The 50GL Dunoon Dam only ranks 1st on the cost metric of NPV per ML secure yield, however I believe this metric is misleading. Based on Figure 2 of the IWCM report, the 50GL Dunoon Dam scenario would provide a secure yield of about 27,000 ML/a in 2060. But, the predicted water demand in 2060 is only about 16,000 ML/a. It seems misguided to base decision making on a metric of NPV per ML secure yield, if a large proportion of the secure yield is unused or surplus secure yield.

This is like suggesting that a single person should by a 2L bottle of milk every morning because the cost per L of a 2L bottle is less than the cost per L of a 1L bottle, even though the cost of the 2L bottle ($3) is still higher than the 1L bottle ($2) and they only use 1L of milk each day, so pour the other 1L of milk down the sink.

RCC's obligation is to make sound decisions on behalf of the community. A decision to build a new dam at high cost with significant social, environmental and heritage impacts needs to be well justified. At present, this is not the case. At the very least, an updated version of Table 3 of the IWCM report should be provided, which clearly shows the basis on which the 50GL Dunoon Dam has been determined as the optimal scenario. As mentioned above, any ranking of scenarios using a metric based on ML of secure yield, should only consider the 'useful' secure yield up until 2060 and exclude the unused or surplus secure yield.

3. A thorough assessment of all available options has not been completed

It appears as though other water supply options have not been thoroughly investigated or seriously considered. For example, the broad option of recycled water appears to have been discarded because initial investigations into the sub-option of indirect potable reuse (IPR) identified low yield benefit, potentially high cost and regulatory risks. I acknowledge that IPR may not be a good option for our region, but new or expanded non-potable reuse options could have been considered. Recycled water was considered to be a highly favourable option during the 2014 Future Water Strategy process, with associated benefits such as reduced wastewater discharge to waterways.

Similarly, desalination appears to have been discarded on the grounds of high cost, even though the NPV per ML of secure yield presented in Table I of the IWCM report is similar to some of the groundwater options that were subsequently incorporated into a scenario. The relatively high operating costs and carbon emissions typically associated with the energy consumption of desalination will be significantly reduced in the near future with the continued rollout and adoption of renewable energy.

When developing source augmentation scenarios for further assessment (Section 12 of the IWCM report), the focus seems to have been on single technology solutions (i.e. Dunoon Dam or groundwater). Combinations of options or technologies don't appear to have been considered. For example, if RCC is concerned about the viability of some groundwater sources (e.g. Newrybar), a potential scenario would be to combine the good groundwater sources with other options (e.g. expanded non-potable reuse or desalination) to achieve the target secure yield.

I was a member of the Project Reference Group (PRG) for the 2014 Future Water Strategy. The development of that strategy involved a thorough, consultative process of identifying and assessing all available options. The adopted actions were to implement water efficiency to minimise demand and investigate groundwater and recycled water. However, other options (e.g. stormwater harvesting, desalination) also passed through the coarse filter screening process and made the short-list of potential water supply options.

If RCC concludes that groundwater and IPR are not viable options, it would be appropriate to thoroughly investigate and assess the other previously short-listed options, including all recycled water opportunities, rather than simply default to the Dunoon Dam, which ranked poorly in the 2014 Future Water Strategy assessment process. Given that most of the increased future water demand will come from new residential areas, there are various opportunities for local, decentralised water supply or recycling that could be explored.

4. The proposed dam is too big

Notwithstanding the above comments that the 50GL Dunoon Dam has not been adequately justified as the preferred option, it is a solution that is clearly too big for the scale of the problem.

The IWCM report states that the yield from the 50GL Dunoon Dam would exceed the predicted demand until about 2115. It seems irresponsible to build something that is sized for a situation 95 years in the future. Given the rapid rate of technological advancement across all facets of our society, it is reasonable to assume that there will be a range of innovative and cost effective water supply options available within the next 30 or 40 years, let alone 95 years from now. It is called the Future Water Project 2060 because the planning horizon is 40 years and this is appropriate. Also, it is possible (likely?) that the typical water usage per person, as well as industrial water use, will continue to decline as society's expectation of improved sustainability drives water efficiency technologies and behavioural change.

Conclusion

I appreciate the opportunity to provide this submission regarding the Future Water Project 2060 document. I have worked as an environmental engineer for over 20 years and I have substantial experience in water management. I am a Director of a local consultancy (GeoLINK), but please note that this is my personal submission and not a submission on behalf of GeoLINK.

The existing Rocky Creek and Emigrant Creek dams have served the community well and will remain critical elements of the future water supply. The incorporation of alternative options, such as groundwater, recycled water and desalination, would add diversity and resilience to the water supply network because, unlike dams, they are not directly reliant on rainfall, nor are they subject to substantial evaporation losses.

I am a not necessarily against the inclusion of a new dam in the future water supply strategy for this region. However, I firmly believe that all infrastructure decisions should be based on a logical assessment process that takes into consideration relevant social, economic and environmental criteria. Based on my review of the documentation, the proposal to construct the 50GL Dunoon Dam has not been adequately justified.

Regards

Duncan Thomson

[redacted]

From:	Jillian Adams
To:	Records
Subject:	Re future water project 2060 and Dunoon dam
Date:	Friday, 4 September 2020 12:44:06 PM

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

Dear councillors,

I do not support the new Dunoon dam. I believe there are better ways to reduce water wastage and catch water for use in the future.

I have lived in [redacted] for 30 years and have been self reliant on water all this time. We have water tanks and minimise wastage and use composting toilets. More residents and businesses who use rous water could be encouraged to be more water efficient and have their own tanks rather than flood the rare sub tropical rainforest with a new dam.

I am concerned about the potential loss of habitat for many flora and fauna species in this exceptional Big Scrub remnant.

Ours is an area of high rainfall, I think Rous should be able to come up with a smarter way of utilising our significant rainfall and reusing water than daming The Channon gorge.

North Coast residents need to know the cost of the proposed project and the potential increases in water charges due to this dam. I understand your general manager has forecasted a fourfold increase in water charges if the dam is built.

My other concern is that there may be catastrophic floods below the dam wall in times of high rainfall, which are forecast due to climate change.

Please reconsider this plan.

Yours sincerely
Jillian Adams
[redacted]

Sent from my iPad

From:	Beth Trevan
To:	Records
Subject:	Rous County Council Future Water Project 2060
Date:	Friday, 4 September 2020 12:50:42 PM

I wish to register my support for the proposal for the construction of the Dunoon Dam. The reasons are as follows:

Over the next 50 years, changes to climate and rainfall patterns are expected to reduce the reliability of rainfall for the region. At the same time, water use is forecast to increase as population grows. It is evident that water security will become a critical issue in the region by 2024.

The thorough investigation by Rous County Council clearly shows that the construction of a new dam at Dunoon has the capacity to service increased population and industry requirements through to 2060. The alternative suggested option of groundwater use raises environmental issues regarding the aquifer and also has high recurrent costs that will feed through to the community. Recycled water for household consumption is unacceptable particularly when we have the highest annual rainfall in the state which can be captured and stored in a dam.

The size of the dam would enable a large floating solar farm that could generate energy for a variety of uses; irrigation for agriculture, also a range of recreational activities and water sports such as competitive national championship events in rowing, dragon boat racing, sailing, triathlon, wake boarding SUP paddle boarding, winter aerial sports training facility etc. There is also the opportunity for the dam to be a destination for picnicking, fishing, camping, bushwalking, birdwatching all with associated accommodation. This will increase tourism throughout the region and improve and create new investment and much needed jobs.

The major construction of a dam this size also gives the opportunity to include options to support flood mitigation such as:

- modelling of the catchment that is required for both projects
- the inclusion of multiple small dams downstream of the Dunoon dam, picking up water from the Terania Creek estuary and other suitable valleys in the catchment area to provide irrigation opportunities. These attenuation devices may also improve flood mitigation options via the Terania Creek estuary.

Beth Trevan
[redacted]

From: Melissa Badams
To: Records
Cc: [redacted]

Subject: Submission regarding the proposed dam at the Channon and Dunoon
Date: Friday, 4 September 2020 2:45:09 PM

Re: Future Water Project 2060

I am writing to submit an **objection** to proposed Channon-Dunoon dam for the following reasons.

- Destruction of endangered ecological communities, threatened fauna and flora. This country already has one of the highest extinction rates in the world and an appalling record on environmental matters. Biodiversity offsetting is an inherently flawed system of conservation with equivalence in protection of species never achieved.

- The dam will contribute to the continued disregard for First Nations heritage with the destruction of identified burial sites.

- A dam is an example of antiquated technology. We are living in the 21st Century with smart water alternatives. Local governments need to focus on efficient management practices rather than easy fix wasteful dams.

- Have we not learnt from previous disasters of catastrophic flooding downstream caused by dams?

- Why not invest in more incentives for rainwater tanks. Remove the current size limit. Implement building regulations that require each new home to have a rainwater tank.

- There are cleaner less destructive alternatives such as water recycling. Technology could be used in households that recycle water for use in toilets. I'm sure people would install these if incentives were available.

- The current water system is constantly leaking. I personally have rung on numerous occasions to report water leaks. Perhaps it would be prudent to

spend the money on overhauling and updating existing pipes and diverting to recycling, instead of wasting money on an inefficient dinosaur of a dam.

Thank you for the opportunity to raise my concerns.

Kind regards

Melissa Badams
[redacted]

From: DRAZ TEC
To: Records
Cc: [redacted]
Subject: Future Water Projects 2060 Community Feedback Submission- Dunoon Dam
Date: Friday, 4 September 2020 2:47:58 PM

[redacted]

To the Rous Councillors,

I am writing to you today as a formal submission responding to Rous County Council's Future Water Project 2060. I actively oppose the Dunoon Dam for numerous reasons. The proposed dam site is contains Sacred Widjabal/ Wyabal sites and burial grounds (Cultural Heritage Impact Assessment Report, 2011), the alteration of these sites is the ongoing cultural genocide of Indigenous peoples, which Rous County Council will be a driver of should you attempt to construct the Dunoon Dam. There are no offsets existing which could make up for such events, the relocation of bones and cultural artefacts is not a viable option. Doing so would entirely negate the Rous County Council's Reconciliation Action Plan, as well as go against the objective in the Richmond Valley Water Sharing Agreement to ' protect and maintain Aboriginal Heritage'.

Another reason I oppose the dam is the destruction of a rare threatened ecological community, sandstone warm temperate rainforest (Terrestrial Ecology Impact Assessment, 2011). There are simply no offsets possible to balance out the loss of this community that contains (according to Terrestrial Ecology Impact Assessment, 2011), nine threatened flora and 17 threatened fauna species. The report highlights that the construction of the dam would remove critical habitat linkages for koalas, the suggestion that having an ecologist on site during harvesting to physically relocate koalas to another site is completely unacceptable, given the extremely low survival rate of koalas that have been relocated. I'm sure your council is aware of the findings of the Royal Commission into Koala populations published earlier this year, having this awareness gives you the advantage of side-stepping a HUGE PR crisis for your company if the dam were to go ahead and koalas destroyed, given that they are the spearhead for conservation in the Country. The platypus burrows identified in Rocky Creek in the dam area are also of great concern.

As a Dunoon local I do not want to live in an industrial construction zone, roads here are already under pressure without further degradation by Industrial vehicles and trucks. Given that there are identified DDT and arsenic residues identified at the dam site, Rous would be directly, with awareness, putting our communities health at risk. I do not support the forcing of local residents into compulsory acquisition of their homes to build the dam.

I suggest instead of a lazy second dam choking up Rocky Creek to support Rous County Council profits and population growth in the Ballina region the following options:
-An investment in system-wide water efficiency, using auditing to identify where water can be saved within the existing supply.
-Water-resuse such as Purified recycled potable water, given the resource, climate and ecological crisis we are entering the development and implementation of this technology is inevitable, perhaps we could be leaders in this area.
- Water harvesting of urban storm run off and rain tanks- water tanks on all new and existing properties. I am aware of your poorly advertised low rebates that are offered through Rous and also are that such rebates could be increased through the redistribution of the ~$240M estimated to spend on the dam construction.

Thank you for taking the time to listen to my feedback. Even though our community only had 2 months to consult and contemplate the impacts of an 80 year project the evidence is clear that the dam is simply not a viable option. Looking forward to hearing from you soon.

Kind Regards,

Daniel Drasich

From: Lisa Costello
To: Records
Subject: Proposed Dam
Date: Friday, 4 September 2020 4:08:37 PM

I Lisa Costello
[redacted]

Do not approve of the proposed Dam for the Channon/Dunoon area.

I am not happy that important Cultural Heritage (burial sites) would be destroyed.

I want to save the "Channon Gorge" it's rare warm temperate rainforest and threatened species of flora and fauna.

I would like Council and Rous water to call for water tanks on all new residences to lower demand from the existing Rocky Creek dam.

Yours
Lisa Costello

From: Amelia MacQueen
To: Records
Cc: [redacted]
Subject: No to the Dam
Date: Friday, 4 September 2020 5:28:16 PM

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

To whom it may concern,

You will note that I am writing directly, hoping to appeal to your better sense and emotional intelligence, I will do my best to constrain my disappointment and anger.

I have just come to understand that your proposed "2060 Dunoon Dam" will flood a rare sandstone-based example of the 1% remainder of the desecrated "Big Scrub", which is exceptionally rare, but even more, has never been logged because it is in a gorge, and too difficult to access.

It seems that in this day and age, with our technical abilities and overshadowing climate concerns, it would be more cost effective (and I don't mean that in just economic terms) to source our water security from a less damaging environmental means.

This could be an opportunity to showcase our region as an exemplar of leadership; in the sustainable Industry of recycled water production; as opposed to another shortsighted act of Ecocide.

To dam this pristine piece of virgin rainforest, would be an act of environmental vandalism not unlike the deplorable recent actions of Rio Tinto, that destroyed a site of our First Nations People that was tens of thousands of years old. Destroying these priceless natural sites for future economic growth is a shortsighted bandaid measure that will have ramifications spanning generations. Once it's gone we can never get it back.

The community of the Northern rivers has a history of protesting against the pillaging of our natural resources; the Terania protests and the recent Bentley blockade are two prime examples of how, when roused, this community will rally together and occupy a site to save it. Be warned that if you proceed, you will have long and expensive fight on your hands; we will not go quietly.
Please...

Amelia White
[redacted]

This submission is provided by
Kim Read
[redacted]

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

I would like to thank you for extending the submission date for this very complex debate.

I DO NOT support the proposed new dam situated at The Channon/Dunoon for the following reasons:

- **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 >, Direction2:Enhancebiodiversitycoastalandaquatichabitatsandwatercatchments.[4]

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

- **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 is an opportunity for Rous Water to excel in finding contingency plans more suited to the 21st century, using funds for a broad spectrum water saving and gathering resources

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

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

- **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]

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 outsized and unnecessary dam.

I would finally like to add how important it is to educate every user of water as to how valuable it is, as a tank water user I can appreciate this but many people can not.

If the dam goes ahead these very significant indigenous sites as well as threatened flora and fauna species are gone forever, there is no going back, our environment is our future.

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)Ltd2020 *,Ourhistory|Wingoc,*V eoliaEnvironment, 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-dr awdown >

From: Kim Read
To: [redacted]
Subject: The Channon/Dunoon Dam Proposal
Date: Friday, 4 September 2020 5:35:27 PM
Attachments: Dam submission pdf.pdf

Please find attached my submission which outlines the reasons why I am against the building of a new dam at The Channon/Dunoon and some suggestions to preserve our water security for the future

Thank you for giving me the opportunity to respond on this matter

Kind Regards
Kim Read

From: Morgan Murphy
To: Records
Cc: [redacted]
Subject: 2060 Dunoon Dam
Date: Friday, 4 September 2020 6:07:59 PM

To whom it may concern,

You will note that I am writing directly, hoping to appeal to your better sense and emotional intelligence, I will do my best to constrain my disappointment and anger.

I have just come to understand that your proposed "2060 Dunoon Dam" will flood a rare sandstone-based example of the 1% remainder of the desecrated "Big Scrub", which is exceptionally rare, but even more, has never been logged because it is in a gorge, and too difficult to access.

It seems that in this day and age, with our technical abilities and overshadowing climate concerns, it would be more cost effective (and I don't mean that in just economic terms) to source our water security from a less damaging environmental means.

This could be an opportunity to showcase our region as an exemplar of leadership; in the sustainable Industry of recycled water production; as opposed to another shortsighted act of Ecocide.

To dam this pristine piece of virgin rainforest, would be an act of environmental vandalism not unlike the deplorable recent actions of Rio Tinto, that destroyed a site of our First Nations People that was tens of thousands of years old. Destroying these priceless natural sites for future economic growth is a shortsighted bandaid measure that will have ramifications spanning generations. Once it's gone we can never get it back.

The community of the Northern rivers has a history of protesting against the pillaging of our natural resources; the Terania protests and the recent Bentley blockade are two prime examples of how, when roused, this community will rally together and occupy a site to save it. Be warned that if you proceed, you will have long and expensive fight on your hands; we will not go quietly.

Morgan Murphy
[redacted]

Sent from my iPhone

From: Deon Demouche
To: Records
Subject: Fwd: Proposed Dam at Dunnon
Date: Friday, 4 September 2020 7:19:27 PM

Please see below my concerns

---------- Forwarded message ---------
From: **Deon Demouche** [redacted]
Date: Sat, 22 Aug 2020 at 07:59
Subject: Proposed Dam at Dunnon
To: [redacted]

Dear Councillors,

I would like to state in this submission I am strongly opposed to the proposed dam project at Dunoon (Future Water Project 2060) and cover the reasons why in this email.

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 (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.
Water Plan 2006, NSW 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), (3) 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 >,
(4) 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. The 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
(5) "Local Government Factsheets".
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings
(6) (7)
● 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 within the existing supply.
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(9)
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● 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
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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.
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With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.
(10)
groundwater usage. https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

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

https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03
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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) 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 the global experience?, Water Research Australia Limited, Adelaide.
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Warm regards,
Deon Demouche

From: fiona Lindgren
To: Records
Subject: Fwd: Oppose Proposed Dam project
Date: Friday, 4 September 2020 8:38:40 PM

---------- Forwarded message ---------
From: **fiona Lindgren** <[redacted]>
Date: Fri, 4 Sep 2020 at 8:22 pm
Subject: Fwd: Oppose Proposed Dam project
To: [redacted]

Dear Councillors,

I would like to state in this submission I am strongly opposed to the proposed dam project at Dunoon (Future Water Project 2060) and cover the reasons why in this email. I would also like to state I have not received any correspondence advising of these plans! I heard through a friend which is extremely disappointing.

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 & the fastest way to ensure supply-demand balance. By focussing on system efficiency,

Dear Councillors,

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I would like to state in this submission I am strongly opposed to the proposed dam project at Dunoon (Future Water Project 2060) and cover the reasons why in this email.

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 & the 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 (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.

Water Plan 2006, NSW 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), (3)
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● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. The 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,
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I SUPPORT these alternatives:
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● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
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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.
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(10)
groundwater usage. https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

With concern,

Fiona Lindgren
[redacted]
--
Thanks,
Fiona Lindgren
[redacted]

--
Thanks,
Fiona Lindgren
[redacted]

From:	Ned Whitford
To:	Records
Subject:	The proposed dunoon dam within the future water project 2060 submission.
Date:	Saturday, 5 September 2020 5:15:38 AM

From Edward Whitford
[redacted]

RE: The proposed dunoon dam within the future water project 2060.

As a ratepayer of upper repentance creek I oppose the proposed new dam solution for future water supply issues.

Water issues are many times more relevant in other areas as the water level in November, at the end of a big drought, of Rocky ck was 75% however if local gov are going to address supply concerns I am of the opinion other solutions have more integrity regarding future supply.

Professor Stuart White from Institute for Sustainable Futures (UTS) Sydney, demonstrates how we can achieve optimal water efficiency, negating the need for the proposed dam.

http://www.bit.ly/Prof-Stuart-White-Rous-Water-augmentation-proposal

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Rous Water supply augmentation proposal - brief review

As part of its Future Water Strategy 2060, Rous Water has recommended proceeding with augmentation of its water supply through the construction of a new dam near Dunoon, comprising a 50 GL storage and associated works, at an estimated present value cost of more than $150m (Hydrosphere Consulting 2020, Rous County Council 2020).

The stated need for the dam is based on a conclusion that the demand for water in the Rous region will exceed the yield of the Rous water supply system by 2024, and that, in the absence of this dam, the gap between supply (secure yield) and demand will reach 6,500 ML/a by 2060, which is roughly 50% of the current supply capacity.

The planning documents conclude that there are no viable alternatives to this option.

My view is that the need for this dam has not been demonstrated by the available data and analysis.

Amongst other concerns, committing to the construction of the Dunoon Dam option would represent a significant financial risk, and further, would waste an opportunity to demonstrate leadership in sustainable water management and to provide timely support for economic development and employment in the region.

In summary, the following items need to be considered, investigated and implemented before such a major investment is committed.

1. Water efficiency

There is scope for major improvements in the efficiency of water use in the region, to cap and reduce total demand below the supply capacity. This option has not been adequately analysed, quantified or costed, and has not been included in the demand forecast.

In the 1990s, Rous Water and some of its constituent councils pioneered the investigation, and in some cases implementation, of water efficiency programs and pricing reform (White 1997).

The local water utilities (LWUs) in the region were some of the first to follow Hunter Water's move to volume-based pricing. Water use per household in the region is not high, in part due to climate, demographics and the impact of these water pricing reforms and efficiency programs.

However, the investment in water efficiency over the years, while higher than in some other regional utilities, has been relatively low. This investment is more consistent with a foundational education and communication program rather than a planned and costed investment strategy that recognises that improving the water efficiency of customers and the supply and reticulation system represents the largest, cheapest and quickest way to improve the supply-demand balance that water utilities have at their disposal.

In the past, when the marginal cost of water was relatively low, this strategy may have been understandable, however it is not appropriate when faced with the potential for a $200m investment, when the marginal cost of water will significantly increase (Fane and White 2006).

The potential for improving the efficiency of water-using appliances, fixtures, processes, practices and pipes is by now well documented and demonstrated, including in Sydney (NSW Government 2006) and South East Queensland (Liu et al. 2017, pp. 22-29) where hundreds of millions of dollars have been spent to improve water efficiency, saving many thousands of megalitres per year.

There is insufficient analysis presented in the planning documents that quantifies this potential, for example, by

asking and answering the following types of questions.

● How many cooling towers are there in the Rous water region that do not have TDS (total dissolved solids) sensors controlling their bleed-off? How much would it cost to remedy that?
● How many toilet cisterns are there in the region which are not current best practice (4.5/3 litre dual flush or equivalent)? What is the cost to replace them, and over what period, and how much water would that save?
● How many top loading washing machines remain in use in the Rous region? What is the cost to change them out over the next 5 years?
● How many shower heads in the region are not 4-star?
● In the Rous water region are there industrial or manufacturing processes remaining including washdown, hosedown processes that have not been optimised? How many large users have had free water audits and financial support for efficiency improvements? What savings would accrue to businesses to pay for the improvement, and how much water would be saved?
● What level of automation and soil moisture control exists for irrigation of playing fields, sports grounds and passive recreational areas in the Rous water region?
● What processes are in place to ensure that long pipe runs for rural water consumers are inspected and surveilled including through the use of smart meters with automatic notifications of exceptional use? How much would this, and other efficiency measures, reduce the high per household consumption of these consumers?
● Have the constituent councils and Rous Water undertaken the maximum possible and cost effective implementation of leakage reduction and pressure management, and burst and break response for all of their reticulation system? It would appear that this investment has not matched that of some other utilities. In the case of Sydney Water, for example the investment has been significantly higher on a per connection basis.

An overarching question would be, what level of investment in improving water efficiency in the region would be required, over what time period, to cap demand below the level of the secure yield, and is the present value cost of these investments lower than $150m?

It is also worth noting that implementing a large-scale water efficiency program would not only be a highly cost-effective measure, with the potential to save the region tens of millions of dollars, it would have major co-benefits, including the following:

● Reducing regional energy use, through reduced treatment and pumping costs, as well as reduced hot water use, leading to reduced greenhouse gas emissions (see e.g. Turner et al. 2007, p. 61).
● Reducing business costs, including lower water, energy, trade waste and materials input costs for local businesses, through improving water and energy management as a result of audits and investment in water efficiency measures, which are correlated with improved business outcomes.

● Creating employment and upskilling, especially in local trades and small and medium enterprises, through sales and service provision for water efficient equipment and services and engineering, trade and landscaping expertise. The relative employment benefits from investment in improving efficiency and customer-focussed initiatives is well documented in the energy sector (see e.g. Briggs et al. 2020).

In summary, a complete and proper investigation of the potential for water efficiency, and investment in a significant program of improving water efficiency represents a 'no-regrets' option for the region. An indicative program has been proposed in a companion paper.

Such a path is highly likely to enable significant deferral of the need for the commitment to Dunoon Dam, when combined with a diverse portfolio of demand and supply options, including contingency options.

2. Planning approach

The planning process has not employed best practice water infrastructure planning in the form of real options analysis assessing a diverse portfolio of demand and supply options including contingency options in case of severe drought. Selection of a single large option with high capital cost, in the face of significant uncertainty in demand and secure yield, means that constructing the Dunoon Dam would lead to a significant risk of a stranded asset, and a potential price-demand spiral (see e.g. Martin 2017). Further, the planning process has incorrectly applied the concept of marginal cost in comparing options.

The planning documents have excluded a number of supply options on the basis that they have a higher marginal cost, or that they provide insufficient annual yield to meet the supply demand gap until 2060. The marginal cost of Dunoon Dam, and other supply options, is calculated assuming that the entire yield is used from the commencement of operation, significantly overstating the denominator in the marginal cost calculation. If only a small fraction of the additional yield of the combined Rocky Creek Dam (RCD) and Dunoon Dam (DD) system is required or utilised in the first 20-30 years, then it is this water volume that should be used as the denominator in the marginal cost calculation. Alternatively, a range of water efficiency and supply options should be considered as a portfolio, taking into account different scenarios for the secure yield of the existing system, and how that changes with the addition or removal of smaller supply options.

The principle of real options planning is that you don't need to build some supply options in order to have the benefits of being able to bring them on line in sufficient time to meet external contingencies such as drought. So the option to build an asset represents a contingency option. In fact, the implementation of water restrictions themselves represents a contingency option in the context of drought. Water restrictions have long been

used in the water industry and they have strong community acceptance and support, and they are assumed to be part of the secure yield of most water supply systems.

The first major application of real options planning for water infrastructure in the water industry was in Sydney in 2006. The review of the Metropolitan Water Plan (White et al. 2006) recommended that a trigger level be set for the construction of Sydney's desalination plant at 30% dam level, based on the low statistical likelihood of reaching that level, representing a risk-weighted saving of $1bn.

Real options planning is not unlike an insurance policy where there is a relatively low premium and a high excess, in which the costs of readiness are low relative to the costs of mobilising quickly in response to a low likelihood outcome.

Other examples of readiness strategies have included:
(1) rapid mobilisation of groundwater sources, also adopted as part of the Sydney real options strategy, for an additional 15 GL/a;
(2) the rapid construction of transfer pipelines (e.g. on the Gold Coast);
(3) the rapid development of waste water recycling plant capacity and associated pipelines, with the option for indirect potable reuse application (e.g. the Western Corridor Recycled Water Scheme in South East Queensland).
(4) the accelerated "emergency" rollout of water efficiency and leakage reduction measures, as proposed and implemented in Sydney and South East Queensland during the Millennium Drought (Turner et al. 2016).

The long timescales and the uncertainty in the supply-demand balance (MWH 2014) indicate that a more financially prudent approach for the future water strategy would involve the application of real options planning, with a portfolio of options.

For example, candidates for real options for supply include groundwater sources, regional transfers and interconnections, and rapid deployment of wastewater recycling (non-potable or indirect potable).

Many of these options have been discounted on the grounds that they do not provide a sufficiently large increment of yield, or on marginal cost grounds, but this fails to consider the uncertainty in the supply-demand gap and the long timescales and uses an incorrect approach to calculating marginal cost. This would also ensure consistency with the national urban water planning principles (Australian Government 2019), particularly principles 4 and 5.

3. Yield forecasts

Putting aside the demand forecast, the supply-demand gap that is the basis of the stated need for Dunoon Dam is driven largely by two factors in the yield estimate: (1) the reduction

in secure yield that results from a change in the level of service, from a 5:10:20 restrictions regime to a 5:10:10 regime (2) the reduction in secure yield based on estimates from climate change modelling, with a reduction in yield of about 30% by 2060.

The planning documents provide differing estimates for the impact of the change in level of service, ranging from 800 ML/a (MWH 2014, p. 19) to more than 1,100 ML/a (MWH 2014, p. 57). The impact of climate change is further assumed to reduce the secure yield from 2020 levels by 2,300 ML/a by 2030 and by 4,700 ML/a by 2060. These two adjustments, or derating of the assumed yield of the water supply system, are alone almost sufficient to make the difference in demand and supply that drives the stated need for the dam, given the demand forecast that is used.

It is therefore worth applying some scrutiny to these assumptions and acknowledging their level of uncertainty.

Firstly, the level of service changes reflect guidelines for LWUs from the NSW Government Office of Water, in part in response to demand hardening, or the impact that reductions in outdoor water use have had in reducing the potential for savings during restrictions. Nonetheless, the frequency, duration and depth of restrictions, and indeed the optimisation of them to improve effectiveness while reducing negative impact, have not been sufficiently explored in the Northern Rivers region, or indeed in many other jurisdictions (Chong et al. 2009).

In the face of a $200m investment, it would be prudent for a monopoly service provider to assess the community's willingness to pay, and to assess whether water consumers were willing to trade off the change in level of service and the 800 to 1,200 ML/a reduction in yield for the value of deferring such a large investment. Such an exercise would most effectively use best practice techniques of deliberative democracy, for which the Northern Rivers region can boast several previous examples.

Secondly, there is significant uncertainty associated with the climate change projections, as described in the planning reports by MWH (2014, p. 21):

There is significant uncertainty associated with both the demand and supply forecasts. The demand forecast is strongly driven by serviced area growth rates and customer water usage behaviour. The supply forecast is highly influenced by future climate conditions. The supply-demand balance adopted in this study provides a starting point for strategic assessment, using available information and practices. It also recognises that the forecasts are uncertain and include the need for ongoing monitoring and regular review of foundation assumptions, as well as the promotion of adaptive management.

This suggests that a more prudent approach is needed, in which the climate change scenarios are used as

scenarios for sensitivity testing rather than locked in as hard line forecasts.

Such an approach is consistent with the idea of a portfolio approach, considering all available, and fully-costed demand and supply options, including contingency options, in an adaptive real options approach.

References

Australian Government (2019) 'National Urban Water Planning Principles', Department of Agriculture, Water and the Environment, https://www.agriculture.gov.au/water/urban/policy-reform-urban-water/planning-principles

Briggs, C., Rutovitz, J., Dominish, E. and Nagrath, K. (2020) Renewable Energy Jobs in Australia: Stage One. Prepared for the Clean Energy Council by the Institute for Sustainable Futures, University of Technology Sydney

Chong, J., Herriman, J., White, S. and Campbell, D. (2009) Review of Water Restrictions Volume 1 - Review and Analysis, Final Report. Prepared for the National Water Commission by the Institute for Sustainable Futures, University of Technology Sydney and ACIL Tasman

Fane, S. and White, S. (2006) Levelised Cost, a General Formula for Calculations of Unit Cost in Integrated Planning. Institute for Sustainable Futures, University of Technology Sydney

Hydrosphere Consulting (2012) Rous County Council Bulk Water Supply Demand Forecast: 2020–2060 Final Report

Hydrosphere Consulting (2020) Rous County Council Future Water Strategy Coarse Screening Assessment of Options, Rous County Council

Liu, A., Turner, A., and White, S. (2017) 'Assessment of future water efficiency measures'. Report prepared for City West Water, Yarra Valley Water, South East Water, Melbourne Water, Barwon Water and Department of Environment, Land, Water and Planning by the Institute for Sustainable Futures, University of Technology Sydney

Martin, P. (2017) 'Death Spiral: why electricity prices are set to climb ever higher', Sydney Morning Herald, 21 Sep 2017.

MWH (2014) Rous Water Strategy Integrated Water Planning Process, prepared for Rous Water by MWH Australia. Rous County Council (2020) 'Future Water Project 2060: Information for the community about the preferred options for securing the region's water supply'.

Turner, A., Willetts, J., Fane, S., Giurco, D., Kazaglis, A., and White S. (2008) Guide to Demand Management. Prepared by the Institute for Sustainable Futures, University of Technology Sydney for Water Services Association of Australia Inc.

Turner, A., White, S., Chong, J., Dickinson, M.A., Cooley, H. and Donnelly, K. (2016) Managing drought: Learning from Australia, prepared by the Alliance for Water Efficiency, the Institute for Sustainable Futures, University of Technology Sydney and the Pacific Institute for the Metropolitan Water District of Southern California,

the San Francisco Public Utilities Commission and the Water Research Foundation.
White, S. (1997) Rous Regional Water Efficiency Program: Final Report of the Rous Regional Demand Management Strategy, prepared by Preferred Options for Rous County Council.
White, S., Campbell, D., Giurco, D., Snelling, C., Kazaglis, A. and Fane, S. (2006) Review of the Metropolitan Water Plan, Final Report. Prepared by the Institute for Sustainable Futures, University of Technology Sydney for the NSW Metropolitan Water Directorate.

This document is a brief initial review of the proposal for the construction of a 50 GL dam near Dunoon by Rous Water. It is based on the experience of the author from 1990 to the present, including investigations of urban water supply and demand options in the Rous Water region, and in all states and territories in mainland Australia, as well as in California, USA; Sao Paulo, Brazil; Alexandria, Egypt; Ilo Ilo and Zamboanga, The Philippines; Salalah, Oman.

From:	Margaret Seydel
To:	Records
Subject:	Think Carefully
Date:	Saturday, 5 September 2020 6:52:03 AM

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

Hi Rous Council,

Please consider all aspects of the impact of a dam before going forward...

Kind Regards,
Marg Seydel
[redacted]

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: _Elk Anstey

Address: [redacted]

Firstly, the community appreciates the submission extension. We also acknowledge the complexity of the work Rous does to provide water for our region.I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

- Lost opportunity to invest in system-wide water efficiency. This is the cheapest & fastestway to ensure supply-demand balance. By focussing on system efficiency, Sydney added anadditional 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 localgovernments. 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 turningon 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 inturn 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 resilientto 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 dochttps://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 August2020, < 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?, WaterResearch Australia Limited,Adelaide.(9)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3August 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 resiliencefor future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to cometo 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: Elk Anstey Date:6/9/2020

From: Zhi
To: Records
Cc: [redacted]
Subject: Proposed Dunoon Dam
Date: Saturday, 5 September 2020 8:02:47 AM

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

The proposed Dunoon Dam within the Future Water Project 2060

Zhiyana Buckley
[redacted]

First our community appreciates and acknowledges the complexity of what Rous does to provide water to our region.

Having being born and grown up[redacted], and having already lost so much biodiversity in the 2019 Mount Nardi bushfires I strongly OPPOSE (I DO NOT support)the proposed The Channon-Dunoon Dam for these reasons:

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

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

- 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).

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

- 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 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.

I SUPPORT these alternatives:

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

- Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.(11)

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)

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>

Warm regards
Zhiyana Buckley

From: Peach Darvall
To: [redacted]
Cc:
Subject: The Proposed Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 9:24:01 AM

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

The proposed dam is not necessary.
Other techniques of water conservation can be used, eg. using recycled water for toilet flushing in large facilities over the region. Water harvesting off roofs. Analysing water inefficiencies over the Rous water lines and fixing them. Many other smart water use strategies can be utilised.

Increased cost of water to householders as a result of the proposed dam.

Impact on The Channon and Dunoon villages of this construction over a long period.

Damage to and loss of valuable Rainforest and Fauna ecosystems in the proposed site.

Loss of productive farm land at the proposed site.

Yours most sincerely,

Milly Darvall-Hocking

[redacted]

--
Peach

From: * Milly *
To: [redacted]
Subject: The Proposed Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 9:29:40 AM

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

The proposed dam is not necessary.
Other techniques of water conservation can be used, eg. using recycled water for toilet flushing in large facilities over the region. Water harvesting off roofs. Analysing water inefficiencies over the Rous water lines and fixing them. Many other smart water use strategies can be utilised.

Increased cost of water to householders as a result of the proposed dam.

Impact on The Channon and Dunoon villages of this construction over a long period.

Damage to and loss of valuable Rainforest and Fauna ecosystems in the proposed site.

Loss of productive farmland at the proposed site.

Yours most sincerely,

Milly Darvall-Hocking

[redacted]

From: alfie zaki
To: Records
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 11:51:38 AM

The proposed Dunoon Dam within the Future Water Project 2060

I DO NOT support the proposed The Channon-Dunoon Dam for these reasons:
Water efficiency to begin with, there are several more sustainable water uses than building dams, refer to Sydney Metropolitan Water Plan 2006, NSW Government (1)
Giving opportunity to move with the times, setting an example on the world stage with more up to date water management plans for our area would serve our region well.
Do we want to be responsible for even more 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 such as water gums and rare vines.
. (Terrestrial Ecology Impact Assessment, 2011)(3).
I do not support the idea of offsetting in this instance, you cannot redo an ecosystem that has taken 100s of years to develop.
There are thousands of micro organisms and small worlds of teaming life that have a sensitive balance which cannot be replaced.
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.
*A four times higher increase in water bills I am certainly not in favour of.
*There is no justification for such a large dam according to the predicted number of future residents.
https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections
*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 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

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.

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>

Yours Sincerely

Alfie Massoud.

From: Andrew Nicholson
To: Records
Cc: [redacted]
Subject: Proposed Dunoon Dam
Date: Saturday, 5 September 2020 12:46:09 PM

To the General Manager Rous Water and to all Councillors

From: Andrew Nicholson
[redacted]

Please find my submission regarding the Proposed Dunoon Dam within the Future WaterProject 2060.

I DO NOT SUPPORT THE PROPOSED CHANNON-DUNOON DAM FOR THE FOLLOWING REASONS:

• ECOLOGICAL IMPACTS:

Habitat loss and destruction of the environment are critical issues that require urgent consideration and need to be addressed. The Northern Rivers is known world-wide for its' natural beauty, diversity of wildlife, flora and fauna. "From the Rainforest to the Sea" is promoted by the tourism industry and is the reason why this region is a mecca for people wanting to visit and enjoy our natural environment. Further loss of this diminishing resource can not be tolerated.

The Dunoon Dam Terrestrial Ecology Impact Assessment (2011), commissioned by Rous County Council, effectively ruled out the construction of a 50ML dam in 2013. It appears that the concerns raised in that report, including the section *Endangered Ecological Community (EEC)*, have been overlooked in the current proposal. It is my understanding that the *EEC* was one of the main reasons the dam was rejected in 2013. If the proposed dam were to proceed:
• 253Ha of rainforest and farmland would be flooded and lost forever;
• Rare sandstone rainforest in The Channon Gorge would be destroyed;
• Habitat loss for 17 species of threatened fauna, including koala, would occur;
• 9 threatened flora species would be lost;
• Wildlife corridors would be destroyed;
• Aquatic plants and animal species, including platypus, would be adversely affected by the dam and its' construction, and by changes in the velocity and amount of downstream flow;
• There would be the loss of 34Ha of Lowland Rainforest, including 7Ha of Warm-Temperate Rainforest.

Furthermore, 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." This requirement cannot be overlooked.

• EXPENSE:

This project is estimated to cost around $240 million, which would inevitably end up with increased cost of water to consumers and industry. The Rous Water General Manager is on record saying that there is an expected four-fold increase in future water water prices.

• INDIGENOUS CULTURAL IMPACTS:

Important Indigenous cultural sites, including burial sites, would be damaged or lost forever.

• LOCAL AMENITY:

Residents living in the Channon/Dunoon community will be directly impacted by the noise, machinery, and truck and vehicular traffic on local roads during construction. Visual impact and on-going noise pollution will be issues post-construction.

• NEED:

There is a small population increase predicted for the four Rous-supplied councils between 2020-2060 (*NSW Department of Planning, Industry and Environment 2019, 'NSW population projections'*). This does not justify such a large, expensive and destructive dam. This dam proposal risks diverting expenditure away from more sustainable, flexible and effective solutions. For example:
• Better efficiencies in the current reticulation system;
• Use of better appliances and fixtures, processes and behaviours at the 'user end';
• Optimisation of water usage;
• Addressing lost and wasted water issues;
• Better water harvesting through water-tank and urban run-off initiatives;
• Recycling and water re-use initiatives.

CONCLUSION

The proposed dam is old, last-century thinking. This is an opportunity for Rous Water to lead the way in providing a portfolio of smart water options fit for the 21st Century. Demand management, identifying savings measures, contingency planning, implementing proven alternatives together with innovation and new ways of doing things are better options than this proposed new Channon-Dunoon dam.

Yours sincerely,

Andrew Nicholson

--

From: Paul Glennie
To: Records
Cc: [redacted]
Subject: Future Water Project 2060 Submission - objection
Date: Saturday, 5 September 2020 1:28:36 PM

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

My name is Paul Glennie, and I am a Senior Technical Advisor on integrated water resources management for the United Nations Environment Programme, [redacted]

I object to the proposed Dunoon Dam for the following reasons:

- I understand that a "Regional Water Strategy for the Far North Coast" is currently being developed, with a draft for public consultation due in October, and due to be finalised in 2021 (Department of Planning, Industry and Environment, personal communication, Department employee, 30 August 2020). It would seem pertinent to await that document, before closing submissions on this proposal, to ensure the RCC strategy is in line with the broader regional strategy.
- Environmental impacts: threatened terrestrial and aquatic species (section 7.4 and 7.6 of the RCC Assessment of Augmentation Scenarios (2020))
- Cultural heritage impacts (section 7.8 of the RCC Assessment of Augmentation Scenarios (2020))
- Greenhouse Gas emissions from dams (not included as potential impacts) (Deemer, Harrison, Li et al., Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis, BioScience, Volume 66, Issue 11, 1 November 2016, Pages 949–964, https://doi.org/10.1093/biosci/biw117)
- It is too early, with too many uncertainties, to be making a recommendation of this scale, cost and associated impacts. While it is important to plan for a climate affected future, and population growth with associated changing water demands, and appreciating that a project of this scale would take roughly 10 years (RCC Future Water Project 2060 Brochure (2020)), it is unnecessary to plan for project completion in 2030, to secure water supply for 2060. The assumptions on population growth and respective water demand included in projections are too simplified, with too much uncertainty (RCC Bulk Water Supply: Demand Forecast: 2020 – 2060).
- The proposal is based on current government regulatory frameworks and policies, without due consideration of potentially changing regulations and policies that could create an enabling environment for Direct and Indirect Potable Reuse, increased or mandatory uptake of rainwater harvesting and use. Such frameworks have been in existence for decades internationally, and are being implemented in other parts of Australia.
- I could not find an analysis in any of the reports available online of impacts of a new dam on downstream users (other than for environmental flows). This would appear to be an analysis gap in a truly integrated catchment management approach.

Alternatives to this proposal:

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

regulations and other incentives).
    - I**ndirect Potable Reuse (IPR) and Direct Potable Reuse (DPR):** there are multiple examples around the world of this working successfully (Potable Water Reuse: What can Australia learn from global experience?, Stuart Khan and Amos Branch, 2019, UNSW Water Research Centre, University of New South Wales, NSW, Australia). While the regulatory environment in NSW is not conducive to this option at the moment, again, government can be lobbied to make amendments.
    - **Stormwater reuse (urban runoff).**
    - **Appropriate pricing of mains water:** e.g. block tariff pricing schemes (i.e. base fee for essential use, then higher fees for higher per capita useage); flexible (scarcity) pricing shemes.
- **Political engagement and action:** dialogue to create an enabling environment for the above alternatives.
- **Consumer education**

I have reviewed the following:

- Rous County Council Bulk Water Supply: Demand Forecast: 2020 - 2060.
- RCC Future Water Project 2060 Brochure (2020).
- RCC Future Water Strategy: Coarse Screening Assessment of Options (2020).
- Rous Regional Supply: Future Water Project 2060: Integrated Water Cycle Management Development: Assessment of Augmentation Scenarios (2020).

Paul Glennie, [redacted]

From: Mish Songsmith
To: [redacted]
Subject: "NO" to The proposed The Channon-Dunoon Dam
Date: Saturday, 5 September 2020 1:31:18 PM

Hi Rous Council and Councilors,

Thankyou for supporting the extension of the submission date.

As community members we appreciate 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)

I SUPPORT these alternatives:

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

●Water re-use and harvesting to name a few.

Thanks,

We appreciate your time and energy on this project.

Kind regards,

Rachel Whiting and Michelle Lee Smith (Mish Songsmith)
[redacted]

Love & light,

Mish Songsmith

[redacted]

From: [redacted]
To: Records
Subject: Future Water Project 2060
Date: Saturday, 5 September 2020 2:44:01 PM

Submission - objection

Danya Alves vieira
[redacted]

I OBJECT to the proposed Dunoon Dam for the following reasons:
- Environmental impacts: threatened terrestrial and aquatic species (section 7.4 and 7.6 of the RCC Assessment of Augmentation Scenarios (2020))
- Cultural heritage impacts (section 7.8 of the RCC Assessment of Augmentation Scenarios (2020))
- Greenhouse Gas emissions from dams (not included as potential impacts) (Deemer, Harrison, Li et al., Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis, BioScience, Volume 66, Issue 11, 1 November 2016, Pages 949–964, https://doi.org/10.1093/biosci/biw117)
- It is too early, with too many uncertainties, to be making a recommendation of this scale, cost and associated impacts. While it is important to plan for a climate affected future, and population growth with associated changing water demands, and appreciating that a project of this scale would take roughly 10 years (RCC Future Water Project 2060 Brochure (2020)), it is unnecessary to plan for project completion in 2030, to secure water supply for 2060. The assumptions on population growth and respective water demand included in projections are too simplified, with too much uncertainty (RCC Bulk Water Supply: Demand Forecast: 2020 – 2060).
- The proposal is based on current government regulatory frameworks and policies, without due consideration of potentially changing regulations and policies that could create an enabling environment for Direct and Indirect Potable Reuse, increased or mandatory uptake of rainwater harvesting and use. Such frameworks have been in existence for decades internationally, and are being implemented in other parts of Australia.

ALTERNATIVES to this proposal:
A series of decentralised solutions, including:
- Rainwater tanks: subsidized or made mandatory for existing and new dwellings and developments. In the RCC Demand Forecast Strategy, Section 4.1.5, Table 5, I was surprised to see that most of the demand management measures had “Nil predicted reduction in demand”, as these are “based on current implementation” status. For example, if the RCC rebates on rainwater tanks have been ineffective, this may partly be due to lack of financial and practical incentive for consumers to adopt it. Using just a fraction of proposed dam money to go towards providing free rainwater tanks for all existing and new developments, would surely have an impact. Furthermore, local and state government could be lobbied to provide an enabling environment for this (i.e. regulations and other incentives).
- Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR): there are multiple examples around the world of this working successfully (Potable Water Reuse: What can Australia learn from global experience?, Stuart Khan and Amos Branch, 2019, UNSW Water Research Centre, University of New South Wales, NSW, Australia). While the regulatory environment in NSW is not conducive to this option at the moment, again, government can be lobbied to make amendments.
- Stormwater reuse (urban runoff).
- Appropriate pricing of mains water: e.g. block tariff pricing schemes (i.e. base fee for essential use, then higher fees for higher per capita useage); flexible (scarcity) pricing schemes.
- Political engagement and action: dialogue to create an enabling environment for the above alternatives.
- Consumer education

Danya Alves vieira

From:	Peter Gould
To:	Records
Subject:	Re: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Saturday, 5 September 2020 3:02:44 PM

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)

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) 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.
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 implementWater 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

Fragmentation of koala habitat and the destruction of the biologically rich and diverse Channon gorge would be impacts which cannot be effectively offset.

Thank you,
Yours Faithfully
Peter Gould
Land Management Consultant
[redacted]

From: Nick Dyason
To: Records
Cc: [redacted]
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 5:34:21 PM

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. I also acknowledge the complexity of what Rous does in providing water to our region and understand the dam presents a viable opportunity in the midst of significant change in terrestrial rainfall and a warming climate.

My family have enjoyed the rainforests, creeks and backroads in the northern NSW region for 9 years. We live [redacted] and will be significantly impacted by this development.

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

- There has been very little engagement with the community to this stage. I am concerned once the pre-feasibility study is approved in December the dam will proceed regardless of the community's viewpoints. There should be much wider engagement with the community prior to proceeding any further.

- 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" af 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 Gondwanna Sub-Tropical Rainforest. At more than 60ha this represents over 10% of this precious habitat and is 40% the size of the World Heritage recognised Big Scrub Flora Reserve to which it connects geographically, 7 kms downstream from the Rocky Creek Dam.

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

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

Councils are required under State planning regulations to:

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

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

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

● 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 National 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 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 it's standard of living to that which Australian's enjoy, in 25 years we will require another 4 Earth planets. [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)

● 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.

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 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. (7) (8) I draw your attention to Professor Stuart White's contribution to this option is his Rous Water Supply augmentation proposal. As you may know Professor White is part of the Institute for Sustainable Futures, University of Technology (UTS) Sydney. Please see his brief review paper here:
https://drive.google.com/file/d/1F9WYqZ4IuyxMIjp9iJIIhl5oAhaUK5OM/view

● 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 house hold area (est 12,000 pop by 2060) the cost would be a mere $15,000, and combined with automatic-mains top-up, can provide 100% reduction in mains water use! The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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

● Deep underground water storage with surface runoff integration.

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

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

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

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

● Groundwater, where this is environmentally safe The Australian government provides a lot of information on the ecological impacts and groundwater usage. (13) The Regional

Investment Corporation (RIC) which administers the National Water Infrastructure Loan Facility allow up to 49% lending towards: groundwater and managed aquifer recharge supply schemes and water treatment, including desalination, storage and reuse. [https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown]

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

For a picture journey through part of this incredible landscape please see David Lowe's amazing photography:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszAMwn_74HKC02f-BsGKbYCZmwyWg0GYrSAGmaU0UHZCaqKgo

Yours faithfully,

Nick Dyason

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>

From: Kamala Rose
To: Records
Cc: [redacted]
Subject: Objection to the dam proposal in Dunoon
Date: Saturday, 5 September 2020 5:51:45 PM

Pink Peony

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]

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-dra wdown

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.

From
Kamala Rose
[redacted]

[redacted]

Pink Peony

Yahoo Mail stationery

From: Julien Pearce
To: [redacted]
Subject: I DO NOT support the proposed The Channon-Dunoon Dam
Date: Saturday, 5 September 2020 6:12:07 PM

To whom it may concern is Julien Pearce [redacted] do not support this dam. There are multiple options that must come before we reach this point building a dam on and already damned rocky creek.

Theses are some of the reasons this dam must not go ahead

● 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)

I would much more 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-dra
wdown
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

Regards
Julien pearce
--

From: Gus Hamilton
To: Records
Subject: No Dam
Date: Saturday, 5 September 2020 6:17:21 PM

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

Hello Roy's Council

I am a resident and land owner at [redacted] and I am writing to you to express my concerns about the proposed dam at The Channon.

As a rate paying resident I am not in support of the dam. We do not need another catchment and the loss of rare rainforest in this area is not necessary.

Please consider putting funds into making every property instal a raintank for better water security for the future. Consider ways we can use water more efficiently as a community.

I am not in support of this dam.

Gus Hamilton

From: Peter Maher
To: [redacted]
Subject: Proposed Dunoon Dam
Date: Saturday, 5 September 2020 6:18:17 PM

Dear Councillor

I am Peter Maher
I live at [redacted] 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

From: Benita Carey
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 6:35:01 PM
Attachments: BC signature.png

5th September 2020

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

About me:
My family have enjoyed the rainforests, creeks and in the northern NSW region for 14 years. Words cannot describe our deep appreciation for this land. It is the very reason we moved here. 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:

• 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" af 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 Gondwanna Sub-Tropical Rainforest. At more than 60ha this represents over 10% of this precious habitat and is 40% the size of the World Heritage recognised Big Scrub Flora Reserve to which it connects geographically, 7 kms downstream from the Rocky Creek Dam.

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

[Terrestrial Ecology Impact Assessment, 2011]

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

Councils are required under State planning regulations to:

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

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

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

● 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 National 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 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 it's standard of living to that which Australian's enjoy, in 25 years we will require another 4 Earth planets. [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)

● 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.

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 '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 house hold area (est 12,000 pop by 2060) the cost would be a mere $15,000, and combined with automatic-mains top-up, can provide 100% reduction in mains water use! The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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

● Deep underground water storage with surface runoff integration.

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

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

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

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

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

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

For a picture journey through part of this incredible landscape please see David Lowe's amazing photography:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszAMwn_74HKC02f-BsGKbYCZmwyWg0GYrSAGmaU0UHZCaqKgo

Yours faithfully,

Benita Carey

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>

From: Phil Coram
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 6:39:15 PM
Attachments: PC SIG.png

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, thankyou for supporting the extension of the submission date. I also acknowledge the complexity of what Rous does in providing water to our region.

About me:
My family have enjoyed the rainforests, creeks and in the [redacted] for 14 years. Words cannot describe our deep appreciation for this land. It is the very reason we moved here. 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:

• 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" af 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 Gondwanna Sub-Tropical Rainforest. At more than 60ha this represents over 10% of this precious habitat and is 40% the size of the World Heritage recognised Big Scrub Flora Reserve to which it connects geographically, 7 kms downstream from the Rocky Creek Dam.

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

[Terrestrial Ecology Impact Assessment, 2011]

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

Councils are required under State planning regulations to:

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

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

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

● 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 National 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 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 it's standard of living to that which Australian's enjoy, in 25 years we will require another 4 Earth planets. [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)

● 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.

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 '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 house hold area (est 12,000 pop by 2060) the cost would be a mere $15,000, and combined with automatic-mains top-up, can provide 100% reduction in mains water use! The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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

● Deep underground water storage with surface runoff integration.

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

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

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

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

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

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

For a picture journey through part of this incredible landscape please see David Lowe's amazing photography:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszAMwn_74HKC02f-BsGKbYCZmwyWg0GYrSAGmaU0UHZCaqKgo

Yours faithfully,

[redacted]

[redacted]

References and Notes:

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

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

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

(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>

From: Camille Reynaud
To: Records
Cc: [redacted]
Subject: NO DAM AT THE CHANNON & DUNOON Re: Future Water Project 2060
Date: Saturday, 5 September 2020 7:38:10 PM

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

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), (3) and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)

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

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.

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.waterra.com.au/publications/document-search/?download=1806
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

Thank you and regards,
Camille Reynaud
[redacted]

From:	Joselle Taiapa
To:	Records
Subject:	Re: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Saturday, 5 September 2020 7:40:24 PM

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 (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.
Water Plan 2006, NSW 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), (3) 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 >,
(4) 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
(5) "Local Government Factsheets".
● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres (6) below. (Environmental Flows Assessment 2011)

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 (7) (8)
within the existing supply.

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

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

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

Regards,

Joselle Taiapa
[redacted]

--

Joselle Taiapa

[redacted]

From: Taurey Witsel
To: Records
Subject: NO DAM AT THE CHANNON & DUNOON
Date: Saturday, 5 September 2020 7:43:34 PM

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 (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.
Water Plan 2006, NSW 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), (3) 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 <
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(4) 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.
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(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

(5) “Local Government Factsheets”.
● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres (6) below. (Environmental Flows Assessment 2011)

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 (7) (8)
within the existing supply.

● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia’s report, Potable Water Reuse: What can Australia learn from global experience? (9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology.
(10)
https://www.waterra.com.au/publications/document-search/?download=1806
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.
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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.
(11)
groundwater usag

Kind regards,
Taurey Witsel.
[redacted]

From:	Melissa Main
To:	Records
Subject:	Future Water Project 2060 Submission - objection
Date:	Saturday, 5 September 2020 8:01:47 PM

I, Melissa Main of [redacted]
OBJECT to the proposed Dunoon Dam for the following reasons:

- Environmental impacts: threatened terrestrial and aquatic species (section 7.4 and 7.6 of the RCC Assessment of Augmentation Scenarios (2020))

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

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

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

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

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

- Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR): there are multiple examples around the world of this working successfully (Potable Water Reuse: What can Australia learn from global experience?, Stuart Khan and Amos Branch, 2019, UNSW Water Research Centre, University of New South Wales, NSW, Australia). While the

regulatory environment in NSW is not conducive to this option at the moment, again, government can be lobbied to make amendments.

- Stormwater reuse (urban runoff).

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

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

- Consumer education

Thankyou
Melissa

From:	Michelle McLisky
To:	Records
Subject:	Future water project 2060 submission- objection
Date:	Saturday, 5 September 2020 9:53:30 PM

Michelle McLisky
[redacted]

I OBJECT to the proposed Dunoon Dam for the following reasons:
- Environmental impacts: threatened terrestrial and aquatic species (section 7.4 and 7.6 of the RCC Assessment of Augmentation Scenarios (2020))
- Cultural heritage impacts (section 7.8 of the RCC Assessment of Augmentation Scenarios (2020))
- Greenhouse Gas emissions from dams (not included as potential impacts) (Deemer, Harrison, Li et al., Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis, BioScience, Volume 66, Issue 11, 1 November 2016, Pages 949–964, https://doi.org/10.1093/biosci/biw117)
- It is too early, with too many uncertainties, to be making a recommendation of this scale, cost and associated impacts. While it is important to plan for a climate affected future, and population growth with associated changing water demands, and appreciating that a project of this scale would take roughly 10 years (RCC Future Water Project 2060 Brochure (2020)), it is unnecessary to plan for project completion in 2030, to secure water supply for 2060. The assumptions on population growth and respective water demand included in projections are too simplified, with too much uncertainty (RCC Bulk Water Supply: Demand Forecast: 2020 – 2060).
- The proposal is based on current government regulatory frameworks and policies, without due consideration of potentially changing regulations and policies that could create an enabling environment for Direct and Indirect Potable Reuse, increased or mandatory uptake of rainwater harvesting and use. Such frameworks have been in existence for decades internationally, and are being implemented in other parts of Australia.

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- Stormwater reuse (urban runoff).

- Appropriate pricing of mains water: e.g. block tariff pricing schemes (i.e. base fee for essential use, then higher fees for higher per capita useage); flexible (scarcity) pricing schemes.
- Political engagement and action: dialogue to create an enabling environment for the above alternatives.
- Consumer education

Kind regards,
Michelle
Get Outlook for iOS

From: Ava Dolan
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Saturday, 5 September 2020 10:48:12 PM

Ava dolan

[redacted]

[redacted]

[redacted]

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, thankyou for supporting the extension of the submission date. I also acknowledge the complexity of what Rous does in providing water to our region.

About me: (optional)
My family have enjoyed the rainforests, creeks and in the northern NSW region for XX 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:

● 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" af 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

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

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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."

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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]

● 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]

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

● 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.

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 '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 house hold area (est 12,000 pop by 2060) the cost would be a mere $15,000, and combined with automatic-mains top-up, can provide 100% reduction in mains water use! The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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

● Deep underground water storage with surface runoff integration.

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

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

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

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

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

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

For a picture journey through part of this incredible landscape please see David Lowe's amazing photography:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszAMwn_74HKC02f-BsGKbYCZmwyWg0GYrSAGmaU0UHZCaqKgo

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>

Sent from my iPhone

From: Linda Whitefeather
To: Records
Date: Sunday, 6 September 2020 9:18:09 AM

From Linda Whitefeather
[redacted]

Re the proposed Channon-Dunoon Dam, Future Water 2060 Plan

I DO NOT SUPPORT this dam.

I do not support destruction of precious endangered lowland rainforest, which I do not believe will be replaced by the planned regeneration on poorer land. None of the accompanying facts support this level of destruction.
It is clearly an expensive option which people will pay dearly for, and I would like any contribution of mine to be invested in a more sustainable and sensible future.
Improved water use efficiency and water harvesting, along with recycling methods, are all currently possible, with precedents elsewhere. Please explore them thoroughly.

I pray that Rous Water will listen to the strong community support for more sensible ways of supplying water and get beyond the fossilised notion of dams. A dam is a top-down structure that just encourages continued misuse of water, whereas I believe most of us are ready for more community involvement, along with some collective technological organisation.

Thank you,
Linda Whitefeather

From: Wildspace Learning
To: [redacted]

Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 10:31:23 AM

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

This is a plea from my heart.
This is a conscious request from my mind and those in our Northern Rivers community.
This is an expression on behalf of the voice of all those whose voice cannot be heard in a submission round; all nature- particularly water, children, and those who do not feel able to share in such a public system.

I commence with thanking you for reading this and extending 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:

In simple speak, the proposed Dunoon/Channon dam will be above the Channon village and flood a beautiful sandstone gorge with sacred sites, platypus in the creek, rare trees and bird habitat. Professional hydrologists are advising many that if the dam goes ahead, they should leave their homes- they will not be livable in.

I understand that the rationale for building the dam is that it will meet the needs of a future predicted population. However, we must note that Rous Water has floated the dam idea in the past and it has been deemed unacceptable. There were clear reasons then and there are only more now and we have the added benefit of many more options in place of a dam. Please see below

What's wrong with a dam in the Dunoon / Channon area?

• Simply, a lost opportunity to CONSCIOUSLY choose to discard old school dam options. The dam would encourage continued inefficient and often wasteful water management by local governments. There is no incentive to do things better and differently

• Local government can CONSCIOUSLY choose to step up and make our system fit for current and ongoing times. We can choose to invest in system-wide water efficiency, 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)

.

• Yet again, a furthering of disrespect and disregard for the First Nations' heritage. Important Indigenous cultural heritage will be destroyed, including burial sites (Cultural Heritage Impact Assessment, 2011). (2)

• 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). Under State planning regulations, Councils are required 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 4 fold increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, admitted that 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 the following alternatives:
There are many smart water options and proven alternatives; renewable and sustainable power. As said, let us step up.

● 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)

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References and Notes

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Juli Gassner
[redacted]
For myself and on behalf of the wildspace community in the Northern Rivers.

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[redacted]

[redacted]

[redacted]

From: Ove Altmann
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 10:32:23 AM

From:

Ove Altmann
[redacted]
Gender: M
Age: 55

6 September 2020

Dear Rous Councillors and General Manager

My family and I have lived in Dunoon since 2003. We love living in the village of Dunoon and enjoy it's close proximity to the beautiful natural environs of The Channon and the Whian Whian water hole. I respect the Widjabal-Wiyabal people of the Bundjalung Nation on whose land we reside. I am constantly in awe of the amazing wildlife in and around our property.

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" af 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.

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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 differently.

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 '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 house hold area (est 12,000 pop by 2060) the cost would be a mere $15,000, and

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

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

● Deep underground water storage with surface runoff integration.

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

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

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

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

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

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

For a picture journey through part of this incredible landscape please see David Lowe’s amazing photography:

https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108?fbclid=IwAR3nK782KFszAMwn_74HKC02f-BsGKbYCZmwyWg0GYrSAGmaU0UHZCaqKgo

Yours faithfully,

Ove Altmann

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>

From: Sonny Altmann
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 10:36:36 AM

From:

Sonny Altmann
[redacted]
Gender: M
Age: 17

6 September 2020

Dear Rous Councillors and General Manager

My family and I have lived in Dunoon since 2003. We love living in the village of Dunoon and enjoy it's close proximity to the beautiful natural environs of The Channon and the Whian Whian water hole. I respect the Widjabal-Wiyabal people of the Bundjalung Nation on whose land we reside. I am constantly in awe of the amazing wildlife in and around our property.

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" af 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 Gondwanna Sub-Tropical Rainforest. At more than 60ha this represents over 10% of this precious habitat and is 40% the size of the World Heritage recognised Big Scrub Flora Reserve to which it connects geographically, 7 kms downstream from the Rocky Creek Dam.

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

[Terrestrial Ecology Impact Assessment, 2011]

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

Councils are required under State planning regulations to:

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

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

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

● 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 National 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 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 it's standard of living to that which Australian's enjoy, in 25 years we will require another 4 Earth planets. [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)

● 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.

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 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. (7) (8)

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● Deep underground water storage with surface runoff integration.

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Yours faithfully,

Sonny Altmann

References and Notes:

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

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

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F om Madeleine Smith
To [redacted]
Cc [redacted]
Subject [redacted]
Date Sunday 6 September 2020 10 39 51 AM

From

Madeleine Smith
[redacted]
Age 52

6 September 2020

Dear Rous Councillors and General Manager

My family and I ha [redacted] nce 2003. We lo e li ing in [redacted] it's close proximity to the beautiful natural en irons of The Channon and the Whian Whian water hole. I respect the Widjabal-Wiyabal people of the Bundjalung Nation on whose land we reside. I am continually in awe of the amazing wildlife in and around our property.

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The Rous Reconciliation Action Plan (RAP) 2017 s o be commended in their recent efforts Bund alung people ha e li ed in the region for many thousands of years in a sustainable relationship with the natural en ironment. The water catchment areas managed by Rous County Council are a part of the natural landscape that forms he identity culture spirituali y and resource base for the Widjabal/Wiyabal people of the Bundjalung nation. Despite the s gnificant changes of the past 200 years the Widjabal/Wiyabal people still maintain a responsibility and deep relat onship with the land and water. Rous County Council acknowledges this relationship and deeply alues their tradi ional laws knowledge and lessons about places and sustainability. Rous County Council conducts all business acti ities in accordance with its alues of In egrity Commitment Trust Social Respons bility and Accountability.

[https://rous.nsw.go au/cp themes/defaul /page.asp?p=DOC-NWB-13-07-78]

Desp te these well stated intentions should the dam proceed important Indigenous archeological si es burial grounds creation waterholes and artefac s would be destroyed. [Cultural Heri age Impact Assessment 2011]

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2. Enhance biodi ersity coas al and aquatic habitats and water catchments. ( )Rous is required to a oid this destruc ion because there are economically iable and more effecti e solutions.

From: Sally Newham
To: Records
Cc: [redacted]
Subject: Future Water Strategy submission
Date: Sunday, 6 September 2020 10:43:12 AM

To all decision-makers regarding the Future Water Strategy,

I write to you as a long-term resident of this area. I grew up [redacted] and have lived in the vicinity for most of my adult life, raising my son [redacted] also. I consider [redacted] to be like another parent to me, in terms of how much time I have spent beside and along and with it, and what it has taught me on so many levels. So a second dam on this precious waterway is an issue intimately close to my heart, mind and spirit.

I have familiarised myself with the information you have provided about options for securing sustainable water supply into the future for the humans of this region. I have also looked into the reports you have provided regarding the environmental and cultural costs of the proposed dam.

I have looked further afield to my community and the knowledge being shared about these things, and my conclusion is that your Future Water Strategy is flawed and dissatisfactory. I do have some comprehension of the complexity of the situation - responsibility for bulk water supply being shared between Rous Council and the individual LGAs. I can understand how the seemingly most simple, direct option of building another big dam would be appealing under these circumstances. However, taking the so-called simple/easy route is not usually the most responsible or intelligent route, and certainly should not be mistaken or portrayed to be the most progressive and forward-thinking route.

From what I have been reading, it does not appear that Rous has investigated the seemingly obvious option of optimising system-wide water use efficiency, prior to looking at increasing the existing water storage through taking (stealing?) from natural systems. I have read that Sydney Water was able to provide water for almost 1 million extra people, by undertaking a rigorous efficiency audit across the whole system of water usage, and 'fixing the leaks' through a process of retro-fitting and updating technology, fixtures, processes and behaviours. To me, this is what 21st century humans should look like. Non-wasteful and rigorously respectful of precious basic resources and natural systems. This is what progress looks like. Building a big dam would be wasteful on so many levels – allowing outdated systems and behaviours to perpetuate and for the next generations to suffer the burden of, allowing the destruction of irreplaceable ecology and Indigenous cultural heritage, raising the cost of water to possibly 4 times what it is now, creating a noisy and stressful industrial construction zone in a peaceful village hamlet residential area (with large carbon-footprint to boot), providing the means for unsustainable population increase … the list goes on, and all so that the system can continue to be leaky, inefficient and wasteful in the same unsustainable ways it is currently.

It seems disingenuous for Rous to be presenting their proposed strategy as the most forward-thinking, responsible, progressive option in the light of the above.

I suggest you go back to the drawing board and look closely at the option of optimising water supply and use efficiency, across the whole system. I am aware that Professor Stuart White has provided you with a good start on this. As a community member, I am more than willing to do whatever it takes to support Rous in your endeavour to provide clean water to humans in a future-responsible way.

I do not support the construction of another dam on the already compromised Rocky Creek.

I support system-wide efficiency and retro-fitting of existing infrastructure, processes and behaviours. I support the adoption of a suite of smart water options (beyond the efficiency audit – more rainwater and stormwater harvesting in urban areas, purified recycled water, separation and re-use of greywater, increased use of water-free, composting toilets, adoption of 'carrot and stick' policies that encourage wise water use etc.) that will allow adaptability, flexibility, resilience into the uncertain but certainly climate changed future.

I support the preservation and protection of rare and important ecologies and habitats, such as the extremely rare sandstone rainforest found in the Channon Gorge. Offsets simply will not work and are unacceptable in this situation. After the massive losses to wildlife and habitats from the megafires of last summer, and the ongoing drought conditions, further loss and damage to our ecologies is untenable.

I support the preservation and protection of important Wiyabul cultural heritage, including burial sites. Black Lives Matter. Bundjalung Heritage and Identity Matters, profoundly. We cannot continue to perpetuate wilful destruction of our First Peoples' cultures and hence – health and lives.

Thank you for hearing my views. I will be continuing my vigilance on this issue after the submission period closes and continuing to encourage all councillors to make a decision in October that is truly responsible to the future of this region.

Thank you
Sally Newham
[redacted]

From:	Louise Shilton
To:	Records
Subject:	The proposed Dunoon/The Channon dam within the Future Water Project 2060
Date:	Sunday, 6 September 2020 10:57:00 AM

Dear Rous County Council

I DO NOT support the proposed Dunoon/The Channon dam.

My reasons are many and varied, and of course include the unnecessary and avoidable immediate and long-term ecological impacts on rainforest habitat, waterways and wildlife, but I will keep this brief.

Investing in another dam while wasteful and inefficient water management practices continue is not the smart way to go. It is a short-sighted approach to a long-term issue of water supply and demand. We can do better in the 21st century. We have the technology and the experience and the capacity to do better for ourselves and our environment.

As I write the rain is heavy in my local area, Bangalow, and I am acutely aware of how much precious rainwater is not harnessed for human use and consumption. I walk daily among the bamboo area of Rous' water treatment facility where public access is granted. I am grateful for this public access, and I am grateful for the good work Rous does to provide water in our region. But I frequently see the non-harvested bamboo and non-pasture grass being irrigated at all times of day, even during the heat of the day, with what is presumably excess water at the Bangalow treatment plant.

Please Rous, let's implement better water management practices. Let's invest in water recycling and re-use infrastructure, not another dam.

Thank you for considering my submission, and for extending the community submission date to 9th September.

Yours sincerely

Dr Louise A. Shilton

From: Maree Conroy
To: Records
Subject: RE : Proposed dam Dunoon
Date: Sunday, 6 September 2020 11:26:05 AM

Dear Rous Water Councillors,

Thank you for taking the time to read this email.
Firstly I would like to commend all the work Rous Water does in putting funds into Bush regeneration projects and for managing our water supply.
It does not go unnoticed.

I am however deeply concerned about the proposed Channon/ Dunoon dam within the Future water project 2060.
I feel it would cause mass destruction to the Channon Gorge and it's endangered ecological community of endangered rainforest and wildlife habitat.

Regeneration in the buffer zone will not be adequate to make up for this destruction.
I'm sure there will be many Aboriginal sites of significance within this site too, that will be destroyed forever if this goes ahead.
Let's preserve our natural places and use our intelligence to find other solutions to ensure we have enough water, but keep these sacred places intact for us and our future generations.

I honestly feel we need to be looking towards and investing in more water-efficient management systems, such as water harvesting through runoff from urban water tanks, reusing water, and investing in water efficiency innovation research.

Thank you for taking the time to consider the feelings of our local community.
I sincerely, for the future of all of us, hope that this does not proceed.

Yours sincerely,
Maree Conroy

From:	Paul Recher
To:	Water
Subject:	submission correction lobal not local
Date:	Sunday, 6 September 2020 11:13:43 AM

Concerning future supply, Rous also needs to have full front lo**b**al knowledge of how much sea level rise will mean salt water intrusion at high tide to above the Wilson River intake valve.

Fruitfully Yours

Paul Recher

"If you think the environment is less important than the economy try holding your breath while you count your money" unk.

From:	Paul Recher
To:	Water
Subject:	submission future water supply
Date:	Sunday, 6 September 2020 11:06:18 AM
Attachments:	potablereuse png optionswater png PastedGraphic-1.tiff

Will Rous allow, support, condone emotional irrationality trumping the science?

Reverse osmosis membrane technology treating sewerage water produces potable water of a higher standard than NTP removing bacteria, virus, even arsenic.

The detailed information I would like to have for this submission did not happen as Rous data was lacking and surprisingly browsing the net revealed little.

From Rous I learnt Reverse Osmosis (RO) was not even looked at in the recent round of consideration for future water supply. The most recent being back in 2014 and that assessment appears cursory and dismissive primarily due to the euphemism of 'public perception' which is the polite, avoidance wording for 'emotional irrationality'.

'Too expensive' has been uttered and seems to be making the rounds of Rous as voiced in public arena by chairman Williams. As stated, I have seen no costings. (Is Emigrant Ck. RO?)

What I have seen and read indicates RO is in the running as economically practical for small scale developments such as future residential and or industrial zones. GPM is gallons per minute and dollars are USA.

The bottom line

*A **five to 10 GPM** RO/NF membrane system, along with the ancillary equipment (you might add about another $10k with tanks, pumps, and things like that), the system could be **about $45,000 to $60,000** for a small, commercial-quality unit. When you get into higher industrial qualities, you can double or triple that cost, whereas a **30 to 50 GPM commercial-quality system would be about $200,000**.*

*A **high-end 100 gallon per minute system** (GPM) with all the top end instruments stainless steel piping (such as for a power plant with) could be a **$1 million system**. For a **commercial-quality system at 100 gallon per minute system**, cost could be as low as **$250,000**.*

*When you get into bigger systems, such as a **300 GPM, cost could be $2 to $4 million**, depending on what pretreatment type of pretreatment is required.*

https://www.samcotech.com/much-reverse-osmosis-nanofiltration-membrane-systems-cost/

Two other advantages of placing RO responsibility on user pay.

a) Mitigates the financial burden on current Rous clients of subsidising future users. I remind Rous of its recent history of multi-consecutive 15% annual increases in bulk water pricing due to previous financial mismanagement. Bounty St. to cite just one instance.

b) Dunoon dam requires a minimum 300 million upfront irrecoverable cost irrespective what the future brings regarding projected population growth and climate change. Staggering supply of bulk water outgoings hedges the financial cost. The above costs do seem to fit the script for each piecemeal coastal development with their own reticulation filtration system feeding back into mains supply or self contained. Wish I knew the answers. But I don't. Hope Rous finds out.

Then there is the issue of large scale RO. The data indicates Ballina sewerage plant alone already supplies the nearly estimated projected amount of water required for 2060?

Any costing of large scale RO must include what it does not do in terms of environmental and social disruption. In this regard a dunoon dam is a disaster and RO a nothing. I assume RO would be installed as the new final treatment on the already ok for river release water at existing sewerage plant(s) extending membrane life before replacement?

Rous costing is rubbery. Example how can you cost the pipeline from dam to NTP when no route has been selected. We all know how pricey it is pumping from Wilson to NTP. Such a shame Rous didn't stick to the original plan of a 30 meg plant on Wilson river because then dunoon dam could have been gravity fed to the 30 megplant?

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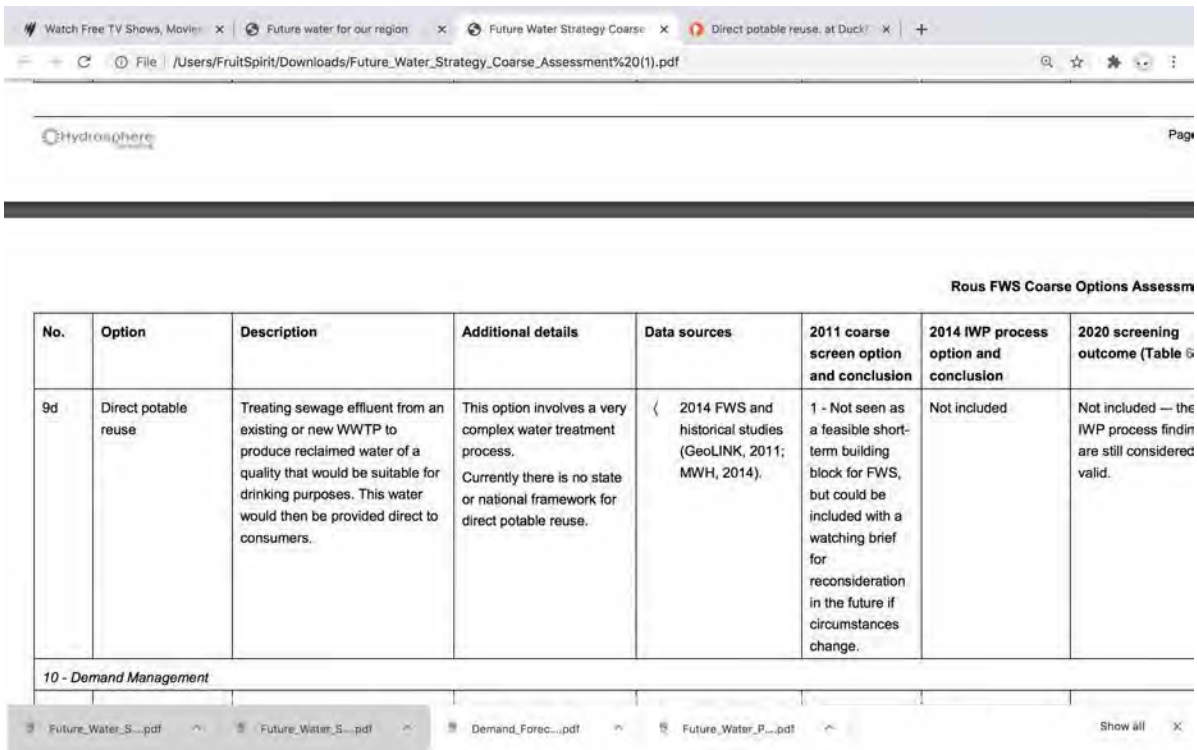

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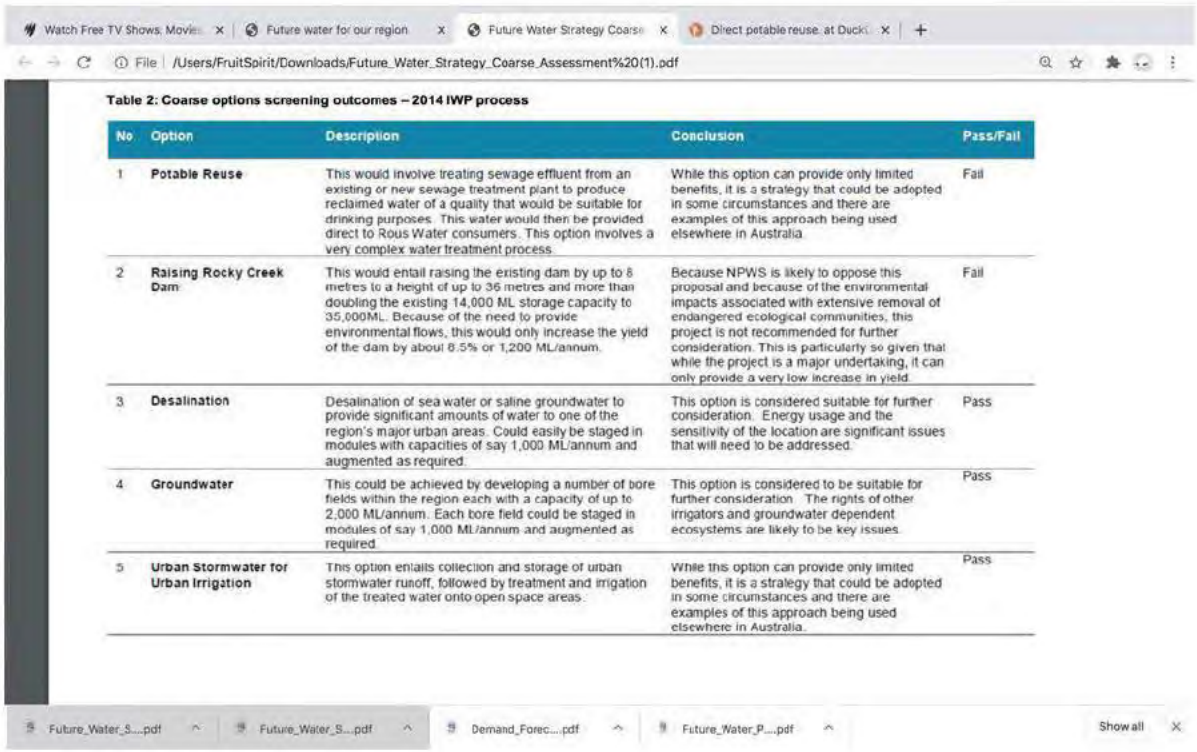

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File | /Users/FruitSpirit/Downloads/Future_Water_Strategy_Coarse_Assessment%20(1).pdf

Table 2: Coarse options screening outcomes – 2014 IWP process

No.	Option	Description	Conclusion	Pass/Fail
1	**Potable Reuse**	This would involve treating sewage effluent from an existing or new sewage treatment plant to produce reclaimed water of a quality that would be suitable for drinking purposes. This water would then be provided direct to Rous Water consumers. This option involves a very complex water treatment process.	While this option can provide only limited benefits, it is a strategy that could be adopted in some circumstances and there are examples of this approach being used elsewhere in Australia.	Fail
2	**Raising Rocky Creek Dam**	This would entail raising the existing dam by up to 8 metres to a height of up to 36 metres and more than doubling the existing 14,000 ML storage capacity to 35,000ML. Because of the need to provide environmental flows, this would only increase the yield of the dam by about 8.5% or 1,200 ML/annum.	Because NPWS is likely to oppose this proposal and because of the environmental impacts associated with extensive removal of endangered ecological communities, this project is not recommended for further consideration. This is particularly so given that while the project is a major undertaking, it can only provide a very low increase in yield.	Fail
3	**Desalination**	Desalination of sea water or saline groundwater to provide significant amounts of water to one of the region's major urban areas. Could easily be staged in modules with capacities of say 1,000 ML/annum and augmented as required.	This option is considered suitable for further consideration. Energy usage and the sensitivity of the location are significant issues that will need to be addressed.	Pass
4	**Groundwater**	This could be achieved by developing a number of bore fields within the region each with a capacity of up to 2,000 ML/annum. Each bore field could be staged in modules of say 1,000 ML/annum and augmented as required.	This option is considered to be suitable for further consideration. The rights of other irrigators and groundwater dependent ecosystems are likely to be key issues.	Pass
5	**Urban Stormwater for Urban Irrigation**	This option entails collection and storage of urban stormwater runoff, followed by treatment and irrigation of the treated water onto open space areas.	While this option can provide only limited benefits, it is a strategy that could be adopted in some circumstances and there are examples of this approach being used elsewhere in Australia.	Pass

Future_Water_S....pdf | Future_Water_S....pdf | Demand_Forec....pdf | Future_Water_P....pdf | Show all

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Paul Recher

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From:	Paul Recher
To:	Water
Subject:	submission future water supply
Date:	Sunday, 6 September 2020 11:08:29 AM
Attachments:	potablereuse png optionswater png PastedGraphic-1.tiff

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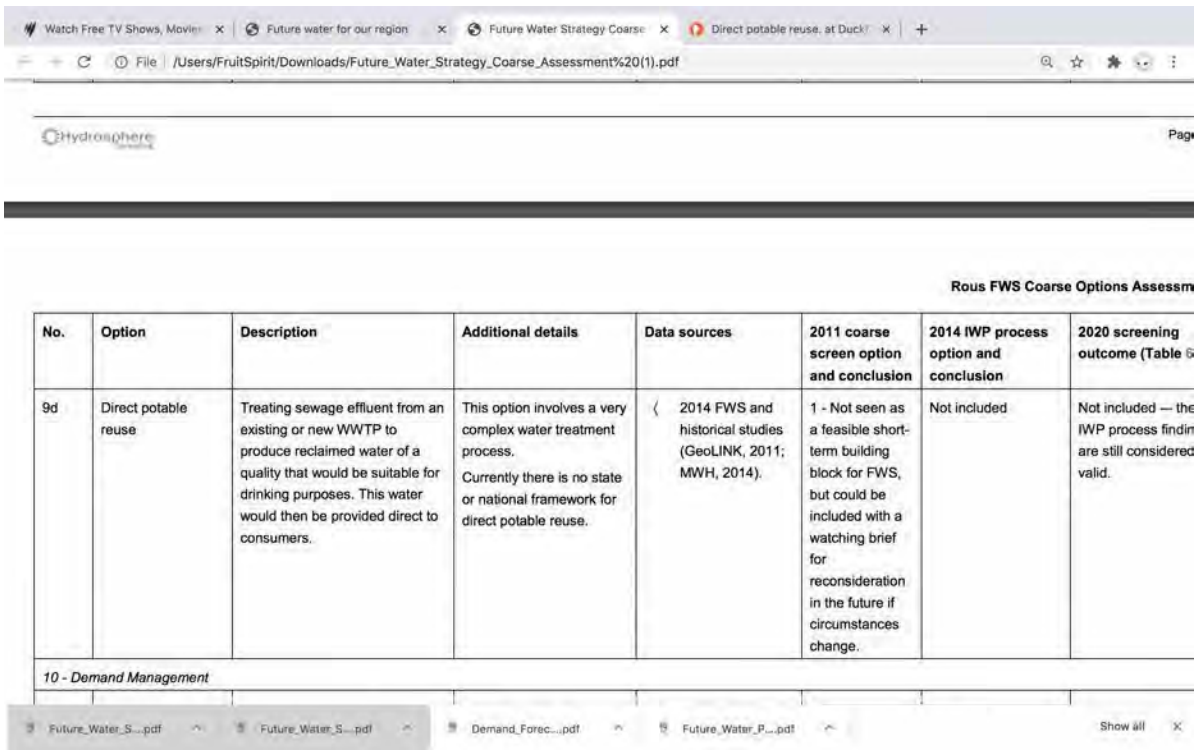

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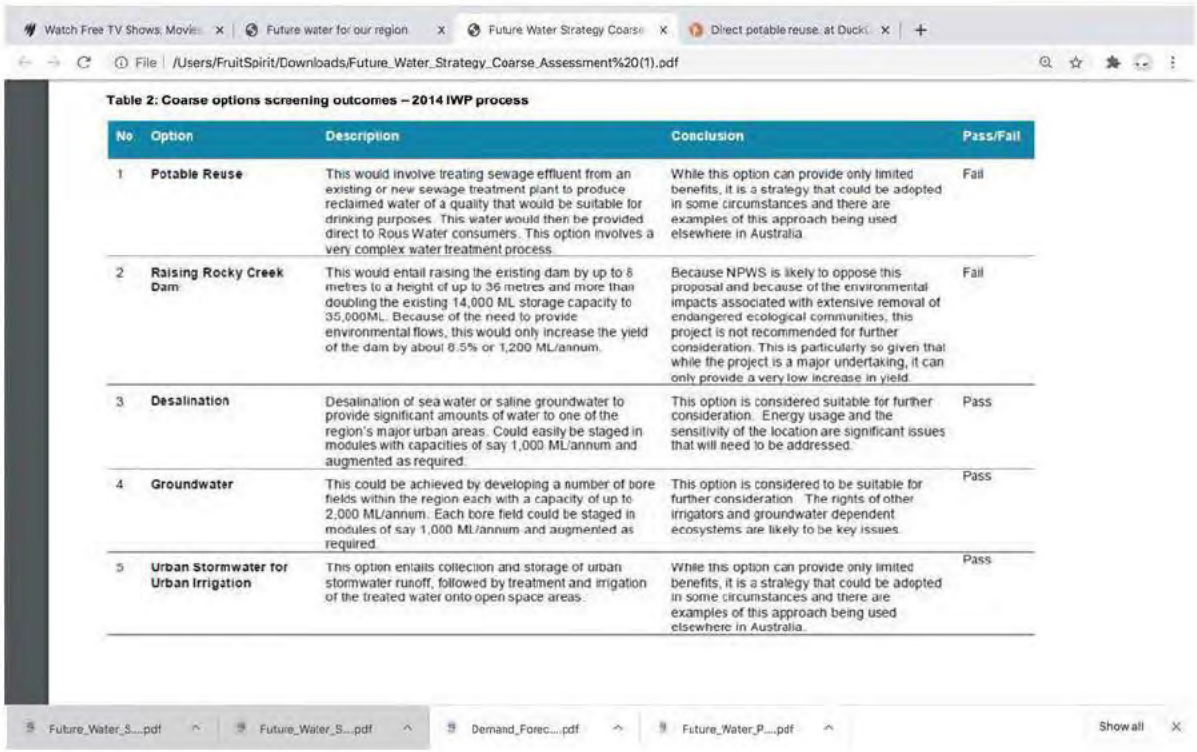

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From:	Art Burroughes
To:	Records
Subject:	Re: Future Water Project 2060 - Feedback Submission
Date:	Sunday, 6 September 2020 12:05:52 PM

Dear Councillor Williams,

Thank you to Rous Water for their work on the above proposal. It is clearly a major strategic decision with major implications: massive environmental damage and dramatic increases in pricing of water - important we get it right!

I object to the proposal proceeding as it presently stands, as I am yet to see the strategic alternatives and their costings. My concern is that we should not jump quickly to the softest but most damaging option, a dam. This could well prove short-sighted in the future. (You seem quick to dismiss recycling for example.)

While we respect the integrity and competence of the Council's work already undertaken, I request that you present costed, strategic alternatives for community consideration, so a decision can be made democratically, rather than people feeling cornered by a 'damned if you do, damned if you don't' binary.'

This would have the benefit of protecting the reputation of those involved, whatever the outcome may be.

Kind regards,

Arthur Burroughes

From: Imagenesis
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 1:01:35 PM

Hello,
I appreciate the extension of the submission date as this is an important issue and the first round passed me by so I now have time to submit that I DO NOT support the proposed Channon-Dunoon 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.
- 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).

Regards,
Diane James

Dunoon Dam Submission

[redacted]

This submission urges a “hasten slowly” approach to the Dunoon dam project.

In relation to water resource use in the Rous County Council area we have seen steady population growth of roughly 1% per annum until recently. Rous’s demand predictions assume that this level of growth will continue into the future.

Interestingly Lismore’s population has actually declined by 1.6% since 2014.

Could we see a similar situation (or at least a stabilisation of population) in the coastal shires of Ballina and Byron in coming years? Given the current economic uncertainties arising out of COVID , the current massive reduction in national immigration levels and possible future declines in natural population increase can we be certain that the demand levels predicted in the document through to 2060 will be met?

In addition there are numerous opportunities for minimising per capita demand. For example waterless sanitation has proven popular in rural parts of Lismore and could be implemented in urban areas as well. Also rain water tanks have a role to play, not only in enhancing water supply, but also in creating a culture of awareness in the population of water consumers.

It is my view that Council should hasten very slowly in implementing the Dunoon dam project. We live in very uncertain times. Uncertainty is in fact the new normal and it would be most prudent to avoid creating a stranded asset that will be a financial burden on current and future Rous County Council’s customers.

From: Anthony Clinton
To: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 1:20:20 PM

G'day, My name is Anthony Clinton.

I live at [redacted]

[redacted]

I would very much like to make a submission 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)

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-dra wdown

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

unnecessary dam.

References and Notes

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

https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0 (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011 (3) SMEC Australia,

Terrestrial Ecology Impact Assessment, 2011 (4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03

August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections* ', Sydney,

viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets". (6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia. (7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand*

Management Strategy : preferred options, Rous County Council, Lismore. (8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for*

Hunter Water, Institute for Sustainable Futures, Sydney. (9) 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-dr awdown>

I do hope that you will consider the option. So much of our wildlife, plant life & green areas are vanishing too fast. Please don't make any decisions that will quicken their destruction.

Very much relying on you to DO THE RIGHT THING, for our special & very beautiful area..

Yours Anthony Clinton.

From: Louisa Miller
To: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project
Date: Sunday, 6 September 2020 1:26:02 PM

Louise Miller
[redacted]

I do not support the proposed Channon-Dunoon Dam for the following reasons.

I am very concerned about the destruction to the Channon Gorge and its flora and fauna. It is an area of special ecological significance and home to aboriginal burial sites and endangered species such as the platypus.
We have the opportunity in the 21st century to do things differently, including our approach to water management that does not have to rely on massive infrastructure projects such as building dams. As a local resident of Ocean Shores, a homeowner and ratepayer I support alternatives.

The risk of flooding to the township of The Channon, the huge economic cost of such a massive infrastructure project, not to mention the disruption to land, wildlife and local residents that such a massive infrastructure project entails seems to my mind to be "old technology", the way we used to do things.
In my opinion, it is not worth it. I believe that alternatives must be explored, costed and investigated including identifying wastage and savings possible in the existing supply, increased uptake of rainwater tanks, reuse of water etc.

These technologies exist already, we just need to commit to a smarter approach to water in our planning for future populations in this area. And at the same time protect our precious habitats and places of special and pristine beauty such as the Channon Gorge safeguarding it for future generations. We are the clever country. We can do it!

Yours Sincerely,
Louise Miller
[redacted]

From:	lee duncan
To:	Records
Subject:	Submission re Water Project 2060
Date:	Sunday, 6 September 2020 1:49:09 PM
Attachments:	dam submission.docx

Submission re: Future Water Project 2060

I object to the proposed dam on Rocky Creek at The Channon/Dunoon on the grounds of habitat loss and the impact on the natural beauty of the Northern Rivers.

Habitat and biodiversity loss is one of the biggest threats to humanity. As big as climate change.

Scientists agree that Earth is facing a biodiversity crisis, losing species 100 to 1000 times faster than the normal background rate of extinction, resulting in the sixth period of mass extinction in the history of Earth. Similarly, the Earth ecosystems that support human life are degrading at an equally alarming rate.

"The biodiversity crisis – i.e. the rapid loss of species and the rapid degradation of ecosystems – is probably a greater threat than global climate change to the stability and prosperous future of mankind on Earth. There is a need for scientists, politicians and government authorities to closely collaborate if we are to solve this crisis', Director for the Center for Macroecology, Evolution and Climate, University of Copenhagen.

Australia is a signatory to the UN Convention on Biological Diversity. Because it is a treaty to sustain the rich diversity of life on Earth, it is crucially concerned with species extinctions and ecosystem degradation.

The process towards extinction is mainly caused by habitat degradation, whose effect on biodiversity is worsened by the ongoing human-induced climate change.

In NSW and around Australia habitat loss still goes on unabated.
(https://www.sydney.edu.au/news-opinion/news/2020/06/05/australia-isn-t-doing-enough-to-preserve-biodiversity.html)

Habitat loss, as well as impacting flora and fauna, also impacts on insect populations. Insect populations have decreased worldwide by more than 40% and a third of insects are in danger of extinction. Ecologists say foremost among the factors behind the decline are habitat changes wrought by humans.
(https://www.nationalgeographic.com/animals/2019/02/why-insect-populations-are-plummeting-and-why-it-matters/)

Knowing what we do about the impact of the destruction of habitat and ecosystems, we cannot afford to destroy yet another area of natural beauty in our region. I hope you seriously consider my reasons for objecting and look for alternatives to protect our Northern Rivers region.

Peter McDade
[redacted]
[redacted]

From: Gwilym Summers
To: Records
Cc: [redacted]
Subject: Proposed Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 2:29:49 PM

I appreciate the opportunity to respond to the proposed The Channon-Dunoon Dam.

Firstly I do not support the proposed dam, nor do I support the desecration of 253 hectares of rainforest and farmland.

In the last 150 years we have made many mistakes in our mad rush for quick fixes for what we, as a species want and with that it is all coming back to bite us, e.g. climate change. We have to start doing things differently and consider the much bigger picture, the ecology and all the other species which deserve to survive and thrive, along with us.

We must run with better options. To build a massive dam at a cost of around $240 million, is not our best option when you consider all the other options such as (i) water re-use including purified recycled potable water; (ii) water harvesting - every roof could feed a water tank, etc.

We cannot disregard our first nations heritage and we cannot destroy endangered ecosystems.

This dam was already ruled out in 2011 in the EIS done by Rous County Council which found that significant impacts would occur because of the loss of 34ha of Lowland Rainforest EEC including 7ha of Warm-temperate Rainforest on Sandstone; the loss of nine threatened flora species; the loss of habitat for 17 species of threatened fauna, including koalas; the severance of local wildlife corridors.

Aquatic plant and animal species, including platypus, would also be adversely affected by the dam and its construction, and by changes in the amount, velocity and timing of downstream flow.

This destructive dam is not necessary.

Gwilym Summers
[redacted]

Submission Re: the proposed Dunoon Dam within the future water project 2060

Thank you for extending the submission date. This is very much appreciated by the community. I would also like to acknowledge the complexity involved for Rous to provide water to our region which has so many councils.

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

My husband and I are farmers in [redacted] food producers who have spent our lives on the land. We are members of [redacted] As stewards of the land, our farming practices are about caring for and improving the land, ensuring the overall health of the property as a functioning eco-system. The importance of farmland in the coastal belt cannot be overestimated. Every hectare is precious and as time and the consequent climate disruption progresses, will become even more so. Purely in terms of value to the community for growing the region's food, this land should not be wasted by flooding for a dam. An expensive waste, once flooded it will be lost.

Building this dam would not only be a waste of land and of funds, but encourage a continuation of the same old inefficient and wasteful water management that we see with many local governments. There would be no incentive to be water smart and make those important changes to better water efficiency.

The financial resources that would be wasted on this dam could be so much better utilised to make our system more efficient, a system more appropriate to the 21st century and a future of increasing climate disruption. Investing these resources in a system wide water efficiency program would be the most cost effective and fastest way to achieve this result. A good example of this can be seen in Sydney's Metropolitan Water Plan 2006 which added 950,000 people with no rise in consumption.

I am appalled that this dam is even being considered when it would destroy the unique The Channon Gorge and it's exquisite plant and wildlife, threatened flora and fauna. The endangered ecological community of lowland rainforest. This is priceless, unique and irreplaceable; it cannot be off-set. The community will not accept this.

I note NSW Dept of Planning, Industry and Environment 2019 'Delivering the plan' https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan> Under these State Planning regulations, councils are required to: 'Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value'. Rous is required to … and must *'avoid'* this unacceptable destruction. There are economically viable and far more effective solutions.

It is unacceptable that The Channon and Dunoon community should be subjected to the industrialisation of their beautiful rural home, with noise from machinery, trucks and the disturbing visual impact of the entire construction zone followed by the ongoing noise pollution of the pump house infrastructure.

I do not consider this very expensive and destructive project is justified, or the best solution to address the small population increase of 12,720 predicted by 2060. Far from offering a financial benefit to consumers, I understand that Rous General Manager said that we would see a fourfold increase in the cost of water if the dam were built.

Water tanks on all new & existing developments, both domestic and commercial premises, would reduce mains water use and the need for costly infrastructure and on-going operating and maintenance costs. Our family have always relied exclusively on rainwater tanks for our home and farm buildings with excellent results. The added benefit is that it builds community resilience in times of need such as drought and extreme bushfires. It would be more practical and make sound economic sense to subsidise or part subsidise rainwater tanks for existing properties.

Lastly I would advocate for investment in whole system-wide water efficiency and demand management. Research consistently shows the best solutions come from strong demand management and identifying savings within existing water supply.

Yours Sincerely,

Meg K Nielsen, [redacted]

From: Caoilfionn Turner
To: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Sunday, 6 September 2020 4:03:23 PM
Attachments: PastedGraphic-1.tiff

Caoilfionn Turner
[redacted]

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

Thanks for giving me time to arrange my thoughts and feedback about this project. I understand the complexity of what Rous does in providing water to our region, and I appreciate your time.

My family have enjoyed the rainforests, creeks and sharing space with the animals that live there in this region for 15 years. I am very concerned about your plans to dam Rocky Creek and do not support the project. I understand the need for secure water but dont believe there is sufficient evidence that we actually need this mega dam - The small population increase predicted for the four Rous-supplied councils of 12,720 (1) 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.

I can't fathom why the council is choosing to invest in such outdated technology with it's associated clumsy infrastructure in such a precious and fragile ecosystem. Investment in 21st century system-wide water efficiency 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) (2) Rous has the opportunity to support technology and innovations we can be proud of, like the Ballina Recycling water project. Rose seems to be very out of touch with what the people who live here value, in this proposal.

I understand that the Federal and NSW State Governments are pushing towards a population growth in this area. I have read that the Government expects/plans the immigration of 400,000 people in this region and beyond 30 million in Australia by 2060. [NSW Future Blueprint 2040] Developers in this

blueprint are called on to invest in our "Rous, runs as a Corporate Entity" through the surcharges on developments, with expected returns on investments. Is the County Council exploring avenues with the National Water Infrastructure Fund, and lines of credit with 5 year interest free loans? This has not been openly declared by Rous as a reason for the dam, so I am confused about what is happening. Are you proposing the dam for 12750 extra people, or are you motivated by plans to increase the population by 400000? This is not transparency, "Integrity, Commitment, Trust, Social Responsibility, and Accountability". If this is the case you need to declare it so that 1)consumers know why we will be required to pay higher prices to pay for the project and 2) other impacts of 400000 immigrants and associated costs can be considered, such as roads, schools, hospital, sewerage etc.

I cannot find anywhere in your proposal evidence of consideration to current and future variables such as the coronavirus pandemic and sea level rising, which will directly impact on the population which needs to be provided water. Surely these are crucial variables to consider?

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.

Rous is required to avoid this destruction because current population estimates and those which take into account factors beyond economic growth indicate that it is not needed, and there are economically viable and more effective solutions to increase water availability in the region. Namely:

● 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, which much be a gross error.

● 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

● 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. (3) 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 house hold area (est 12,000 pop by 2060) the cost would be a mere $15,000, 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. (4) 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. 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. (5) 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.

Haven't you recently invested in a pump at Wilsons creek to support the existing dam? I couldn't find this referenced in your proposal. How much water does that provide in terms of needs and what did it cost?

Apart from the fact that I dont believe we need the dam (for the aforementioned reasons), I DO NOT support the proposed The Channon-Dunoon Dam because it will involve destruction of spectacular Bundjalung country and habitat. This dam proposal necessitates:-

● 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" af 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, schools 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 dam involves Aboriginal women's ceremonial pools. This is at odds withThe Rous Reconciliation Action Plan (RAP) 2017 assertion that you deeply value the Widjabal/Wiyabal traditional laws, knowledge and lessons about places and sustainability. 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 fully support their position on strongly rejecting this dam issue.

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

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

[Terrestrial Ecology Impact Assessment, 2011]Flooding of half of the popular Whian Whian Falls recreational area and in high rainfall periods the dam would make the main Falls unusable. I believe that Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. I dont agree that "Offsetting" with similar plantings will replace the pristine ecosystem on Rocky Creek. The dam will 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 will be destroyed.

Finally, as a resident of The Channon, I am also concerned about the 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]. What will the effect of flooding be downstream once the dam is built? How will we cope with the catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)

Thanks again, for taking the time to listen to my concerns,

Yours faithfully,

Caoilfionn Turner

References and Notes:

(1) 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".

(2) 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

(3)$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).

(4)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>

(5)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>

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

From:	Josephine Hogg
To:	Records
Subject:	The proposed Dan at the Channon and Dunoon
Date:	Sunday, 6 September 2020 4:07:28 PM

My name is Josephine l Hogg and i [redacted].
The purpose of my email is to express my very strong objection to the building of a Dam at the Channon and Dunoon on Rocky Creek.

This dam is completely unnecessary at this location. A beautiful and diverse ecosystem would be destroyed along with the destruction of important indigenous Cultural Heritage including burial sites.

The construction of this dam would result in the Destruction of the Channon Gorge, it's Endangered Ecological Community of Lowland Rainforest, including the Regionally rare warm temperate rainforest on sandstone and it's threatened species of flora and fauna.

It is catastrophically incompetant, reckless and back-ward thinking to pursue the construction of a Dam in this pristine location and blatantly exhibits an ongoing disregard for First Nations heritage.

I cannot express in words how disgusted and shocked I am, that Rouse Water would even consider the construction of a dam in this location, even in a feasibility study, if indeed one was ever undertaken.

This Dam project must NOT go ahead.

Josephine L Hogg

From: Ivy Young
To: [redacted]
Subject: Re: The proposed Dunoon Dam
Date: Sunday, 6 September 2020 4:17:27 PM

Sunday 6th September 2020

To whom this may concern,

My name is Ivy Young, I am a longtime resident of [redacted] along with my husband and two children.

My family and I deeply appreciate the rainforest and creeks of this beautiful region that is so full of unique ecosystems.

I am very concerned by the proposal by Rous Water to build a new mega dam in Rocky Creek, between The Channon and Dunoon. I DO NOT support this proposal, and following are some of the reasons for this:

- The very first thing to do in considering our water needs is to look at how to be efficient with the water capacity we currently have. Has this happened?
- To build a new dam would encourage the continuation of wasting water.
- There is only a small projected population increase for the Rous-supplied councils in the coming decades. The projected increase does not qualify the massive cost and destruction in building a new dam.
- The area that would be flooded includes important Bundjalung sites, including burial grounds, archeological sites, creation waterholes and artefacts. To flood these sites would be in direct conflict with The Rous Reconciliation Action Plan.
- The Big Scrub rainforest is already 99% cleared, a tragedy in itself. The Whian Whian Gorge is the second largest remnant of the Big Scrub, this rare and precious habitat needs to be protected, not drowned!
- The Channon Gorge also has endangered ecology; regionally rare warm temperate rainforest on sandstone. This rainforest cannot possibly be offset by similar planting. How do you replace pristine virgin rainforest with new plantings on degraded land?
- Flooding of these forests would accelerate the extinction of a number of vulnerable species. Considering that our flora and fauna is already becoming threatened, endangered and extinct at alarming rates surely we need to do everything we can to protect them, not aid and abet their continued destruction?
- The area of the proposed dam contains important koala corridors that connect populations in The Channon, Dunoon and Whian Whian. Corridors are absolutely essential for the preservation of the koala, a species that is under threat of extinction.
- There are geotechnical issues, including risk of basalt soil landslides and sandstone leakage, with potential failure of the dam and the risk for massive blow-outs in cost.
- In flood events there is a very real risk of catastrophic flooding downstream.
- The huge cost of building this proposed dam would increase the cost of water for consumers up to fourfold. Considering the lengths that local councils go to to minimise rate rises this increase in expense goes against public sentiment for

keeping amenity costs as low as possible.
- Rous has already invested in the pumping facility that supplements our water requirements with water from the Wilson River. This infrastructure, along with the current Rocky Creek Dam, and other strategies that I will go into shortly, are sufficient to ensure water security for our population.
- Dams are very centralised forms of water security, and leaves our population at risk of not having water available in the instance of breakdowns in dam related infrastructure. When considering water security I believe it is important to diversify our water resources.

Water is absolutely essential for all life. Of course we need to ensure our population has water security for the coming decades, but we need to consider the best way to do this, and we need to consider the triple bottom line of the economic, social and environmental costs of achieving water security.

I believe we need to consider 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.

Below are some alternative measures I do support for ensuring our water security:

● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, this would also create quality jobs. (I understand Rous has not costed this in creating their future water plan???). Existing research consistently finds that the most cost effective investment in water supply comes from demand management and identifying savings within the existing supply. Surely this is our first step for ensuring water security- not wasting the water we have?

● 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

● Water harvesting via urban runoff & rainwater tanks: Water tanks on all new (and existing) developments. Remove the poorly considered law that prevents urban use of rainwater in the Ballina Shire.
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 $15,000, 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

● 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", 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. The Regional Investment Corporation (RIC) which administers the National Water Infrastructure Loan Facility allows 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 Creek Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

I urge you to consider how to supply our water needs using robust 21st century thinking. The proposed new dam does not add up to be the best option. I implore you to vote against it.

Yours Sincerely,
Ivy Young

Please accept my submission Re: the proposed Dunoon Dam within the future water project 2060

I DO NOT support the proposed The Channon-Dunoon Dam

We are farmers in the [redacted] food producers all our lives, working and looking after the land so we can pass it on to the next generations better than we found it. As stewards of the land, we tailor our farming practices to improving the land, ensuring the overall health of the property and improving productivity. We are members of Farmers for Climate Action.

I cannot support this dam for many reasons. Firstly, it wastes good farmland which in this coastal belt is invaluable and cannot be overestimated, especially with the worsening incidents of drought and climate destabilisation. With every hectare so important for growing the region's food, this land should not be wasted by flooding for a dam, especially when there are very practical alternatives.

A waste of land and a waste of funds. Money wasted on this dam could be so much better used to make our system more efficient and in keeping with 21st century ideas and innovation. Investing these funds in a system wide water efficiency program would be the most cost effective and fastest way to achieve this result. But building this dam would encourage more of the same inefficient and wasteful water management that we see with many local governments. There would be no incentive to be water smart and make those important changes to better water efficiency.

The destruction of the unique The Channon Gorge with its unique plant and wildlife, threatened flora and fauna is unacceptable. This 'endangered ecological community of lowland rainforest' is irreplaceable and cannot be off-set.

If the dam were to go ahead, The Channon and Dunoon community would be subjected to an unacceptable level of disruption and industrialisation of their rural home, with noise from machinery and trucks from the construction area and the ongoing noise of the dam infrastructure.

I do not think the small population increase of 12,720 predicted by 2060 justifies building such an expensive project that would do so much damage to farmland, community, wildlife and a place of such outstanding natural beauty. There are more appropriate practical alternatives in keeping with the area. And far from offering any financial benefit to consumers, I hear that the Rous General Manager said the cost of water would increase by four times as much if the dam were built.

I suggest instead putting water tanks on all new developments, both domestic and commercial premises. This would reduce mains water use and the need for costly infrastructure, operating and maintenance costs. We have depended on rainwater tanks all our lives, for our home and farm outbuildings and have never run out of water even in our worst droughts. Rainwater tanks provide the added benefit of community resilience in those difficult times of drought and bushfires. It would be more practical and cost effective to subsidise or part subsidise rainwater tanks for existing properties.

This together with investment in whole system-wide water efficiency and demand management is the best solution to increase our existing water supply into 2060

Yours Sincerely,

Peter Nielsen, [redacted]

General Manager

Rous County Council

Molesworth St

Lismore

RE: Dunoon Dam submission

Australia is one of the driest continents on earth and getting dryer if you believe in Global warming.

Against this background the building of Dunoon Dam should be applauded by everyone interested in the future of Australia, not just the residents of Northern Rivers.

Without an adequate water supply this area cannot continue to prosper.

Our forefathers constructed a number of major dams for both Water supplies, irrigation and electrical power. The use of this water is one of the reasons why Australia is a net exporter of Agricultural produce and one of the most preferred countries for immigration.

Some of these dams are of considerable size

Eucumbene	4 798 000 Ml
Blowering	1 628 000 Ml
Warragamba	2 538 316 Ml

All these storages have covered farmland with water, however on balance they have greatly improved the overall local environment for all users whether it be the native birds, fish species or recreational water users. That's before we look at the improved landscape and beauty of a large expanse of water and the protected lands around the storage.

In the big picture the Dunoon dam is a very small 50 000 ML so any impact on environment will be very small and certainly manageable.

My only concern is that the dam wall is constructed to maximise dam storage to suit the site. We certainly do not want to be having to raise the dam wall in 25 years' time because of increased demand or less favourable rainfall.

Hydro power has been used in Australia for a very long time. The construction of Dunoon dam would gain considerable community kudos if the dam provided the opportunity to use solar energy to generate power during the day to pump water uphill that can be used to generate hydro power on demand. Ie, use the two dams as a Hydro battery. If the construction of an additional small dam is needed to make the system work more effectively that should also be considered.

So I am very pleased to say I support Rous building a new Dam at Dunoon.

Regard Bill Moorhouse [redacted]

William John Moorhouse [redacted]

[redacted]

From:	Amanda Furze
To:	Records
Subject:	The Channon-Dunoon Dam
Date:	Sunday, 6 September 2020 6:45:30 PM

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

1) Because it un-necessarily causes the distraction of a rare and valuable ecological natural resource and threatens the flora and fauna of species. I will not endorse any more extinctions of our native wild life even with promises to regenerate the land that will never recompense the lost of old forest growth. State planning specifically regulates against development of sensitive areas

2) nor will I willingly witness the ongoing disregard of First Nations' heritage by interfering with ancient burial sites. I do not see this sort of destruction in white Australian cemeteries which would surely be considered disrespectful and never be allowed.

3) Surely this is a very expensive way of delivering water to our region when we can all be encouraged to use the water we have more efficiently. There are so many smarter ways to to secure water in this 21st century without spending huge amounts of rate payers money on one big expensive 'dinosaur' project. Not to mention the fact that this price will be passed on to consumers with an estimated fourfold increase in supply if the dam is built. Even with the relatively small population increase predicted between 2020-2060 does not justify such a large and destructive dam.

4) Lastly The Channon is my home and I will not endorse industrial construction in our small community nor the ongoing sound of pumps etc. I dread the impact of catastrophic floods downstream which our region is very to experience again and again.

I support the alternative which is to take responsibility for smart water options as in renewable and sustainable recycled potable water options, not to mention the obvious use of of rain tanks and reuse of urban run-off. There are numerous examples world wide that we can learn from. This option, which began in the last century, needs to stay there and not be
Rous needs to look at all the options with due dillegence and stop trying to bring back such an expensive and impactful option to water supply.

Please have the sense to re-think this old plan

Yours truely

Amanda Jane Furze
[redacted]

From: David Williamson
To: Records
Subject: Future Water Project 2060
Date: Sunday, 6 September 2020 7:33:49 PM

Dear Sir,
I am writing to confirm my support for your Project and, in particular, the construction of the proposed Dunoon Dam.

I am a retired Water and Sewerage Engineer/Project Manager. I worked for more than 30 years at NSW Public Works, Lismore office. I have been involved in most water and wastewater infrastructure projects in the Northern Rivers, including Clarrie Hall Dam, Emigrant Creek Dam, Lower Clarence Water Supply and many regional sewerage projects including the investigation, planning and design of the Ballina/Lennox Head Recycled Water project.

The great vision of the Rous County Council and their advisers back in the 1950s to build Rocky Creek Dam showed enormous foresight at that time. This dam has been the backbone of the regional water supply for such a long time . It's a great credit to the planners, designers, builders and funders that it has serviced the area so well. But, of course, with continued population growth, it's inevitable that it will no longer be able to fulfill this role, alone. The drought of 2002 was a wake up call, with the dam level dropping to 23%. The printout of dam water levels since 1991 is shown attached. This demonstrates that the dam yield is regularly being stressed. A major drought now will be problematic indeed, let alone those in 15-20 years.

Rous Water has had a long history of investigating future water sources and planning ahead. The Lismore Wilsons River source and use of groundwater, as well as demand management and water saving initiatives like water tank rebates, dual reticulation in new subdivisions, have all been directed at reducing the need for a major new water source, like the Dunoon Dam. But these initiatives can only defer the need, not replace it.

Your studies into desalination have rightly rejected this option. It's costly, complicated, difficult to operate on an intermittent basis and highly energy intensive. It should only be a last resort for water authorities, even in Sydney. As you say in the report, the public don't like to see desal plants just sitting there.

You have already almost optimised demand management. Trying to get people to use water even more wisely is fraught with failure, as the recent drought situation in many western towns has shown. Many crises there were only narrowly avoided. We all support water efficiency, but it's only part of the solution.

You are clearly seeking to further maximise the use of groundwater in the Alstonville plateau and local sources like the Marom Creek and its water treatment plant. You, therefore, seem to have considered all short term options. But, of course, major projects take 10-15 years to develop, investigate, design and construct. I think that you are therefore very wise to plan now for a future dam at Dunoon.

Appropriate damsites are not easy to find. I was personally involved in the investigations

for the possible dam at Federal, where core drilling identified major foundation issues that effectively ruled it out as an option. My understanding is that the Dunoon site is very appropriate. Being on Rocky Creek I would anticipate that the environmental impacts may be reduced. In addition, your council has a great history of supporting and facilitating environmental initiatives associated with all of your water projects . e.g. rehabilitation/regeneration work at Rocky Creek Dam over many years, Emigrant Creek Dam riparian vegetation, and koala habitat regeneration at the Lismore Wilsons Creek Source. Undoubtedly you will be actively planning how you can enhance the local riparian vegetation at Dunoon and mitigate any environmental impacts, where possible.

We all know that major infrastructure, especially dams, are highly controversial. These projects create fear and irrational opposition, even without any sound logic backing this opposition. Those opposed clearly do not understand the critical importance of a reliable water supply. WATER IS LIFE.These people have never had to experience the crisis of "running out of water", like many western NSW & Queensland towns experienced not that long ago. These people take a simplistic viewpoint only. They may see that restricting infrastructure is a way of preventing future population growth as we saw with sewerage plants in the 1990s.. They think that water efficiency solves all the problems. Or they think that dual reticulation and/or effluent re-use will be the answer, which they aren't. They are only part of the solution. However it is you, Rous County Council, that is tasked with the necessary planning to ensure an adequate water supply during droughts, with minimal severe restrictions, as your 2060 plan implies. The advent of human induced climate change is clearly going to increase the likelihood of more extreme weather and a much more variable climate. This issue alone makes the need for a major new source much more critical.

I commend Council is undertaking these studies and wholeheartedly support the entire plan. I am confident that the required Environmental Impact Statement and further studies will provide the community with appropriate opportunities to further comment on all aspects of the proposal.

Yours faithfully,

David Williamson
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David Williamson
[redacted]